

Psychology 256/356
Introduction to Cognitive Psychology
University of Chicago
Fall 1996

Time and Location

Tuesdays and Thursdays, 2:30 - 3:50
Beecher 102

Instructor and Teaching Fellows

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Overview

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

- basic theoretical constructs and established empirical findings (covered by the text)
- examples of state-of-the-art research (covered by the lectures and readings)
- concrete experience with research methodology (conveyed by laboratory exercises)

Two well-known principles of learning in cognitive psychology motivate assignments and evaluation in this course:

- (1) Rather than having to memorize extensive amounts of information for the sake of assessment only, students will perform assignments which ensure that learning is integrated and applied in a problem-oriented manner.
- (2) Rather than having to cram for occasional exams, students will perform assignments on a regular basis, distributed evenly throughout the quarter.

The specific assignments of the course that apply these principles are:

- 8 short-essay quizzes:
 - two questions drawn from five take-home questions
 - require integration of material from the text, lectures, readings, and lab exercises
 - used to structure discussion meetings
- 12 laboratory exercises that illustrate computer-controlled experimental methods
- optional final

Text

Barsalou, L.W. (1992). *Cognitive psychology: An overview for cognitive scientists*. Hillsdale, NJ: Lawrence Erlbaum Associates. [available in the University Bookstore]

Course Outlines

Each student should purchase a copy of the course outlines from the Social Sciences Copy Center in Social Sciences 103. You may wish to call ahead either to see if packets are available or to have one prepared (702-8797). The course packet contains the lecture notes for all lectures. A packet should be obtained by the second class meeting, given the lecture notes will enhance following the lectures and taking notes on them. These lecture notes do *not* contain a complete account of lecture content. Typically, these notes must be embellished by notes taken in class to provide a comprehensible account of the presented material.

Readings

Nine readings beyond the text are required, which can be purchased from the Social Sciences Copy Center. Call ahead to have a copy prepared.

Topic Cycle

For each of eight topics from cognitive psychology to be covered, the basic 'topic cycle' will proceed roughly as follows:

Prior to the first class meeting of a topic cycle:

Receive essay questions. A week or so before each topic cycle begins, students will receive five essay questions. These questions will require students to integrate material from the text, lecture, reading, and laboratory exercises for the topic. As students cover these materials, they should formulate answers to the five questions. Students are free to work together in developing their thoughts and arguments.

Read background material in the text. Prior to the first of the two class meetings on a topic cycle, students should read the background material from the text. This material will acquaint students with basic issues, significant theories, and relevant findings, as well as with the basic constructs and vocabulary necessary for understanding research in the area.

First class meeting of a topic cycle

Lecture on current research. The first class meeting of each topic cycle will be a lecture on examples of specific research in the area. We will go through several specific pieces of research in detail to acquaint students with how research in this area is done.

Prior to the second class meeting of a topic cycle:

Assigned reading. Prior to the discussion section on a topic, students should read the assigned reading, which will usually be a journal article or a book chapter. Like the lectures, these readings serve to acquaint students with specific examples of research in a topic area. They also serve to provide students with a sense of technical reports in cognitive psychology.

Laboratory exercises. During each topic cycle, students should perform the associated laboratory exercise(s). These exercises can be performed remotely over the University's network or in the Center for Computational Psychology. The purpose of the exercises is to give students a concrete feel for experiments in the area. These exercises are typically brief and do not require prior preparation. However, the specific research associated with each exercise is discussed in the text, and it is recommended that students read the relevant part of the text prior to performing the corresponding exercise. Students will be required to perform 12 exercises, and credit for performing them will be based on turning in print outs of the data generated by performing these exercises. An additional 9 exercises can be performed optionally by interested students. Instructions for how to perform all exercises will be distributed separately from the syllabus.

Second class meeting of a topic cycle

Turn in lab exercises. In the process of performing the lab exercise(s) for a topic cycle, you will print out the data that you produce by running the experiment(s). Turn these data sheets in at the discussion section for the topic cycle. Lab exercises turned in late will not receive full credit.

In-class essay quiz. The second class meeting for a topic will consist, first, of an in-class essay quiz, followed by a discussion. For the quiz, two questions will be drawn from the five essay questions given prior to the topic cycle. Students will have approximately 30 minutes to answer the two questions.

Discussion. Following the quiz, we will break up into three discussion groups (undergraduates and graduates will be in different sections). Attendance in these discussions is required and will count toward final grades (taking the quiz and then leaving will not count toward presence at the discussion). During these discussions, we will first address any questions or confusions that students have about the material for the topic. Second, we will discuss the five essay questions and the various tacks that could be taken in responding to them. Finally, we will discuss any other issues that anyone would like to address.

Optional Final

At the review session on the final day of class, students will receive their grade in the course thus far. If students are satisfied with this grade, they do not have to take the final. If not, they can take the final, which can be used to replace up to 6 of their previous quiz scores with higher grades.

At the start of the final, 16 of the original 40 quiz questions will be presented to students.

These 16 questions will include questions that were already asked on the previous 8 quizzes, as well as questions not asked—in other words, any 16 of the original 40 quiz questions could appear on the final, not just those that weren't included on the earlier quizzes. Within the 16 questions presented to students for the final, 2 will be from each of the 8 topic areas. Each student taking the final can select from 1 to 6 questions to answer, no more. Any 6 questions of the 16 can be selected by a student to constitute his or her final.

