

Psychology 770 [section 004] Spring 2002
Graduate Course in Memory
Wednesday 12-3pm, Room 302 Psychology

Instructors: Stephan Hamann (shamann@emory.edu)
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Description: This course will explore selected current issues in human memory, from a variety of perspectives ranging from cognitive neuroscience to development. Selected articles will be read and critically discussed each week. In addition, short tutorials will introduce specific methodological and conceptual topics.

Requirements:

Review paper: One 12-15 page critical review paper is required, due at the latest on the last day of class (4/24). Earlier submissions are encouraged. First drafts of the paper may be submitted for comments prior to submission of the final paper. The topic of the paper must be approved by the instructors and must integrate papers from the domains of both adult cognition and development. The deadline for submission of topics is the beginning of the Week 4 class meeting. The deadline for revised, accepted topics is the beginning of the Week 5 class meeting. If an acceptable topic has not been successfully prepared by this Week 5 deadline, further revision to achieve an acceptable topic is allowed but will incur a grade penalty of 5% per week for the completed review paper. The deadline for first drafts is by the beginning of class on April 10th (Week 12).

Weekly activities: All students are of course required to read the assigned readings for each class **prior** to class. In addition, each student will formulate one substantive question about each reading, designed to stimulate class discussion. Students are required to bring these written questions to the class during which the corresponding readings have been assigned. These questions will constitute part of the participation points and must be turned in at the beginning of each class.

Every week, each article will be paired with a student who will be assigned the role of discussion leader. The discussion leader will begin with a short summary/refresher of the main points of the article and will initiate and moderate the discussion of the assigned article. All students are strongly encouraged to participate in the discussion.

The readings will be available in room 302 (Cognition Library) in Psychology for students to borrow and copy.

Learnlink conference: A learnlink conference has been set up for this course to facilitate discussion and to make course announcements.

Grading:

Class presentation and participation in class discussion = 50% [Participation points are assessed as follows: Written questions = 15%; Leading class discussion = 20%; Class discussion = 15%];

Review paper = 50%.

Weekly Topics and Readings

Suggested background book for students with little or no background in memory:

Baddeley, Alan (1999). *Essentials of human memory*. Psychology Press: Hove: UK. Available online through the Emory Library System's "net-book" program:

www.library.emory.edu/netlibrary.html

Week 1 [1/23] Overview and Introduction

Week 2 [1/30] Basic models of memory: systems and processes

Buckner, R., & Wheeler, M. (2001). The cognitive neuroscience of remembering. *Nature Reviews Neuroscience*, 2, 624-634.

Eichenbaum *et al.* (1999). Learning and memory : Systems analysis. In: *Fundamental neuroscience*. Zigmond, M. (Ed.), San Diego : Academic Press.

Schacter, D.L. (1996). *Searching for memory*. Basic Books: NY: USA. [Chapters 1 and 2 plus the notes that accompany each chapter]

Week 3 [2/6] Overview of memory development- declarative and procedural processes

Ornstein, Peter A; Haden, Catherine A. Memory development or the development of memory? [Journal Article] *Current Directions in Psychological Science*. Vol 10(6) Dec 2001, 202-205.

Mandler, Jean M. How to build a baby: On the development of an accessible representational system. [Journal Article] *Cognitive Development*. Vol 3(2) Apr 1988, 113-136. Elsevier/JAI Press Inc, US,

Rovee-Collier, C., & Hayne, H. (2000). Memory in infancy and early childhood. In E. Tulving & F. Craik (Eds.), *The Oxford handbook of memory* (pp, 267-282). London: Oxford University Press.

Bauer, P. (1997). Development of memory in early childhood. In N. Cowan (Ed.). *The development of memory in childhood*. (pp. 83-112). Sussex: Psychology Press.

Carver, Leslie J; Bauer, Patricia J. The dawning of a past: The emergence of long-term explicit memory in infancy. [Journal Article] *Journal of Experimental Psychology: General*. Vol 130(4) Dec 2001, 726-745.

