

**7Cognition  
Psychology 215  
Emory University  
Spring 2002**

**Time and Location**

Tuesdays and Thursdays, 2:30–3:45 PM  
White Hall 205

**Instructor and Teaching Assistant**

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**Overview**

This course aims to provide students with two levels of knowledge about cognitive psychology:

- basic theoretical constructs and established empirical findings
- examples of state-of-the-art research

The following perspectives organize presented material:

- cognition can only be understood properly by grounding it in the neural mechanisms that underlie cognitive abilities
- cognition is not detached computation but arises out of the need for embodied agents to function intelligently in situated action

**Online Syllabus**

The syllabus can be found at:

<http://userwww.service.emory.edu/~barsalou/Courses/2002/cognition.html>

**Optional Readings**

There are no required readings for the course. All material on the exams will be covered in the lectures. However an optional set readings is available electronically from the Emory Library Reserve via Euclid. To access these readings:

1. Go to the Emory home page, <http://www.emory.edu>
2. Under Library and Information Tools, click on Euclid
3. Once in Euclid, click on Reserve Desk on the menu bar at the top of the window
4. When the reserve window appears, enter Barsalou into the search field, and press the Instructor button below
5. When the list of instructors appears, click on Barsalou, Lawrence W.
6. The first page of articles on reserve will appear, ordered alphabetically by title.
7. Click on the article you want, and then on its URL when its reference page appears
8. The article will appear as an Adobe Acrobat pdf file which you can read on your computer, save to a disk, or print on a printer

One purpose of the optional readings is to provide access to some of the articles that the lectures will cover. If you want to learn more about a topic covered in a lecture, read the related papers from the lecture that are online. Doing so will give you a much richer sense of the work in the respective area.

If an article discussed in a lecture is not online, you can still find it in the library. All articles discussed in the lectures are referenced at the end of the lecture notes. Using these references, you can locate most articles discussed in the lectures, either in the reserve collection, or in the larger library holdings.

The optional readings are also related to the course assignments, as described in the next section. As will be seen, you will have to use two of the optional articles as the basis for these assignments.

## Assignments

Over the course of the semester there will be five assignments. The purpose of these assignments is to get you thinking about the course material in creative ways. Assignments may be turned in any time prior to the due date, not just that day. Assignments will lose 1 point for each additional day turned in late.

### Assignment #1: *Memento*.

On Wednesday, February 13 at 7:00, we will watch the movie *Memento*. Your assignment is to write a short position paper on this movie, which must be typed in 12 point font on one double-spaced page having 1 inch margins all around (with your name inside the 1 inch top margin). The assignment is to answer the following question:

*What's going on with the amnesiac's memory of his wife's death? What does this tell us about his cognitive abilities, and how he has compensated for his mental deficits?*

This assignment is due by the start of class on Tuesday, February 19.

### Assignment #2: Application of an article from the first half of the optional reading list.

Browse through the optional readings associated with Topics 1 through 7 in the syllabus (i.e., Introduction through Construal). Select one of the readings. Your assignment is to think up a fictional but plausible application that the work in the reading could produce. You may not use an existing application of the work! The point is to be creative. Once you've thought of a creative application, pretend that you're a newspaper journalist, and write a newspaper clipping that reports on the application, and also on the basic work that produced it. Your report must be typed in 12 point font on one double-spaced page having 1 inch margins all around (with your name inside the 1 inch top margin). This assignment is due by the start of the midterm on Thursday, March 7.

### Assignment #3: *Rashomon*.

On Wednesday, April 3 at 7:00, we will watch the movie *Rashomon*. Your assignment is to write a short position paper on this movie, which must be typed in 12 point font on one double-spaced page having 1 inch margins all around (with your name inside the 1 inch top margin). The assignment is to answer the following question:

*Do you think it is possible to establish the truth of what happened in Rashomon? Why or why not?*

This assignment is due by the start of class on Tuesday, April 9.