The critical constraint on the final is that a score on a final question can **only** replace a lower quiz score **for the same topic**. For example, a higher score on a final question for the third topic can only replace a lower score for an earlier quiz question on this same topic, not on any other topic, such as topic four. Thus, in selecting questions on the final, each student should target the topics that he or she scored most poorly on in the quizzes. If a student did poorly on either or both questions for topic four, then he or she should select one or two quiz questions for topic four on the final. Note that if a student is trying to replace only one low score for a topic, answering both questions on the final for that topic is more likely to produce a higher score than just answering one of them.

If a score on a final question is higher than a score on a quiz question for the same topic, the quiz score will be replaced. If a score on a final question is lower than a score on a quiz question for the same topic, the quiz score will **not** be replaced. In other words, the final can only improve final grades, not hurt them.

Make-Ups

There will be no make-ups for missed in-class quizzes. Any missed quizzes must be made up at the final. In these cases, a student should select two final questions from each topic area for which a quiz was missed, with the maximum number of questions on the final remaining at six. Thus, if a student missed one quiz, he or she should select two questions for the missed topic on the final. In addition, the student could select up to four additional questions from the other seven topic areas to replace low grades for these topics. If a student missed three quizzes, he or she should select two final questions from each of the three missed topics. As these examples illustrate, the more quizzes missed, the less of an opportunity a student has to improve his or her overall grade by replacing low quiz grades. If a student missed four or more quizzes, the final will still only contain six questions, leaving the student with two or more missing grades. Missing grades not made up on the final will remain at 0 for final grade calculations.

There will be no make ups for absence at discussions.

Students who experience extenuating circumstances over the course of the quarter, confirmed by a reliable source, can make alternative arrangements for satisfying course requirements.

Course Schedule

Date	Topic	Readings	Lab Exercises
Week 1			
Oct. 1	Introduction	text: 1-14, 52-59, 340-348 Mandler	
Oct. 3	Categorization	text: 15-51 Rosch et al.	15, 2
Week 2			
Oct. 8	quiz / discussion		
Oct. 10	Control	text: 60-91 Norman & Shallice	3
Week 3			
Oct. 15	quiz / discussion		
Oct. 17	Working Memory	text: 92-115 Chambers & Reisberg	8, 5, 19
Week 4			
Oct. 22	quiz / discussion		
Oct. 24	Long-Term Memory	text: 116-147 Schooler & Enstler-Schooler	11
Week 5			
Oct. 29	quiz / discussion		
Oct. 31	Knowledge	text: 148-185 Ward	16, 20
Week 6			
Nov. 5	quiz / discussion		
Nov. 7	Language Structure	text: 186-212 Talmy	18
Week 7			
Nov. 12	quiz / discussion		
Nov. 14	Language Processing	text: 213-272 Marslen-Wilson & Tyler	17
Week 8			
Nov. 19	quiz / discussion		
Nov. 21	Thought / lecture	text: 274-322 Osherson et al.	21
Week 9			
Nov. 26	quiz / discussion		
Nov. 28	no class (Thanksgiving)		
Week 10			
Dec. 3	review session, grades to this point given		
Dec. 5	no class (reading period)		
Week 11			
Dec. 12	optional final, 1:30-3:30		

Assigned Readings
Introduction to Cognitive Psychology
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Fall 1995

- Mandler, G. (1996). The situation of psychology: Landmarks and choicepoints. *American Journal of Psychology*, 109, 1-35.
- Rosch, E., Mervis, C.B., Gray, W.D., Johnson, D.M., & Boyes-Braem, P. (1976). Basic objects in natural categories. *Cognitive Psychology*, 8, 382-439.
- Norman, D.A., & Shallice, T. (1986). Attention to action: Willed and automatic control of behavior. In R.J. Davidson, G.E. Schwartz, & D. Shapiro (Eds.), *Consciousness and self-regulation: Advances in research and theory* (Vol. 4, pp. 1-18). New York: Plenum.
- Chambers, D., & Reisberg, D. (1992). What an image depicts depends on what an image means. *Cognitive Psychology*, 24, 145-174.
- Schooler, J.W., & Engstler-Schooler, T.Y. (1990). Verbal overshadowing of verbal memories: Some things are better left unsaid. *Cognitive Psychology*, 17, 36-71.
- Ward, T.B. (1994). Structured imagination: The role of category structure in exemplar generation. *Cognitive Psychology*, 27, 1-40.
- Talmy, L. (1983). How language structures space. In H. Pick & L. Acredelo (Eds.), *Spatial orientation: Theory, research, and application* (225-282). New York: Plenum Press.
- Marslen-Wilson, W.D., & Tyler, L.K. (1980). The temporal structure of spoken language understanding. *Cognition*, 8, 1-71.
- Osherson, D.N., Smith, E.E., Wilkie, O., Lopez, A., & Shafir, E. (1990). Category based induction. *Psychological Review*, 97, 185-200.

Grading

The contributions of the essay questions, lab exercises, and discussion attendance will be weighted in the final grades as follows:

essay questions	72%
each of 16 questions: 4.5%	
laboratory exercises:	12%
each of 12 exercises: 1%	
discussion attendance:	16%
each of 8 discussions: 2%	

Grading for the essay questions be done on a 1 to 10 scale.

Grading for laboratory exercises will be 2 points for each exercise performed, 1 point if turned in late.

Grading for discussions will be 1 point for attendance.

Final grades are not determined strictly by absolute levels of performance, nor strictly by curve. 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 will dominate to ensure that a reasonable number of students receive high grades. These are only rules of thumb, with the particular grading policy adopted reflecting the attitudes and abilities of the students taking the course, the difficulty of the assignments, the grading standards of the instructors, and so forth.

Measures are taken to ensure that undergraduate students do not receive lower grades than graduate students, because of less previous experience with the material. Typically, undergraduates do as well as graduates in the course.