- **Class party at Dr. Mills' house: Screening of "Memento" (day/time TBA)**

Week 4 [2/13] Amnesia

Zola, S. (2000). Amnesia I: Neuroanatomic and clinical issues. In: Farah, M., & Feinberg, T. (Eds.), *Patient-based approaches to cognitive neuroscience*. (pp. 275-290), Cambridge: MIT Press.

- Curran, T., & Schacter, D.L. (2000). Amnesia II: Cognitive neuropsychological issues. In: Farah, M., & Feinberg, T. (Eds.), *Patient-based approaches to cognitive neuroscience*. (pp. 291-299), Cambridge: MIT Press.
- Squire, L.R. & Knowlton, B.J. (2000). The medial temporal lobe, the hippocampus, and the memory systems of the brain. . In: Gazzaniga, Michael S. (Ed), et al. (2000). The new cognitive neurosciences (2nd ed.). (pp. 765-779). Cambridge, MA, US: The MIT Press.
- Schacter, D.L. (1996). Searching for memory. Basic Books: NY: USA. [Chapter 5 plus the notes that accompany it]
- Stefanacci, L. et al. (2000). Profound amnesia after damage to the medial temporal lobe: A neuroanatomical and neuropsychological profile of patient E.P., Journal of Neuroscience, **20**, 7024-7036.

Week 5 [2/20] Childhood amnesia and autobiographical memory

- Newcombe, Nora S; Drumme, Anna Bullock; Fox, Nathan A; Lie, Eunhui; Ottinger-Alberts, Wendy. Remembering early childhood: How much, how, and why (or why not). [Journal Article] *Current Directions in Psychological Science*. Vol 9(2) Apr 2000, 55-58.
- Howe, Mark L. The fate of early memories: Developmental science and the retention of childhood experiences. [Authored Book] *Washington, DC, US: American Psychological Association*. (2000). xvii, 219pp. (selected reading - TBA).
- Fivush, R. (1997). Event memory in childhood. In N. Cowan (Ed.) The development of memory in childhood (pp. 139-162). Sussex: Psychology Press.
- Bruce, Darryl; Dolan, Angela; Phillips-Grant, Kimberly. (2000). On the transition from childhood amnesia to the recall of personal memories. [Journal Article] *Psychological Science*. Vol 11(5), 360-364.
- Fivush, Robyn; Schwarzmüller, April. Children remember childhood: Implications for childhood amnesia. [Journal Article] *Applied Cognitive Psychology*. Vol 12(5) Oct 1998, 455-473.
- Baddeley, Alan; Vargha-Khadem, Faraneh; Mishkin, Mortimer. Preserved recognition in a case of developmental amnesia: Implications for the acquisition of semantic memory? [Journal Article] *Journal of Cognitive Neuroscience*. Vol 13(3) Apr 2001, 357-369.

Week 6 [2/27] Functional neuroimaging and memory

- Buckner, R. (2000). Neuroimaging of memory. In: Gazzaniga, Michael S. (Ed), et al. (2000). The new cognitive neurosciences (2nd ed.). (pp. 817-828). Cambridge, MA, US: The MIT Press.
- Eldridge, L. et al. (2000). Remembering episodes: a selective role for the hippocampus during retrieval. *Nature Neuroscience*, 3, 1149-1152.
- Wagner, A. et al. (1998). Building memories: Remembering and forgetting of verbal experiences as predicted by brain activity. *Science*, 281, 1188-1191.
- Casey, Thomas and McCandliss (2001). Applications of magnetic resonance imaging to the study of development. TEXT. Nelson and Lucina - Handbook of Developmental Cognitive Neuroscience Chapter 10. pp. 137-148

Week 7 [3/6] Overview of ERP technique and ERP studies of early memory development

Rugg and Coles (1995) – *Electrophysiology of Mind* – Chapters 1 & 2 [pp 1-38] - Chapter 5 is optional - pp 136-144 = section on encoding, recommended.

