<u>Psychology 461 – FALL 2020</u>
Case Studies in Neuropsychology – *online delivery due to COVID19
Twice Weekly video lectures & seminars
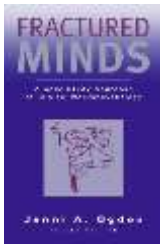**Mondays 11am until 11:45am & Tuesdays 1pm until 1:45pm via Microsoft Teams**

Instructor: Dr. Myra Fernandes   mafernan@uwaterloo.ca
Office Hours: Tuesdays 1:45pm-2:45pm on MS Teams

Teaching Assistant: Brady Roberts   brady.roberts@uwaterloo.ca
Office Hours: Thursdays 1pm-2pm on MS Teams

Required Course Text

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

Available through UWaterloo bookstore or can be ordered online for delivery

Course Description

The single-case approach in neuropsychology has made a significant contribution to our understanding of the architecture of human cognition. 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 on the brain basis of cognitive processes such as attention, perception, personality, emotion, memory, decision making, and language capacity.

We will first examine the basic methodological approach used in single-case studies and the limitations of those approaches, before moving on to a more detailed examination of particular cases. We will also study basic neuroanatomy, as it pertains to understanding effects of brain lesions, injuries, and abnormalities on cognitive functions. The goal of the course is to examine neuropsychological patient cases in order to understand how these have informed current models of human behaviour.

*This PSYCH 461 undergraduate seminar will be delivered by Dr. Myra Fernandes, remotely due to COVID-related restrictions. There will be Twice Weekly video lectures & seminars: <u>Mondays 11am until 11:45am & Tuesdays 1pm until 1:45pm via Microsoft Teams</u>. **These lectures will be recorded, and posted on LEARN within 24 hours, for access by those students who could not attend the lecture.**
Students will also have a chance to present to the class during these seminar timeslots, with discussion invited from all the students in the course. A Power Point version of the slides will be posted immediately afterwards for comments from students

who could not attend the live presentation. Alternatively, a student can complete their presentation by creating voice-over Power point slides, which will be posted to LEARN, for the benefit of the whole class. All remaining assignments and tests must be submitted via the LEARN platform, by the dates listed in this Syllabus.

Overview of Evaluation

Test 1	25%
Test 2	10%
Case Study Summaries (3 X 5%)	15%
Case study - group presentation	20%
Synthesizing neuroimaging with patient work - individual presentation	15%
Debate Paper	15%

Details on each Evaluation

Tests

Test 1 will assess students' understanding of lectures plus the assigned chapter readings from Sept. 8th until October 6th inclusive. This material introduces the cognitive neuropsychological approach to studying and interpreting brain-behaviour relationships. Test 1 (worth **25%**) will be a take-home test consisting of multiple choice, and short answer questions, and is **DUE MONDAY October 19th by noon**.

Test 2 will assess student's ability to synthesize information learned in the course, and apply it to understanding and interpretation of select disorders and/or cognitive impairments, building on lectures and assigned readings from October 19th to November 3rd inclusive. Test 2 (worth **10%**) will be a take-home test, consisting of essay questions, and is **DUE MONDAY November 9th by noon**.

Case-Study Summaries

You will write Case Study summaries (2-pages each, plus any reference citations on an additional page), based on your choice of cases described in the required text chapter reading, from November 9th to 24th inclusive (excluding the Case study for which you are doing a Group presentation).

For each summary 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.

For each Case Study, a group of students in the class will be assigned to prepare a Power Point presentation (see 'Case Study - Group presentation' for details). You should watch all of these presentations, and can use these to supplement and aid your understanding of each Case, and to build a more comprehensive Case-study Summary. Each Case-study Summary is worth 5%, and you should complete 3 of these **3 X 5% = 15%**. You must submit all of these **by Tuesday November 24th at 5pm** Students are encouraged to submit at least 1 Case Study summary, during the weeks of November 9th, 16th, and 23rd to space out their workload.

Case Study - Group presentation

From November 9th to 24th inclusive, groups of students will be presenting each week. For each of the listed Topics/Date, groups (of 2 students each) will prepare a 20-minute Power Point presentation. **Each student will be responsible for 10-minutes of the content**.

Each student must prepare their OWN 10-minute presentation, and communicate it 'live' to the class during our Monday timeslot via MS Teams. Alternatively, instead of a live presentation, a student can choose to submit a 'voice-over' Power Point presentation (instructions will be posted on LEARN), to be emailed to Dr. Fernandes and TA Brady Roberts, by 9am on the date of the scheduled presentation. Dr. Fernandes will make the file available for the class to hear, by posting it on LEARN.

Specific requirements for the presentation are as follows:

Student 1 (10 minutes) will describe the Case Study described in the chapter, and explain the methods used to assess functions. That student will highlight a main contribution of the patient to our understanding of human cognition. That student will then outline tests (clinical, or experimental cognitive) they believe are missing, or will suggest different approaches that could better describe the patient, based on their reading of published journal articles of recent similar cases (the student must consult recognized peer-reviewed journals for this, which can be accessed using our UWaterloo library resources).

