

University of Waterloo
Department of Psychology
PSYCH 261
Physiological Psychology
Fall 2019
Mondays & Wednesdays, 1pm-2.20pm, AL 113

Instructor and T.A. Information

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If you would like to contact either the course instructor or the teaching assistants, please use the e-mail addresses above and **make sure you add "PSYCH 261" to your message subject line**. Students are responsible for all e-mail that is sent to their official UW e-mail address. Check your e-mail regularly for important and time sensitive messages.

Course Description

The goal of this course is to introduce you to the scientific study of the brain and how it is involved in cognition and behavior. Throughout the course we will discuss a variety of methods used for studying the relation between the brain, cognition and behavior. These will include neuroimaging, brain stimulation, the use of animal models and various biochemical methods. Topics that will be covered include neural function, neuroanatomy, psychopharmacology, the senses (e.g., vision, audition), motor control, sleep, memory, and a few disorders (e.g., Parkinson disease). The studies discussed will include both classic work, as well as current cutting-edge research.

Because of the size of the class, I will spend most of class time lecturing. However, I encourage questions and comments and I am sure that interesting discussions will spontaneously emerge during the class. I would like to highlight that it is important that you attend lectures. Although there will be some overlap between lectures and textbook, there will be material that does not overlap. You are responsible for all of the material covered in class.

Course Goals and Learning Outcomes

This course will progress from basic physiological mechanisms to integrated behavioural functions and human cognition. Upon completion of this course, students should be able to:

- A. Have a general understanding of the cellular and molecular complexity of the nervous system
- B. Acquire basic knowledge in neuroanatomy and how it relates to behaviour
- C. Be able to relate specific diseases and malfunctions to brain-related issues
- D. Have a general understanding of the various research directions that can be taken to study the brain and behaviour relationship including the various neuroimaging techniques available
- E. Acquire basic knowledge and understanding of the great human cognitive functions and how they are linked to the brain

Required Text

- Carlson, N.R. & Birkett, M.A. Physiology of Behaviour. 12th edition, Pearson.

You can also use the 11th edition of the same book although the newest edition is a lot more concise and easier to read. Assessment during tests is on the content of lectures, which follows closely the 12th edition of this book. I am not responsible for any discrepancy between the 2 editions.

Readings Available on LEARN

I will be posting the lecture slides on LEARN by noon, the day of the lecture. It is your responsibility to ensure that you have access to the textbook to read the corresponding chapters if you need to. I will also be posting some extra videos to complement the lectures.

ALL announcements will be posted on LEARN so please make sure you check your LEARN account regularly.

Course Requirements and Assessment

Assessment	Date of Evaluation	Weighting
Test 1	October 2, 2019	29%
Test 2	November 6, 2019	30%
Test 3	December 2, 2019	25%
Quiz on LEARN	See <u>Tentative</u> dates below	12%
Participation in SONA Experiments	Before Dec. 2 2019	4%
Total		100%

Tests (Total = 84%)

The course is essentially divided into three sections with a test at the end of each section. The purpose of the tests is to assess your understanding of the material in the course. The tests will not be cumulative. The tests will be based on the material presented during lectures. Given the size of the class, each test will contain mainly multiple choice questions, with some short answer questions and fill-in-the-blank questions. The tests will be written in the regular classroom at the regular class time. Announcements will be made on LEARN regarding which chapters are included in each test although we should follow the progression as detailed below.

Online quizzes (12%)

You will have to take three online quizzes on LEARN, one in the middle of each of the three course sections. The purpose of the online quizzes is to encourage you to study regularly and to check your understanding of the material we are covering. Although you are permitted to refer to your notes and text book, you are to complete the quizzes on your own (i.e., collaborating with others is not permitted).

Quizzes are made of multiple choice questions covering the slides content of about two chapters or less (20 questions per quiz). These multiple choice questions are very similar to what you will get at the Tests and are here to help you practice for the tests. Announcements will be made on LEARN regarding when you can take each quiz (see also tentative schedule below).

You will have 5 days to log on LEARN and take the quiz. It is recommended that you use a hardwired internet connection when you complete the online quizzes and save each answer as you progress through the quiz. Once you start the quiz, you will have 30 minutes to answer all the questions. For each quiz, you will have 2 attempts (same questions). Note that the second attempt can be taken any time during the 5 days window for that quiz. This allows you to study your slides and the book again before taking your second attempt at the quiz. Of those two attempts, only your higher score will be counted.

