



Human Learning and Memory

(COGS 1560, CRN 21190)
Spring 2008

Professor Kathryn Spoehr

Class Meeting Time: TR 9:00-10:20 a.m.
Location: 205 Sayles

Instructor Information:

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Office Hours: Wednesday 10:00 a.m. -12:00 noon

Course Description:

How does human memory work and why are some things easier to learn and remember than others? This course has two content components:

1. An overview of experimental and behavioral studies of human memory including long- and short-term memory, memory for text, pictures and faces, and autobiographical events.
2. The applications of laboratory studies of learning and memory to educational settings.

Prerequisite: COGS0420 or permission from the instructor. Graduate students welcome.

Course Goals:

By the end of the semester students who has taken this course should:

- display thorough knowledge of the basic behavioral phenomena that characterize human adult memory and learning
- be able to describe and evaluate the major theories proposed to account for human adult memory
- understand the research methods used to determine how human adult memory works
- be able to analyze a variety of real-world situations to determine the demands they place on the human memory system and the ways in which the human system responds.
- understand and apply principles of human memory and learning to education.

Course Format Overview:

Some class meetings will include lectures providing overview and background material; a majority of class time will be spent on discussion of and activities based on the assigned reading. Readings include both textbook material, and published scientific papers (see the section on “Schedule and Reading Assignments” below). During most class meetings there will be student-led presentation and discussion of one or two of the research papers from the assigned reading list. The instructor will provide supplementary information as needed on the topics under discussion.

For each student-presented paper a designated subgroup of the class will be required to post a 1-page reading reaction to the course website discussion board (details appear under *Assignments and Grading Policy #2* below) in advance of the class meeting.

Required Textbooks (available at Brown Bookstore):

Howes, M. B. (2007) *Human Memory: Structures and Images*. Thousand Oaks, CA., Sage Publications (ISBN 978-1-4129-1629-5, pbk). [Abbreviated *Howes* in Reading Assignments below]

Bransford, J. D., Brown. A. L., and Cocking, R. R. *How People Learn: Brain, Mind, Experience, and School (Expanded Edition)*. Washington, DC, National Academy Press, 2000. (ISBN 0-309-07036-8, pbk). [Abbreviated *HPL* in Reading Assignments below] Also available at: <http://www.nap.edu/books/0309070368/html/index.html>.

Assignments and Grading Policy:

1. In-class Presentations (20% of course grade): Each student will serve as a presenter/discussion leader for one of the assigned non-textbook readings at some point during the semester. The presentation should highlight the major theoretical contributions made by the presented paper and should outline the data and experimental methods which support the theory. More importantly, the presenter should identify issues left unanswered by the presented paper and prepare discussion questions for use during class. The presentation portion should last *no longer than 20 minutes* to leave time for discussion.
2. Reading Reaction Papers (20% of course grade): In order to stimulate discussion of the student-presented papers, one quarter of the class will be required to post, on the Reading Reaction Discussion Board, a 1-page (250 words) evaluation/reaction to one of the presented papers. Here’s how this will work:
 - a. Each student will be assigned to one of four groups (G1, G2, G3, G4). Each student-presented paper has a G-designation (on the reading list below) telling which group must post reactions for that paper.
 - b. Reaction papers must be **posted by midnight the day before** the appropriate class meeting and should be entered under the appropriate category heading on the R-R Discussion Board.

- c. Reactions may be evaluative (e.g., why is/was this an important paper when it was published?) and/or may pose one or more substantive questions or observations. Those providing reactions should be prepared to talk about their posting in class.
 - d. Student presenters should consult the reactions before their presentation and may wish to incorporate those comments into their discussion.
3. Short Paper (25% of course grade): Must be individually authored (no collaborative projects) and should be *no longer than 1,500 words*. The paper will require analysis and synthesis of a set of three or four research articles. The topic/question for the short paper, along with the associated readings will be posted in the *Assignments* area of the course website. **DUE: Monday, March 3 by 9:00 a.m.**
4. Group Term Project (35% of course grade): There will be one required group term project. Self-organized project teams should consist of three to five students. Additional information on the term project will be posted on the course website, but the main details are as follows:
 - a. The task: Imagine that you have the task of providing a set of instructional resources that would inform any Brown faculty member or graduate student about some topic in human memory and learning that would help him or her become better teacher. The project should focus on research that has been done on your topic or question, but should present that material in a way that an intelligent, but uninformed, teaching professional can understand and use.
 - b. The term project can take the form of a website or as a set of prose materials (and illustrations).
 - c. Each group will present its project in class April 22nd, 24th, or 29th.
 - d. Your individual write-up about the structure and content of your group's final project, along with a discussion of your contributions, is due by Monday, May 5 at 9:00 a.m.
5. Class Participation (15% of course grade): Being an effective class participant is very important in this course because much of what you will learn will be from the other students in class. Effective class participation involves not only preparation and speaking skills, but also listening skills. Here are the guidelines we will use of evaluating participation:
 - a. Outstanding contributor: contributions in class reflect exceptional preparation. Ideas offered are always substantive, provide one or more major insights as well as direction for the class. Frequent references are made to the readings and/or to knowledge from other sources, often showing the ability to generalize or extend the material under discussion. If this person were not a member of the class, the quality of discussion would be diminished markedly.
 - b. Good contributor: contributions in class reflect thorough preparation. Ideas offered are usually substantive, provide good insights, and sometimes direction for the class. Occasional references are made to the readings and/or to knowledge from other sources, sometimes showing the ability to generalize or extend the material under discussion. If this person were not a member of the class, the quality of discussion would be diminished.

