

**University of Waterloo**  
**Department of Psychology**  
**PSYCH 261**  
**Physiological Psychology**  
**Fall 2016**  
**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 and study the textbook. Although there will be some overlap between lectures and text, there will be material that does not overlap. You are responsible for all of the material covered in class and in the assigned readings.

## 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 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 the 12th edition. I am not responsible for any discrepancy between the 2 editions and will follow the 12th edition.

## 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 required textbook to read the corresponding chapters. 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 5, 2016	26%
Test 2	November 9, 2016	25%
Test 3	December 5, 2016	25%
Quiz on LEARN	TBD	20%
Participation in SONA Experiments		4%
<b>Total</b>		<b>100%</b>

### **Tests (Total = 76%)**

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 in the text book and during lectures. Given the size of the class, each test will contain mainly multiple choice questions, with some short answer 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.

### ***Online quizzes (20%)***

After we finish a chapter, you will have to take an online quiz on LEARN. 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, short answers or fill-in-the-blanks covering the slides and the text book for that chapter (10 to 15 questions per quiz). You may have to label some figures as well, by matching the words provided to their appropriate location on the figure. Quizzes are very similar to what you will get at the Tests. Announcements will be made on LEARN regarding when you can take the quiz for each chapter.

You will have about 48h 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 between 10 and 20 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 48 hour 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 10 quizzes, and only your 9 best quiz scores will count. The quizzes are worth a total of 20% of your final grade. The grade you earn for each quiz depends on the number of questions you get right. At the end of the term, your lowest quiz grade will be dropped. So, if you miss a quiz, that quiz will not count. **However, no other accommodations for quizzes will be made, regardless of the reason.** Answers to the questions will be revealed at the end of the 48h period so you can prepare for each test, which means I cannot accommodate ANY change in dates to take the quiz.

Quizzes can be found under the Assessment 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.

## 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 and study the textbook. 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 and for reading the corresponding chapters in the textbook.

## Course Outline

We will progress according to the following 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	Readings from textbook
1	Sept 12 / 14	Introduction / History	Intro / Chap.1
2	Sept 19, 21	Structure and Function of Cells of the Nervous System	Chap. 2
3	Sept 26 / 28	Structure of the Nervous System / Psychopharmacology	Chap. 3 / Chap. 4
4	Oct 3 / 5	Psychopharmacology / <b>Test 1</b>	Chap. 4 / <b>chap. 1, 2, 3, 4</b>
5	Oct 14	Methods and Strategies of Research	Chap. 5
6	Oct 17 / 19	Methods and Strategies of Research / Vision	Chap. 5 / Chap. 6
7	Oct 24, 26	Vision	Chap. 6
8	Oct 31, Nov 2	Audition, the Body Senses and the Chemical Senses	Chap. 7
9	Nov 7 / 9	Audition, the Body Senses and the Chemical Senses / <b>Test 2</b>	Chap. 7 / <b>chap. 5, 6, 7</b>
10	Nov 14, Nov 16	Control of movement	Chap. 8
	Nov 21, Nov 23	Sleep and Biological Rhythms	Chap. 9
11	Nov28, Nov 30	Learning and Memory	Chap. 13
12	<b>Dec 5</b>	<b>Test 3</b>	<b>Chap. 8, 9, 13</b>

## 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. See the [UWaterloo Academic Integrity webpage](#) and the [Arts 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. 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](mailto:reibach@uwaterloo.ca); Ph 519-888-4567 ext. 38790

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 [72](#) below for further details.

**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](mailto: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](#)

## Accommodation for Students with Disabilities

**Note for students with disabilities:** The [AccessAbility Services](#) office, located on the first floor of the Needles Hall extension (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**

- Students requesting accommodation for course requirements (assignments, midterm tests, final exams, etc.) due to illness should do the following:
  - seek medical treatment as soon as possible and obtain a completed uWaterloo [Verification of Illness Form](#)
  - submit that form to the instructor within 48 hours.
  - (if possible) inform the instructor by the due date for the course requirement that you will be unable to meet the deadline and that documentation will be forthcoming.
- In the case of a missed final exam, the instructor and student will negotiate an extension for the final exam, which will typically be written as soon as possible, but no later than the next offering of the course.
- In the case of a missed assignment deadline, midterm test, or quiz, the instructor will either:
  - waive the course component and re-weight remaining term work as he/she deems fit according to circumstances and the goals of the course, or
  - provide an extension.
- In the case of bereavement, the instructor will provide similar accommodations to those for illness. Appropriate documentation to support the request will be required.
- Students who are experiencing extenuating circumstances should also inform their academic advisors regarding their personal difficulties.

### **Official version of the course outline**

If there is a discrepancy between the hard copy outline (i.e., if students were provided with a hard copy at the first class) and the outline posted on LEARN, the outline on LEARN will be deemed the official version. Outlines on LEARN may change as instructors develop a course, but they become final as of the first class meeting for the term.

### **Cross-listed course**

Please note that a cross-listed course will count in all respective averages no matter under which rubric it has been taken. For example, a PHIL/PSYCH cross-list will count in the Philosophy major average, even if the course was taken under the Psychology rubric.

## **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%). **However there are some restrictions on the types of studies that are eligible for credit in this course. 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 undergone prior ethics review and clearance through the Office of Research Ethics.

#### ***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 will advise the course instructor of the total credits earned by each student at the end of the term.

### ***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.

[INSTRUCTIONS/DATES/DEADLINES: 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:  
[REG Participants' Homepage](#)

### **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.