You will have **a total of 3 quizzes, each worth 4% for a total of 12% of your grade.** The grade you earn for each quiz depends on the number of questions you get right. Answers to the questions will be revealed at the end of the 5 day period so you can prepare for each test (note that you need to take the quiz to access the answers). Therefore, **I cannot accommodate ANY change in dates to take the quiz. No accommodations for quizzes will be made.**

Quizzes can be found under the Submit tab in LEARN.

Participation in Experiments (4%)

You will be able to earn 4 percentage points towards your final grade by participating in Cognitive Neuroscience studies conducted by students and faculty in the Department of Psychology. Please refer to the attached guidelines for participation in psychology research for more details.

Electronic Device Policy

You are free to use tablets or laptops to take notes during class. However, please be mindful of others including your instructor and do not let your phone ring during class. Video recordings of lectures are not permitted.

Attendance Policy

I will not monitor attendance given the size of the class. However, I would like to highlight that it is important that you attend lectures. Although there will be a large overlap between lectures and textbook, there will be material that does not overlap. You are responsible for all of the material covered in class.

Course Outline

We will progress according to the following tentative schedule. However, please note that the exact progression cannot be completely anticipated, this will depend on class interest, and possible class interruption due to unexpected events. **I will announce any changes that might arise in class and/or on LEARN** so make sure that you attend class and check LEARN on a regular basis.

Week	Date	Topic	Corresponding readings from textbook	Quiz opens-ends
1	Sept 4	Organization		
2	Sept 9/ 11	Introduction / Structure and Function of Cells of the Nervous System	Chap1 / Chap. 2	
3	Sept 16 / 18	Structure and Function of Cells of the Nervous System / Structure of the Nervous System	Chap.2 / Chap. 3	Quiz 1 (on chapters 1-2): Sept 18-22
4	Sept 23 / 25	Structure of the Nervous System / Psychopharmacology	Chap. 3 / Chap. 4	
5	Sept 30 / Oct 2	Psychopharmacology - recap TEST # 1	Chap. 4 Chap. 1, 2, 3, 4	
6	Oct 7, 8	Methods and Strategies of Research	Chap. 5	
7	Oct 14 / 17	FALL BREAK – NO CLASS		
8	Oct 21, 23	Vision	Chap. 6	Quiz 2 (on chapter 5 and part of Chap. 6): Oct 23-27
9	Oct 28, Oct 30	Vision / Audition	Chap. 6 / Chap. 7	
10	Nov 4 / Nov 6	the Body Senses / Test #2	Chap. 7 / chap. 5, 6, 7	
11	Nov 11, Nov 13	Control of movement	Chap. 8	

Week	Date	Topic	Corresponding readings from textbook	Quiz opens-ends
12	Nov 18, Nov 20	Sleep and Biological Rhythms	Chap. 9	Quiz 3 (on chapter 8 and part of chap 9): Nov 20-24
13	Nov 25, Nov 27	Learning and Memory	Chap. 13	
14	Dec 2	Test # 3	Chap. 8, 9, 13	

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. See the [Office of Academic Integrity webpage](#) for more information.

Discipline

A student is expected to know what constitutes academic integrity, to avoid committing academic offences, and to take responsibility for his/her actions. Check [the Office of Academic Integrity](#) for more information. 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](#). For typical penalties check [Guidelines for the Assessment of Penalties](#).

Concerns about a Course Policy or Decision

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 (Richard Eibach) is available for consultation and to mediate a resolution between the student and instructor: Email: reibach@uwaterloo.ca; Ph 519-888-4567 ext. 38790

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. When in doubt, please be certain to contact Richard Eibach, the Associate Chair for Undergraduate Affairs who will provide further assistance; reibach@uwaterloo.ca.

Appeals

A decision made or penalty imposed under Policy 70 - Student Petitions and Grievances (other than a petition) or Policy 71 - Student Discipline may be appealed if there is a ground. A student who believes he/she has a ground for an appeal should refer to [Policy 72 - Student Appeals](#).

Note for Students with Disabilities

The [AccessAbility Services](#) office, located on the first floor of the Needles Hall extension (NH 1401), 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 AS office at the beginning of each academic term.

Accommodation for course requirements for Psychology courses.

Policies of the Psychology department pertaining to course requirements are available on the [department website](#).

Mental Health Services

Mental Health Services aim is to provide holistic programming and services to help you lead a healthy and balanced life. We strive to provide a secure, supportive environment for students of all orientations and backgrounds.

Students suffering from problems with anxiety, depression, problems with sleep, attention, obsessions or compulsions, relationship difficulties, severe winter blues, etc., may make an appointment by phone or in person. Appointments are usually available within two days of initial contact with one of our medical doctors. All contacts are completely confidential.