- c. Adequate contributor: contributions in class reflect satisfactory preparation. Ideas offered are sometimes substantive, provide some useful insights, but seldom offer new direction for the discussion. Some references are made to the readings and/or to knowledge from other sources, but seldom generalize or extend the material under discussion. If this person were not a member of the class, the quality of discussion would be diminished somewhat.
 - d. Non-participant: This person says little or nothing in class. Hence, there is not adequate basis of evaluation. If this person were not a member of the class, the quality of discussion would be unchanged.
 - e. Unsatisfactory participant: Contributions in class reflect inadequate preparation. Ideas offered are seldom substantive, provide few insights and no direction for the class. References to readings are rare. If this person were not a member of the class, the quality of discussion would be improved.
6. Surveys: Each student is required to respond to the Initial Student Survey, the two self-assessments, and to the Course Improvement Survey. These items can be found on the course website under the *Assessments* course tool on the left of the screen. Dates during which surveys are due are listed on the course schedule below.
 7. Attendance at colloquia: The Psychology Department will be hosting a series of invited lectures by outside speakers this semester most of which will be on human memory. A schedule will be posted on the course website and students are strongly encouraged to attend.
 8. Grading: Letter grades in the course will be assigned based on grades earned on the elements listed above. A student's final letter grade in the course exercise will be lowered by \pm (i.e., B+ goes to B, B goes to B-, B-goes to C+, etc.) if the student has not completed the surveys/questionnaires (#1 above) and the discussion postings (#2 above).
 9. Late Policy: A student's letter grade on any course exercise will be lowered by \pm (i.e., B+ goes to B, B goes to B-, B-goes to C+, etc.) for every day, or part thereof, that the exercise is turned in late.
 10. Special Circumstances: Students who have special physical or learning needs should inform the instructor as soon as possible at the beginning of the semester, and should provide official notification from the appropriate dean or service office detailing the type of accommodation required.
 11. Some Advice: You will do your best in this course if you come to class regularly, turn in your assignments punctually, contribute your best efforts in a cooperative fashion to your group, and attend class having prepared the reading assignment and/or exercises.

Academic Integrity and Plagiarism Policy:

Most of the work in this course, as well as how much you will benefit from the course, depends upon your personal integrity and intellectual honesty. The exams are based on an honor system wherein you will pledge on your exam that you did not receive any unauthorized help. The amount you will learn from the paper and readings depends on your doing the hard work necessary to master the material. Here are a few general guidelines:

1. Interact. Feel free to discuss your reading and ideas with other students and with the professor as much as seems helpful. Discussion exposes gaps in understanding and flaws in reasoning, and aids in learning the material.
2. Do your own written work. Any work you turn in should be your own, and should not be copied from other students or from digital or printed sources without proper bibliographic citation. Discussion with others may influence your thinking, and if such influence is considerable, it is appropriate to acknowledge it in a note. It is not necessary to mention assistance given by the professor. Also, most papers can be improved by having a friend or classmate read and critique a draft. Such help with writing need not be acknowledged. Do not submit as your own work a paper or other written assignment that was written by someone else, or submit a paper or part of a paper for which you have received or expect to receive credit at any other time or place. If, under special conditions the professor approves the preparation of a paper by two or more students, this should be indicated on the paper.
3. Give credit for ideas or expressions obtained from published sources by proper citation of the source: exact quotes must be enclosed in quotation marks and sources given for ideas expressed in new words (i.e., your paraphrases of someone else's words). The preferred form for citation is that suggested by the Style Manual of the American Psychological Association. If you have any questions about whether or how to acknowledge sources, be sure to ask the professor.
4. Your work on the short paper and on your write-up of the term project must be your work and your work alone. You may not receive help on these exercises from any other person or source in this course or outside of it.
5. Students are expected to adhere to the standards of intellectual integrity set forth in Brown University's Academic Code. Violations of the Code will be referred to the Dean of the College's or Dean of the Graduate School's office, as appropriate.

