

# FYSM 1607A

## Cognitive Science: Thinking and Knowing

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### OUTLINE AND COURSE OBJECTIVES

In this First Year Seminar (FYSM), we will examine topics that are important to philosophy of mind, cognitive psychology, linguistics, computer science, and evolutionary theory. In doing so, we will look at the links that unite these areas in their goal of trying to understand both human and non-human minds (e.g., animals and artificial intelligence). You will learn about the various disciplines that comprise cognitive science both by examining some foundational issues in these topics and by looking at a number of topics that cognitive scientists are in the unique position of exploring in an inter-disciplinary way. One of the main goals of this FYSM is to provide you with the opportunity to take what you have learned from seemingly disparate disciplines and find a way to integrate your learning so as to make it more cohesive.

There are a number of goals that this course is designed to meet. They are accomplished by structuring a course with two threads: content and skills. These two threads come together in a culminating project. This course will provide you with the opportunity to:

- work on writing skills (drafts, feedback);
- better understand the conceptual underpinnings and methods of cognitive science;
- draw connections among the disciplines that make up cognitive science; and
- learn how to present research (culminating project).

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Fall/Winter 2022-23  
Time: Tu/Thu 1:05pm-2:25pm  
Room: Teraanga Commons 211  
(formerly Residence Commons)

**Instructor:** Dr. Mark MacLeod  
**E-Mail:** [mark.macleod@carleton.ca](mailto:mark.macleod@carleton.ca)  
**Office:** Dunton 2216  
**Office Hours:** By appointment (in person or Zoom)  
**TA:** Tae Bourque  
**E-mail:** [taebourque@gmail.com](mailto:taebourque@gmail.com)

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### Materials Required

- Additional papers will be provided via Brightspace

### Important Dates: Second Term

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January 17<sup>th</sup>, 2023

Assignment #2 (final) due

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January 31<sup>st</sup>, 2023

Term Test #2

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March 14<sup>th</sup>, 2023

Research paper due

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March 28<sup>th</sup>, 2023

Term Test #3

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April 6<sup>th</sup>, 2023

Poster Presentation

## COURSE WEB PAGE (Brightspace)

The course outline, lecture notes, and sample questions will be made available within Brightspace. Student grades will be distributed in Brightspace, and not through emails. Students who do not already have access their Brightspace account should learn to do so [for student support, go to <https://carleton.ca/brightspace/students/>]. Please note that I will update the website throughout the term. What you can find on the Brightspace course website:

- Course Outline with a breakdown of topics and an approximate reading schedule
- Details of the written assignments and the tests
- A Drop Box (to be used to submit assignments)
- Sample short answer test questions (posted 1 week before each test)
- General discussion forum (not monitored)
- Lecture slides (pdf files)
- Other resources (links to interesting and relevant videos, articles, papers, etc.)

A note about the lecture slides: while the slides are meant to assist your efforts in the course, they are only a starting point for what we talk about in class. Material will be covered in class that is not included on these slides. In other words, the slides should not be regarded as a substitute for class attendance.

A note about the discussion forum: The forum is meant to give you a tool to communicate with your peers. The forum will not be monitored, so if you have a question that requires an answer from me, please email me directly. However, remember that posting on the discussion forum is not done anonymously. Be respectful of your colleagues.

## EVALUATION

Assignment	Percentage
Participation	20
Assignment #1	10
Assignment #2	10
Term Test #1	40*
Term Test #2	
Term Test #3	
Group research paper and poster	20
TOTAL	100

### 1. Participation

Some of your most memorable and valuable university learning will take place while *participating* in class discussions. Engaging in conversation with your classmates and professors on course material will

result in a better understanding, and a better memory, of the material discussed.

