



Psychology 461 – FALL 2010

Case Studies in Neuropsychology

Class Time: Fridays 10am-12:20pm

Location: HH 334



Instructor: Dr. Myra Fernandes

Office Hours: Mondays 3-4pm

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Office: PAS 4054

Required Course Text

Ogden, J. A. (2005). *Fractured Minds: A Case-Study Approach to Clinical Neuropsychology 2nd Ed.* Oxford University Press, New York.

Course Description

Much of what we know about human behaviour has come from more than a century of observations of people with head injuries, brain diseases, or unusual pathologies. Studying such patients can provide insights into how the “mind” works, and shed light of the brain basis of cognitive processes such as attention, perception, personality, emotion, memory, decision making, and language capacity.

This Honours undergraduate seminar will first examine the basic methodological approach used in single case studies and the limitations of those approaches. We will then learn basic neuroanatomy, as it pertains to understanding effects of brain lesions, injuries, and abnormalities on cognitive functions. Following a detailed review of specific neuropsychological cases, we will learn the major contributions of each to our understanding of human cognition.

Course Structure and Requirements

The first few classes will consist of formal lectures, and group activities, designed to introduce you to the basic anatomy of the brain, current methods of examining brain integrity, and common methods of assessing cognitive function. We will take a cognitive neuropsychological approach to studying and interpreting brain-behaviour relationships. Individual students will review and report case studies from neuropsychology, and together with the class will discuss their unique contributions to current models of cognitive function.

Students will also examine the relative contributions of studies that use neuroimaging in non-injured individuals, to our understanding of brain-behaviour relationships. It is my hope that throughout this course you will gain knowledge about brain organization and function, further develop your skills in thinking critically and integrating evidence, as well as refine your oral presentation skills.

Overview of Evaluation

Case Study presentation		25%
Case Summary papers (5 X 4%)		20%
Term Test	Friday November 19th	30%
Neuro-imaging presentation	Friday November 26th	15%
Class Debate	Friday December 3rd	10%

Details on each Evaluation

Case Study Presentation

Presentations consist of two parts:

Part 1

Read the relevant chapter. Together with a class partner, you must prepare a Power Point presentation (**each person presents for 20 minutes**). One of you will review the case described in the chapter, and the other will explain the methods used to assess functions. You must each highlight one main contribution of the patient to our understanding of human cognition. You will then each outline tests (clinical, or experimental cognitive) that are missing that could better describe the patient. You will then each choose 1 related case reported in the literature (you must consult a recognized peer-reviewed journal for this), describe the case, and explain how it has uniquely contributed to the field, and summarize what we learned from this study. The presentation will be graded, individually, and is worth **20%**.

A copy of your Power Point presentation must be emailed to Dr. Fernandes **by 4pm on the day before your presentation**, so that it can be brought to class by the instructor and loaded on the computer prior to the beginning of class the next day.

Part 2

Following your presentation, you and your partner will guide the class through a Discussion Session for 10 minutes (each presenter leads Discussion for 5 minutes). During this time you must pose 2 Questions and/or carry out Demonstrations to highlight the cognitive function(s) affected in your case studies. Your classmates will attempt to answer the questions, and/or participate in the demonstration. Your job during the Discussion is to bring up relevant information and research on the topic, and to jump in with an opinion on the answers provided by classmates to your Questions/Demonstration. You can bring in extra materials (newspaper clippings) or prepare demos related to your prepared Questions. These will help engage your classmates in the Discussion. Your Questions/Answers, and ability to lead the Discussion is worth **5% (graded individually)**.

Case Summary papers & Discussions

In preparation for Case Study Presentations, you will be expected to write a 2-page Case Summary Paper, based on the assigned reading. You will 1) briefly describe the syndrome being discussed, 2) highlight neuropsychological tasks that can be used to assess its effects on cognition, and 3) outline how the syndrome has contributed to our understanding of the “normal” brain, and “normal” cognitive functioning.

During each Presenters' Discussion session, you will be expected to participate by providing some of your ideas from points 2 and 3. The presenters will lead the class discussion and you will be expected to participate in any in-class demonstrations. Each Summary paper is worth 5%, and you need to complete 4 of these from a selection of Long Presentations of your choice (due on dates of selected Case Study Presentations; **5 X 4% = 20%**).

Term Test

The test is worth **30% of your grade**, and will consist of multiple choice, short answer questions, and longer essay questions based on material covered in lectures, and in Case Study presentations and Discussions. You will have 2 hours to write the test, in class.