Schedule & Reading Assignments:

Note: * indicates readings available digitally on course website.
 ✓ indicates a paper to be presented by a student

Date	Topic	Assigned Reading
1/24	Introduction to memory & learning	HPL: Ch. 1 (pp. 3-27) Howes: Ch. 1 (pp. 1-18)

Date	Topic	Assigned Reading
1/29	Sensory memory	Howes: Ch 3 (pp. 35-50) * Classic paper: Sperling, G. (1960). The information available in brief visual presentations. <i>Psychological Monographs</i> , 74 (Whole No. 11), 1-28.
1/31	Short-term memory <i>In class:</i> <i>(a) Initial sign-ups for student paper presentations</i> <i>(b) Assignment of students to Reading Reaction groups</i>	Howes: Ch. 4 (pp. 51-78) * Classic paper: Atkinson, R. C., & Shiffrin, R. M. (1971). The control of short-term memory. <i>Scientific American</i> , 225 (No. 2), 82-90.
2/5	Working memory <i>Complete Initial Student Survey by midnight today</i>	Howes: Ch. 5 (pp. 79-102) *√ Classic paper: Baddeley, A. D., & Hitch, G. (1974). Working memory. In G. H. Bower (Ed.). <i>The psychology of learning and motivation: Advances in research and theory (Vol. 8)</i> . New York: Academic Press. (Pp. 47-89) G1
2/7	Expertise in short-term memory	* Classic paper: Chase, W. G., & Ericsson, K. A. (1981). Skilled memory. In J. R. Anderson (Ed.), <i>Cognitive skills and their acquisition</i> Hillsdale, NJ: Erlbaum. (Pp. 141-189) G2
2/12	Designing learning environments • The nature of expertise	HPL: Ch. 2 (pp. 31-50) *√ Classic paper: Chi, M. T. H., Feltovich, P.J., & Glaser, R. (1981). Categorization and representation of physics problems by experts and novices. <i>Cognitive Science</i> , 5, 121-152. G3
2/14	Designing learning environments • Situated learning and communities of practice <i>1st Student Self-assessment due today by midnight</i>	* Lave, J. & Wenger, E. (1991). <i>Situated Learning: Legitimate peripheral participation</i> . Cambridge, UK: Cambridge University Press. Chs. 2 "Practice, Person and Social world", and 3 "Midwives, tailors, quartermasters, butchers, nondrinking alcoholics" (Pp. 47 -88) G1, G2, G3, G4
2/19	No Class – Long Weekend	

Date	Topic	Assigned Reading
2/21	Designing learning environments <ul style="list-style-type: none"> • Transfer of training • Inquiry learning 	HPL: Ch. 3 (pp. 31-50) & Ch. 6 (pp. 131-154)
2/26	Long-term Memory <ul style="list-style-type: none"> • Associational models • Spreading activation • Levels of Processing 	Howes: Ch. 7 (pp. 131-160) *√ Classic paper: Rips, L. J., Shoben, E. J., & Smith, E. E. (1973). Semantic distance and the verification of semantic relations. <i>Journal of Verbal Learning and Verbal Behavior</i> , 12, 1-20. G4 *√ Classic paper: Craik, F. I. M., & Lockhart, R. (1972). Levels of Processing: A framework for memory research. <i>Journal of Verbal Learning and Verbal Behavior</i> , 11, 671-684. G1
2/28	No Class <i>Short paper due Monday, March 3 by 9:00 a.m.</i>	
3/4	Long-term Memory <ul style="list-style-type: none"> • Spacing of practice • Forgetting 	Howes: Chs. 2 (pp. 19-34) & 6 (pp. 103-130) *√ Landauer, T. K., & Bjork, R. A. (1978). Optimum rehearsal patterns and name learning. In M. M. Gruneberg, P. E. Morris, & R. N. Sykes (Eds.), <i>Practical aspects of memory</i> (pp. 625-632). London: Academic Press. G2
3/6	Long-term Memory <ul style="list-style-type: none"> • Implicit vs. Explicit Memory • Recognition vs. Recall 	Howes: Ch 13 (pp. 273-300) *√ Classic paper: Schacter, D. (1987). Implicit memory: History and current status. <i>Journal of Experimental Psychology: Learning, Memory, and Cognition</i> , 13, 501-518. G3

