

307 Human Neuropsychology – Fall 2014

Instructor: James Danckert
PAS 4040
Ext. 37014
Email: jdanker@uwaterloo.ca
Office Hours: By appointment. The hour after class is typically good.

*** Tuesdays and Thursdays 10:00 - 11:20 a.m. AL 211 ***

Teaching Assistants

Sherif Soliman
Office: PAS 4217
Office hours: Thursdays 11:30 am – 12:30 pm
Email: sherif.soliman@uwaterloo.ca

Syaheed Jabar
Office: PAS 2261
Office Hours: Wednesdays 10:00 – 11:00 am
Email: s2jabar@uwaterloo.ca

Course Web Page: Lectures will be available on LEARN.

Course Description and Aims

This course will provide you with a broad understanding of methods in human neuropsychological research including functional imaging and group and single case lesion studies, as a means of providing a broad understanding of human neuropsychology. Both basic research and clinical examples will be used to explore the brain-behaviour relationships inherent in motor control, language, vision and attention, memory, and executive control. The course will be run in three separate sections with each section examined in class (exams will not be cumulative and there will be no final exam in the University's exam period).

Assessment

Each section's exam will be a mixture of multiple choice, fill-in-the-blanks, diagrams and short answer questions. Together, the first two exams account for 50% of the final grade. The best result of the first two midterms will be given the higher weighting. That is, the higher exam mark will be weighted at 30% of the final course grade and the lower exam mark will be weighted at 20% of the final grade. The final exam will be worth 20% of the final grade. Thus, the three midterms make up 70% of the final grade.

You can earn four percent (4%) in **bonus marks** from participation in experiments through the Research Experiences Group (see details below under **Research Experiences Group (REG) Participation in Psychology Research**). In this instance .5% can be earned by participating in one half hour experiment, so to get the full 4% you will need to complete 4 full hours of experiments (see details below). If you decide you do not want to

participate in experiments you can complete an alternate assignment to be determined by Dr. Danckert (alternate assignments will each be worth 1% and typically consist of one page summaries of journal articles).

The final 30% of your grade will come from the following written assignment.

Create a **mock** Wikipedia page on a human neuropsychology topic. I don't intend you to create a new Wikipedia page (don't upload anything) or a novel one – it can be on a topic already on Wikipedia, but your page has to be created from scratch by you. Then create a companion **mock** Facebook page on the same or a closely related topic. Each “page” need only be one printed page.

The idea behind this assignment is twofold:

1. You should take this opportunity to delve deeply into your topic – learn more about it than we were able to cover in class.
2. Explore the difference between *factual reportage* and *opinion*. In science, we do a little bit of both.

I will spend time in the first class discussing this assignment in more detail and answering questions.

Due date for the assignment is Thursday, November 20th.

Experimental credits must all be finalised by December 1st.

Extra Information

Two course lectures will be placed on LEARN as background material (largely a refresher of 261 – see details below).

Alternate Exams

Students unable to take the mid term exams on the scheduled dates for any reason will be able to take make up exams scheduled with the instructor. Note, make up exams will not necessarily be in the same format as the original exam. The format chosen will be at the discretion of the instructor and could be in essay format, oral exam or in a standard (e.g., multiple choice) format.

Summary of Assessment for Grade

Mid term 1	20 or 30% (higher weighting for better grade in comparison to MT2)
Mid term 2	20 or 30% (higher weighting for better grade in comparison to MT1)
Mid term 3	20%
Assignment	30%

Bonus marks

REG participation 4%

Recommended Reading

Students have often complained in the past that the text book is expensive and doesn't add much over and above the lectures. I tend to agree. So I will place multiple copies (3) of the following two text books on reserve in the library for those who want to delve deeper into each topic we cover. Exams will be based on lecture material which in turn is derived in large part from these (and other) texts.

Banich, M. T. *Cognitive Neuroscience and Neuropsychology*, (2003) Houghton Mifflin Co. New York.

Gazzaniga, Ivry, & Mangun. *Cognitive Neuroscience: The biology of the Mind, 4th Edition*, (2014). W.W. Norton

To be clear – these two text books are on reserve as recommended reading – if you read the relevant chapters you will solidify your knowledge of the material. But if you attend classes you will be exposed to all you need to be able to perform well on the exams.

