

**University of Waterloo**  
**Department of Psychology**  
**PSYCH 261**  
**Physiological Psychology**  
**Fall 2014**  
**2.30pm-3.50pm, AL 113**

**Instructor and T.A. Information**

Instructor: Roxane Itier  
Office: PAS 4023  
Office Phone: 519-888-4567 x32629  
Office Hours: Fridays, 10.30-11.30am  
Email: ritier@uwaterloo.ca

T.A.	Jordan Rozario	Mona Zhu
Email	jrozario@uwaterloo.ca	jhzhu@uwaterloo.ca
Office	PAS 4044	PAS 4211
Office Hours	Mondays 2-3pm	Wednesdays 2-3pm

If you would like to contact either the course instructor or the teaching assistants, please use the e-mail addresses above. 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), memory, emotion, sleep and mental disorders (e.g., Autism Spectrum Disorders). The studies discussed will include both classic work, as well as current cutting-edge research.

**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. Physiology of Behaviour. 11th edition, Pearson.

I have ordered a customized textbook which includes only the chapters that we will cover. This was intended to lower the price of the textbook. Of course, you are welcome to use the full edition textbook, either new (it will be more expensive than the custom edition) or used (it might be the same price as the custom edition or cheaper).

### 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 post any announcement on LEARN so please make sure you check your LEARN account regularly.

### Course Requirements and Assessment

Assessment	Date of Evaluation (if known)	Weighting
Midterm exam #1	Thursday October 9th 2014	30%
Midterm exam #2	Thursday November 6th 2014	30%
Final exam	TBD – during final exam period	40%

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Total		100%
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In addition to the course requirements listed above, you can earn up to 4% bonus marks for this class, by participating in research experiments (see attached guidelines for participation in psychology research for details).

### Midterm Exam #1

This first midterm will cover the material (lectures and textbook) up until Thursday October 2nd 2014, so you have a full week to prepare your exam. The exam will be 1h20 minutes in length and will be written in the regular classroom. It will contain multiple choice, fill-in-the-blank, true/false and short answer questions.

## Midterm Exam #2

This midterm will NOT be cumulative. That is, it will cover only the material (lectures and textbook) seen from Tuesday October 7th 2014 up until Thursday October 30th 2014, so you have a full week to prepare your exam. The exam will be 1h20 minutes in length and will be written in the regular classroom. It will contain multiple choice, fill-in-the-blank, true/false and short answer questions.

## Final Exam

The final exam will be a 2h comprehensive exam covering the ENTIRE course but will include a larger proportion of questions on the third portion of the course (i.e. course material covered after the second midterm). It will contain multiple choice, fill-in-the-blank, true/false and short answer questions as well as essay questions.

Please note that you need a valid excuse and a medical proof if you are missing a midterm. Also, travel plans are not an acceptable excuse for missing a midterm or the final exam. For more information on exam regulations, please check the following website: <https://uwaterloo.ca/registrar/final-examinations/examination-regulations-and-related-matters>.

## 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.

Topic	Book chapters
Introduction/ History	Chapter 1
Structure and Function of Cells of the Nervous System	Chapter 2
Structure of the Nervous System	Chapter 3
Psychopharmacology	Chapter 4
Methods and Strategies of Research	Chapter 5
Vision	Chapter 8
Audition, the Body Senses and the Chemical Senses	Chapter 7
Control of Movement	Chapter 6
Emotions	Chapter 9
Sleep and Biological Rhythms	Chapter 10
Learning and Memory	Chapter 11
Neurological Disorders	Chapter 12
Anxiety, Autistic, Attention-deficit/hyperactivity, stress disorders	Chapter 13

## Electronic Device Policy

You are welcome to bring in your laptops in class to take notes. However you are not allowed to film or record the lectures.

## **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.

## **Institutional-required statements for undergraduate course outlines approved by Senate Undergraduate Council, April 14, 2009**

### **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/PSCI cross-list will count in a Philosophy major average, even if the course was taken under the Political Science rubric.

### **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](#).

***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](#).

***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](#).

### **Other sources of information for students**

[Academic integrity](#) (Arts) [Academic Integrity Office](#) (uWaterloo)

### **Accommodation for Students with Disabilities**

***Note for students with disabilities:*** The [AccessAbility Services office](#), 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 AS office at the beginning of each academic term.

## **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 a **"bonus" grade of up to 4%** in this course through research experience. Course work will make up 100% of the final mark and a "bonus" of up to 4% may be earned and will be added to the final grade if/as needed to bring your final grade up to 100%.

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 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.