

Syllabus

Cognitive Psychology, Psychology 5087

Fall, 2009

Instructors:

Prof. Mark McDaniel 235F, Psychology Building mmcdanie@artsci.wustl.edu 935-8030 Office hours: Wednesday 2:00-4:00pm	Prof. Jeff Zacks 419B, Psychology Building jzacks@artsci.wustl.edu 935-8454 Office hours: Wednesday 2:00-4:00pm
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Both of us are also available by appointment.

Meeting times and places:

Tuesday & Thursday, 10:00am-11:30am, 215 Psychology Building

Textbook:

Medin, D. L., Ross, B. H., & Markman, A. B. (2005). *Cognitive Psychology* (4th ed.). Hoboken, NJ: Wiley.

Course web page: <http://dcl.wustl.edu/~jzacks/Psych5087>

Important note: Some sections of the course web site are password protected. If you have lost the login and password, contact the instructors.

Overview:

This course is an advanced introduction to core topics in cognitive psychology. Topics to be covered include attention memory, problem-solving, imagery, categorization, action planning, and comprehension. For graduate students in psychology our goal is to provide a thorough immersion in these topics that will serve as a foundation for further reading and research. For students from other programs our goal is to provide a working knowledge of the domain that will allow you to read primary literature with a critical eye and investigate specific topics in greater depth as they become relevant to your field.

We will use a lecture format, but encourage active questioning and discussion. The readings for each week will generally include a chapter or two from the textbook and one to three outside articles (see the schedule on the following page).

Your grading will be based on three exams, spaced roughly equally throughout the course. The first and third exams will be in-class essay exams; the second will be a take-home exam. The individual exams will be graded on a hundred-point scale, and your final grade will be calculated based on the mean of the three exam scores, using the typical formula: A = 90%-100%, B=80%-89%, C=70%-79%, D=60%-69%, F = 0%-60%, with pluses and minuses occupying the upper and lower 2% of each 10% band.

Course outline:

Here is the tentative schedule the readings, lectures, and exams:

Date	Topic	Required Readings	Supplementary Readings
Aug 27	Introduction	Textbook Ch 1	
Sep 1	Perception	Textbook Ch 3 Goodale, M. A. & Humphrey, G. K. (1998). The objects of action and perception. <i>Cognition</i> , 67, 181-207.	
Sep 3	Imagery & spatial representation	Ch 8 Kosslyn, S. M. (1994). <i>Image and brain: the resolution of the imagery debate</i> . Cambridge, Mass.: MIT Press, Ch. 3.	Zacks, J. M. & Michelon, P. (2005). Transformations of visuospatial images. <i>Behavioral and Cognitive Neuroscience Reviews</i> , 4, 96-118.
Sep 8	Perceptual-motor interactions	Hommel, B. (2006). How we do what we want: a neuro-cognitive perspective on human action planning. In R. J. Jorna, W. van Wezel, & A. Meystel (Eds.), <i>Planning in intelligent systems: Aspects, motivations and methods</i> . (pp. 27-56). New York: John Wiley & Sons.	Proffitt, D. R. (2006). Embodied perception and the economy of action. <i>Perspectives on Psychological Science</i> , 1, 110-122. Röder, B., Kusmierik, A., Spence, C., & Schicke, T. (2007). Developmental vision determines the reference frame for the multisensory control of action. <i>PNAS</i> , 104, 4753-4758.
Sep 10	Attention	Textbook Ch 4 Luck, S. J. & Vecera, S. P. (2002). Attention. <i>Steven's handbook of experimental psychology</i> , 1, 235-286.	Posner, M. I. & Petersen, S. E. (1990). The attention system of the human brain. <i>Annual Review of Neuroscience</i> , 13, 25-42.
Sep 15	Skill learning/Concept formation	Textbook Ch 2	
Sept 17	Concept formation	Bourne, Dominowski, & Loftus (1979). <i>Cognitive Processes</i> (Chapter 6—Concept Formation)	Bower, G. & Trabasso, T. (1963). Reversals prior to solution in concept identification. <i>Journal of Experimental Psychology</i> , 66, 409-418.
Sep 22	Concept formation	Textbook Ch 10 (pp. 317-344)	Posner, M.I. & Keele, S. W. (1970). Retention of abstract ideas. <i>Journal of Experimental Psychology</i> , 83, 304-308. Franks, J. J., & Bransford, J. D. (1971). Abstraction of visual patterns. <i>Journal of Experimental Psychology</i> , 90, 65-74.
Sep 24	Concept formation	Murphy (2004). <i>The Big Book of Concepts</i> (Chapter 3, pp.49-60; Chapter 4, pp. 94-112)	Medin, D. L., & Schaffer, M. M. (1978). Context theory of classification learning. <i>Psychological Review</i> , 85, 207-238. Rosch, E. H. (1978). Principles of categorization. In E. Rosch & B. B. Lloyd (Eds.), <i>Cognition and Categorization</i> . Erlbaum.

