Course Description
Seminar in Cognitive Science 2025/26

Time & Venue
Wed 9:00 am – 11:50 am @ Rm 5566

Instructor
Prof. Janet Hui-wen Hsiao Office: Room 3374, 3/F Academic Building
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Office Hour: by appointment

TA: Alice Yumeng YANG Office: Room 3301, 3/F, Academic Building
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TA: Jennifer Sin Yu HUNG Office: Room 2371, 2/F, Academic Building
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Course Information
This course aims to introduce current issues in Cognitive Science to postgraduate students. Cognitive Science is the interdisciplinary, scientific study of the mind and mental phenomena, encompassing Artificial Intelligence, Psychology, Linguistics, Neuroscience, Philosophy, Anthropology, and Education. At each week's class, we will read and discuss research papers from major Cognitive Science journals, including *Trends in Cognitive Science* and *Topics in Cognitive Science*, or other related interdisciplinary journals. This course is open to all graduate students who are interested in learning more about interdisciplinary studies on the mind and behavior.

A brief introduction to Cognitive Science will be provided during the first three lectures. Materials will be taken from this textbook:

Textbook: Bermudez, J. L. (2024). *Cognitive Science: An Introduction to the Science of the Mind* (4th edition). Cambridge University Press: New York

Full text available online through our library: https://julac-hkust.primo.exlibrisgroup.com/discovery/fulldisplay?docid=alma991013226357103412&context=L&vid=852JULAC_HKUST:HKUST&search_scope=HKUST_catalog_primo&tab=Everything&lang=en

Course Requirements
Weekly: At each week's class, one or two student(s) will lead a discussion on the assigned article(s). Everyone is expected to finish reading the assigned article(s) BEFORE the class. The presenter(s) should post the assigned article(s) on the corresponding discussion forum on Canvas **one week before the presentation** (**Wednesday, by 11:59 PM**). The presenter(s) should upload the PPT slides to the discussion forum by the beginning of the

presentation. By **the following Mondy (9:00 AM),** the presenter(s) need to submit 10 questions and answers for Kahoot Quiz launched at the next lecture. On the weekday before the class (**Tuesday**), everyone needs to post 1-2 discussion questions on the corresponding Discussion forum **before NOON** as an after-thought of the assigned article(s) of that week, which is optional for presenter(s) of that week. During the class, the presenter(s) will give a short presentation of the article(s) as a warm-up for group discussion, and also serve as the discussion leader. On the 2nd weekday after the class (**Friday**), everyone (including the presenters) needs to submit a reflective essay on Moodle **by 5:00 PM** as an after-thought of the discussion. The order of taking the presenter role will be determined during the organization meeting. The duty of the discussion leader(s) is to provide an encouraging atmosphere and stimulate the group to move beyond the content of the assigned article(s). You are more than welcome to meet with the instructor if you need help to prepare for a discussion session. You are encouraged to explore and pick your own topic; however, a new topic has to be approved by the instructor first.

Please note that you need to lead the discussion at least once. Discussion questions and reflective essays should still be submitted even if you miss a seminar. You need to submit discussion questions and reflective summaries on time. Late discussion questions will result in penalties affecting your discussion participation. For the reflective essay, there will be a deduction of 5% for every hour they are overdue.

Assessments

Assessment for this course will be 10% attendance, 30% discussion participation (including the quality of the discussion question submission), 30% presentation, and 30% reflective essays. Bonus points will be awarded to the top 3 winners in the Kahoot quizzes.

Discussion participation will be assessed by the following criteria:

- Intellectual contribution (40%)
- Group discussion skills (30%)
- Communication of ideas (30%)

Presentation will be assessed by the following criteria:

- Addressing the task (10%)
- Understanding, analysis, synthesis, and application of knowledge (20%)
- Argumentation (20%)
- Structure/organization (20%)
- Delivery (20%)
- Presentation mechanics (10%)

The reflective essays will be assessed by the following criteria:

- Addressing the task (20%)
- Intellectual engagement with concepts, theories or issues (40%)
- Personal development and reflection (30%)
- Writing mechanics (10%)

Students' final grade will be given according to the following criteria:

A: Excellent (total mark 80+): Students demonstrate consistent evidence of achieving the course objectives and substantial originality in identifying issues and in generating, analyzing, and communicating arguments.
B: Good (total mark 70~79): Students demonstrate frequent evidence of achieving the course objectives and originality in defining and analyzing issues and in creating solutions.
C: Satisfactory (total mark 60~69): Students demonstrate evidence of achieving the course objectives, but some important parts are omitted, e.g., misunderstanding of the materials, or lack of critical thinking, etc.
D: Poor (total mark 50~59): Students barely demonstrate evidence of achieving the course objectives; have assembled the bare minimum of information, poorly digested, and not well organized in presentation.
F: Fail (total mark < 50): Students fail to achieve the course objectives and demonstrate faulty understanding of the fundamental concepts.

