PSYC*3270, Course Outline: Fall 2018

General Information

Course Title: Cognitive Neuroscience

Course Description: This course provides an overview of the neural mechanisms that support cognitive abilities such as attention, perception, memory, emotion, and reasoning. An emphasis is placed on primary research with the goal of revealing the types of methods that cognitive neuroscientists use, and types of questions that they ask, as they try to understand the relationship between our minds and brains.

Credit Weight: 0.50

Academic Department (or campus): Department of Psychology

Semester Offering: Fall 2018

Class Schedule and Location: Mon, Wed, Fri: 11:30AM - 12:20PM, MCKN, Room 117

Instructor Information

Instructor Name: Mark Fenske, PhD
Instructor Email: mfenske@uoguelph.ca
Office location and office hours: MacKinnon Extension 3020, Tues 1:30-3:00pm

GTA Information

GTA Name: Thomas Lapointe
GTA Email: <tlapoint@uoguelph.ca>
GTA office location and office hours: TBA

GTA Name: Mallory Terry
GTA Email: <terry@uoguelph.ca>
GTA office location and office hours: TBA

Course Content

Specific Learning Outcomes:

Critical & Creative Thinking:
Depth & Breadth of Understanding (Reinforce)

Inquiry & Analysis (Reinforce)
Problem Solving (Master)

Literacy:
Information (Reinforce)
Methodological (Master)

Professional and Ethical Behaviour:
Ethical issues in research (Reinforce)

Communication:
Written (Master)
Reading (Reinforce)
Integrative (Master)

These Learning Outcomes will be achieved through the successful completion of the following Objectives. By the end of this course you should have:

1) gained an understanding of the major methods used in cognitive neuroscience, and the major advances that have been made in providing brain-based accounts of human thought, feelings and behaviour.
2) gained an ability to critically assess the usefulness of research methods and experimental designs for investigating links between the brain and mind.
3) learned how to apply your knowledge of research methods and cognitive-neuroscience techniques to design a scientific study that investigates one or more ways in which the human brain supports human thought, feelings, and/or behaviour.
4) realized the value of using multiple converging approaches to examine links between neural and cognitive mechanisms.
5) gained an ability to identify and critically evaluate the relevance and potential usefulness of cognitive-neuroscience findings to real-world situations.
6) expanded your communication skills to be able to describe how cognitive-neuroscience findings can be applied to promote successful outcomes in day-to-day activities.

Lecture Content:
A list of topics and readings is indicated below for specific dates. This represents a tentative course schedule that is subject to change throughout the semester.

Date	**Topic**	**Readings**
Sep. 07 - 10	Introduction & Overview of the brain	Ch. 1, 2
Sep. 12	Methods: Electrophysiology (intracranial, EEG/ERP & MEG)	Ch. 3
Sep. 14	No class	
Sep. 17-19	Methods: Functional imaging (PET & MRI/fMRI)	Ch. 4 + TBA
Sep. 21-26	Methods: Stimulation (TMS & tDCS)	Ch. 5 + TBA
Sep. 28	Advanced methods	

Date	Topic	Readings
Oct. 01-03	Early visual cortex	Ch. 6 + TBA
Oct. 03-05	Visual streams: Ventral	TBA
Oct. 08	Holiday: No class	
Oct. 10-12	Visual streams: Dorsal	TBA
Oct. 15-17	Attention	Ch. 7 + TBA
Oct. 19	Research Project	
Oct. 22	Working Memory	TBA
Oct. 24	**Midterm Exam**	
Oct. 26-29	Executive Functions	Ch. 14
Oct. 31	Movement/Action	Ch. 8
Nov. 02-05	Long-term Memory **(Nov. 2: Newspaper Project Due)**	Ch. 9
Nov. 07	How to write a good research proposal	
Nov. 9-14	Cognition-emotion interactions	Ch. 15 + TBA
Nov. 16	Emotion regulation	TBA
Nov. 19	Social neuroscience	TBA
Nov. 21	Research project	TBA
Nov. 23	Consciousness	TBA
Nov. 26-28	Sound, music, brain **(Nov. 26: Research Project Due)**	Ch. 10 + TBA
Nov. 30	No class	
Dec. 03	**Final Exam**	

Course Assignments and Tests:

Assignment or Test	Due Date	Contribution to Final Mark (%)	Objectives Assessed
Midterm Exam	Oct. 24	25	1, 2, 4, 5
Newspaper Column	Nov. 02	20	1, 2, 4, 5, 6
Research Project	Nov. 26	30	1, 2, 3

Midterm and Final Exams: Exams will be designed to assess students' understanding of all material covered in readings (text and supplementary articles) and in-class lectures. The exams are not cumulative in nature, and the format of each exam will be a mixture of multiple-choice and/or short written-answer questions. Exam content will cover both readings and lectures.