Your participation mark will be based on in-class participation in discussions, both when in large and small groups. To earn full marks for this part of the seminar evaluation you must:

- a) Attend each class;
- b) Be prepared for class (as evidenced by having done the readings, being active during class discussions, asking thoughtful questions, etc.);
- c) Be an active member of your research group (as evidenced by helping in all aspects of the study); and
- d) Attend 4 (four) workshops offered through the Centre for Student Academic Support (worth 5% of final grade) (see p.8, below, for more details).

Notice that to earn full marks you are not required to have 'all the right answers'. Instead, you are required to come to class prepared (i.e., having read the material, thought about the material, etc.) and ready to engage in intelligent conversations. Intelligent conversation includes asking questions (that come while reading, for example) and finding ways to link issues from a topic to another topic in cognition, or to the world.

## **2. Assignment #1: Experimental Research Summary**

The ability to write a clear, concise summary is an important skill. Your first writing assignment is to write a summary of a research paper on an assigned reading.

For this writing assignment, you will read a research paper and write a short summary of the study discussed within it. You will be given specific guidelines in class as to how this is to be done. You will submit a draft of your summary (*not* a 'rough' draft, but one that is as good as you can make it), receive feedback on it, have a chance to address the comments on it, and then submit a final draft. Your grade on the second draft will be affected by the degree to which you have addressed my comments. Also, make sure to hand in your first draft (with my comments on it) with the final draft. The final draft is not considered complete without it.

More details concerning this assignment will be provided in class.

## **3. Assignment #2: Philosophy of Mind Paper**

You will find that within Cognitive Science and Philosophy of Mind that there can be a number of different perspectives on the same issue. You will also find that research on a particular topic (e.g., the mind/body problem) can continue for many years (or decades) with each new article adding something new to our understanding of that topic.

For this assignment, we will read a Philosophy of Mind paper on a particular topic (related to cognitive science, and then you will briefly summarize the article (using your summarizing skills) and then discuss the issue more generally.

You will submit a draft of your paper (remember, *not* a 'rough' draft, but one that is as good as you can make it), receive feedback on it, have a chance to address the comments on it, and then submit a final draft. Your grade on the second draft will be affected by the degree to which you have addressed my

comments. Also, make sure to hand in your first draft (with my comments on it) with the final draft. The final draft is not considered complete without it.

More details concerning this assignment will be provided in class.

#### 4. Term Tests

There will be three tests, spaced at approximately even intervals across the academic year (each covering only material from the section of the course in which they appear). The purpose of these tests is to ensure that you have mastered the course content. The format of the tests will include some combination short-answer, longer-answer, and essay questions. More specific details will be made available closer to the test dates.

The term test with the lowest grade will only be worth 10% of your final grade and the other two will be worth 15% each. The specific weighting will be determined on an individual-by-individual basis.

#### 5. Culminating Group Project

For this assignment you will be required to form groups of three or four in order to research and present on either a *controversy* within the field of Cognitive Science or a *state-of-the-art* report on a important topic within Cognitive Science. I will provide a suggested list of topics to choose from (see below), but your group is also free to choose its own topic, though that choice will have to be approved by me in order to ensure that it can be completed on time and with the resources available. I will work with your group at each stage of the project to provide guidance and support – in other words, I'm not assuming that you already possess the skills to undertake this project on your own.

There are two main components to this project:

**5a) Research Paper (7 - 9 pages):** In your groups, after consulting with the TA regarding your research idea, you will write a research paper (*as a group*). In this paper, you will include an overview of your topic, review some of the relevant research on the issue, and make some sort of assessment concerning the evidence and arguments that you presented in the summary section. Specific details will be presented in class.

**Important:** During early January, I will be available for consultation (the exact times will be announced closer to the end of term). Each group *must* meet with me to receive approval to proceed writing the research paper. At this meeting, you should have an idea about: (a) what kind of project you would like to do; (b) why you think the project is interesting and/or important; and (c) how much time you need to do it. This meeting is to ensure that you are on the right track prior to writing your research paper.

