## Introduction to Cognitive Science. Psych/Computer Science 271L. Syllabus 2.1 Spring 2011. TuTh 12:30-1:45. Wheatley W01-0055. Text: Cognitive Science, Bermudez (paperback) *Dr. Erik Blaser*. Office: McCormack 4th floor: M-4-211. Laboratory: McCormack 3rd floor: M-3-524. Office hours: TuTh 1:45-3:15. Email: erik.blaser@umb.edu. Website: http://psych.umb.edu/faculty/blaser/

This course is designed to introduce you to Cognitive Science: the interdisciplinary study of the mind and

brain<sup>1</sup>, and their functions: vision, language, learning, problem solving, memory. We will survey the historical roots, cutting-edge findings, and unsolved mysteries of some of its contributing disciplines: Psychology, Neuroscience, Philosophy, Computer Science and Linguistics. It is important to note that Cognitive Science is not the same

Psychology

Cognitive

Science

Linguistics

Philosophy

Computer Science

Neuro

as Cognitive Psychology, though research in Cognitive Psychology is part of Cognitive Science. This course has no direct relevance to clinical Psychology. Also, this is a



science course, and as such will require facility with abstract and quantitative reasoning; students should be comfortable with mathematical concepts like graphs and elementary algebra. The course does not require any significant knowledge of biology, but research from the Neurosciences will be discussed. Some basic concepts from Computer Science will be covered as well.

This is a *seminar-style course*, with equal emphasis on group discussion and class exercises as on lecture. Because of that **class participation and attendance is required**, and

will contribute substantially (30%) toward one's grade. Additionally, assignments will be structured to require keeping up with the reading, and participating in group discussions and exercises. In addition to written homework assignments, there will be a final research paper. There will be a short-answer/multiple-choice final exam as well.



<sup>1</sup> Images: www.sfu.ca/cognitive-science/; cognition.iig.uni-freiburg.de/; and unknown, respectively, top to bottom.

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Your grade will be detern	nined by four factors:
Class Participation	30% Includes attendance, engaging in class discussions as well as group activities, quizzes.
Homework	20% There will be several throughout the semester, geared toward readings and group activities.
Paper	20% Final research paper.
Test	30% One short-answer format exam.
Grading is a straight sca	le (i.e. 100-90%=A, 80-89%=B, etc.), but based on the highest grade in the class (instead of based
'perfect' score that totals	number of possible points).

Exams/quizzes can only be made-up if you have a doctor's note, or other valid, documented University excuse.

<u>#</u>	<u>Date</u>	Day Description	<u>Readings &amp;</u> <u>Assignments</u>
1	1/25	T Course overview. What is Cognitive Science?	cambridge.org/ bermudez
2	1/27	THsnow day	
3	2/1	Tsnow day	
4	2/3	TH Prehistory (Behaviorism review)	Ch. 1
5	2/8	T Prehistory (Behaviorism challenges: Tolman, Lashley, Chomsky)	Ch. 1
6	2/10	TH Foundations & milestones (Info. processing & representations; Broadbent; Shepard)	Ch. 1 & 2
7	2/15	T Foundations & milestones (Focus on algorithms: Winograd, Marr, Hillis)	Ch. 1, 2 & reading
8	2/17	TH Tri-level assessment of information processing systems (Marr); introduce Turing	Ch. 2 & reading
9	2/22	T Tri-level assessment of information processing systems II	Ch. 2 & reading
10	2/24	TH Foundations of AI (Turing, Hillis); Watson; SHRDLU	Ch. 6 (just 6.3)
11	$\frac{3}{1}$	1 Review for Midterm I	Study guide I
12	3/3 2/0	The <b>Mildterm I</b>	n/a wahaita: handaut
13	$\frac{3}{0}$	TH movie	WATSON (website)
14	3/10 3/15	T spring break	n/a
16	3/17	TH spring break	n/a
17	3/22	T AI state of the art I	website & videos
18	3/24	TH Intentionality and anthropomorphisms and uncanny valley: wrapup (chinese room)	website & lecture
19	3/29	T Turn to the Brain (review of cognitive neuroscience and neuroscience methods)	Ch. 3 & website
20	3/31	TH movie	website
21	4/5	T Brain [hardware does matter: Ungerleider & Mishkin; Petersen	Ch. 3
22	4/7	TH Brain structure & cognitive function	Ch. 11 (11.1, 11.2)
23	4/12	T Challenges for neuroscience (Levels of explanation; Neural activity and BOLD signal)	Ch. 5 (pg 108)
24	4/14	TH Review for Midterm II	Study guide II
25	4/19	T Midterm II	n/a
26	4/21	TH Neural networks	Ch. 3
27	4/26	T Integration across disciplines: Evolutionary psychology, reasoning, rationality	Ch. 4
28	4/28	TH Memory	Ch. 5
29	5/3	T Infant cognition	Ch. 9
30	5/5	TH Psychophysics and neurometrics	website & lecture
31	5/10	T Review for Final	Study guide III
	TBA	FINAL EXAM	n/a

ACADEMIC DIFFICULTIES: Academic Support (on the third floor of McCormack) provides for students who are in need of advising and/or tutoring. UMB attempts to accommodate all students in accordance with Section 503 and 504 of the Rehabilitation Act of 1973 and the Americans with Disabilities Act of 1990. Through the Ross Center for Disability Services various aids such as sign language interpreting, readers, testing accommodations, etc. are available to students. If you believe that you require such services, you should contact the Ross Center on the first floor of the McCormack Building (287-7430).

ACADEMIC HONESTY: It is assumed that each student will act in a professionally and honestly. Therefore, any student who engages in an act of Academic Dishonesty (plagiarism, cheating, etc.) will receive a failing grade for that assignment/test and in most cases a failing grade for the course. Please review the sections on Academic Standards, Cheating, and Plagiarism (pg. 351 - 352), sections II and IV, and V of the Code of Student Conduct (pg. 354 - 356) in the University Undergraduate Catalog 2003 - 2005. If you still have questions about Academic Honesty or expectations in this course see me.