Assignment – Newspaper Column: Each student will be required to translate and make accessible to the public-at-large a set of key cognitive-neuroscience findings on a topic of their choice. The resulting written overview will take the form of a newspaper column. This project is designed to provide you with experience in the art of knowledge translation by requiring that you conduct a literature search, then read and summarize journal articles in a way that could be

understood (and that would be of interest!) if read by a general audience without a background in psychology or neuroscience. The column must be typed and must not exceed 600 words.

Assignment - Research Review/Proposal: Each student will be required to write a brief overview of an area of cognitive-neuroscience research, identify a question of interest within the area, and propose an experiment to address the question of interest. This project is designed to provide you with experience in conducting a literature search, reading and summarizing journal articles, generating hypotheses, and applying your knowledge of cognitive-neuroscience techniques, research methods, and data analysis to design a study that will test your hypotheses. The proposal must be typed and should adhere to APA format guidelines. The resulting paper must not exceed 20 double-spaced pages, including the title page, abstract, references, and any tables or figures.

Final examination date and time: December 3, 7:00-9:00PM

Final exam weighting: 25% of final mark

Course Resources

Required Texts:
Ward, J. (2015). *The Student's Guide to Cognitive Neuroscience (3rd Ed.)*. Hove and New York: Psychology Press. ISBN-13: 978-184872272-9 (Available through Course Reserve at McLaughlin Library).

Other Resources:
Additional readings will be announced and made accessible through CourseLink.

Course Policies

Grading Policies
Completed assignments must be submitted directly to the instructor at the beginning of class on the due date indicated above. Early submissions are welcome, but must be made directly to the instructor. Late submissions and those submitted in any other way will not be accepted. **Failure to submit an assignment on time will result in a grade of zero for that assignment.**

Additional grade-related information can be found in the calendar under Undergraduate Grading Procedures.

Course Policy regarding use of electronic devices and recording of lectures:
Electronic recording of classes is expressly forbidden without consent of the instructor. When recordings are permitted they are solely for the use of the authorized student and may not be reproduced, or transmitted to others, without the express written consent of the instructor.

University Policies

Academic Consideration
When you find yourself unable to meet an in-course requirement because of illness or compassionate reasons, please advise the course instructor in writing, with your name, id#, and e-mail contact. See the academic calendar for information on regulations and procedures for Academic Consideration, Appeals and Petitions.

Academic Misconduct
The University of Guelph is committed to upholding the highest standards of academic integrity and it is the responsibility of all members of the University community, faculty, staff, and students to be aware of what constitutes academic misconduct and to do as much as possible to prevent academic offences from occurring.

University of Guelph students have the responsibility of abiding by the University's policy on academic misconduct regardless of their location of study; faculty, staff and students have the responsibility of supporting an environment that discourages misconduct. Students need to remain aware that instructors have access to and the right to use electronic and other means of detection. Please note: Whether or not a student intended to commit academic misconduct is not relevant for a finding of guilt. Hurried or careless submission of assignments does not excuse students from responsibility for verifying the academic integrity of their work before submitting it. Students who are in any doubt as to whether an action on their part could be construed as an academic offence should consult with a faculty member or faculty advisor.

The Academic Misconduct Policy is detailed in the Undergraduate Calendar.

Accessibility
The University of Guelph is committed to creating a barrier-free environment. Providing services for students is a shared responsibility among students, faculty and administrators. This relationship is based on respect of individual rights, the dignity of the individual and the University community's shared commitment to an open and supportive learning environment. Students requiring service or accommodation, whether due to an identified, ongoing disability or a short-term disability should contact Student Accessibility Services (SAS) as soon as possible. For more information, contact SAS at 519-824-4120 ext. 56208 or email accessibility@uoguelph.ca or see the Student Accessibility Services Website.

Course Evaluation Information
Please refer to the Course and Instructor Evaluation Website**.**

Drop date
The last date to drop one-semester courses, without academic penalty, is November 02. For regulations and procedures for Dropping Courses, see the Current Undergraduate Calendar.

Additional Course Information

Plagiarism Detection Software

Course instructors are allowed to use software to help in detecting plagiarism or unauthorized copying of student assignments. Plagiarism is one of the most common types of academic misconduct on our campus. Plagiarism involves students using the work, ideas and/or the exact wording of other people or sources without giving proper credit to others for the work, ideas and/or words in their papers. Students can unintentionally commit misconduct because they do not know how to reference outside sources properly or because they don't check their work carefully enough before handing it in. Whether or not a student intended to commit academic misconduct is not relevant for a finding of guilt. Hurried or careless submission of assignments does not excuse students from responsibility for verifying the academic integrity of their work before submitting it. Students who are in any doubt as to whether an action on their part could be construed as an academic offence should consult with a faculty member or faculty advisor.

In this course, your instructor will be using Turnitin.com to detect possible plagiarism, unauthorized collaboration or copying as part of the ongoing efforts to prevent plagiarism in the College of Social and Applied Human Sciences.

A major benefit of using Turnitin is that students will be able to educate and empower themselves in preventing academic misconduct. In this course, you may screen your own assignments through Turnitin as many times as you wish before the due date. You will be able to see and print reports that show you exactly where you have properly and improperly referenced the outside sources and materials in your assignment.