

Psychology 550L and CCT 651L: Cognitive Psychology Syllabus: Fall 2007

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Class Time: Wednesday, 4-6:30 PM (M/1/619)
Office Hours: Monday, Wednesday, Friday, 12-1 PM, and by appointment

Course Description and Goals:

The goal of the course is to introduce students to the contemporary field of cognitive psychology--its key questions, methods, findings, debates, and proposed models and theories. How is the mind designed that allows it to function so well in the everyday world? To what extent does the mind have both *modular* and *general purpose* components? What might be the advantages and disadvantages of this form of design? How is information *represented* in the different components, and how does form of representation affect inference, thinking, and problem solving? What changes occur in thinking and problem solving with the development of expertise? Important topics considered include: perception, attention, consciousness, memory, meaning-based mental representations and imagery, language, thinking and reasoning, problem solving, and the nature of expertise. Throughout, we will pay special attention to identifying "important general principles" of how the mind functions, the evidence for those principles, and the applicability of the theories and findings to issues of improving learning and teaching.

Course Text and Readings:

- Daniel Reisberg. (2006) Cognition: Exploring the Science of the Mind. 3rd edition. New York: W.W. Norton & Company.(Available for purchase in the bookstore.)
- Supplementary readings: Available on E-Reserves in Healey Library. Course Password: Brain.

Course Requirements:

1. Weekly *general principles journal*: each entry about 1 typed single-spaced page, based on readings for upcoming week; submitted by email to Instructor by **Monday 5 PM**. (Must complete 10 entries for course; see directions next page) (30%)
2. *Two papers* (that involve data collection and analysis)
 - a. Memory Paper (about 7 pages plus appendix) (20%): **Due Oct 24th**
 - b. Expert/Novice Paper (about 7 pages plus appendix) (20 %): **Due Nov. 21st**
3. *A final project or term paper* (about 15 pages) (20%)
 - a. Topic selected by: **Oct. 17th**
 - b. Preliminary bibliography and outline due by: **Nov. 14th**
 - c. Final paper due by **Dec. 17th** (Monday)
4. *Attendance/participation* (10%)

Course Policies:

1. If you are having difficulty in completing an assignment or paper, please contact me to work out the problems. Extensions can be given in unusual circumstances. However, late papers will not be accepted if I have not given prior approval.
2. Incompletes for the course can only be given with prior consent of the instructor.
3. In accordance with Section 503 and 504 of the Rehabilitation Act of 1973 the University of Massachusetts Boston attempts to accommodate all students with certified "special needs". Through the Lillian Semper Ross Center for Disability Services various aids such as sign language interpreting, readers, testing accommodations, counseling, etc., are available to students. If you need accommodations in order to complete course requirements, please contact the Ross Center for Disability Services (Location: Campus Center 2-2100; phone: 617-287-7430).
4. It is assumed that in this class each student will act in a professional and honest manner. Therefore, any student who engages in an act of Academic Dishonesty, plagiarizing a paper (copying from any source without quotes and referencing is plagiarizing), falsifying data, paraphrasing other student's weekly reactions, etc., will receive a failing grade for that assignment and in most cases a failing grade for the course.

Directions for Weekly General Principles Journal Entries

1. Based on the *new* readings for a given week, each student should identify two "general principles" about how the mind works that you found interesting. You need to then provide two specific examples of each of those general principles and a brief critical commentary.
2. Entries for each general principle should include:
 - a. *A brief statement of the general principle*: typically one complete sentence. The principle should be stated in entirely your own words. It should be a pattern you have noticed and that is meaningful to you. It should include a verb, explain how or why something works the way it does, and be a claim that you think is true.
 - b. *Two specific examples* of the general principle. A general principle by its nature applies to more than one situation. Show that your principle has some generality by providing two different examples. Again, just one or two sentences for each example is fine.
 - c. *Brief critical reflection on the principle*: The critical reflection can take a variety of forms (and might vary from principle to principle). For example, you might consider why you found it interesting or significant, the questions you have about it, or its possible application to teaching and learning. You might consider how strong the evidence is for the principle, alternatives to the principle that should be considered, or possible limitations in the contexts to which the principle applies. Or, you might consider how this principle *connects* to other principles (from previous weeks).
3. Submit your entry for the coming week to me via email by **Monday 5 PM**. That will allow me to look over the entries prior to class, so I can build on some of your ideas during class.
4. Each week, you need to add at least one *new general principle* from the reading. If you noticed new instances of a previously stated principle, you can devote the other entry to an elaboration, refinement, or restatement of a previously mentioned principle. By the end, you should have identified at least ten different general principles, and perhaps many more.