**Assignment #4: The implicit association test of stereotypes.**

Perform the test for *Age Bias* online at the following web site:

[http://www.tolerance.org/hidden\\_bias/test.html](http://www.tolerance.org/hidden_bias/test.html)

Once you've completed the test, click on the link at the bottom of your test results called: Hidden Bias -- a Primer

You can also access the Primer at:

[http://www.tolerance.org/hidden\\_bias/tutorials/index.html](http://www.tolerance.org/hidden_bias/tutorials/index.html)

Once the web page for the Primer appears, click on all of the following links, and read the associated pages:

About stereotypes and prejudices

About hidden bias

The effects of prejudice and stereotypes

What you can do about unconscious stereotypes and prejudices

About Implicit Association Tests

About the science behind the tests

Once you've completed the test and read these pages, answer the following two questions in 12 point font on one double-spaced page having 1 inch margins all around (with your name inside the 1 inch top margin).

**Question 1**

Do you think that the implicit association test is a valid assessment of your underlying beliefs about young and old people? Why? Can you think of a better way to measure these beliefs?

**Question 2**

Do you think that the bias found on the implicit association test actually affects how people interact with younger and older adults? Is it possible overcome such bias during social interactions? How?

Answer each question in about one half of the page. This assignment is due by the start of class on Thursday, April 18. This assignment will be relevant to that day's lecture on Implicit Social Cognition.

**Assignment #5: Application of an article from the second half of the optional reading list.**

Browse through the optional readings associated with Topics 8 through 13 in the syllabus (i.e., Working Memory through Cultural Cognition). Select one of the readings. Your assignment is to think up a fictional but plausible application that the work in the reading could produce. You may not use an existing application of the work! The point is to be creative. Once you've thought of a creative application, pretend that you're a newspaper journalist, and write a newspaper clipping that reports on the application, and also on the basic work that produced it. Your report must be typed in 12 point font on one double-spaced page having 1 inch margins all around (with your name inside the 1 inch top margin). This assignment is due by noon on Friday, May 3.

**Optional assignments for the movies**

If for some reason, you can not or do not want to see a movie, you have another option. Some students may not be able to make it back to campus in the evening. Also *Memento* contains scenes about drugs and violence that some students may not want to watch. If you do not want to see either or both of the movies, you *must* clear this with the instructor in advance. Once you've done so, you can replace one or both of the movie assignments with one or two additional newspaper reports on an application of basic research (i.e., as in Assignments 2 and 5). If you replace *Memento*, you must write on a second article from the first half of the reading list. If you replace *Rashemon*, you must write on a second article from the second half of the reading list.

## Lecture Outlines

Each student should download the 26 lecture outlines in pdf format from:

[http://userwww.service.emory.edu/~barsalou/Courses/Cognition/Lecture\\_Notes/lecture\\_notes.html](http://userwww.service.emory.edu/~barsalou/Courses/Cognition/Lecture_Notes/lecture_notes.html)

The lecture notes are also online in PowerPoint format, but please note that these versions are *much* larger than the pdf versions. They can be found at Emory's Blackboard system at:

<http://classes.emory.edu/>

Bring the outlines to the lectures, given that they will enhance following the lectures and taking notes. Because the outlines contain information that would take much time and energy to copy, bringing them to class will make following the lectures easier. However, the outlines are *not* complete accounts of the lecture material. Therefore, taking additional notes is necessary to understand and fill out the outlines. Occasionally we will start a new lecture on the same day that we end a lecture, so please bring the outline for the next lecture to each class, as well as the outline for the current lecture.

Students are welcome to audio record the lectures so as to complement the lecture notes.

## Exams

The midterm will be on Thursday, March 7, and the final will be on Wednesday, May 8.

The midterm will contain 3 multiple-choice questions and 1 short-answer question for each of the 7 topics covered in the first half of the course. Only material from the lectures will be covered—no material from the readings.

