

PSYC 4700B/5700W CGSC 5002W (B): Advanced Topics in Cognitive Psychology: Cognitive Modeling Winter 2020

Class Information

Dates: Jan 06, 2020 – Apr 06, 2020

Time: 8:30 am – 11:00 am, M

Location: SA 315

Instructor Information

Instructor: Robert West

Office: DT2209

Phone: 2258 but please use a Carleton email for all communication

E-mail: Robert.west@carleton.ca

Office Hours: Tuesday 10am to 12pm

Prerequisites

fourth-year standing, and one of CGSC 3201, PSYC 2700, PSYC 3307, PSYC 3506, PSYC 3508, PSYC 3700, PSYC 3702 or PSYC 3709

Course Description

This course will review the different types of cognitive models; how they work, what they are used for, and how to evaluate them. The models examined will include ACT-R, neural networks, holographic memory, spiking neurons, and deep belief networks. We will focus on how these models can be used to understand memory representation, learning, emotion, and the interaction between cognition and action. Students will not be required to actually build models.

Readings

No textbook. – Assigned content will be free online resources only

Course Web Page (cuLearn)

- The course website is located at <https://carleton.ca/culearn/>
- All information for the course as well as course content can be accessed here

Evaluation

Undergraduate students and graduate students will complete the same components of the course and the weighting will be the same. However, graduate students will be evaluated to a higher standard than undergraduate students. Graduate students will be expected to demonstrate deeper levels of critical thinking than undergraduate students, especially around theoretical and methodological issues

Evaluation	Weight of Grade
Class presentation	25%
Final paper	75%

Topics Covered

The topics covered and the order of their presentation is listed below

- Introduction to Cognitive Modeling
 - Jan 6
 - Mechanisms, Process, and simulation
 - Jan 13
 - Cognitive models versus rational models
 - Cognitive models versus statistical models
 - Jan 20
 - Micro models versus architectures
 - Neural, social and cognitive models
- Types of cognitive models
 - Jan 27
 - Spiking neurons
 - Feb 3
 - Neural Networks
 - Feb 10
 - High dimensional vectors
 - Semantic networks
 - Feb 17
 - **winter break**
 - Feb 24
 - Production systems
 - Mar 2
 - Macro cognitive systems
 - Mar 9
 - The standard model
- Designing cognitive models
 - Mar 16
 - Choosing a modelling system
 - Top down design
 - Bottom up design
 - Mar 23
 - Designing for a research question
- Evaluating cognitive models
 - Mar 30
 - Parameter fitting
 - Evaluating fit to data
 - Prediction and re-use
 - Neural imaging
 - Model comparisons
 - Apr 6
 - Presentations
 - Final Paper due

***This schedule is to be regarded as tentative**

Learning Support Services

This service is operated by the [Student Academic Success Centre](#) and offers a variety of services designed to support student learning. For example, they offer group study rooms, free drop-in sessions with study skills specialists and writing tutors, free academic skills workshops, networked computers, a tutor referral service, and supportive peer helpers. They are located in the MacOdrum Library. For more information, visit the [LSS Website](#).

Written Assignments: Deadlines and Late Policy

No written assignment is accepted after the established deadlines without penalty. Please note that all the written assignments are due **at 11:30 p.m. not 11:59 p.m.** The penalty is **10% for any part of each day late**. There is **no grace period** (this means that if you are 5 minutes late or 5 hours late, you receive a 10% deduction). If you are running into trouble, it is vital to contact the instructor **prior to** the due date. **In order to be considered official, all extensions must be obtained in writing from the instructor.** A doctor's note or other appropriate documentation must be provided within **three working days** after the due date in order to avoid late penalties.

Missed Midterms

If a midterm is missed an alternative date will be scheduled for an alternative midterm exam

Disruption

Disruptive behaviour is an instructional offence at Carleton University. Talking amongst yourselves or using personal communication devices disrupts other students and is not allowed. Laptop computers may be used only for note taking and mobile phones may not be used. You are expected to arrive on time for lectures and remain for the balance, as late arrivals and early departures disrupt other students.

Regulations and Information Common to Undergraduate Psychology Courses

REQUESTS FOR ACADEMIC ACCOMMODATION

You may need special arrangements to meet your academic obligations during the term. For an accommodation request the processes are as follows:

Pregnancy: write to me with any requests for academic accommodation during the first two weeks of class, or as soon as possible after the need for accommodation is known to exist. For more details see the [Student Guide](#)

Religious obligation: write to me with any requests for academic accommodation during the first two weeks of class, or as soon as possible after the need for accommodation is known to exist. For more details see the [Student Guide](#)

Academic Accommodations for Students with Disabilities: The Paul Menton Centre for Students with Disabilities (PMC) provides services to students with Learning Disabilities (LD), psychiatric/mental health disabilities, Attention Deficit Hyperactivity Disorder (ADHD), Autism Spectrum Disorders (ASD), chronic medical conditions, and impairments in mobility, hearing, and vision. If you have a disability requiring academic accommodations in this course, please contact PMC at 613-520-6608 or pmc@carleton.ca for a formal evaluation. If you are already registered with the PMC, contact your PMC coordinator to send me your Letter of Accommodation at the beginning of the term, and no later than two weeks before the first in-class scheduled test

or exam requiring accommodation (if applicable). After requesting accommodation from PMC, meet with me to ensure accommodation arrangements are made. Please consult the [PMC website](#) for the deadline to request accommodations for the formally-scheduled exam (if applicable).