Student 2 (10 minutes) will find and choose 2 similar cases reported in published journal articles (the student must consult recognized peer-reviewed journals for this, which can be accessed using our UWaterloo library resources). That student will compare and contrast the cognitive assessments performed in each of these 2 similar cases, to the one described in the textbook. Finally, that student will explain how each of these 2 'similar' cases has uniquely contributed to the field of human cognition.

Groups must coordinate who will present as Student 1 and who as Student 2. Beyond this, students can choose to work together or not. Each student's presentation is graded individually. The presentation is worth **20%**.

Synthesizing neuroimaging with patient work - Individual presentation

On either November 30th, December 1st or December 7th, students will each be completing a **4-5 minute Power Point presentation**, and will communicate it 'live' to the class during our Monday timeslot via MS Teams. Alternatively, a student can choose to submit a 'voice-over' Power Point presentation (instructions will be posted on LEARN), to be emailed to Dr. Fernandes and TA Brady Roberts, by 9am on the date of the scheduled presentation. Dr. Fernandes will then immediately make the file available for the class to hear, by posting it on LEARN.

Specific requirements for the presentation are as follows:

Pick any syndrome or case study, (it can be one mentioned in the textbook, or one not yet discussed in the course). Find a research article (you must consult recognized peer-reviewed journals for this, which can be accessed using our UWaterloo library resources), in which the 'main affected behaviour' has been examined using fMRI/EEG/ERP/TMS/PET in non-brain injured individuals.

Describe the cognitive methods used, the findings, and what additional information we have learned from this neuroimaging publication, over and above what was learned from studying patients with the syndrome/disorder. This presentation is worth **15%**. This assignment is designed to give you a chance to investigate and discuss the behaviour/syndrome you are most interested in.

Debate Paper

A selection of recent articles discussing the pros and cons of Neuropsychological patient studies, and of Neuroimaging research, will be posted on LEARN.

Students will be expected to read these articles, and then prepare a **3-page paper** (plus any reference citations on an additional page): You must answer the following questions, based on your reading of the articles posted on LEARN, and in this course: "What can we learn from a broken brain?" and "What can we learn about the brain from Neuroimaging?". This debate paper is worth **15%**, and is **DUE December 11th by noon**

Note about submissions:

All written submissions, specifically, your Answers to questions on Test 1 and Test 2, your Case-Study summaries, and your Debate paper, must submitted via the Dropbox on Learn.

These written submissions must be double-spaced, in Times New Roman, 12 point font, with 2cm margins all around.

Schedule of Weekly Topics

The schedule for the term is on the next few pages. Updates or any modifications to this schedule, will be posted in Announcements on LEARN. Supporting documents about University policies, Recording of students in lectures, and Technical instructions about giving presentations via MS Teams, and submitting 'voice-over' presentations, will be posted on Learn. Students are expected to familiarize themselves with this material.

Students must select their top 2 preferences for topics/presentation dates, for 1) the "Case-Study - Group Presentation", and 2) the "Synthesizing neuroimaging with patient work - individual presentation", and **email** this to **Dr. Fernandes by September 25th**. Assignment of students to presentation dates and topics will then be done by Dr. Fernandes, and a schedule of presentations will be posted by the Fall Reading Break.

Topic	Readings and Assignments
Overview to the course and textbook posted on LEARN	Week of September 8th
Introduction to Neuropsychology	September 14th and 15th
Assessing Cognitive Functions	September 21st and 22nd Chapter 1
Methods of studying the brain	September 28th and 29th Chapter 2
Amnesia	October 5th and 6th Chapter 3 Test 1 Posted on LEARN
Thanksgiving and Fall Reading Week No Class	Week of October 12th
Epilepsy	October 19th and 20th Test 1 DUE DATE Chapter 4
Aphasia	October 26th and 27th Chapter 5

Frontal lobe dysfunction	November 2nd and 3rd Chapter 6 Test 2 Posted on LEARN
Student presentation: Neglect Student presentation: Agnosias Student presentation: Severe Traumatic Brain injury Student presentation: Mild Traumatic Brain injury	November 9th and 10th Test 2 DUE DATE Chapter 7 and 8 and 10 and 11
Student presentation: Subarachnoid Hemorrhage Student presentation: Neurotoxicity Student presentation: Multiple Sclerosis Student presentation: Parkinson's	November 16th and 17th Chapter 12 and 13 and 14 and 15
Student presentation: Huntington's disease Student presentations: Dementia Student presentation: Split Brain Student presentation: Half-Brain	November 23rd and 24th Chapter 16 and 17 and 18 and 19 All Case-Study Summaries DUE by November 24th

Short Presentations	*November 30th and December 1st * the duration of the MS Teams meeting may get adjusted depending on how many students opt for live vs. 'voice-over' presentations
Short Presentations	*December 7th * the duration of the MS Teams meeting may get adjusted depending on how many students opt for live vs. 'voice-over' presentations Debate Paper DUE December 11th