Intro to Cognitive Science
PNP 200 (SECTION 02)
Fall 2012
Wash U St Louis

Course description: Cognitive science is the interdisciplinary study of the mind, drawing upon and integrating findings from psychology, neuroscience, linguistics, computer science, and philosophy, among other disciplines. This course begins with a historical overview of some of the principal landmarks in the history of cognitive science. It then uses detailed case studies to introduce the basic techniques and theoretical frameworks used by cognitive scientists.

Meeting place and times:
McDonnell Hall, room 362
MW 2:30-4:00pm
final exam = December 17, 3:30-5:30pm

Instructor:
Brian Fiala
bfiala@arts.wustl.edu
Wilson 101, MW 1:30-2:30pm (or by appointment)

Teaching assistant:
Mark Povich
mapovich@gmail.com
Wilson 116

Required texts:
The textbook for the course is Cognitive Science: An Introduction to the Science of the Mind, by Jose Luis Bermudez. It is available from the campus bookstore (but probably cheaper from Amazon). All other readings will be available on Telesis. Note: I'm a new hire at Wash U, and thus won't have access to Telesis until September 4 or so. My sincere apologies for that!

Course requirements and evaluation:
Two in-class exams, 25% each
Two short papers, 12.5% each
→ roughly 3 pages; largely summary of readings
One term paper, 25%
→ roughly 10 pages; involves independent research/argument
Regular reading and attendance is required, and in-class participation strongly encouraged.

University boilerplate:
You need a very good excuse, in advance, to miss an exam or to hand in a late assignment. For example, all holidays and special events observed by organized religions will be honored (for those students who show affiliation with that particular religion).

Students with physical, psychological, or learning disabilities who anticipate needing accommodations in this course are encouraged to register with the Disability Resource Center. Students who are registered with the Disability Resource Center are reminded that they must submit documentation as soon as possible if they are requesting special accommodations.

Plagiarism and other failures of academic integrity will not be tolerated. For easy reference, the Undergraduate Student Academic Integrity Policy is available at http://www.wustl.edu/policies/undergraduate-academic-integrity.html
Tentative Schedule

This schedule is subject to change. I'll normally assign readings and assignments one week in advance.

Week 1: Introduction  
(8/29) Review syllabus; ‘Pre-pre-history’ of cognitive science

Week 2: ‘Pre-history’ of cognitive science  
(9/3) = Labor Day  
(9/5) Bermúdez 1.0, 1.1, 1.3;  
Chomsky "Review of Skinner's Verbal Behavior"

Week 3: Early cognitive-scientific theories and results  
(9/10) Bermúdez 1.2, 1.4, 1.5;  
Miller “The magical number seven, plus or minus two”  
Additional (short) reading TBA  
(9/12) Bermúdez 2.0-2.2  
Shepherd and Metzler “Mental rotation of three-dimensional objects”

Week 4: Functional analysis and ‘levels’ of analysis  
(9/17) Bermúdez 2.3  
Excerpt from Marr’s (1982) Vision  
(9/19) Bermúdez 3.1, 3.2  
Mishkin et al. “Object vision and spatial vision: two cortical pathways”

Week 5: More functional analysis... and “The Integration Challenge” introduced  
(9/24) Bermúdez 3.4  
Petersen et al. “Positron emission topographic studies”

Week 6: Case study in the challenge of integration---Automaticity and Control  
(10/1) Bargh and Chartrand “The Unbearable Automaticity of Being”  
Norman & Shallice, "Attention to Action"  
(10/3) Bechara et al. "Insensitivity to Future Consequences following Damage..."

Week 7: Case study in the challenge of integration---Morality  
(10/8) Pinker, "The Moral Instinct"  
Additional reading TBA  
(10/10) Cushman et al, "Our Multi-System Moral Psychology"

Week 8: Exam 1... and Modeling the minds as a ‘symbol system’  
(10/15) Exam 1 in class  
(10/17) Bermúdez 6.1  
Newell and Simon “Computer Science as Empirical Inquiry”

10/19 = Fall Break

Week 9: The “language of thought” hypothesis and the “Chinese room” argument  
(10/22) Bermúdez 6.2  
Additional reading TBA

10/24) Bermúdez 6.3  
Searle “Can Computers Think?”  
Churchland and Churchland “Could a Machine Think?”
Week 10: Modeling the mind as a neural network
(10/29) Bermúdez 3.3, 8.1, 8.2, 8.3, 8.4
(10/31) Bermúdez 9.1, 9.2
Additional reading TBA

Week 11: Innateness debate
(11/5) Spelke & Newport, "Nativism, Empiricism, and the Development of Knowledge"
(11/7) ...more from Spelke & Newport
Additional reading TBA

Week 12: Modularity debate
(11/12) Bermúdez 10.1, 10.2
Fodor, "A Precis of The Modularity of Mind"
(11/14) Bermúdez 10.3, 10.4
Carruthers, "The Case for Massively Modular Models of Mind"
Prinz "Is the mind really modular?"

Week 13: Modularity wrap-up
(11/19) Samuels "Is the human mind massively modular?"
Spelke "What makes us smart?"
(11/21) = Thanksgiving break

Week 14: Dynamical systems and situated cognition
(11/26) Bermúdez 10.1, 10.2
Additional reading TBA
(11/28) Clark and Chalmers "The extended mind"
Additional reading TBA

Week 15: Consciousness—philosophical theories
(12/3) Chalmers "Facing up to the Hard Problem"
(12/5) Dennett "Are we explaining consciousness yet?"

Week 16: Consciousness—scientific theories
(12/10) Excerpt from Chalmers "What is a neural correlate of consciousness?"
(12/12) Block "Two neural correlates of consciousness"

**Final exam: December 17, 3:30-5:30pm**