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CGSC 5901 – Computational Methods in Cognitive Science
DEPARTMENT OF COGNITIVE SCIENCE, CARLETON UNIVERSITY
Winter 2022

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Lecture dates: Monday, January 10th – April 12th, 2022
Lecture time: 8:35am – 11:25am
Lecture location: **synchronous and online (Zoom)**

Instructor: Kasia (Katarzyna) Muldner, Ph.D.
Office: **online** (Zoom)
E-mail: kasia.muldner@carleton.ca
Office Hours: TBA or by appointment

Course Description

In this course, we will discuss research at the intersection of student learning, emotion, and artificial intelligence (AI). We will explore these topics in the context of *tutoring systems*, which are educational technologies that aim to help students learn, often by personalizing instruction using AI methods. The focus will be on reading of research papers, discussion of these papers in class, and hands-on application of the core concepts through assignments and a final project. Class attendance over Zoom is required for all scheduled classes.

Course Web Page (Brightspace)

The course website is located at https://carleton.ca/brightspace/ On this site you will find the course syllabus, weekly readings, assignments, and supplementary materials; I will also post slides corresponding to mini-lectures on core topics.

Evaluation

The evaluation will be based on following aspects (details will be provided in class):

- **A participation & readings component**: (1) regular attendance and contribution to the discussion in each class ; (2) two questions based on the weekly readings that must be posted 24 prior to start of class, (3) a brief summary of the readings that must be posted prior to class. Each of the three components are with 1/3 of the participation and readings grade.
- **A discussion lead component**: a 15 minute presentation and lead of subsequent discussion that will be done in pairs. The presentation will involve both that week's assigned readings and 2 other papers you found through independent searches. The papers should provide additional perspective on the target topic and shed light on questions posted by class members.
- **An assignment component:** analysis of data sets using AI methods to explore learning and/or emotion constructs and/or initial implementation of basic tutoring system. There will be 3 assignments, each weighted equally.
- **A final project component**: the design and presentation of a tutoring system built using the CTAT tutoring package and a brief paper describing it (~2000 words).

Lateness policy: the reading questions and summaries must be posted on time – there are no extensions possible, as these items are needed to ensure a productive class discussion. A one-time 3 day late pass is available for the assignments – please mail the instructor prior to the due date to use this option.

Weighting of the Final Grade

Participation & readings component: 33%
Discussion lead: 10%
Assignment component: 24% [Due dates TBA]

Final project component: 33% [Due date TBA]

E-mail Protocol and Guidelines

I will respond to e-mails within 24-48 hours (excluding weekends and holidays). Often, if you have questions that require more than a yes/no type answer, the best forum for answering them is during class or virtual office hours.

Regulations and Information Common to all Cognitive Science Courses

GRADING SYSTEM

Letter grades assigned in this course will have the following percentage equivalents:

A+ = 90-100	B = 73-76	C - = 60-62
A = 85-89	B - = 70-72	D+ = 57-59
A - = 80-84	C+ = 67-69	D = 53-56
B+ = 77-79	C = 63-66	D - = 50-52
F	Failure. No academic credit	
ABS	Absent from the final examination	
DEF	Official deferral (see "Petitions to Defer")	
FND	"Failed, no Deferral" – assigned when the student is absent from the final exam and has	

failed the course on the basis of inadequate term work as specified in the course outline.

Standing in a course is determined by the course instructor, subject to the approval of the Chair and Faculty Dean.

IMPORTANT INFORMATION

- Students must always retain a 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 https://carleton.ca/its/.

For a list of dates and deadlines, including holidays and exam dates, please visit:
https://carleton.ca/registrar/registration/dates/academic-dates/

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 obligation: 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. For more details, visit the Equity Services website: carleton.ca/equity/wp-content/uploads/Student-Guide-to-Academic-Accommodation.pdf

Religious obligation: 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. For more details, visit the Equity Services website: carleton.ca/equity/wp-content/uploads/Student-Guide-to-Academic-Accommodation.pdf

Academic Accommodations for Students with Disabilities: If you have a documented disability requiring academic accommodations in this course, please contact the Paul Menton Centre for Students with Disabilities (PMC) at 613-520-6608 or pmc@carleton.ca for a formal evaluation or contact your PMC coordinator to send your instructor your Letter of Accommodation at the beginning of the term. You must also contact the PMC 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 your instructor as soon as possible to ensure accommodation arrangements are made. carleton.ca/pmc

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 is 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

For more information on academic accommodation, please contact the departmental administrator or visit: students.carleton.ca/course-outline

COPYRIGHT POLICY
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PETITIONS TO DEFER
Students unable to complete a final term paper or write a final examination because of illness or other circumstances beyond their control or whose performance on an examination has been impaired by such circumstances may apply within five working days to the Registrar's Office for permission to extend a term paper deadline or to write a deferred examination. The request must be fully and specifically supported by a medical certificate or other relevant documentation. Only deferral petitions submitted to the Registrar's Office will be considered.

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)

Department of Cognitive Science (ext. 2522) https://carleton.ca/cognitivescience/	2201 DT (Dunton Tower) cogsci@carleton.ca
Registrar's Office (ext. 3500) https://carleton.ca/registrar/	300 Tory registrar@carleton.ca
Student Academic and Career Development Services (ext. 7850) https://carleton.ca/career/for-facultystaff/how-can-you-support-career-development/	302 Tory career@carleton.ca
Paul Menton Centre (ext. 6608) https://carleton.ca/pmc/	501 University Centre PMC@Carleton.ca
Writing Tutorial Service (ext. 1125) https://carleton.ca/csas/writing-services/	4th floor Library csas@carleton.ca
Learning Support Services (ext. 1125) https://carleton.ca/csas/learning-support/	4th floor Library csas@carleton.ca

ACADEMIC ADVISING
During the fall term 2021, please contact undergraduate and graduate advisors by e-mail. Undergraduate advisor: Melissa Lett: melissa.lett@carleton.ca

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