

CGSC 3201: Cognitive Processes

Course Outline

Fall 2020

Class Information

Dates: Sep 09, 2020 - Dec 11, 2020

Location: On-Line

Lecture time: A-Synchronous lecture delivery through the course page

Scheduled class time: Wednesday and Friday 8:30 to 10:00 am

Instructor Information

Instructor: Robert West

Office: DT2209

E-mail: robert.west@carleton.ca

Office Hours: By appointment

Course Description

This course will explore the use of cognitive architectures to understand the human mind and what it means to be human. We will look at how this approach is justified, the different types of architectures, and the building and testing of computational architectures as a way of studying the how the brain works.

Prerequisites: third-year standing, and CGSC 2001 or PSYC 2700

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

There will be an online, open book, midterm exam and a take home final consisting of an online, open book exam. There will also be a take home final project. Since there is no textbook, open book refers to notes from the lectures. An outline of all the lecture contents will be made available after each lecture. Only topics listed in the lecture outlines will be tested.

Evaluation	Weight of Grade
Mid-term exam - October 15	33%
Final exam - TBA	33%
Final project - last day of class	34%

- All materials from the lectures (excluding videos) and notes are examinable

- All exams are multiple choice - Please note that the questions are designed to test understanding of the course material and not just memorization
- Exams are not cumulative
- The project will be a model design assignment
- No knowledge of computer programming is needed for the project
- All feedback will be provided through the course web site

Topics Covered

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

- Consciousness
 - the hard problem
 - the computer metaphor
- System levels
 - emergence
 - hierarchy
 - bottom up versus top down
- Agents
 - biology (life)
 - evolution
 - expertise
 - thought
 - IQ
- How do we model the brain?
 - statistical models
 - rational models
 - cognitive models
- Philosophy and architecture
 - Rationalism
 - Pragmatism
 - Post modernism
 - Philosophy of Science
- Architecture Examples
 - GOMS
 - ACT-R
 - SOAR
 - SPAUN
- Artificial intelligence and brains
 - classical AI
 - deep learning
- Cognitive models of mental health

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

Additional Information (to be added at the end of the course outline)

In accordance with the Carleton University Undergraduate Calendar (p 34), the letter grades assigned in this course will have the following percentage equivalents:

A+ = 90-100	B+ = 77-79	C+ = 67-69	D+ = 57-59
A = 85-89	B = 73-76	C = 63-66	D = 53-56
A - = 80-84	B - = 70-72	C - = 60-62	D - = 50-52
F = Below 50			

Grades entered by Registrar:

WDN = Withdrawn from the course

DEF = Deferred

Academic Regulations, Accommodations, Etc.

University rules regarding registration, withdrawal, appealing marks, and most anything else you might need to know can be found on the university's website, here:

Pregnancy 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

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 an accommodation from PMC, meet with me to ensure accommodations arrangements are made. Please consult the PMC website for the deadlines to request accommodations for the formally - scheduled exam (if applicable).

Plagiarism

The University Senate defines plagiarism as "presenting, whether intentionally 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 that cannot be resolved directly by the course's instructor. The Associate Dean of the Faculty conducts 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 can include a final grade of "F" for the course.

Important Information

- Students must always retain a hard copy of all work that is submitted.
 - All final grades are subject to the Dean's approval.
 - For us to respond to your emails, we need to see your full name, CU ID, and the email must be written from your valid CARLETON address. Therefore, in order to respond to your inquiries, please send all email from your Carleton CMail account. If you do not have or have yet to activate this account, you may wish to do so by visiting <http://carleton.ca/ccs/students/>
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For a list of dates and deadlines, including holidays and exam dates, please visit:

<https://carleton.ca/registrar/registration/dates-and-deadlines/>