The final will be cumulative. For each of the 7 topics from the first half of the course, the final will contain 1 multiple-choice question and 1 short-answer question. For each of the 6 topics in the second half of the course, the final will contain 4 multiple-choice questions and 2 short-answer questions. Again only material from the lectures will be covered—no material from the readings.

Questions will *not* be about the names and dates of studies, although names and dates will be given along with other information to help you remember the material. In general, the exam will test major points of understanding rather than picky details.

## Make-Up Exams

Students who experience extenuating circumstances at the time of an exam, confirmed by a reliable source, can make alternative arrangements for taking the exam. Standard College procedures will be followed in allowing and administering these exams.

## Students with Disabilities

Following standard College procedures, students with disabilities may arrange for alternative forms of instruction and testing. Please let the instructor know about the need for making such arrangements at the start of the course.

## Grading

### Assignments

Each assignment will be worth from 0 to 16 points. Assignments will lose 1 point for each additional day turned in late. Students who experience extenuating circumstances, confirmed by a reliable source, can arrange to turn in an assignment after the due date. The instructor should be notified as soon as possible about the need for any such arrangements.

## Exams

Each multiple choice question on an exam will be worth 2 points. Each short-answer question will be worth 4 points. Thus the midterm will be worth 70 points (21x2 for the multiple choice questions plus 7x4 for the short answer questions), and the final will be worth 138 points (31x2 for the multiple choice questions plus 19x4 for the short answer questions).

## Review Session

Prior to each exam, we will hold a review session. No material will be presented, but students can ask questions about material covered in the lectures. Students should have gone through all of their relevant lecture outlines prior to the review session, so that they are prepared with questions to ask about it. Reiteration of lecture material will generally not be provided at this time for students who did not attend them. Instead questions of clarification and detail will be most relevant.

## Final Grades

The composition of the final grades will be as follows:

	<u>Points</u>	<u>Percentage</u>
the 5 assignments @ 14 points	70	25%
the midterm	70	25%
the final	138	50%

Final grades are not determined strictly by absolute levels of performance (e.g., an A is not necessarily 90% of the total points), nor strictly by curve (e.g., an A is not necessarily any student in the top 33% of the class). Typically, both factors are taken into account, depending on the particular group of students taking the course. If many students achieve high levels of performance, absolute grading criteria will dominate grading on the curve, such that more students receive higher grades. If few students achieve high levels of performance, absolute criteria may be relaxed, and grading on the curve may dominate to ensure that a reasonable number of students receive good grades. These are only rules of thumb, with the particular grading policy adopted reflecting the attitudes and abilities of the students taking the course, as well as any other relevant circumstances surrounding it.

## Honor Code

All students are expected to adhere to the Emory Honor Code. Prior to each exam, students will be asked to sign a sheet indicating that they agree to follow the honor code at all points in the exam process. Students suspected of violating the honor code will have their cases sent to the appropriate University committee. All students are also expected to write the five assignments independently, although discussions beforehand with other students and the instructors are appropriate and in fact desirable.

## Psychology Major Breadth Requirement

This course satisfies the Cognition and Development breadth requirement for Psychology majors.

## Writing Requirement

This course does *not* satisfy the Emory College writing requirement.