Nelson, and Monk (2001). The use of event-related potentials in the study of cognitive development. TEXT. Nelson and Lucina - *Handbook of Developmental Cognitive Neuroscience*. Chapter 9. pp. 125-136, **background reading - no questions due for shaded areas.**

Rugg, M.D. and Allan, K. (2000). Event-related potential studies of memory. in In E. Tulving & F. Craik (Eds.), *The Oxford handbook of memory* (pp, 521-537). London: Oxford University Press.

Cycowicz, Yael M. Memory development and event-related brain potentials in children. [Journal Article] *Biological Psychology*. Vol 54(1-3) Oct 2000, 145-174., [READ: abstract, page 146, 155-168].

Nelson, C.A. (1998). The nature of early memory. *Preventative Medicine*. 27, 172-179. - and- Carver, Leslie J; Bauer, Patricia J; Nelson, Charles A. Associations between infant brain activity and recall memory. [Journal Article] *Developmental Science*. Vol 3(2) May 2000, 234-246.

Cheour, M. Leppanen, P., Kraus, N. (2000). Mismatch negativity (MMN) as a tool for investigating auditory discrimination and sensory memory in infants and children *Clinical Neurophysiology*, 111. 4-16.

Optional/ suggested:

Friedman, David. Event-related brain potential investigations of memory and aging. [Journal Article] *Biological Psychology*. Vol 54(1-3) Oct 2000, 175-206. [READ: abstract, page 176, and 184-201].

Week 8 [3/13] SPRING BREAK [NO CLASS]

Week 9 [3/20] Memory and the frontal lobe

Smith, E., & Jonides, J. (1998). Neuroimaging analyses of human working memory. *Proc. Nat'l Acad Sci., USA*, 95, pp. 12061-12068.

Rossi, S. et al. (2001). Prefrontal cortex in long-term memory: an "interference" approach using magnetic stimulation. *Nature Neuroscience*, 4, 948-952.

Tulving, E. et al. (1994). Hemispheric encoding/retrieval asymmetry in episodic memory: Positron emission tomography findings. *Proc. Nat'l Acad Sci., USA*, 91, pp. 2016-2020.

Kirchhoff, B. et al. (2000). Prefrontal-temporal circuitry for episodic encoding and subsequent memory. *Journal of Neuroscience*, 20, 6173-6180.

Parkin, A., & Walter, B.M. (1992). Recollective experience, normal aging, and frontal dysfunction. *Psychology and Aging*, 7, 290-298.

Week 10 [3/27] Neural basis of memory development -

Bachevalier, J. (2001). Neural basis of memory development: Insights from neuropsychological studies in primates. TEXT: Nelson and Lucina (Eds). Handbook of Developmental Cognitive Neuroscience. Chapter 25., 365-380.

Nelson, Charles A. The Neurobiological basis of early memory development. In N. Cowan (Ed.). The development of memory in childhood. (pp. 41-82). Sussex: Psychology Press

Nelson, Charles A. Neural plasticity and human development: The role of early experience sculpting memory systems. [Journal Article] *Developmental Science*. Vol 3(2) May 2000, 115-130. **Plus Peer commentaries and response pp 130-136**

Diamond, A. (2001). A model system for studying the role of dopamine in the prefrontal cortex during early development in humans: Early and continuously treated phenylketonuria. TEXT: Nelson and Lucina (Eds). Handbook of Developmental Cognitive Neuroscience. Chapter 29. pp. 433-472.

Optional:

Fabiani and Wee (2001). Age-related changes in working memory and frontal lobe function: A review. TEXT: Nelson and Lucina (Eds). Handbook of Developmental Cognitive Neuroscience. Chapter 30. pp. 473- 488.

Week 11 [4/3] Accuracy and inaccuracy in memory

Cabeza, R. et al. (2001). Can medial temporal lobe regions distinguish true from false? An event-related functional MRI study of veridical and illusory recognition memory. Proc. Nat'l Acad. Sci., USA. 98, 4805-4810.