**5b) Poster Presentation:** In your groups, you will prepare a poster that is a visual presentation of your project. The purpose of posters (often used at cognitive science conferences) is to provide a way to present research findings to a large audience, a few people at a time. This kind of presentation allows the people that are interested in the research the opportunity to learn about what you have done, and to interact with you (e.g., to ask questions, make comments, etc.).

A poster consists of both written text (in short, point-form) and of visual displays (e.g., bar graphs,

pie graphs, line graphs, time lines, etc.). It is important that the poster be eye-catching (to draw people to it) while also being professional and that it presents the information in an easy to understand manner. Further details will be provided in class.

All the posters will be presented at the same time in our class Poster Session. This poster session will be open – you may invite your friends and family to attend.

### **Test/Assignment Deadlines and Deferral Policy**

If, for extraordinary reasons, you miss a test or assignment deadline, you must notify me as soon as possible after the deadline.

A deferred test or assignment will be permitted under only two conditions: illness or bereavement. Documentation is required in order to schedule a deferral. If no documentation is provided, you will receive a grade of zero for that test or a 10% penalty **per day** for the assignment. This policy will be strictly enforced.

If you know that you will have trouble meeting a due date (e.g., because of other tests/assignments due on that day), contact me *in advance* to see if we can work out a reasonable solution (e.g., a short extension without penalty). If you do not do this in advance, then the above policy applies.

### **Copyright policy**

I would like to remind you that my lectures and course materials, including power point presentations, outlines, and similar materials, are protected by copyright. I am the exclusive owner of copyright and intellectual property in the course materials. You may take notes and make copies of course materials for your own educational use. You may not and may not allow others to reproduce or distribute lecture notes and course materials publicly for commercial purposes without my express written consent.

## CLASS SCHEDULE

The class schedule is only a guide and is very likely to change. However, the test dates *will not* change.

Class Date	Topic	Reading
Sept. 8	Welcome and Overview	Syllabus
Sept. 13	What is Cognitive Science?	
Sept. 15	What is Cognitive Science?	
Sept. 20	Representation and Computation	Cog Sci reading #1
Sept. 22	Representation and Computation	
Sept. 27	Mind and World	
Sept. 29	Cognitive Psychology: Introduction	Psych reading #1
Oct. 4	Cognitive Psychology: Intro / How to read and summarize a research paper	
Oct. 6	Cognitive Psychology / APA Style/Work in groups on summary	
Oct. 11	Cognitive Psychology	Psych reading #2
Oct. 13	Cognitive Psychology / <b>Assignment #1 (draft) due</b>	
Oct. 18	Mind/Body Problem	Philosophy reading #1
Oct. 20	Mind/Body Problem	
Oct. 25	<b>Fall Break – no class</b>	
Oct. 27	<b>Fall Break – no class</b>	
Nov. 1	Mind/Body Problem	
Nov. 3	Review / <b>Assignment #1 (final) due</b>	
Nov. 8	<b>Test #1 (in class)</b>	
Nov. 10	Library resources tour (meet at library)	
Nov. 15	Mind/Body Problem	
Nov. 17	Linguistics	Linguistics reading #1
Nov. 22	Linguistics	
Nov. 24	Linguistics	
Nov. 29	Linguistics	
Dec. 1	Linguistics	Linguistics reading #2
Dec. 6	Review	
Dec. 8	<b>No Class/Assignment #2 (draft) due</b>	