## Course Schedule

Topic	Date	Sub-topic	Due
<b>1. Introduction</b>			
	Jan. 17	The study of cognition (history and background)	
	Jan. 22	Cognition as embodied and situated	
<b>2. Perception and action</b>			
	Jan. 24	Perceptual systems	
	Jan. 29	The motor system	
<b>3. Attention</b>			
	Jan. 31	Selective attention	
	Feb. 5	Automaticity	
<b>4. Episodic memory</b>			
	Feb. 7	Memory systems	
	Feb. 12	Memory processes	
	Feb. 13	Movie Night, <i>Memento</i> (7:00 PM, White Hall)	
<b>5. Categorization</b>			
	Feb. 14	The variability problem and categorization models	
	Feb. 19	The neural bases of categories	Assignment #1
<b>6. Concepts and knowledge</b>			
	Feb. 21	Conceptual structure	
	Feb. 26	Conceptual processes	
<b>7. Construal</b>			
	Feb. 28	Construal in perception	
	Mar. 5	Construal in cognition	
<b>Midterm</b>		<b>Thursday, Mar. 7</b>	Assignment #2
<b>Spring Break</b>		<b>March 11 - 15</b>	
<b>8. Working memory</b>			
	Mar. 19	Structure and function	
	Mar. 21	Imagery	
<b>9. Language</b>			
	Mar. 26	Properties of language	
	Mar. 28	Language comprehension	
<b>10. Thought</b>			
	Apr. 2	Decision making	
	Apr. 3	Movie Night, <i>Rashomon</i> , (7:00 PM, White Hall)	
	Apr. 4	Reasoning	
<b>11. Learning and plasticity</b>			
	Apr. 9	Learning in problem solving	Assignment #3
	Apr. 11	Plasticity	
<b>12. Social cognition</b>			
	Apr. 16	Emotion, individuals, and the self	
	Apr. 18	Implicit social cognition	Assignment #4
<b>13. Cultural cognition</b>			
	Apr. 23	Cultural universals	
	Apr. 25	Cultural divergences	
	May 3, noon		Assignment #5
<b>Final</b>		<b>Wednesday, May 8, 12:30 – 3:00</b>	

## Optional Readings on Reserve

### 1. Introduction

- Beer, R.D., & Chiel, H.J. ((1993). Simulations of locomotion and escape. In R.D. Beer, R.E. Ritzmann, & T. McKenna (Eds.), *Biological neural networks in invertebrate neuroethology and robotics* (267-285). San Diego: Academic Press.
- Clark, A. (1997). *Being there: Putting brain, body, and world together again* (pp.1-33 required, pp. 34-69 optional). Cambridge, MA: MIT Press.
- Lachman, R., Lachman, J.L., & Butterfield, E.C. (1979). *Cognitive psychology and information processing: An introduction* (Ch. 1, Sciences and paradigms, pp. 1-34). Mahway, NJ: Lawrence Erlbaum Associates.
- Lachman, R., Lachman, J.L., & Butterfield, E.C. (1979). *Cognitive psychology and information processing: An introduction* (Ch. 2, Psychology's contribution to the information processing paradigm, pp. 35-59). Mahway, NJ: Lawrence Erlbaum Associates.
- Lachman, R., Lachman, J.L., & Butterfield, E.C. (1979). *Cognitive psychology and information processing: An introduction* (Ch. 3, Contributions of other disciplines to information processing psychology, pp. 36-87). Mahway, NJ: Lawrence Erlbaum Associates.
- Lachman, R., Lachman, J.L., & Butterfield, E.C. (1979). *Cognitive psychology and information processing: An introduction* (Ch. 4, The information processing paradigm, pp. 88-129). Mahway, NJ: Lawrence Erlbaum Associates.
- Trachtman, P. (2000). Redefining robots. *Smithsonian Magazine*, 2 (Feb), 97-112.

### 2. Perception and action

- Gazzaniga, M.S., Ivry, R.B., & Mangun, G.R. (1998). Chapter 4. Perception and encoding (pp. 212-162). *Cognitive neuroscience: The biology of the mind*. New York: Norton.
- Gazzaniga, M.S., Ivry, R.B., & Mangun, G.R. (1998). Chapter 5. Higher perceptual functions (pp. 163-206). *Cognitive neuroscience: The biology of the mind*. New York: Norton.
- Gazzaniga, M.S., Ivry, R.B., & Mangun, G.R. (1998). Chapter 10. Motor control (pp. 371-422). *Cognitive neuroscience: The biology of the mind*. New York: Norton.
- Palmer, S.E. (1999). *Vision science: From photons to phenomenology*. Cambridge, MA: MIT Press. [Ch. 3. Color vision: A microcosm of vision science, 94-142]

