

## Philosophy 620: Advanced Philosophy of Cognitive Science

### Course Description:

Cognitive science is an exciting interdisciplinary approach to the mind that draws on research from a variety of disciplines, including anthropology, computer science, linguistics, neuroscience, and psychology. The resulting theories and data have also exerted a profound influence on how philosophers approach fundamental issues about the nature of mind. This course focuses on such issues, including: Is the mind a computer? How much of the mind is innate and how much is learned? Is the mind a unitary general-purpose mechanism, or is it divided into specialized subsystems or modules? How do we represent the world in thought? Are human beings rational?

### Readings:

Students are expected to read the articles assigned for each class session prior to class. Readings will be available online via the course homepage.

### Course Requirements & Grading:

- (i) *Papers:* You will be required to write TWO papers, each 1,500-2,000 words in length. Further information regarding topics and due dates for the papers will be distributed later in the course.
- (ii) *Exams:* (a) There will be a mid-term exam and (b) a cumulative final exam. Make-up exams will only be given under exceptional circumstances.
- (iii) *Course Grade:* In computing your course grade, each paper will be worth 25%. The Midterm will be worth 20% and the final 30%. Final grades may be adjusted up or down by as much as one half grade to reflect class participation.

### Topics & Readings:

- \* = Required reading
- = Further reading

#### *The Representational Theory of Mind and Mechanistic Psychology*

- Reading:
- \* B.F. Skinner, 'Selections from *Science and Human Behaviour*' in N. Block *Readings in Philosophy of Psychology* Vol. 1 (Methuen/Harvard University Press, 1980)
  - \* N. Chomsky, 'Review of *Verbal Behaviour*' in N. Block (ed.), *Readings in Philosophy of Psychology* Vol. 1 (Methuen/Harvard University Press, 1980)
  - Dennett, D. 'Skinner Skinned' in D. Dennett *Brainstorms* (Cambridge: MIT Press, 1978, p. 58).

### *Classical Computationalism I: The Theory*

- Reading:
- \* J. Haugeland, 'Semantic Engines' in Haugeland (ed.), *Mind Design* (First Edition, MIT, 1981) and in Cummins and Cummins (eds.), *Minds, Brains and Computers* (Blackwell, 2000)
  - Brian McLaughlin "Computationalism, Connectionism and the Philosophy of Mind" in L. Floridi (ed.) *The Blackwell Guide to the Philosophy of Computing and Information* (2003) pp. 135-51.
  - N. Block, 'The Computer Model of the Mind' in Osherson and Smith (eds.), *Thinking: An Invitation to Cognitive Science* Vol. 3 (Second Edition, MIT, 1995) [<http://www.nyu.edu/gsas/dept/philo/faculty/block/papers/msb.html>]

### *Classical Computationalism II: Objections*

- Reading:
- \*J. Searle (1980) Minds, brains, and programs. *Behavioral and Brain Sciences* 3 (3): 417-457 [Online: <http://www.bbsonline.org/documents/a/00/00/04/84/bbs00000484-00/bbs.searle2.html>]
  - \*J. Copeland (1993), *Artificial Intelligence: A Philosophical Introduction*, Blackwell, pp. 121-139 & pp. 225-230. [Similar piece online: "The Curious Case of the Chinese Room" @ [http://www.phil.canterbury.ac.nz/personal\\_pages/jack\\_copeland/publist.shtml#chapters](http://www.phil.canterbury.ac.nz/personal_pages/jack_copeland/publist.shtml#chapters)]
  - \*M. Shanahan, 'Frame Problem' In *Stanford Encyclopedia of Philosophy* [Online: <http://plato.stanford.edu/entries/frame-problem/>]

### *Connectionism I: The Theory*

- Reading:
- \* P. Churchland, 'Cognitive Activity in Artificial Neural Networks' in Osherson and Smith (eds.), *Thinking: An Invitation to Cognitive Science* Vol. 3 (First Edition, MIT, 1990) and in Cummins and Cummins (eds.), *Minds, Brains and Computers* (Blackwell, 2000)
  - D. Rumelhart "The Architecture of the Mind: A Connectionist Approach" in Haugeland (ed.), *Mind Design II* (MIT, 1997)

### *Connectionism II: Systematicity & Productivity*

- Reading:
- \* J. Fodor and Z. Pylyshyn, 'Connectionism and Cognitive Architecture' in Haugeland (ed.), *Mind Design II* (MIT, 1997)
  - \* R. Matthews, 'Can Connectionists Explain Systematicity?' *Mind & Language* 12 (1997)
  - Smolensky P. (1988). "On the proper treatment of connectionism". *Behavioral and Brain Sciences*, 11, 1-23
  - Fodor and McLaughlin, "Connectionism and the problem of systematicity; why Smolensky's solution doesn't work," *Cognition*, 35, 183-204.