Sep 29	Concept formation		Choi, S., McDaniel, M. A., & Busemeyer, J. R. (1993). Incorporating prior biases in network models of conceptual rule learning. <i>Memory & Cognition, 21</i> , 413-423.
Oct 1	FIRST EXAM (IN CLASS)		
Oct 6	Theory-based & embodied concepts	Barsalou, L. W. (2005). Situated conceptualization. In H. Cohen & C. Lefebvre (Eds.), <i>Handbook of Categorization in Cognitive Science</i> . (pp. 619-650). Amsterdam: Elsevier.	Wilson, N. L. & Gibbs, J., RW. (2007). Real and imagined body movement primes metaphor comprehension. <i>Cognitive Science, 31</i> , 721-731.
Oct 8	Working memory	Textbook Ch 5	Kane, M. J., Hambrick, D. Z., Tuholski, S. W., Wilhelm, O., Payne, T. W., & Engle, R. W. (2004). The generality of working memory capacity: a latent-variable approach to verbal and visuospatial memory span and reasoning. <i>J Exp Psychol Gen, 133</i> , 189-217.
Oct 13	Working memory	Baddeley, A. D. (1997). <i>Human memory: Theory and practice</i> . Hove, England: Psychology Press, Ch. 4.	Baddeley, A. (2000). The episodic buffer: a new component of working memory? <i>Trends in Cognitive Sciences, 4</i> , 417-423.
Oct 15	Episodic memory encoding	Textbook Ch 5 (pp. 152-157)	Craik, F.I.M., & Tulving, E. (1975). Depth of processing and the retention of words in episodic memory. <i>J Exp Psychol Gen, 104</i> , 268-294.
Oct 20	Episodic memory encoding	Hunt, R. R., & McDaniel, M. A. (1993). The enigma of organization and distinctiveness. <i>Journal of Memory and Language, 32</i> , 421-445.	McDaniel, M. A., & Einstein, G. O. (2005). Material appropriate difficulty: A framework for determining when difficulty is desirable for improving learning. In A. F. Healy (Ed.), <i>Experimental cognitive psychology and its applications</i> (pp. 73-85) American Psychological Association.
Oct 22	Prospective memory	McDaniel & Einstein (2007). <i>Prospective memory</i> . Sage Press. Chapter 3: Spontaneous Retrieval in Prospective Remembering (pp. 30-49)	McDaniel & Einstein (2007). <i>Prospective memory</i> . Sage Press. Chapter 4: Multiprocess Theory of Prospective Memory (pp. 50-82)
Oct 27	Retrieval & forgetting	Baddeley, A. D. (1997). <i>Human memory: Theory and practice</i> . Hove, England: Psychology Press, Ch. 11.	Underwood, B. J. (1983). <i>Attributes of memory</i> . Glenview, Ill: Scott, Foresman. [Esp. Ch.. 10. NOTE: On reserve at Olin, not online.]
Oct 29	Retrieval & forgetting EXAM HANDED	Wixted, J. T. (2004). The psychology and neuroscience of forgetting. <i>Annual Review of Psychology, 55</i> , 235-269.	

	OUT, DUE NOV 3 IN CLASS		
Nov 3	Semantic memory models	Textbook Ch 6 (pp. 173-176; 193-201)	Potts, G. R., & Peterson, S. B. (1985). Incorporation versus compartmentalization in memory for discourse. <i>Journal of Memory and Language</i> , 107-118.
Nov 5	Lexical decoding	Textbook Ch 9 (pp. 305-315).	Tabossi, P. (1988). Accessing lexical ambiguity in different types of sentential contexts. <i>Journal of Memory and Language</i> , 27, 324-340.
Nov 10	Propositional representations	Reed (2004). <i>Cognition: Theory and applications</i> (Kintsch's model of comprehension, pp. 290-297)	Kintsch, W., & van Dijk, T. A. (1978). Toward a model of text comprehension and production. <i>Psychological Review</i> , 85, 363-394.
Nov 12	Inferencing	Keefe & McDaniel (1993). The time course of durability of predictive inferences. <i>Journal of Memory and Language</i> , 32, 446-463	McKoon, G., & Ratcliff, R. (1992). Inference during reading. <i>Psychological Review</i> , 99, 440-466.
Nov 17	Mental models & situation models	Textbook Ch 7	Johnson-Laird, P. N. (1989). Mental Models. In M. I. Posner (Ed.), <i>Foundations of cognitive science</i> . (pp. 469-500). Cambridge, MA: MIT Press.
Nov 19	Mental models & situation models	Zwaan, R. A. & Radvansky, G. A. (1998). Situation models in language comprehension and memory. <i>Psychological Bulletin</i> , 123, 162-185.	Zwaan, R. A., Stanfield, R. A., & Yaxley, R. H. (2002). Language comprehenders mentally represent the shape of objects. <i>Psychological Science</i> , 13, 168-171.
Nov 24	Language production	Textbook Ch 9 Bock, J. K. & Huitema, J. (1999). Language production. In S. Garrod & M. Pickering (Eds.), <i>Language Processing</i> . (pp. 365-388). Hove, England: Psychology Press.	Clark, H. H. (1996). <i>Using language</i> . Cambridge England: Cambridge University Press, Ch. 2-4. [On reserve at Olin, not online.]
Nov 26	THANKSGIVING		
Dec 1	Problem solving & transfer	Textbook Ch 12	Atwood, M. E., & Polson, P. G. (1976). A process model for water jug problems. <i>Cognitive Psychology</i> , 8, 191-216.
Dec 3	Problem solving & transfer	Novick, L. R. (1988). Analogical transfer, problem similarity, and expertise. <i>J Exp Psychol LMC</i> , 14, 510-520.	Gick, M. L., & McGarry, S. J. (1992). Learning from mistakes: Inducing analogous solution failures to a source problem produces later successes in analogical transfer. <i>J Exp Psychol LMC</i> , 18, 623-639.
FINAL EXAM DATE & TIME TO BE DETERMINED			