Neuro-imaging Presentation

You will prepare a 5-6 minute Power Point presentation. Pick any syndrome or case study, find a research article in which that affected behaviour has been examined using fMRI/EEG/ERP/TMS/PET in non-brain injured individuals. Present cognitive methods used, findings, and what additional information we have learned from neuroimaging, over and above what was learned from the patient studies. This presentation will be graded, and is worth **15%**. This evaluation is designed to give you a chance to investigate and discuss the behaviour/syndrome you are most interested in. A copy of your Power Point presentation must be emailed to Dr. Fernandes **by 4pm Thurs. November 25th, 2010**, so that it can be brought to class by the instructor and loaded on the computer prior to the beginning of class.

Class Debate

We will be having a Class Debate on “Limitations of Case studies” and “What can we learn from a broken brain?” You will pick a side for this debate, and prepare a 2 page summary of your arguments (3-4 key points; bring to class to help argue your points in debate). Your debate summary, and your participation in the debate, are worth **10%**. References for this debate will be posted on UWACE in pdf format.

Course Web page / What is UW-ACE?

UW-ACE is a web-based course management system that enables instructors to manage course materials and interact easily and efficiently with their students. Here, **I will post lecture notes online**, along with the course syllabus. Course announcements, and answers to Frequently Asked Questions will also be posted on UW-ACE. UW-ACE will also be used to post marks to the grade-book, and track student progress.

Policy for late papers and missed evaluations

*It is the student's responsibility to hand in late papers directly to me, **in person**, or via **email**. These will be subject to a **late penalty of -5% of the assigned grade, per day**, including weekends.*

Students who are requesting accommodation for course requirements (assignments, midterm tests, final exams, etc.) due to illness should do the following: 1) seek medical treatment as soon as possible and obtain a completed UW Verification of Illness Form: http://www.healthservices.uwaterbo.ca/Health_Services/verification.htm / *submit that form to the instructor within 48 hours.* 2) (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.

The 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 ACE, the outline on ACE will be deemed the official version. Outlines on ACE may change as instructors develop a course, but they become final as of the first class meeting for the term.
Accommodations for Students with Disabilities

The Office for Persons with Disabilities (OPD)

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 OPD at the beginning of each academic term.

Concerns About the Course or Instructor (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 (Dr. Colin Ellard) is available for consultation and to mediate a resolution between the student and instructor. Dr. Ellard's contact information is as follows: Email: cellard@uwaterloo.ca Ph 519-888- 4567 ext 36852
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 71 below for further details.

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, <http://www.adm.uwaterloo.ca/infosec/Policies/policy71.htm>

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, <http://www.adm.uwaterloo.ca/infosec/Policies/policy70.htm>

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, <http://www.adm.uwaterloo.ca/infosec/Policies/policy72.htm>

Academic Integrity website (Arts): http://arts.uwaterloo.ca/arts/ugrad/academic_responsibility.html

Academic Integrity Office (UW): <http://uwaterloo.ca/academicintegrity/>

About Your Instructor

In my research I aim to understand the processes involved in higher cognitive functions such as memory, attention and language. I use a combination of behavioural tests and neuro-imaging to identify the brain basis of these functions. In addition I study how the normal aging process affects cognition, particularly one's ability to carry out memory tasks concurrently with other tasks (dual-tasking). This work is used to test and refine current models of how memory encoding and retrieval operate.

The following pages contain the Tentative Schedule for classes:

Topic	Readings and Assignments	Dates
Introduction to Neuropsychology	Chapter 1 Organize for Presentations	Friday Sept. 17 th
Assessing Cognitive Functions Methods of studying the brain	Chapter 2	Friday Sept. 24 th
Amnesia Epilepsy	Chapter 3 Chapter 4	Friday Oct. 1 st
Aphasia	Chapter 5	Friday Oct. 8 th
Overview of Presentations; Meet your partner	Prepare for Long Presentations	Friday Oct. 15 th
Frontal lobe dysfunction	Chapter 9	Friday Oct. 22 nd

Topics	Readings and Assignments	Dates
Autopagnosia (1 person) Neglect Agnosias	Chapter 6 Chapter 7 Chapter 8	Friday Oct. 29 th
Traumatic Brain Injury Neurotoxicity (1 person) Dementia	Chapter 10 and 11 Chapter 13 or 15 Chapter 17	Friday Nov. 5 th
Parkinson's (1 person) Split Brain Half Brain	Chapter 15 Chapter 18 Chapter 19	Friday Nov. 12 th
Term Test	Term Test	Friday Nov. 19th
Short Presentations	Class Selections	Friday Nov. 26th
Class Debate	Articles posted on UW-ACE	Friday Dec. 3rd