*Modularity and Cognitive Architecture I: Conceptual and Taxonomic Issues*

- Reading: \* J. Fodor, *Modularity of Mind* (MIT, 1983), Chapter 1  
- Hirschfeld and Gelman (eds.), *Mapping the Mind* (Cambridge, 1994), Introduction  
- Barrett, H. C., and Kurzban, R. (2006). Modularity in cognition: Framing the debate. *Psychological Review*, 113, 628-647.

*Modularity and Cognitive Architecture II: Peripheral Modularity*

- Reading: \* J. Fodor, *Modularity of Mind* (MIT, 1983), Chapter 2  
- Churchland, Paul M. (1988). Perceptual plasticity and theoretical neutrality: A reply to Jerry Fodor. *Philosophy of Science* 55 (June):167-87  
-Fodor, Jerry A. (1988). A reply to Churchland's 'perceptual plasticity and theoretical neutrality'. *Philosophy of Science* 55 (June):188-98.  
-Pylyshyn, Zenon W. (1999). Is vision continuous with cognition? The case for cognitive impenetrability of visual perception. *Behavioral and Brain Sciences* 22:341-365.

*Modularity and Cognitive Architecture III: Are Minds Massively Modular?*

- Reading: \* L. Cosmides and J. Tooby, 'Origins of Domain Specificity' in Hirschfeld and Gelman (eds.), *Mapping the Mind* (Cambridge, 1994)  
\* J. Fodor, *Modularity of Mind* (MIT, 1983), Chapter 3  
\* J. Fodor, *The Mind Doesn't Work That Way* (MIT, 2000), Chapter 4  
- D. Sperber, 'The Modularity of Thought and the Epidemiology of Representations' Hirschfeld and Gelman (eds.), *Mapping the Mind* (Cambridge, 1994)  
- R. Samuels "Massively Modular Minds: Evolutionary Psychology and Cognitive Architecture". In P. Carruthers (ed.) *Evolution and the Human Mind*. (Cambridge 2000)

*Representations and Concepts I: The Classical Theory of Concepts*

- Reading: \* S. Laurence and E. Margolis, 'Concepts and Cognitive Science' in their *Concepts* (MIT, 1999) [<http://philosophy.wisc.edu/margolis/publications/publications.html>]  
\* J. Fodor, *Concepts* (Oxford, 1998), Chapter 2

*Representations and Concepts II: Prototypes*

- Reading: \* E. Rosch, 'Principles of Categorization' in Laurence and Margolis (eds.), *Concepts* (MIT, 1999)

*Representations and Concepts III: Atomism*

- \* J. Fodor, *Concepts* (Oxford, 1998), Chapter 5

*Representations and Concepts IV: Concept Nativism*

- Reading:
- \* J. Fodor, 'The Present Status of the Innateness Controversy' in his *RePresentations* (MIT, 1981)
  - \* J. Fodor, *Concepts* (Oxford, 1998), Chapter 6
  - F. Cowie, *What's Within* (Oxford, 1998), Chapters 4 & 5
  - Margolis & Laurence "Radical concept nativism". *Cognition*, vol. 86, pp. 22-55, 2002. [<http://philosophy.wisc.edu/margolis/publications/publications.html>]

*Language and Innateness I: Poverty of Stimulus Arguments*

- Reading:
- \* S. Laurence & E. Margolis "The Poverty of the Stimulus Argument. *British Journal for the Philosophy of Science*", vol. 52, pp. 217-276, 2001 [<http://philosophy.wisc.edu/margolis/publications/publications.html>]
  - Innate Ideas, Paul Pietroski and Stephen Crain in *The Cambridge Companion to Chomsky* (Cambridge, CUP 2005) edited by J. McGilvray. [[www.wam.umd.edu/~Epietro/research/papers/index.htm#POSAs](http://www.wam.umd.edu/~Epietro/research/papers/index.htm#POSAs)]
  - Samuels, R. (2004) "Innateness and Cognitive Science", *Trends in Cognitive Sciences* Vol. 8 issue 3

