

University of Waterloo
Department of Psychology
Psych 307
Neuropsychology
Winter 2014
Tuesday and Thursday 1:00 2:20

Instructor and T.A. Information

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Course Description

This course will provide you with a broad understanding of research in human clinical neuropsychology. In order to fully appreciate neuropsychology research you will solidify your understanding of neuroanatomy, and the methods of cognitive neuroscience (functional neuroimaging, single case and lesion studies). The research outlined in the textbook will be supplemented by case and group studies involving stroke patients, patients with Alzheimer's disease, people with synaesthesia.

Course Goals and Learning Outcomes

In order to appreciate neuropsychology research students must know their basic neuroanatomy. Part of this course will involve having students learn (or relearn) basic neuroanatomy. Through textbook readings and by the examples I will present in class, students will gain an appreciation of how to conduct research in neuropsychology.

Upon completion of this course, students should be able to:

- A. When shown a brain structure or area be able to name that structure
- B. When given the name of a brain structure or area, be able to locate that structure or area on a depiction of a human brain
- C. Understand what types of functions various brain areas support (e.g., Post-central Gyrus encodes somatosensory information)

Required Text

- Banich, M.T., & Compton, R. J. Cognitive Neuroscience, third edition, 2011, Wadsworth, Cengage Learning, Belmont, CA. USA.

Course Requirements and Assessment

There will be three midterm exams each worth 26% of the final grade (total 78%). There will be four neuroanatomy assessments each worth 5% of the final grade (total 20%). Two percent of your grade will come from participation in research experiments (see details below under Research Experiences Marks – information and guidelines). For research experience marks, you must participate in the equivalent of 2 hours of experiments (these can be any combination adding up to 2 hours i.e., one 2 hour experiment; two, 1-hour experiments; four half-hour experiments etc.).

If you decide you do not want to participate in experiments you can complete two alternate neuroanatomy assessments (each worth 1%).

Assessment	Date of Evaluation (if known)	Weighting
Neuroanatomy assessment 1	September 23	5%
Midterm 1	February 6	26%
Neuroanatomy assessment 2	February 27	5%
Midterm 2	March 11	26%
Neuroanatomy assessment 3	March 18	5%
Neuroanatomy assessment 4	March 27	5%
Midterm 3	April 3	26%
Research Experience Marks	By April 4	2%

Total	100%
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Notes on the various class assessments

Neuroanatomy Assessment 1

Students will use the digital anatomist project to learn anatomical landmarks of the lateral surface of the left hemisphere, pons, medulla and cerebellum

Midterm 1

A mixture of multiple-choice, short answer, and answering questions related to content AND brain diagrams from textbook and Neuroanatomy assessment 1. Questions will be derived from Chapters 1 to 6 inclusive, and information presented during lectures given in class

Neuroanatomy Assessment 2

Students will use diagrams from the textbook (Figures 1.12, 1.13, 1.16) to learn the location of primary sensory areas, surface anatomical structures, and structures shown in midsagittal, and coronal views.

Midterm 2

A mixture of multiple-choice, short answer, and answering questions related to content and brain diagrams from textbook and Neuroanatomy Assessment 2. Questions will be derived from Chapters 7 to 10 inclusive, and information presented during lectures given in class

Neuroanatomy Assessment 3

Students will use a 3-dimensional animation from the digital anatomist project to study the form of subcortical structures and how they fit together in the brain. Testing of student's learning will be conducted in class. Still photographs taken from the animation will be shown, and students will be asked to label structures or give the names of designated structures.

Neuroanatomy Assessment 4

A medial view of the brain will be shown. Students will have to learn the location of structures that are viewable in this medial view, and be able to locate structures on the diagram when given the name.

Midterm 3

A mixture of multiple-choice, short answer, and answering questions related to content and brain diagrams from textbook and Neuroanatomy Assessment 3 and 4. Questions will be derived from Chapters 11 to 13 inclusive, and information presented during lectures given in class.

Research Experience Marks

Two percent (2%) of your grade will come from participation in research experiments or via completing alternate research assignments. Each research assignment is worth 1%. Each hour of research experiment participation is equivalent to 1% (see the Research Experiences Marks information and guidelines below, for exact details and restrictions). Students can make up their 2% using only participation in research experiments; by writing two research assignments, or by a combination of each (1 hour of research participation, one assignment).

Course Outline

You will not be responsible for Chapter 8 (Spatial Cognition).

You will be responsible for Chapters 1 through 7 and 9 through 13. Chapter 2 covers material from Psych 261, and will not be explicitly dealt with in the lectures but you are responsible for knowing this material.

Week	Date	Topic	Readings Due
1	Jan 7 & 9	Overview of Cognitive Neuroscience/Neuropsychology	Chapter 1
2	Jan 14 & 16	Overview and Methods	Chapter 2 and 3
3	Jan 21 and 23	Hemispheric Specialization	Chapter 4
4	Jan 28 and 30	Motor Control	Chapter 5
5	Feb 4 and 6	Early Perceptual Processing and Synaesthesia	Chapter 6
6	Feb 11 and 13	Object Recognition	Chapte 7
7	Feb 25 and 27	Case and group studies of Category Specific Agnosia and Prosopagnosia	
8	March 4 and 6	Language	Chapter 9

Week	Date	Topic	Readings Due
9	March 11 and 13	Memory	Chapter 10
10	March 18 and 20	Attention	Chapter 11
11	March 25 and 27	Executive Function	Chapter 12
12	April 1 and 3	Emotion and Social Cognition	Chapter 13

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

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.

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.**
- All articles will be submitted using a dropbox on Desire to Learn for Psych 307.
- 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.