LING 26520//PHIL 22199/32199 Spring 2018
University of Chicago TuTh 9.30-11.50

Cognition

Instructor: Jason Bridges (ck@uchicago.edu)
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Instructor: Chris Kennedy (ck@uchicago.edu)
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Course Description

That we think, that we remember past events, that we perceive objects in the world around us, that we feel pain and other sensations, that we have emotions, that we formulate plans and work to put them into action: these are among the most quotidian, undeniable realities of human life. And yet philosophers and scientists have long struggled to find a place for such "mental" phenomena within a conception of the world as natural and un-mysterious. In recent decades, the interdisciplinary field of cognitive science has proposed a new form of solution to this age-old quandary. We will explore foundational questions raised by the cognitive scientific approach. Readings are drawn from a range of historical and contemporary sources in philosophy, psychology, linguistics and computer science.

Assessment

Discussion leaders (12%) All undergraduates are expected to attend weekly discussion sections led by the TAs, and to serve as discussion leaders for N course sessions. Discussion leaders must:

- work together to distill 3-4 key, questions/issues from the relevant reading(s)
- post the issues in the Discussion section of Canvas,
- be prepared to lead a discussion based around those issues.

We will put together a schedule of discussion leaders once section enrollments have stabilized.

Reaction papers (18%) Students must choose one article from the set of readings assigned each week and provide a 1-2 page overview of its core content: what is the main issue that it addresses, what is the main claim/proposal that it makes, and what are the most important arguments that are brought to bear in support of the proposal? Reaction papers should be uploaded to Canvas in pdf format before class on Thursday. The first reaction paper is due on **Thursday, March 29**.

Short paper (30%) A focused, 3-5 paper paper on a topic selected from a list of prompts that will be provided on Canvas. Due **Thursday, May 3**.

Final project (40%) Students must put together a final project on a topic of their choice that is related to the material covered in class. The exact nature of the final project is open: it could be a research paper, a creative work, a computational work, etc. (This list is not meant to be exhaustive.)

A one-page abstract describing and motivating the project must be submitted for approval by the instructors no later than **Thursday, May 24**; the final version of the project is due on **Thursday, June 7**.

Week 1: Introduction

3.27	Setting the stage	Marr, *Vision*, pp. 8-31
3.29	Humean foundations	Hume, *Enquiry Concerning Human Understanding* sec. 1-3

Week 2: Innateness

4.3	From data to language	Skinner, *Science and Human Behavior* (excerpts); Chomsky, "Verbal behavior by B.F. Skinner"
4.5	Universal grammar	Chomsky, *Aspects of the Theory of Syntax* ch. 1; Putnam, "The 'innateness hypothesis' and explanatory models in linguistics"

Week 3: Brains (Guest instructor: Leslie Kay, Psychology)

4.10	How the brain does its jobs	Gibson, *The senses considered as perceptual systems*, ch. 3, pp. 47-58; Tolman, "Cognitive maps in rats and men"
4.12	Parallel jobs of brains: information processing vs. interaction/emergence	Majid and Burenhult, "Odors are expressible in language, a s long as you speak the right language;" Firestone and Scholl, "'Top-Down' Effects Where None Should Be Found: The El Greco Fallacy in Perception Research"

Week 4: The pre-history of the computational mind

4.17	Soul as form-in-matter	Aristotle, *De Anima* (excerpts)
4.19	Soul as the immaterial organ of thought	Descartes *The Passions of the Soul, part 1*

Week 5: Function and form

4.24	Functionalism and sensation	Putnam, "The Nature of Mental States" and "Philosophy and Our Mental Life"
4.26	Functionalism and representation	Fodor, "Propositional Attitudes"

Weeks 6-7: Artificial intelligence?

5.1	Classic AI	McCarthy, "Programs with common sense;" Levesque, "On our best behavior;" Winograd, "What does it mean to understand language?"
5.3	Connectionism	Smolensky, "On the proper treatment of connectionism;" Smolensky, "Connectionism, constituency and the language of thought"
5.8	Creatures	Brooks, "Intelligence without representation;" *Scientific American* "Machines who learn"
5.10	Bayesean reasoning	Lake et al., "Human level concept learning through probabilistic program induction;" Perfors, "Bayesean models of cognition: What's built in after all?"

Week 8: The "explanation" of visual perception

5.15	Two explanatory programs	Marr, *Vision*, ch. 1; Gibson, "A Theory of Direct Visual Perception" and *The Ecological Approach to Visual Perception*, ch. 14
5.17	Direct perception	Fodor and Pylyshyn, "How Direct is Visual Perception?;" Spelke, "Where Perceiving Ends and Thinking Begins"

Week 9: Patterns, levels and explanation

5.22	Superimposing mind on matter	Dennett, "Real Patterns" and "True Believers"
5.24	The very idea of scientific psychology	Wittgenstein, *The Blue Book* and *Zettel* (excerpts)

Week 10: Conclusion

5.29	Final thoughts	TBD