Clancy, S.A. et al. (2000). False recognition in women reporting recovered memories of sexual abuse. *Psychological Science*, 11, 26-31.

Spanos, N.P. et al. (1999). Creating false memories of infancy with hypnotic and non-hypnotic procedures. *Applied Cognitive Psychology*, 13, 201-218.

Week 12 [4/10] Eyewitness testimony and children's suggestibility

Ceci , S.J., & Bruck, M. (1993). Suggestibility of the child witness: A historical review and synthesis, *Psychological Bulletin*, 113, 403-439.

Ornstein, P.A., & Haden, C.A. (2002). The development of memory: Toward an understanding of children's testimony. In M.L. Eisen, J.A. Quas & G.S. Goodman (Eds.), *Memory and suggestibility in the forensic interview* (pp. 29-62) Hillsdale, NJ: Erlbaum

Saywitz, K., & Lyons, T. (2002). Coming to grips with children's suggestibility. In M.L. Eisen, J.A. Quas & G.S. Goodman (Eds.), *Memory and suggestibility in the forensic interview* (pp. 85-114) Hillsdale, NJ: Erlbaum

Hyman, I, and Loftus, E. (2002). False childhood memories and eyewitness memory errors. In M.L. Eisen, J.A. Quas & G.S. Goodman (Eds.), *Memory and suggestibility in the forensic interview* (pp.63-84) Hillsdale, NJ: Erlbaum.

**Week 13 [4/17] Children's memories for traumatic and non-traumatic events -
Guest Discussant - Robyn Fivush**

Fivush, R. (1998). Children's memories for traumatic and non-traumatic events. Development and Psychopathology, 10, 699-716.

Schooler, Jonathan W; Eich, Eric. Memory for emotional events. [Chapter] *Tulving, Endel (Ed); Craik, Fergus I. M. (Ed). (2000). The Oxford handbook of memory. (pp. 379-392).*

Christianson, S. & Lindholm, T. (1998). The fate of traumatic memories in childhood and adulthood. Development and Psychopathology, 10, 761-780.

Pezdek, Kathy. A cognitive analysis of the role of suggestibility in explaining memories for abuse. . [Journal Article] *Journal of Aggression, Maltreatment & Trauma. Vol 4(2) 2001, 73-85.*

Schooler, Jonathan W. Discovering memories of abuse in the light of meta-awareness. . [Journal Article] *Journal of Aggression, Maltreatment & Trauma. Vol 4(2) 2001, 105-136.*

Nelson, Charles A; Carver, Leslie J. The effects of stress and trauma on brain and memory: A view from developmental cognitive neuroscience. [Journal Article] *Development & Psychopathology. Vol 10(4) Fal 1998, 793-809.*

Week 14 [4/24] Emotion and memory

Schacter, D.L. (1996). Searching for memory. Basic Books: NY: USA. [Chapter 7 plus the notes that accompany it]

Canli, T. et al. (2000) Event-related activation in the human amygdala associates with later memory for individual emotional experience. *J. Neurosci.* 20, RC99, 1-5.

Neisser, U. & Harsch, N. (1992). Phantom flashbulbs: False recollections of hearing the news about Challenger. In *Affect and accuracy in recall: studies of "flashbulb" memories.* (Winograd, E. and Neisser, U., eds), pp. 9-31. Cambridge.

Dolan, R.J. (2000) Functional neuroimaging of the human amygdala during emotional processing and learning. In *The Amygdala: A functional analysis*, 2nd ed. (Aggleton, J.P., ed), pp. 631-653, Oxford.

Stein, N.L., Wade, E., & Liwag, M.D. (1996). A theoretical approach to understanding and remembering emotional events. In N. Stein, P.A. Ornstein, C.A. Brainerd, & B. Tversky (Eds.), Memory for everyday and emotional events. Hillsdale: NJ: Erlbaum.