

# PHIL 329: Minds & Machines

Course Syllabus, Summer 2010

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**Time:** 10:20am – 12:15pm, M – Th

**Place:** Murray Hall, Room 207

**Instructor:** Alex Morgan

**Email:** amorgan@philosophy.rutgers.edu

**Office Hrs:** W 1:00 – 2:30pm, B003, 1 Seminary Place

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## Course Description

Throughout history, thinkers have used metaphors drawn from the technology of the time to understand how the mind works. For example, Locke described the newborn's mind as a blank slate. Freud compared the mind to hydraulic and electro-magnetic systems. Today, it is common to describe the mind as a kind of computer. Indeed, this idea is often said to be one of the foundational assumptions of cognitive science. What do cognitive scientists mean when they claim that the mind is a computer? Is this claim more than a mere metaphor? If so, is it true? Could a computer have a mind or be conscious? What *is* a computer anyway? The purpose of this course is to grapple with these and related questions.

## Prerequisites

I'll assume that you've had some experience reading, writing, and analyzing philosophical arguments. A couple of courses in philosophy should suffice. A course in formal logic will prove very useful, as will a background in one or more of the sub-disciplines of cognitive science, but neither is required. Please contact me if you're unsure whether you're sufficiently prepared to take this course.

## Course Materials

The core text for the course is "Mindware: An Introduction to the Philosophy of Cognitive Science" by Andy Clark (2000, Oxford University Press). This text will be supplemented by additional readings, which will be made available in PDF format via Sakai. The Sakai site will include other important course information and resources, including a discussion board and an up-to-date course syllabus. Please check the Sakai site regularly, as the syllabus may change over the course of the semester. The Sakai site can be found by searching for the title of the course.

## Reading Advice

Here are some words of wisdom about how to engage with the readings in a philosophy class at this level from my colleague, Will Starr:

“It is more important to have a basic grasp of the overall point of a reading than to understand any particular detail. Accordingly, I advise you to do each of the readings once quickly in a single sitting and then return to the details you missed. If, on a second reading, you can’t sort out some specific detail, write down what you don’t understand and bring it to class for discussion. Do your best to raise your question at a point in the class where that detail is relevant to what’s being discussed. It is much more likely that you will get a satisfying answer if you ask your question at the appropriate time. In all the readings, it will be helpful to ask yourself ‘what is the problem or issue at stake here?’ and then ‘what solutions or positions is the author arguing for here?’”

## Grading

Your grade will be determined as follows:

**25% Weekly comments and class participation:** You are expected to take an active part in class discussions, both in person and on the Sakai discussion board. Specifically, you must post *at least* two comments to the discussion board each week, one by Monday and the other by Thursday (of course, feel free to post more if you like). Your comment may either raise a question or point of discussion about the week’s reading, or it may respond to someone else’s comment. Comments must be at least one paragraph long.

**75% Three discussion papers (25% each):** You are required to write three short papers (5-6 pages). Paper topics will be made available in a separate handout. Drafts of your papers are due on the dates listed in the schedule below. I will provide comments on all and *only* those drafts that are submitted on time. Additionally, you will receive a penalty of 5% for each paper for which you do not submit a draft (for example, if you fail to submit any drafts, and only submit final copies of your papers, you will receive a total penalty of 15%). Final copies of all three papers are due on the last day of class (**Thursday, July 8**). Papers will not be accepted after this date.

### Additional instructions:

- Begin your papers with the sentence “The purpose of this paper is to argue...”.
- Submit your papers by email to: amorgan@philosophy.rutgers.edu
- Do not include your name or any other identifying information in the document you submit, *except* for your student ID number. This is to ensure blind grading.
- Excellent advice for writing philosophy papers can be found here:

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

Your final letter grade will be determined according to the following scale:

A	B+	B	C+	C	D	F
100-90%	89-87%	86-80%	79%-77%	76%-70%	69-60%	59-0%

## **Academic Honesty**

Plagiarism is the unacknowledged use of another person's work or ideas. It is a serious academic offense and will not be tolerated in this class. If you are unsure what constitutes plagiarism, or what the possible repercussions are, please familiarize yourself with the Rutgers Policy on Academic Integrity, available here:

<http://ctaar.rutgers.edu/integrity/policy.html>

## **Schedule**

The following schedule is tentative. Any changes will be announced on Sakai and in class.

