

CGSC130

INTRODUCTION TO COGNITIVE SCIENCE: WHAT MINDS ARE AND WHAT THEY DO

SPRING 2015

Professor: Jason Decker

Class time: MW 1:50–3:00, F 2:20–3:20

Classroom: Leighton 402

Office: Leighton 307

Office Hours: W 3:30–5 & by apt.

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1 Course Description

The mind is a black box situated between the stimuli a person (or animal) receives and the responses he or she exhibits. Cognitive Science is a rapidly expanding interdisciplinary field concerned with opening up the black box and explaining its contents. In this course, we will draw on work from artificial intelligence, cognitive psychology, philosophy, linguistics, and neuroscience in order to tackle questions surrounding the nature of mental representation, perception, reasoning, learning, memory, action, emotion, and consciousness.

The terrain we will skate over is vast and deep, and our time is short. We won't do justice to any of the various subtopics that we will consider. Hopefully, though, we will be able to get a reasonably good feel for the sorts of puzzles that concern cognitive scientists, and the sorts of approaches they have taken to solving them. But we will not remain mere bystanders, observing what others have done. In your assignments and class discussion, you will grapple with these puzzles for yourself, informed by what cognitive scientists have had to say, but in no way bound by their particular strategies or conclusions.

2 Grading

Grades will be determined on the basis of four factors:¹

1. **Smaller Exercises (30%):** These skill-focused assignments will be scattered throughout the term. They will be focused on skills such as: surveying extant literature, analyzing arguments, framing projects, and responding to critical feedback. More details on these assignments will be distributed throughout the term.
2. **First Paper (30%):** 5–7 pages. The first version (15%) of this paper is due on **May 1st**. I'll give you detailed comments, and you'll rewrite it in light of these comments. The rewrite (15%) will be due on **May 15th**. Topics for the paper will be handed out two weeks prior to the first due date.
3. **Second Paper (30%):** 5–7 pages. This paper will be on a topic your choice. Detailed guidelines on choosing a topic and writing the paper will be distributed several weeks prior to the deadline. The due date for the final draft is **June 8th**.

¹The professor reserves the right to add a fifth factor: quizzes. The professor doesn't particularly care for quizzes or tests, but will resort to them if it seems that some extra incentive is required to encourage students to keep up with the readings.

4. **Participation (10%):** Aside from attendance (which is, of course, mandatory), there are two ways to participate in the course.
 - (a) *Class Participation:* Asking questions, answering questions, and contributing in a constructive way to class discussion.
 - (b) *Moodle:* Participating in discussion threads on the course's Moodle site.

3 Teaching Assistant

Carl Bou Mansour (boumansc@carleton.edu) will be our teaching assistant for this course. He will hold periodic review sessions and will be available to meet with you individually (as his schedule permits).

4 Readings

The main text for this course is *The Cambridge Handbook of Cognitive Science*, edited by Keith Frankish and William Ramsey (ISBN: 978-0-521-69190-1). All other readings will be available in pdf form on the course's Moodle site.

5 Academic Honesty

If you are not already familiar with the College's academic honesty policy, please familiarize yourself with it: <http://apps.carleton.edu/campus/doc/honesty>. This URL also links to some helpful information and tips for avoiding unintentional plagiarism. **Make sure that you understand what plagiarism is. If you need clarification, please contact me.** If you find yourself stressed out, running out of time, and tempted to plagiarize, take a deep breath and write me an email, or stop by my office. I guarantee that we'll come up with a better solution than copying someone else's work.

6 Disability Accommodations

Carleton's Disability Services website (https://apps.carleton.edu/campus/wellness/disability_services/) sums up the College's policy on disability accommodations as follows:

Carleton College, with its tradition of emphasis on faculty-student contact, provides a supportive environment for students with disabilities. It is the policy of the college to create and maintain an environment in which all students may learn and work to their fullest potential.

If you need any special accommodations, please let me know as soon as possible. I'm more than happy to make whatever arrangements are necessary.

7 Note About the Schedule

A first version of the reading and assignment schedule can be found below. Since everything on this schedule is subject to change, you should not rely on it after this week. The home page of the course's moodle site will always have the most up-to-date version of the reading and assignment schedule.