Class Date	Topic	Reading
Jan. 10	Neuroscience	Neuroscience reading #1
Jan. 12	How to write a research paper/Research group formation (meet at library)	
Jan. 17	Neuroscience / <b>Assignment #2 (final) due</b>	
Jan. 19	Cognitive Architectures/ Work on research proposal	Cog. Architecture reading
Jan. 24	Career Services session (in our classroom)	
Jan. 26	Cognitive Architectures [ <b>Deadline to meet re: Group Project</b>	
Jan. 31	<b>Term Test #2 (in class)</b>	
Feb. 2	Consciousness	Philosophy reading #2
Feb. 7	Consciousness	
Feb. 9	Consciousness	
Feb. 14	Consciousness and Emotions	
Feb. 16	Work on Term two project	
Feb. 21	<b>Winter Break – no class</b>	
Feb. 23	<b>Winter Break – no class</b>	
Feb. 28	Free Will and Determinism	Philosophy reading #3
Mar. 2	Free Will and Determinism	
Mar. 7	Free Will and Determinism	
Mar. 9	Free Will and Determinism	
Mar. 14	Free Will and Determinism / <b>Research Paper due</b>	
Mar. 16	Artificial Intelligence	AI reading
Mar. 21	Artificial Intelligence	
Mar. 23	Artificial Intelligence	
Mar. 28	<b>Term Test #3 (in class)</b>	
Mar. 30	Future Directions in Cognitive Science	
Apr. 4	Work on posters (in class)	
Apr. 6	<b>Poster Workshop (Location TBA)</b>	
Apr. 11	<b>No class</b>	



## THE INCENTIVE PROGRAM FOR FALL 2022 AND WINTER 2023

This course has been registered in the Incentive Program offered through the Centre for Student Academic Support (CSAS). The Incentive Program is fully online. CSAS Learning and Writing Support Workshops are designed to help students cultivate and refine their academic skills for a university environment. To earn 5% marks towards attendance/participation, students are expected to complete 4 workshops throughout the term. The workshops must be completed by April 12, 2023 to receive credit for the Incentive Program.

Below are the dates with which the 2022-23 Fall and Winter terms run:

- Fall Term: September 7 – December 9
- Winter Term: January 9 – April 12

The online Learning and Writing Support Workshops will be available to students from September 1<sup>st</sup>, 2022 to August 31<sup>st</sup>, 2023. Please ensure that you complete the workshops by your course-specific deadline.

For students' attendance to be captured, they must complete all workshop components and achieve 100% on the final assessment. Once students achieve 100% on the final assessment, they will receive a **Record of Completion** award from Brightspace. Students will need to download the Record of Completion PDF for each applicable workshop and submit them to the assignment submission box within their instructor's course. For more information about workshop attendance and submitting the Records of Completion, please visit the [Incentive Program Policies](#) on our website.

To view the complete list of the workshops and their descriptions, please visit the [Learning and Writing Support Workshops](#) page on the CSAS website. Please note that CSAS in-person workshops are not eligible for the Incentive Program.

**To access the online workshops**, please self-enrol on the CSAS [Online Resources](#) page.

For further information on the Incentive Program, please visit the [Incentive Program FAQs](#) page. For additional questions, please contact the Centre for Student Academic Support at [csas@carleton.ca](mailto:csas@carleton.ca).



## REGULATIONS AND INFORMATION COMMON TO ALL COGNITIVE SCIENCE COURSES

### Plagiarism

The University Academic Integrity Policy defines plagiarism as “*presenting, whether intentionally or not, the ideas, expression of ideas or work of others as one’s own.*” This includes 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. Examples of sources from which the ideas, expressions of ideas or works of others may be drawn from include but are not limited to: books, articles, papers, literary compositions and phrases, performance compositions, chemical compounds, artworks, laboratory reports, research results, calculations and the results of calculations, diagrams, constructions, computer reports, computer code/software, material on the internet and/or conversations.

Examples of plagiarism include, but are not limited to:

- any submission prepared in whole or in part, by someone else;
- using ideas or direct, verbatim quotations, paraphrased material, algorithms, formulae, scientific or mathematical concepts, or ideas without appropriate acknowledgment in any academic assignment;
- using another’s data or research findings without appropriate acknowledgement;
- submitting a computer program developed in whole or in part by someone else, with or without modifications, as one’s own; and
- failing to acknowledge sources through the use of proper citations when using another’s work and/or failing to use quotations marks.