Date	Topic	Assigned Reading
3/11	Long-term Memory <ul style="list-style-type: none"> • Encoding strategies • Generation effects 	<p>*√ Pashler, H., Rohrer, D., Cepeda, M.J., & Carpenter, S. K. (2007). Enhancing learning and retarding forgetting: Choices and consequences <i>Psychonomic Bulletin & Review</i>, 14(2), 187-193. G4</p> <p>*√ Bjork, E.L., deWinstanley, P. A., & Storm, B. C. (2007). Learning how to learn: Can experiencing the outcome of different encoding strategies enhance subsequent encoding? <i>Psychonomic Bulletin & Review</i>, 14(2), 207-211. G1</p>
3/13	Long-term Memory <ul style="list-style-type: none"> • Testing effects 	<p>*√ Classic paper: Roediger, H. L., III, & McDermott, K. B (1995). Creating false memories: Remembering words not presented in lists. <i>Journal of Experimental Psychology: Human Learning and Memory</i>, 21, 803-814. G2</p> <p>*√ Whitten, W. B., & Leonard, J.M. (1980) Learning from tests: Facilitation of delayed recall by initial recognition alternatives. <i>Journal of Experimental Psychology: Learning & Memory</i>, 6(2), 124-134. G3</p>
3/18	Long-term Memory <ul style="list-style-type: none"> • Test-enhanced learning 	<p>*√ Roediger, H. L., & Marsh, E. J. (2005). The positive and negative consequences of multiple-choice testing. <i>Journal of Experimental Psychology: Learning, Memory, and Cognition</i>, 31(5), 1155-1159. G4</p> <p>*√ Karpicke, J. D. & Roediger, H.L. (2007). Expanding retrieval practice promotes short-term retention, but equally spaced retrieval enhances long-term retention. <i>Journal of Experimental Psychology: Learning, Memory, and Cognition</i>, 33(4), 704–719. G1</p>
3/20	Meta-Memory and Meta-Comprehension <i>2nd Student Self-assessment due today by midnight</i>	<p>*√ Palinscar, A. S., & Brown. A. L. (1984). Reciprocal teaching of comprehension-fostering and comprehension-monitoring activities. <i>Cognition & Instruction</i>, 1(2), 117-175. (<i>2 students will work together to present this paper</i>) G2</p>
3/25 and 3/27	No Class- Spring Break	

Date	Topic	Assigned Reading
4/1	Meta-Memory and Meta-Comprehension	<p>*√ Kornell, N., & Metcalfe, J. (2006) Study efficacy and the region of proximal learning framework. <i>Journal of Experimental Psychology: Learning, Memory, and Cognition</i>, 32(3), 608-622. G3</p> <p>*√ Metcalfe, J., & Kornell, N. (2007) Principles of cognitive science in education : The effects of generation, errors, and feedback. <i>Psychonomic Bulletin & Review</i>, 14(2), 225-229. G4</p>
4/3	Visual Memory <ul style="list-style-type: none"> • Imagery and mnemonics • Memory for pictures 	Howes: Ch. 12 (pp. 247-272) * Classic paper: Bower, G. H. (1970). Analysis of a mnemonic device. <i>American Scientist</i> , 58, 496-510. G1
4/8	Visual Memory <ul style="list-style-type: none"> • Memory for names and faces 	*√ Classic paper: Bahrck, H., Bahrck, P. C., & Wittlinger, R. P. (1975). Fifty years of memories for names and faces. <i>Journal of Experimental Psychology: General</i> , 104, 54-75. G2
4/10	Autobiographical Memory <ul style="list-style-type: none"> • Flashbulb Memories 	Howes: Ch. 11 (pp. 221-246) *√ Classic paper: *Brown, R., & Kulik, J. (1977). Flashbulb memories. <i>Cognition</i> , 5, 73-99. G3
4/15	Autobiographical Memory <ul style="list-style-type: none"> • Eyewitness testimony 	Howes: Ch. 9 (pp. 173-196) *√ Classic paper: Loftus, E. F. (1975). Leading questions and the eyewitness report. <i>Cognitive Psychology</i> , 7, 560-572. G4
4/17	No Class <i>Students should work on projects</i>	
4/22	In-Class Project Presentations	
4/24	In-Class Project Presentations	
4/29	In-Class Project Presentations	

Written/Web version of projects due: Monday, May 5, 2008 at 9:00 a.m.