*Language and Innateness II: Criticisms and Alternatives*

- Reading:
- \* Cowie *What's Within* (Oxford, 1998), Part III (especially, Chaps. 7 & 8)
  - Fodor J. (2001). "Doing without What's Within: Fiona Cowie's Critique of Nativism." *Mind*: 110(437) 99-148 [Online: <http://ruccs.rutgers.edu/faculty/Fodor/cowiems.htm>]
  - G. Pullum & B. Scholz "Irrational nativist exuberance" In *Contemporary Debates in Cognitive Science*, ed. by Rob Stainton, pp. 59-80 (Oxford: Basil Blackwell, 2006). [Online: <http://people.ucsc.edu/~pullum/>]

*Reasoning and Rationality I: How Rational Are We?*

- Reading:
- \* Tversky, A. and Kahneman, D. (1974). Judgment under uncertainty: Heuristics and biases. *Science*, 185, 1124-1131. Reprinted in Kahneman, Slovic and Tversky (1982) *Judgment Under Uncertainty: Heuristics and Biases*. Cambridge: Cambridge University Press.
  - Richard Samuels, Stephen Stich & Luc Faucher, Reason and Rationality, in I. Niiniluoto, M. Sintonen, & J. Wolenski, eds., *Handbook of Epistemology* (Dordrecht: Kluwer) 2004. Pp. 131-179.

## *Reasoning and Rationality 2: Challenges to the Pessimistic Interpretation*

- Reading:
- \* Samuels, Richard & Stich, Stephen P. (2004). Rationality and psychology. In *The Oxford Handbook of Rationality*. Oxford: Oxford University Press
  - \* Gigerenzer, G. (1991). How to make cognitive illusions disappear: Beyond 'heuristics and biases'. *European Review of Social Psychology*, 2, 83-115.
  - Samuels R., S. Stich, and L. Faucher (2004) "Reason and Rationality" I. Niiniluoto, M. Sintonen, & J. Wolenski *Handbook of Epistemology*. Dordrecht: Kluwer. Pp. 131-179.
  - Stein, Edward (1996). *Without Good Reason: The Rationality Debate in Philosophy and Cognitive Science*. Oxford University Press

### **Academic Misconduct**

The University understands academic misconduct to include “any activity which tends to compromise the academic integrity of the institution, subvert the educational process” (“Procedures of the Committee on Academic Misconduct”, Sept. 1989). With respect to this course, examples include, but are not limited to, such actions as cheating on exams and submitting a term paper written by another. No one should be unclear about whether *these* are wrong, but students are sometimes not clear about what constitutes plagiarism. ‘Plagiarism’ is defined by the University to be “the representation of another’s works or ideas as one’s own; it includes the unacknowledged word for word use and/or paraphrase of another person’s work, and/or the inappropriate unacknowledged use of another person’s ideas”. There should be no misunderstanding about word for word transcriptions or simple paraphrases—these *must* be acknowledged through proper citations. It is sometimes not clear, though, when simply *using* the ideas of another requires citation. This is especially true in the context of a course, in which one is, presumably acquiring fundamental ideas of a subject matter from the text or the instructor. Certain ideas are “in the public domain”, so to speak; they are ideas used by everyone working in the field, and do not require citation. Other ideas are such that their origin needs to be acknowledged. It is sometimes difficult for beginning students to distinguish these. It is helpful to remember that what is at issue is whether the failure to acknowledge a source would tend to misrepresent the idea as your own. The failure to acknowledge your source for a distinction between recklessness and negligence, for example, would not tend to misrepresent the distinction as your own since it is a distinction that anyone working in the field will draw in some way or other. To offer a *specific* account of this distinction that is offered by another without citing the source could easily tend to misrepresent the account as your own. It is clearly better to err on the side of over-acknowledgment in cases in which one is in doubt.

I view academic misconduct of any sort as a *very* serious violation of University requirements. University rules provide for extremely serious sanctions for academic misconduct, and I will, as I am required to do, forward any cases of suspected misconduct to the Committee on Academic Misconduct.

**Disability Services:**

Students with disabilities that have been certified by the Office of Disability Services will be appropriately accommodated. They should inform me as soon as possible of their needs. The Office of Disability Services is located in 150 Pomerene Hall, 1760 Neil Avenue; telephone 292-3307, TDD 292-0901; <http://www.ods.ohio-state.edu/>