### 3. Attention

- Bargh, J.A., Chen, M., & Burrows, L. (1996). Automaticity of social behavior: Direct effects of trait construct and stereotype activation on action. *Journal of Personality and Social Psychology*, 71, 230-244.
- Barsalou, L.W. (1982). Context-independent and context-dependent information in concepts. *Memory & Cognition*, 10, 82-93.
- Norman, D.A. (1981). Categorization of action slips. *Psychological Review*, 88, 1-15.
- Posner, M. I., & DiGirolamo, G.J. (2000). Attention in cognitive neuroscience: An overview. In M.S. Gazzaniga (Ed.), *The new cognitive neurosciences* (2<sup>nd</sup> ed., 623-632). Cambridge, MA: MIT Press.

### 4. Episodic memory

- Loftus, E.F. (1975). Leading questions and the eyewitness report. *Cognitive Psychology*, 7, 560-572.
- Schooler, J.W., & Engstler-Schooler, T.Y. (1990). Verbal overshadowing of verbal memories: Some things are better left unsaid. *Cognitive Psychology*, 17, 36-71.
- Jacoby, L.L., Kelley, C.M., Brown, J., & Jasechko, J. (1989). Becoming famous overnight: Limits on the ability to avoid unconscious influences of the past. *Journal of Personality and Social Psychology*, 56, 326-338.

## 5. Categorization

- Biederman, I., & Gerhardstein, P.C. (1993). Recognizing depth-rotated objects: Evidence and conditions for three-dimensional viewpoint invariance. *Journal of Experimental Psychology: Human Perception and Performance*, *19*, 1162-1182.
- Martin, A., Ungerleider, L.G., & Haxby, J.V. (2000). Category-specificity and the brain: The sensory-motor model of semantic representations of objects. In M.S. Gazzaniga (Ed.), *The new cognitive neurosciences* (2nd ed., 1023-1036). Cambridge, MA: MIT Press.
- Warrington, E.K., & McCarthy, R.A. (1983). Category specific access dysphasia. *Brain*, *106*, 859-878.

## 6. Concepts and knowledge

- Barsalou, L.W. (1999). Perceptual symbol systems. *Behavioral and Brain Sciences*, *22*, 577-609.
- Barsalou, L.W., Solomon, K.O., & Wu, L.L. (1999). Perceptual simulation in conceptual tasks. In M.K. Hiraga, C. Sinha, & S. Wilcox (Eds.), *Cultural, typological, and psychological perspectives in cognitive linguistics: The proceedings of the 4th conference of the International Cognitive Linguistics Association, Vol. 3* (209-228). Amsterdam: John Benjamins.
- Damasio, A.R. (1989). Time-locked multiregional retroactivation: A systems-level proposal for the neural substrates of recall and recognition. *Cognition*, *33*, 25-62.
- Glenberg, A.M., Schroeder, J.L., & Robertson, D. A. (1998). Averting the gaze disengages the environment and facilitates remembering. *Memory & Cognition*, *26*, 651-658.
- Vallée-Tourangeau, F., Anthony, S.H., & Austin, N.G. (1998). Strategies for generating multiple instances of common and ad hoc categories. *Memory*, *6*, 555-592.

## 7. Construal effects

- Bregman, A. S. (1990). *Auditory scene analysis: The perceptual organization of sound* (Ch. 1, 1-45). Cambridge, MA: MIT Press.
- Intraub, H., & Bodamer, J.L. (1993). Boundary extension: Fundamental aspect of pictorial representation or encoding artifact? *Journal of Experimental Psychology: Learning, Memory, & Cognition*, *19*, 1387-1397.
- Ramachandran, V.S. (1992). Filling in gaps in perception: Part 1. Current Directions in *Psychological Science*, *1*, 199-205.
- Ramachandran, V.S., & Hirstein, W. (1998). The perception of phantom limbs: The D.O. Hebb lecture. *Brain*, *121*, 1603-1630.
- Ross, M. (1989). Relation of implicit theories to the construction of personal histories. *Psychological Review*, *96*, 341-357.