Tentative Schedule of Readings, Topics, and Assignments

(Readings are to be completed prior to class meeting, except for class 1)

<u>Date</u>	<u>Topic</u>	<u>Reading</u>
Sept. 5	Introduction: What is cognitive psychology? Why is it important to me?	Reisberg, 1
Sept. 12	What kinds of data and evidence can we use? What contribution can cognitive neuroscience make?	Reisberg, 2
Sept. 19	The problem of vision: How do we segment the perceptual field to find the "objects"?	Reisberg, 3
Sept. 26	What is attention for? Is it necessary for perception? How much can we attend to at one time?	Reisberg, 4 *Treisman, Anne (1986)
Oct. 3	What is the structure and function of the working memory system?	Reisberg, 5 *Baddeley, Alan (1992) *Baddeley, Alan (2003)

Hand out directions for Paper 1: Memory

Oct. 10	How accurate are our memories? What factors affect memory accuracy?	Reisberg, 7 Bartlett, Sir Frederic (1932)
Oct. 17	What facilitates retrieval from long-term memory? Are there multiple long-term memory systems?	Reisberg, 6 *Tulving, Endel (1985) *Tulving, Endel (2001)
Oct. 24	What are concepts? How is our factual and conceptual knowledge represented in long term memory (LTM)?	Reisberg, 8 and 9

Hand in Paper 1 in Class: Oct. 24

Hand out directions for Paper 1: Expert/Novice Differences

Oct. 31	How do experts differ from novices?	*Bransford, John et al (2000)
Nov. 7	How is visual knowledge represented in LTM?	Reisberg, 11
Nov. 14	What methods are useful in problem solving? In what ways do experts solve problems differently?	Reisberg, 14
Nov. 21	How does one become an expert in some domain?	*Ericsson & Charness (1994) *Dunning, David et al (2003) *Winner (1996)

Hand in Paper 2 in Class: Nov. 21

Nov. 28	How do we really reason and make decisions? How can we become better thinkers?	Reisberg, 12 & 13 *Tversky/Kahneman(1974) *Bechara et al (1997)
Dec. 5	What makes a true language and how do humans come to learn it?	Reisberg, 10 *Newport, Elissa (1990)
Dec. 12	What have we learned about the human mind? What questions remain?	Reisberg, 15
Dec. 17	Paper 3 Due	

Full Bibliographic Information on Articles on E-Reserves (listed in order of reading):

- *Treisman, Anne (1986) Features and objects in visual processing. *Scientific American*, 255 (5), 114-125.
- *Baddeley, Alan (1992) Working memory. *Science*, 255, 556-559.
- *Baddeley, Alan (2003) Working memory: Looking back and looking forward. *Nature Reviews: neuroscience*, 4, 829-8339.
- *Bartlett, Sir Frederick (1932) Chapter 5: Experiments on Remembering: The method of repeated reproduction (pp63-93) in *Remembering*. Cambridge, England: Cambridge University Press.
- *Tulving, Endel (1985) How many memory systems are there? *American Psychologist*, 40, 385-398.
- *Tulving, Endel (2002) Episodic memory: From mind to brain. *Annual Reviews of Psychology*, 53, 1-25.
- *Bransford, J., Brown, A. & Cocking, Rodney (Eds.) *How People Learn: Brain Mind Experience and School*. (Chapter 2: How experts differ from novices, pp. 31-50.)
- *Ericsson, Anders and Charness, Neil (1994) Expert performance: Its structure and acquisition. *American Psychologist*, 49, 725-747.
- *Dunning, David, Johnson, Kerri, Ehrlinger, J. & Kruger, J. (2003) Why people fail to recognize their own incompetence. *Current directions in psychological science*, 12 (3), 83-87.
- *Winner, E. (1996) The rage to master: The decisive role for talent in the visual arts. In K.A. Ericsson (Ed). *The road to excellence: The acquisition of expert performance in the arts and sciences, sports, and games*. Mahwah, NJ: Lawrence Erlbaum Associates.
- *Tversky, Amos & Kahneman, Daniel (1974) Judgment under uncertainty: Heuristics and biases, *Science*, 185 (Sept. 1974, Issue 4157), 1124-1131).
- *Bechara, A., Damasio, H., Tranel, D., and Damasio, A. (1997) Deciding advantageously before knowing the advantageous strategy, *Science* 275 (February 1995), 1293-1295.
- *Newport, E. (1990).Maturational constraints on language learning. *Cognitive science*, 14, 11-28.