Topic Relevant Journal Articles

Instead of a text book I will set aside 15 minutes at the end of each topic to discuss a relevant journal article from the past year or so. The lecture is intended to give you the base knowledge we have gained over decades or longer, whereas the journal article is intended to show you a little of the “leading edge” work. I will make the papers available for download on LEARN. There will be one exam question based on each journal article.

Course Outline

I have placed two topics on LEARN that I consider to be background material for this course. The topics covered are:

1. Neuroanatomy (Banich Ch 1 & 2)
2. Methods in Cognitive Neuroscience (Banich Ch 3)

Each of these topics is on LEARN as a Powerpoint file. I had created audio files to accompany these lectures but this made the files too large to upload. If you need clarification of any of the material in these lectures please consult your TAs.

Section 1

Sep 9th Introduction to Human Neuropsychology

Sep 11th Topic 1 History of Neuropsychology
[Journal Article: Sandrone et al., \(2014\) *Brain*, 137, 621–633](#)

- Sep 16th Topic 2 Single Case Methodology
No Journal Article
- Sep 18th Topic 3 Hemispheric Specialisation (Banich Ch 4)
Journal Article: Miller et al., (2010) *Neuropsychologia*, 48, 2215–2220
- Sep 23rd Topic 4 Motor Control (Banich Ch 5)
Journal Article: Chamberlain et al., (2014) *NeuroImage*, in press.
- Sep 25th Topic 5 Basic Vision
No Journal Article
- Sep 30th Topic 6 Dual Pathways to Vision
Journal Article: Milne et al., (2013) *Psychological Science*, 24, 1456–1465

*** Section 1 exam – Thursday Oct 2nd ***

Section 2

- Oct 7th Topic 7 Object Recognition (Banich Ch 6)
Journal Article: Konkle & Carramazza (2013) *The Journal of Neuroscience*, 33, 10235–10242
- Oct 9th Topic 8 Spatial Processing (Banich Ch 7)
Journal Article: Saj et al., (2014) *Clinical Neurophysiology*, 44, 33–40
- Oct 14th Topic 9 Attention (Banich Ch 8)
Journal Article: Hayden et al., (2011) *Nature Neuroscience*, 14, 933–939
- Oct 16th Topic 10 Unilateral Neglect
Journal Article: Saj et al., (2014) *Psychological Science*, 25, 207–214
- Oct 21st Patient Interview: Unilateral spatial neglect following stroke
- Oct 23rd Topic 11 Language (Banich Ch 9)
Journal Article: Zhang et al., (2013) *Clinical Neurology & Neurosurgery*, 115, 2230–2233
- Oct 28th Patient interview: Expressive aphasia following stroke.

*** Section 2 exam – Thursday Oct 30th ***

Section 3

- Nov 4th Topic 12 Memory (Banich Ch 10)
Journal Article: Oflaz et al., (in press) *Journal of Psychiatric Research*, 1–7
- Nov 6th Topic 13 Executive Functions (Banich Ch 11)
Journal Article: Hummer et al., (2014) *Brain & Cognition*, 88, 26–34
- Nov 11th Patient interview: Traumatic brain injury.
- Nov 13th Topic 14 Emotion (Banich Ch 12)
Journal Article: Decety et al., (2014) *Social Neuroscience*, 9, 36–49
- Nov 18th Topic 15 Aging and the brain (Banich Ch 13)
Journal Article: Nguyen et al., (in press) *Journal of Clinical and Experimental Neuropsychology*, 1–14
- Nov 20th Topic 16 Dementias (Banich Ch 14)
No Journal Article
- Nov 25th Topic 17 Schizophrenia (Banich Ch 14)
Journal Article: Menon et al., (2011) *Biological Psychiatry*, 70, 1127–1133

Commented [JD1]: Didn't get to these in 2014

*** Section 3 exam – Thursday Nov 27th ***

Special Circumstances

Students who are 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 UW Verification of Illness Form:

http://www.healthservices.uwaterloo.ca/Health_Services/verification.html

- submit that form to the instructor within 48 hours.
- (preferably) 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 or midterm test, the instructor will either:

- a) 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
- b) 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.

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.