

**Philosophy/Psychology 346: Minds, Brains, and Computers**  
**Summer Pre-Session 2005: 5/16-6/4**  
**University of Arizona**  
**Course Syllabus**

**Course Time and Location:** MTWRF, 1:00 – 3:50 PM, Psychology 305

**Instructor:** Mike Bruno

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**Personal Website:** <http://www.u.arizona.edu/~mbruno/>

**Course Website:** [https://www.polis.arizona.edu/courseHomesite.do?course=PHIL\\_346-001&semester=summer105](https://www.polis.arizona.edu/courseHomesite.do?course=PHIL_346-001&semester=summer105)

**Office hours:** After class and by appointment

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**Course Description:** Cognitive science is the interdisciplinary scientific study of the how the mind works. The philosophy of cognitive science examines underlying theoretical issues in cognitive science. Different approaches to understanding the mind emphasize the computational, biological, and dynamical components of cognition. An influential line of thought holds that relationship between the mind and the brain should be understood in terms analogous to the relationship between software and hardware on a digital computer. In this class we will critically examine this proposal as well as some alternatives to it.

**Academic Honesty:** Academic dishonesty of any form will be punished in accordance with University guidelines, available at: <http://catalog.arizona.edu/policies/974/acacode.htm>.

**Classroom Conduct:** You will be expected to conduct yourself in professional manner in the classroom. This includes being respectful to both the instructor and fellow students. Threatening behavior of any kind by any student will be dealt with in accordance with the University policies, available at <http://policy.web.arizona.edu/~policy/threaten.shtml>. Conducting yourself in a professional manner also includes refraining from the using cell phones, listening to i-pods, reading newspapers, etc.

**Grades:** Grades will be determined on the basis of three factors. (1) Attendance and Participation (20%): You are required to attend class having read the material carefully and being willing and prepared to discuss it. If I sense that people are not reading adequately, I will give reading quizzes in class. Additionally, short presentations may be assigned that will count towards this part of your grade. (2) Writing Assignments (50%): On most days of class, I will distribute a paper topic, on which you will have the opportunity to write a 1-2 page paper. If you decide to write on the topic for that day, you must include a statement of that topic on top of the page. You will have until two class periods after a topic is distributed in order to hand in the paper (e.g. if a topic is distributed on Wednesday, you have until Friday; if it is distributed on Friday, you have until Tuesday; etc.). In total, you will be expected to write 6 papers, but I will drop your lowest paper grade. In a three-week class, it is difficult to write long and substantial papers. However, writing is always a wonderful way to solidify and internalize what you are learning. That is why I've chosen to assign many short papers instead of one or two long papers. (3) Final Exam (30%): There will be a cumulative final examination on the last day of class, June 4<sup>th</sup>. Students with special needs who are registered with the S.A.L.T. Center or the Disability Resource must submit appropriate documentation to me if they plan on requesting special accommodations.

**Readings:** There is not a ton of reading being assigned for the course, so I expect you to read everything carefully and thoroughly. As you can see below on the schedule, there are many suggested readings in

addition to the required readings. I've tried to choose suggested readings, which are not overly technical and which are of high quality. You are not required to do these readings and you will not be tested on them or asked to write about them. Although the schedule of readings is subject to change at my discretion, provided sufficient advanced notification, I do not expect that there will be any changes.

**Required Texts:**        *Mindware*, 2001, Andy Clark, OUP, ISBN: 0195138570  
                              *Mind Design II*, 1997, John Haugeland, MIT Press, ISBN: 0262082594

**Class Schedule:**

Mon	5/16	Introduction [Clark, Introduction, 1-5]
Tue	5/17	Historical Backdrop and Central Issues in the Philosophy of Mind [Clark, Appendix I, 162-170. Required: Haugeland, 'What is Mind Design', 1-28]
Wed	5/18	Mind as Software [Clark, Ch 1, 7-27. Suggested: Turing, 'Computing Machinery and Intelligence' 29-56]
Thu	5/19	Symbol Systems [Clark, Ch 2, 28-42. Suggested: Newell & Simon, 'Computer Science as Empirical Inquiry' 81-110]
Fri	5/20	The Chinese Room [Searle, 'Minds, Brains, and Programs', 183-204]
Sat	5/21	No Class
Sun	5/22	No Class
Mon	5/23	Theories of Mental Content [Clark, Ch 3, 43-61. Required: Dennett, 'True Believers', 57-79]
Tue	5/24	Theories of Mental Content [Byrne, 'Intentionality', <a href="http://web.mit.edu/abyrne/www/intentionality.html">http://web.mit.edu/abyrne/www/intentionality.html</a> Cohen, 'Information and Content', <a href="http://aardvark.ucsd.edu/~joncohen/mind/informational_semantics.html">http://aardvark.ucsd.edu/~joncohen/mind/informational_semantics.html</a> ]
Wed	5/25	Connectionism [Clark, Ch 4, 62-83. Suggested: Smolensky, 'Connectionist Modeling']
Thu	5/26	Connectionism (continued) [Clark (in <i>Mind Design II</i> ), 'The Presence of a Symbol', 377-393. Suggested: Fodor & Pylyshyn, 'Connectionism and Cognitive Architecture: A Critical Analysis', 309-350]
Fri	5/27	Perception, Action, and the Brain [Clark, Ch 5, 84-102. Suggested: Brooks, 'Intelligence without Representation, 395-420]

Sat	5/28	No Class
Sun	5/29	No Class
Mon	5/30	No Class, Memorial Day
Tue	5/31	Robots and Artificial Life [Clark, Ch 6, 103-119]
Wed	6/1	Dynamical Systems [Clark, Ch 7, 120-139. Suggested: Van Gelder, 'Dynamics and Cognition', 421-450]
Thu	6/2	Cognitive Technology [Clark, Ch 8 and 9, 140-161]
Fri	6/3	Consciousness, Wrap Up, and Review [Clark, Appendix II, 171-188]
Sat	6/4	Final Exam