Honours Seminar in Cognitive Science

Course Description

This course will emphasize the inter-disciplinary nature of cognitive science and the bearing of recent research in cognitive science on real-world issues and problems. By the end of the course, students will have completed an original research project in cognitive science that builds on their previous coursework and training in the various disciplines that constitute the field of cognitive science.

By focusing on specific topics and current debates, an attempt will be made throughout the course to make connections between the various disciplines that constitute the interdisciplinary field of cognitive science. Some of the themes and debates covered will include: the relationship between thought and language, concepts and conceptual change, the nature of mental representation, innateness and learning, rationality, the modularity and domain-specificity of cognition, evolutionary psychology and human nature, and neural networks and the compositionality of thought, among others. Each week, we will read two papers taken from two different disciplines within cognitive science on some topic; sometimes these papers will represent opposing viewpoints, at other times they will reinforce one another, and at yet other times they might be pitched at cross purposes. Our aim will be to find connections, make comparisons, draw conclusions, and think of directions for future research. Each week, you will be required to submit a discussion piece on that week's readings 24 hours before our class meeting.

The topics covered during the **first semester** will serve to guide you in formulating your own research question and in conducting your research project. In the first few weeks of the first semester, you should be exploring avenues for research that build upon your previous coursework in cognitive science. By the middle of the first semester, and after consulting with me, you will have defined your research topic and charted a path for your research. During the last few weeks of the first semester, you will be required to give a short presentation on your intended research topic. Readings for the **second semester** will be based on students' research projects and each reading will be presented by a student working on a topic related to the reading in question. During the second half of the second semester, you will give a class presentation that sums up your main research findings to date and, based on feedback from me and your fellow students, you will further refine and develop your research project. Each student will be responsible for assessing and commenting on two other student projects. By the end of the second semester, each student will submit a completed research project to me for evaluation.

One of the main goals of this course is to make you more conversant with the different methodologies that are used in cognitive science and to give you more experience with them. This will be achieved both by reading articles that employ a broad range of these methodologies and by conducting a research project that utilizes one or more of them. But in addition to mastering some of these methodologies, we will be aiming to bridge the gaps between them and to relate the results achieved by each of them to those reached by the others. Thus, the aim of the exercise is to foster the skill of crossing disciplinary boundaries and of being able to communicate across the disciplinary divide.

This course is the capstone for students in the COGS Honours BA program.
Requirements and Grading

In addition to attendance every week and participation in class discussion, you will be asked to fulfill the following requirements:

**First semester:**

1. Weekly thought piece on that week's readings (due by email 24 hours before class meeting; 250-350 words). [20%]
2. Meeting to define research topic: all students must schedule a meeting with me during the weeks of Sept 14 and Sept 21 to define their research topic. [Not graded]
3. In-class presentation based on preliminary statement of research project, including handout. [10%]
4. Preliminary statement of research problem and annotated bibliography (approx. 10 items). [10%]

**Second semester:**

1. Presentation of an article from your bibliography (to be decided by the beginning of the second semester). [10%]
2. Class presentation of research project, including handout and slides. [10%]
3. Peer evaluation of two projects by other students. [10%]
4. Final research project (approximately 8,000 words). [30%]

Topics and Readings (Fall Semester)

**Week 1 (Sept 9): Introduction**

**Week 2 (Sept 16): Thought and Language**


**Week 3 (Sept 23): Concepts**


**Week 4 (Sept 30): Mental Representation**


Week 5 (Oct 7): Evolutionary Psychology


Week 6 (Oct 14): HOLIDAY

Week 7 (Oct 21): Innateness


Week 8 (Oct 28): Rationality


Week 9 (Nov 4): Artificial Intelligence, Connectionism, and Systematicity


Week 10 (Nov 11): Extended and Embodied Minds


Week 11 (Nov 18): Modularity and Domain Specificity


Week 12 (Nov 25): Student Presentations

Week 13 (Dec 2): Student Presentations