Tentative Timetable

Week	Date	Topic	Presenter
1	3 Sept	Introduction	Janet
2	10 Sept	Introduction	Janet
3	17 Sept	Introduction + The Organization Meeting for Presentations	Janet
4	24 Sept		
5	1 Oct	Holiday	-
6	8 Oct		
7	15 Oct		
8	22 Oct		
9	29 Oct	Holiday	-
10	5 Nov		
11	12 Nov		
12	19 Nov		
13	26 Nov		

Potential Topics:

Articles from *Trends in Cognitive Sciences*:

Large language models:

- Dissociating language and thought in large language models (review) https://browzine.com/libraries/230/articles/609488550/pdf
- From task structures to world models: what do LLMs know? (opinion) https://browzine.com/libraries/230/articles/607909142/pdf
- Commentary: LLMs don't know anything: reply to Yildirim and Paul

https://www-sciencedirect-com.lib.ezproxy.hkust.edu.hk/science/article/pii/S1364661324001682

AI vs. humans:

- Generating meaning: active inference and the scope and limits of passive AI (opinion)
  https://browzine.com/libraries/230/articles/594733468/pdf
- Helpless infants are learning a foundation model
  https://www.ncbi.nlm.nih.gov/pmc/articles/PMC11310914/
- Commentary: 'Helpless' infants are active, goal-directed agents: response to Cusack et al.
  https://www-sciencedirect-com.lib.ezproxy.hkust.edu.hk/science/article/pii/S1364661325000221
- Commentary: Defending the foundation model view of infant development
  https://www-sciencedirect-com.lib.ezproxy.hkust.edu.hk/science/article/pii/S1364661325001196

Consciousness in AI and humans

- Tests for consciousness in humans and beyond (review)
  https://browzine.com/libraries/230/articles/609029176/pdf
- Minireviews:
  - What will society think about AI consciousness? Lessons from the animal case
    https://www-sciencedirect-com.lib.ezproxy.hkust.edu.hk/science/article/pii/S1364661325001470
  - How to make artificial agents more like natural agents
    https://www-sciencedirect-com.lib.ezproxy.hkust.edu.hk/science/article/pii/S1364661325001846
  - Illusion, dilution, or loss: psychological ownership and GenAI
    https://www-sciencedirect-com.lib.ezproxy.hkust.edu.hk/science/article/pii/S1364661324003322

Learning in humans and machines:

- Demystifying unsupervised learning: how it helps and hurts
  https://www-sciencedirect-com.lib.ezproxy.hkust.edu.hk/science/article/pii/S1364661324002274
- Learning by thinking in natural and artificial minds
  https://www-sciencedirect-com.lib.ezproxy.hkust.edu.hk/science/article/pii/S1364661324001918

AI/technology and social issues:

- Large language models (LLMs) and the institutionalization of misinformation
  https://www-sciencedirect-com.lib.ezproxy.hkust.edu.hk/science/article/pii/S1364661324002213
- Three roots of online toxicity- disembodiment, accountability, and disinhibition

https://www-sciencedirect-com.lib.ezproxy.hkust.edu.hk/science/article/pii/S1364661324001426

- Minireviews:
    - Artificial intimacy: ethical issues of AI romance https://www-sciencedirect-com.lib.ezproxy.hkust.edu.hk/science/article/pii/S1364661325000580

Other social issues

- How early beliefs about brilliance shape gender gaps https://www-sciencedirect-com.lib.ezproxy.hkust.edu.hk/science/article/pii/S1364661325001810
- The cognitive science of eyewitness memory https://www-sciencedirect-com.lib.ezproxy.hkust.edu.hk/science/article/pii/S1364661325000270
- Minds and markets as complex systems- an emerging approach to cognitive economics https://www-sciencedirect-com.lib.ezproxy.hkust.edu.hk/science/article/pii/S1364661324001748

Clinical:

- Cognitive impairments in chronic pain: a brain aging framework https://www-sciencedirect-com.lib.ezproxy.hkust.edu.hk/science/article/pii/S1364661324003255
- Cognitive maps and schizophrenia https://www-sciencedirect-com.lib.ezproxy.hkust.edu.hk/science/article/pii/S1364661324002547

Sleep:

- New strategies for the cognitive science of dreaming https://www-sciencedirect-com.lib.ezproxy.hkust.edu.hk/science/article/pii/S136466132400264X
- Coupled sleep rhythms for memory consolidation (review) https://browzine.com/libraries/230/articles/607909143/pdf

Communication and social cognition:

- Facial clues to conversational intentions https://www-sciencedirect-com.lib.ezproxy.hkust.edu.hk/science/article/pii/S1364661325000798
- Tracking minds in communication https://www-sciencedirect-com.lib.ezproxy.hkust.edu.hk/science/article/pii/S1364661324003127

Interacting with AI/Technology

- Interactive repair and the foundations of language (review) https://browzine.com/libraries/230/articles/589110965/pdf
- Dynamic reading in a digital age: new insights on cognition (review)

https://browzine.com/libraries/230/articles/583961458/pdf

Cognitive abilities:

- Core systems of music perception
  https://www-sciencedirect-com.lib.ezproxy.hkust.edu.hk/science/article/pii/S136466132500138X
- Where is my mind? A neurocognitive investigation of mind blanking
  https://www-sciencedirect-com.lib.ezproxy.hkust.edu.hk/science/article/pii/S1364661325000348

Academic honesty

Academic honesty: Academic dishonesty will not be tolerated. Any student who engages in any form of academic dishonesty (e.g., cheating on exams, plagiarism, self-plagiarism, interfering with grading, falsification and fabrication of data in any academic exercise etc.) will receive a grade of F on the component(s) of assessment concerned or in this course and will be reported to the Department/School/University for further disciplinary action. There will be no exception.

Plagiarism

A softcopy is required for all written assignments. The softcopy will be checked for plagiarism. No credit will be given for an assignment that contains plagiarized materials. Further penalties will also be applied. These penalties include a zero mark for participation in course tutorials and a zero mark for the course. Plagiarism will also be reported to the Department/School/University for consideration of possible disciplinary action. Note that you also should not use any materials submitted for another course for the coursework in this course without proper acknowledgement (i.e., self-plagiarism).