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.

### Statement on Student Mental Health

As a University student you may experience a range of mental health challenges that significantly impact your academic success and overall well-being. If you need help, please speak to someone. There are numerous resources available both on- and off-campus to support you. Here is a list that may be helpful:

**Emergency Resources (on and off campus):** <https://carleton.ca/health/emergencies-and-crisis/emergency-numbers/>

### Carleton Resources:

- Mental Health and Wellbeing: <https://carleton.ca/wellness/>
- Health & Counselling Services: <https://carleton.ca/health/>
- Paul Menton Centre: <https://carleton.ca/pmc/>
- Academic Advising Centre (AAC): <https://carleton.ca/academicadvising/>
- Centre for Student Academic Support (CSAS): <https://carleton.ca/csas/>
- Equity & Inclusivity Communities: <https://carleton.ca/equity/>

## Off Campus Resources:

- Distress Centre of Ottawa and Region: (613) 238-3311 or TEXT: 343-306-5550, <https://www.dcottawa.on.ca/>
- Mental Health Crisis Service: (613) 722-6914, 1-866-996-0991, <http://www.crisisline.ca/>
- Empower Me: 1-844-741-6389, <https://students.carleton.ca/services/empower-me-counselling-services/>
- Good2Talk: 1-866-925-5454, <https://good2talk.ca/>
- The Walk-In Counselling Clinic: <https://walkincounselling.com>

## Statement on Pandemic Measures

It is important to remember that COVID is still present in Ottawa. The situation can change at any time and the risks of new variants and outbreaks are very real. There are [a number of actions you can take](#) to lower your risk and the risk you pose to those around you including being vaccinated, wearing a mask, staying home when you're sick, washing your hands and maintaining proper respiratory and cough etiquette.

**Feeling sick?** Remaining vigilant and not attending work or school when sick or with symptoms is critically important. If you feel ill or exhibit COVID-19 symptoms do not come to class or campus. If you feel ill or exhibit symptoms while on campus or in class, please leave campus immediately. In all situations, you should follow Carleton's [symptom reporting protocols](#).

**Masks:** Masks are no longer mandatory in university buildings and facilities. However, we continue to recommend masking when indoors, particularly if physical distancing cannot be maintained. We are aware that personal preferences regarding optional mask use will vary greatly, and we ask that we all show consideration and care for each other during this transition.

**Vaccines:** While proof of vaccination is no longer required to access campus or participate in in-person Carleton activities, it may become necessary for the University to bring back proof of vaccination requirements on short notice if the situation and public health advice changes. Students are strongly encouraged to get a full course of vaccination, including booster doses as soon as they are eligible and submit their booster dose information in [cuScreen](#) as soon as possible. Please note that Carleton cannot guarantee that it will be able to offer virtual or hybrid learning options for those who are unable to attend the campus. All members of the Carleton community are required to follow requirements and guidelines regarding health and safety which may change from time to time. For the most recent information about Carleton's COVID-19 response and health and safety requirements please see the [University's COVID-19 website](#) and review the [Frequently Asked Questions \(FAQs\)](#). Should you have additional questions after reviewing, please contact [covidinfo@carleton.ca](mailto:covidinfo@carleton.ca).

## Requests for Academic Accommodations

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

**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 accommodation regarding a formally-scheduled final exam, you must complete the Pregnancy Accommodation Form ([click here](#)).

**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 [click here](#).

**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](mailto: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 where 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: <https://carleton.ca/equity/sexual-assault-support-services>

### **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 will be provided to students who compete or perform at the national or international level. 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. <https://carleton.ca/senate/wp-content/uploads/Accommodation-for-Student-Activities-1.pdf>

### **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.
- The last day for academic withdrawal for winter and fall/winter courses is March 15th, 2023.
- Work from previous courses will not be accepted for credit in this course.
- 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://calendar.carleton.ca/academicyear/>