## 8. Working memory

- Baddeley, A.D., Gathercole, S., & Papagno, C. (1998). The phonological loop as a language learning device. *Psychological Review*, *105*, 158-173.
- Farah, M. (2000). The neural bases of mental imagery. In M.S. Gazzaniga (Ed), *The new cognitive neurosciences* (965-974). Cambridge, MA: MIT Press.
- Jeannerod, M. (1995). Mental imagery in the motor context. *Neuropsychologia*, *33*, 1419-1432.
- Smith, E.E., & Jonides, J.(1998). Neuroimaging analyses of human working memory. *Proceedings of the National Academy of Sciences, USA.*, *95*, 12061-12068.

## 9. Language

- Donald, M. (1993). Precis of "Origins of the modern mind: Three stages in the evolution of culture and cognition." *Behavioral and Brain Sciences*, *16*, 737-748.
- Barsalou, L.W. (1999). Language comprehension: Archival memory or preparation for situated action? *Discourse Processes*, *28*, 61-80
- Bower, G.H., & Morrow, D.G. (1990). Mental models in narrative comprehension. *Science*, *247*, 44-48.

## 10. Thought

- Ahn, W., Kalish, C.W., Medin, D.L., & Gelman, S.A. (1995). The role of covariation versus mechanism information in causal attribution. *Cognition*, *54*, 299-352.
- Cummins, D.D. (1996) Dominance hierarchies and the evolution of human reasoning. *Minds & Machines*, *6*, 463-480.
- Kahneman, D., & Tversky, A. (1982). The simulation heuristic. In D. Kahneman, P. Slovic, & A. Tversky (Eds.), *Judgment under uncertainty: Heuristics and biases* (pp. 201-210). New York: Cambridge University Press.
- Tversky, A., & Kahneman, D. (1974). Judgment under uncertainty: Heuristics and biases. *Science*, *185*, 1124-1131.

## 11. Learning and plasticity

- Bates, E., Thal, D., Trauner, D., Fenson, J., Aram, D., Eisele, J., & Nass, R. (1997). From first words to grammar in children with focal brain injury. *Developmental Neuropsychology*, *13*, 275-343
- Elman, J.L., Bates, E.A., Johnson, M.H., Karmiloff-Smith, A., Parisi, D., & Plunkett, K. (1996). *Rethinking innateness: A connectionist perspective on development*. Cambridge, MA: MIT Press. [Ch. 1, New perspectives on development, 1-46]
- Pascual-Leone, A., Grafman, J., & Hallett, M. (1994). Modulation of cortical motor output maps during development of implicit and explicit knowledge. *Science*, *263*, 1287-1289.

## 12. Social cognition

- Gilbert, D.T. (1991). How mental systems believe. *American Psychologist*, *46*, 107-119.
- Greenwald, A.G. & Banaji, M. R. (1995). Implicit social cognition: Attitudes, self-esteem, and stereotypes. *Psychological Review*, *102*, 4-27.
- Hinkley, K., & Andersen, S.M. (1996). The working self-concept in transference: Significant-other activation and self change. *Journal of Personality and Social Psychology*, *71*, 1279-1295.

## 13. Cultural cognition

- Malt, B.C. (1995). Category coherence in cross-cultural perspective. *Cognitive Psychology*, *29*, 85-148.
- Markus, H., R., & Kitayama, S. (1991). Culture and the self: Implications for cognition, emotion, and motivation. *Psychological Review*, *98*, 224-253.
- Peng, K., & Nisbett, R.E. (1999). Culture, dialectics, and reasoning about contradictions. *American Psychologist*, *54*, 741-754.
- Werker, J.F., & Tees, R.C. (1984). Cross-language speech perception: Evidence for perceptual reorganization during the first year of life. *Infant Behavior and Development*, *7*, 49-63.