Contact Health Services

Health Services Building

Call 519-888-4096 to schedule an appointment

Call 1-866-797-0000 for free 24/7 advice from a health professional

Contact Counselling Services

Needles Hall Addition, NH 2401

Call 519-888-4567 x 32655 to schedule an appointment

counserv@uwaterloo.ca

Territorial Acknowledgement

We acknowledge that we are living and working on the traditional territory of the Attawandaron (also known as Neutral), Anishinaabe and Haudenosaunee peoples. The University of Waterloo is situated on the Haldimand Tract, the land promised to the Six Nations that includes six miles on each side of the Grand River.

Sona Participation and Research Experience Marks Information and Guidelines

Experiential learning is considered an integral part of the undergraduate program in Psychology. Research participation is one example of this, article review is another. A number of undergraduate courses have been expanded to include opportunities for Psychology students to earn grades while gaining research experience.

Since experiential learning is highly valued in the Department of Psychology, students may earn up to **4% of their final mark in this course through research experience** (i.e., course work will make up 96% of the final mark and research experience will make up the other 4% for a maximum grade of 100%). **Be sure to review the guidelines referred to later in this document.**

The two options for earning research experience grades (participation in research and article review) are described below. Students may complete any combination of these options to earn research experience grades.

Option 1: Participation in Psychology Research

Research participation is coordinated by the Research Experiences Group (REG). Psychology students may volunteer as research participants in lab and/or online (web-based) studies conducted by students and faculty in the Department of Psychology. Participation enables students to learn first-hand about psychology research and related concepts. Many students report that participation in research is both an educational and interesting experience. Please be assured that all Psychology studies have been reviewed and received ethics clearance through a University of Waterloo Research Ethics Committee.

How to earn extra marks for your Psychology course(s) this term by participating in studies ...

- You will earn "credits" which will be converted to "marks" (1 credit = 1%)
- You can schedule your LAB and/or ONLINE studies using the "Sona" website.
- **UP TO 50%** of your credits can be earned through ONLINE studies. The remaining need to be earned through in-lab participation.

Educational focus of participation in research

To maximize the educational benefits of participating in research, students will receive feedback information following their participation in each study detailing the following elements:

- Purpose or objectives of the study
- Dependent and independent variables
- Expected results
- References for at least two related research articles

- Provisions to ensure confidentiality of data
- Contact information of the researcher should the student have further questions about the study
- Contact information for the Director of the Office of Research Ethics should the student wish to learn more about the general ethical issues surrounding research with human participants, or specific questions or concerns about the study in which s/he participated.

Participation in LAB studies is worth 0.5 participation credits (grade percentage points) for each 30-minutes of participation. Participation in ONLINE studies is worth .25 credits for each 15-minutes of participation. Researchers will record student's participation, and at the end of the term, the REG Coordinator will provide the course instructor with a credit report of the total credits earned by each student.

How to participate?

Study scheduling, participation and grade assignment is managed using the SONA online system. All students enrolled in this course have been set up with a SONA account. You must get started early in the term.

[Participating/SONA information: How to log in to Sona and sign up for studies](#)

**** Please do not ask the Course Instructor or REG Coordinator for information unless you have first thoroughly read the information provided on this website. ****

More information about the REG program in general is available at: [Sona Information on the REG Participants website](#) or you can check the [Sona FAQ on the REG website homepage](#) for additional information.

Option 2: Article Review as an alternative to participation in research

Students are not required to participate in research, and not all students wish to do so. As an alternative, students may opt to gain research experience by writing short reviews (1½ to 2 pages) of research articles relevant to the course. The course instructor will specify a suitable source of articles for this course (i.e., scientific journals, newspapers, magazines, other printed media). *You must contact your TA to get approval for the article you have chosen before writing the review.* Each review article counts as one percentage point. To receive credit, you must follow specific guidelines. The article review must:

- **Be submitted before the [last day of lectures](#). Late submissions will NOT be accepted under ANY circumstances.**
- Be typed
- Fully identify the title, author(s), source and date of the article. A copy of the article must be attached.
- Identify the psychological concepts in the article and indicate the pages in the textbook that are applicable. Critically evaluate the application or treatment of those concepts in the article. If inappropriate or incorrect, identify the error and its implications for the validity of the article. You may find, for example, misleading headings, faulty research procedures, alternative explanations that

are ignored, failures to distinguish factual findings from opinions, faulty statements of cause-effect relations, errors in reasoning, etc. Provide examples whenever possible.

- Clearly evaluate the application or treatment of those concepts in the article.
- Keep a copy of your review in the unlikely event we misplace the original.