8 Schedule

[FR] = Frankish & Ramsey Anthology; [MOO] = Moodle; [SUPP] = Supplemental/Not Required

Week 1

	Topic	Readings	Assignments
03/30	Introduction & Preliminaries	—	—
04/01	Prehistory	Abrahamsen and Bechtel: History... [FR] Skinner: William James Lectures, Ch. 1 [MOO] Chomsky: Review of Skinner [MOO] [SUPP] Watson: <i>Psych. as the Behaviorist Views It</i> [MOO]	—
04/03	Mental Representations	Eckardt: The Representational Theory of Mind [FR] Fodor: <i>LOT</i> (Preface) [MOO]	—

Week 2

04/06	Mental Representations	Fodor: <i>LOT</i> (ch. 1) [MOO] Millikan: Biosemantics [MOO]	—
04/08	Cognitive Architectures	Thagard: Cognitive Architectures [FR] McClelland & Rumelhart: An Interactive Activation Model (first half) [MOO]	—
04/10	Cognitive Architectures	McClelland & Rumelhart: An Interactive Activation Model (second half) [MOO] Pinker: Language and Connectionism [MOO]	—

Week 3

04/13	Perception	O'Callaghan: Perception (up through 4.1) [FR] Crane: What is the Problem of Perception? [MOO]	—
04/15	Perception	O'Callaghan: Perception (the rest) [FR] Gibson: <i>The Ecological Approach...</i> (excerpt) [MOO]	—
04/17	Perception	Fodor & Pylyshyn: How Direct is Visual Perc.? [MOO]	ANALYSIS

Week 4

04/20	Perception	Simons & Chabris: ...Sustained Inattention. Blindness [MOO] Simons & Rensink: Change blindness [MOO]	—
04/22	Reasoning	Oaksford <i>et al</i> : Reasoning and Decision Making [FR]	—
04/24	Reasoning: Decisions	Nozick: Newcomb's Problem...[MOO] Weirich: Causal Decision Theory [in SEP]	FRAMING

Week 5

04/27	Reasoning: Irrationality	Wason: On the failure to eliminate hypotheses...[MOO] Kahneman & Tversky: Judg. under Uncertainty [MOO] Sperber: Why Do Humans Reason? [MOO]	—
04/29	Learning & Memory	Ranganath <i>et al</i> : Human Learning and Memory [FR] TBD: TBD	—
05/01	Learning & Memory	Bartlett: <i>Remembering</i> , ch. X [MOO] Loftus & Palmer: Reconstruction of Auto. Destruction	PAPER 1

Week 6

05/04	[Break]	[Break]	
05/06	Synesthesia	Cytowic: <i>Synesthesia: A Union of the Senses</i> (excerpts)	—
05/08	Language	Jackendoff: Language [FR]	MINIREVISION

Week 7

05/11	Language: Meaning	Quine: <i>Word and Object</i> (excerpt) [MOO] Chomsky: Quine's Empirical Assumptions [FR]	—
05/13	Language: Pragmatics	Grice: Logic and Conversation [MOO] Sperber & Wilson: Relevance Theory [MOO]	—
05/15	Action & Agency	Pacherie: Action [FR] Wilson & Shpall: Action (in SEP) [MOO]	P1 REWRITE

Week 8

05/18	Action & Agency: Motor Cognition	TBD: TBD	—
05/20	Action & Agency: Free Will	Libet: Do We Have Free Will? [MOO] Travena & Miller: Brain Preparation [MOO] Travena & Miller: Cortical Movement [MOO]	—
05/22	Emotions	Prinz: Emotion [FR] TBD: TBD	P2 TOPIC

Week 9

05/25	Consciousness	Lycan: Consciousness [FR] Block: On a Confusion...[MOO]	—
05/27	Consciousness	Crick & Koch: A Framework for Consciousness [FR] Block: Consciousness, Big Science and...Clarity [FR]	—
05/29	Split Brains	Gazzaniga et al: Some functional effects...[MOO] Gazzaniga: Forty Five Years of Split-Brain Research [MOO]	OUTLINE/ SYNOPSIS

Week 10

06/01	Evolutionary Psychology	Barrett: Evolutionary Psychology [FR] TBD: TBD	—
06/03	Embodied, etc., Cognition	Clark: Embodied, Embedded, and Extended Cog. [FR] Adams & Aizawa: Defending the Bounds of Cog. [MOO] [Supp] Chemero: Radical embodied cog. science [MOO]	—
6/08			PAPER 2