

COURSE SYLLABUS

YEAR COURSE OFFERED: 2016
SEMESTER COURSE OFFERED: Spring
DEPARTMENT: Philosophy
COURSE NUMBER: 3395
NAME OF COURSE: Philosophy of Cognitive Science
NAME OF INSTRUCTOR: Cameron Buckner

The information contained in this class syllabus is subject to change without notice. Students are expected to be aware of any additional course policies presented by the instructor during the course.

Time and location: TuTh 10:00AM - 11:30AM, AH 7
Office hours: TuTh 11:30-12:30 AH506
Instructor e-mail: cjbuckner@uh.edu

Learning Objectives

Cognitive science is the interdisciplinary study of the mind, involving the cooperation of psychology, computer science, philosophy, neuroscience, anthropology, and more. In this course, we will review major philosophical and methodological questions that arise in cognitive science, especially regarding how findings from so many different sciences with different methods could fit together in a coherent way. We will discuss how cognitive science began as a response to behaviorism, and cover major questions that it has to confront, including: what counts as a good cognitive explanation, could computers or robots have minds, can our minds extend beyond our brains, are psychological and neural descriptions at odds with one another, and does cognitive science need to appeal to representations? We will review the answers to these questions provided by the major paradigms in the history of cognitive science, including classical computationalism, connectionism, dynamicism, and predictive coding approach. No philosophical background is required, but an introductory course in Logic, Psychology, or Computer Science is highly recommended.

Major Assignments/Exams

(Undergraduates only – graduate students, see me individually)

Weekly Responses	10%
Exam 1	20%
Paper 1 (4-5 pages)	20%
Paper 2 (5-7 pages)	30%
Final Exam	20%

Weekly responses

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Each week, every student will be required to submit a 1-2 page response paper on that week's readings. Responses will typically be due on Wednesday, and will be discussed on Friday. Grading will be a completion grade—0, check-, check, and check+, corresponding to F, C, B, and A, respectively.

Your goal in a response paper is to wrestle with some issue that you found interesting or troubling in a reading. Sometimes I will give the class a prompt to respond to as you go through the readings, which will be posted on the course Blackboard site. Your response can consist of asking a question of the reading and exploring the author's answer, drawing some troubling implications of an author's views, or defending the author against possible objections. The first paragraph of the response should always summarize the thesis or issue that you will be discussing.

Papers

Undergraduates will complete two papers, with topics chosen from a list passed out roughly at weeks 5 and 10. Papers will be due roughly two weeks after they are assigned. For advice on how to write a philosophy paper, this is an excellent resource:

<http://www.jimpryor.net/teaching/guidelines/writing.html>

Note on plagiarism: All papers will be reviewed through turnitin.com, which will automatically check for evidence of plagiarism. I will vigorously pursue and punish plagiarism (if you are not sure what counts as plagiarism, see here: <http://guides.lib.uh.edu/plagiarism>). *Never* cut and paste text from another source without attribution; you should also be very careful when paraphrasing. When in doubt, cite.

Note on paper lengths: 1 page = approximately 300 words. Do not try any formatting tricks to draw out the length of a paper—I have seen them all (even making the periods or spaces size 14 font). If you're in doubt, do a word count; I will.

Exams

Undergraduates will take two in-class essay exams: one mid-term and one final. A list of possible topics will be handed out roughly 1 week before the exam date, from which the essay questions will be chosen.

Required Reading

Andy Clark, *Mindware: An Introduction to the Philosophy of Cognitive Science*, 2nd edition

Recommended Reading (Read before class begins if you want some context)

Watson, "Psychology as the Behaviorist Views it"

Chomsky, "A Review of B.F. Skinner's Verbal Behavior"

Tolman, "Cognitive maps in Rats and Men"

Lettvin et al, "What the Frog's Eye Tells the Frog's Brain"

Fodor "Special Sciences: Or the Disunity of Science as a Working Hypothesis"

Tversky & Kahneman, "Judgment under Uncertainty: Heuristics and Biases"

Rosch & Mervis, "Family Resemblances: Studies in the Internal Structure of Categories"

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List of discussion/lecture topics

Students are expected to have read the chapters or articles indicated. Readings with a “+” symbol are **recommended** for undergraduates and **required** for graduates.

Week	Topic	Readings
Week 1 Jan 19	Mind as Computer	Clark Ch1 Kim, Ch4, “Mind as Computer” +Turing, Computing Machinery & Intelligence
Week 2 Jan 26	Classical Symbol Systems	Clark Ch2 Newell & Simon, “Computer science as empirical inquiry: Symbols and search” +Dennett, “Cognitive Wheels: The Frame Problem in AI”
Week 3 Feb 2	Rationality, Contents, and Causes	Clark Ch3 Millikan, “Biosemantics” +Dretske, “Psychological and Biological Causes of Behavior”
Week 4 Feb 9	Connectionism	Clark Ch4 MacDonald & MacDonald, “Classicism vs. connectionism” +McClelland, McNaughton, & O’Reilly, “Why the Brain has Complementary Learning Systems”
Week 5 Feb 16 *Paper #1 Assigned*	Perception, Action, and the Brain	Clark Ch5 Craver, “A Field Guide to Levels” +Franks, “On Explanation in the Cognitive Sciences”
Week 6 Feb 23	Robots and Artificial Life	Clark Ch6 Brooks, “Adaptation without Representation” +Webb, “Why not the real iguana?”
Week 7 Mar 1 Paper #1 Due	Dynamical Systems	Clark Ch7 Van Gelder, “What might cognition be, if not computation?” +Thelen et al., “A field theory of infant perseverative reaching” <i>BBS</i>
Week 8 Mar 8 *Exam #1*	Language and Cognition	Clark, Ch8 Clark, “Magic Words” + Anderson, “Neural Reuse...” <i>BBS</i>
Week 9 Mar 15	Spring Break	

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Week 10 Mar 22	Extended Cognition	Clark Ch9 Adams & Aizawa, “The Bounds of Cognition” +Buckner, “A property cluster theory of cognition”
Week 11 Mar 29	Predictive Coding	Clark Ch11 McClelland et al., “Letting Structure Emerge” +Clark 2013, “Whatever next?” <i>BBS</i>
Week 12 Apr 5 *Paper #2 Assigned*	Mechanistic Explanation	Piccinini & Craver, “Integrating Psychology and Neuroscience” +Sullivan, “Construct Stabilization and the Unity of the Mind-Brain Sciences” +Stinson, “Mechanisms in Psychology-Ripping Nature at its Seams”
Week 13 Apr 12	Heuristics & Ecological Rationality	Gigerenzer, Todd, and the ABC group: “Simple Heuristics that Make us Smart” <i>BBS</i> Kahneman & Frederick, “Representativeness Revisited” +Samuels, Stich, & Bishop “Ending the Rationality Wars”
Week 14 Apr 19	Social Cognition	Spaulding: “Mirror Neurons and Social Cognition” Bargh, Chennow, & Burrow, “Automaticity of Social Behavior”
Week 15 Apr 26 *Paper #2 due*	Animal Cognition	Kristin Andrews, “Animal cognition”, <i>SEP</i>
Week 16 May 3	Exercise in Animal Cognition	Elizabeth Camp, “Putting thoughts to work”
Final Exam	Thu May 12, 11:00 AM-2:00 PM	All material