Survivors of Sexual Violence: As a community, Carleton University is committed to maintaining a positive learning, working and living environment where sexual violence will not be tolerated, and its survivors are supported through academic accommodations as per Carleton's Sexual Violence Policy. For more information about the services available at the university and to obtain information about sexual violence and/or support, visit: carleton.ca/sexual-violence-support

Accommodation for Student Activities : Carleton University recognizes the substantial benefits, both to the individual student and for the university, that result from a student participating in activities beyond the classroom experience. Reasonable accommodation must be provided to students who compete or perform at the national or international level. Please contact your instructor with any requests for academic accommodation during the first two weeks of class, or as soon as possible after the need for accommodation is known to exist. <https://carleton.ca/senate/wp-content/uploads/Accommodation-for-Student-Activities-1.pdf>

PETITIONS TO DEFER

Students unable to write a final examination because of illness or other circumstances beyond their control may apply within **three working days** to the Registrar's Office for permission to write a deferred examination. The request must be fully supported by the appropriate documentation. Only deferral petitions submitted to the Registrar's Office will be considered. [See Undergraduate Calendar, Article 4.3.](#)

WITHDRAWAL WITHOUT ACADEMIC PENALTY

The last day to withdraw from a Fall course, without academic penalty, is December 6, 2019. The last day to withdraw from a Fall/Winter or Winter course, without academic penalty, is April 7, 2020. Students may withdraw on or before the last day of classes.

WDN: For students who withdraw after the full fee adjustment date in each term (noted in the Academic Year section of the Calendar each term) the term WDN will be a permanent notation that appears on their official transcript.

OFFICIAL FINAL EXAMINATION PERIOD

Fall courses: December 9-21, 2019. Fall/Winter and Winter courses: April 13-25, 2020 (may include evenings & Saturdays or Sundays)

For more information on the important dates and deadlines of the academic year, consult the [Carleton 2019-2020 Calendar](#).

GRADING SYSTEM

The grading system is described in the Undergraduate Calendar section [5.4](#).

PLAGIARISM

- The University Senate defines plagiarism as “*presenting, whether intentional or not, the ideas, expression of ideas or work of others as one’s own.*” This can include:
 - reproducing or paraphrasing portions of someone else’s published or unpublished material, regardless of the source, and presenting these as one’s own without proper citation or reference to the original source;
 - submitting a take-home examination, essay, laboratory report or other assignment written, in whole or in part, by someone else;
 - using ideas or direct, verbatim quotations, or paraphrased material, concepts, or ideas without appropriate acknowledgment in any academic assignment; using another’s data or research findings;
 - failing to acknowledge sources through the use of proper citations when using another’s works and/or failing to use quotation marks;
 - handing in "substantially the same piece of work for academic credit more than once without prior written permission of the course instructor in which the submission occurs

Plagiarism is a serious offence, which cannot be resolved directly with the course’s instructor. The Associate Deans of the Faculty conduct a rigorous investigation, including an interview with the student, when an instructor suspects a piece of work has been plagiarized. Penalties are not trivial. They range from a mark of zero for the plagiarized work to a final grade of "F" for the course, and even suspension from all studies or expulsion from the University.

RESOURCES (613-520-2600, phone ext.)

Department of Psychology (2644)	B550 Loeb
Registrar's Office (3500)	300 Tory
Centre for Student Academic Support (3822)	4 th fl Library
Academic Advising Centre (7850)	302 Tory
Paul Menton Centre (6608)	501 University Centre
Writing Services (3822)	4 th fl Library
Career Services (6611)	401 Tory

ACADEMIC ADVISING

Visit the Psychology Undergraduate Office, B550 Loeb to discuss your program.

Advisors can answer questions concerning:

- Course selection and meeting program requirements
- Your audit and transfer credits
- Gaining access to courses that are closed
- Information concerning prerequisites and preclusions
- Course equivalencies and substitutions
- Information about whether to pursue the (Honours Project Course) or the Thesis stream and CGPA requirements
- Community Practicum Course
- Concentrations
- Exchanges and course selection

DEPARTMENTAL DROP BOX POLICY – Located outside B550 Loeb

Mail received prior to 4:30pm will be date stamped with the current date. Mail received after 4:30pm will be date stamped with the next business day's date.

Please ensure to include your name, student number, course code and instructor's name. We are unable to distribute without this information.