Week	Day	Topic	Readings	Papers
1	1-Jun	Introduction	Horst, S. (1999), Computational Theory of Mind. van Gelder, T. (1998), The Roles of Philosophy in Cognitive Science.	
	2-Jun	Philosophical Background: Dualism, Behaviorism & the Identity Theory	Clark, A. (2001), Mindware (pp.1-5, 162-170). Churchland, P.M. (1994), Matter and Consciousness (pp. 7-35). Churchland, P.M. (1994), Matter and Consciousness (pp. 36-42). (* ) Putnam, H. (1967) The Nature of Mental States.	
	3-Jun	Philosophical Background: Functionalism	Block, N. (1978) Selections from 'Troubles with Functionalism'. (* ) Kalke, W. (1969), What is Wrong with Fodor and Putnam's Functionalism.	
2	7-Jun	Problems with Functionalism	Sipser, M. (1997), Introduction to the Theory of Computation (selections). Copeland, B. J. (2002), The Church-Turing Thesis.	
	8-Jun	Turing Machines	Clark, A. (2001), Mindware (Ch.1).	
3	9-Jun	Functionalism & the Computational Theory of Mind	Horst, S. (2005), The Computational Theory of Mind (sections 1 & 2).	
	10-Jun	The Language of Thought Hypothesis	Sterelny, K. (1999), Language of Thought. Kaye, L. (1999), The Language of Thought.	Draft 1
	14-Jun	Levels of Explanation	Newell, A. (1980), The Knowledge Level. Marr, D. (1982), Vision (selections).	
	15-Jun	The Intentional Stance	Clark, A. (2001), Mindware (Ch.3). Dennett, D. (1991), Real Patterns.	
	16-Jun	The Turing Test	Turing, A. (1950), Computing Machinery and Intelligence. French, R. (2000), The Turing Test: The First 50 Years.	
	17-Jun	?	(* ) Dennett, D. (1985), Can Machines Think?	
	21-Jun	Criticisms of CTM 1: The Chinese Room	Clark, A. (2001), Mindware (Ch.2). Searle, J. (1990), Is the Brain's Mind a Computer Program? (* ) Churchland, P. & Churchland, P. (1990), Could a Machine Think?	Draft 2
4	22-Jun	Criticisms of CTM 2: The Symbol Grounding Problem	Harnad, S. (1990), The Symbol Grounding Problem.	
	23-Jun	Criticisms of CTM 3: Embodiment & Situatedness	Dreyfus, H. (1979), From Micro-Worlds to Knowledge Representation.	
	24-Jun	?		
	28-Jun	Beyond CTM Take 1: Connectionism	Bechtel, W. (1993), The Case for Connectionism. Clark, A. (2001), Mindware (Ch.4).	
	29-Jun	Connectionism & The Chinese Room	Chalmers, D. (1992) Subsymbolic Computation and the Chinese Room. Churchland, P. & Churchland, P. (1990), Could a Machine Think?	
	30-Jun	Consciousness	Clark, A. (2001), Mindware (appendix 2).	
	1-Jul	Connectionism & Connectionism	O'Brien, G. & Opie, J. (2001), Connectionist Vehicles, Structural Resemblance, & the Phenomenal Mind.	
5	5-Jul	Criticisms of Connectionism	Fodor, J. & Pylyshyn, Z. (1988), Connectionism & Cognitive Architecture. Chalmers, D. (1993), Connectionism and Compositionality.	Draft 3
	6-Jul	Beyond CTM, Take 2: Embodiment & Dynamics	Clark, A. (2001), Mindware (Ch.6-7)van Gelder, T. (1996), Dynamics and Cognition.	
	7-Jul	Criticism of DST	Brooks, R. (1991). Intelligence without Representation.	
	8-Jul	?	Eliasmith, C. (2001). Attractive and In-discrete.	All