Psychology 508 – Cognitive Processes
Spring Semester, 2008
Tuesdays and Thursdays: 1:30-2:45 PM (Rm. 736 – Poe Hall)

INSTRUCTOR: Dr. Chris Mayhorn **EMAIL**: chris_mayhorn@ncsu.edu
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OFFICE HOURS: By appointment or Tuesdays/Thursdays 3:00-4:00 PM
REQUIRED TEXT: Sternberg, R. J. (2009). *Cognitive Psychology* (5th Edition), Belmont, CA: Wadsworth/Thomson Learning.
ADDITIONAL READINGS: Supplemental readings will be required for specific lectures. These readings will be scanned and emailed directly to the address that you list as your primary account with the university. Make sure that you don't miss these emails as they will go to the entire class as a batch and your particular spam settings might classify them as junk mail.

COURSE OVERVIEW: This course is designed to provide a graduate-level survey of the concepts, theories, and research in cognitive psychology. A broad range of topics will be covered in the following major areas of cognitive psychology: cognitive neuroscience, perception, memory, attention, decision making, and cognitive development…..to name but a few. The objective of the course is to provide you with an understanding of the major topics of research in cognitive psychology and the relationships of these topics to human behavior. Special emphasis will be placed on how theory can be applied to real-world phenomenon.

EXAMS and GRADING:

98-100 is an A+, 90-97 is an A, 88-89 is a B+, 80-87 is a B, 78-79 is a C+, 70-77 is a C, 68-69 is a D+, 60-67 is a D, below 60 is failing.

Your course grade will be determined by:

1) Exams (20% each). There will be three exams. Each exam will consist of multiple-choice, short answer, and/or essay questions. Exam grades will represent 60% of your final grade.

EXAM POLICIES:

Make arrangements with Dr. Mayhorn in advance if you must miss a test because of a conference, job interview, etc. If you miss a test because of a last-minute emergency, such as illness, call or email Dr. Mayhorn AT ONCE. If you leave a message, include your name, phone number, and a time when you can be reached. **Arrangements for the scheduling of makeup tests must be made within 1 week of missing the scheduled test, otherwise a grade of zero will be entered.**

2) Research Paper (30%). You will be required to write a research paper on a topic that Dr. Mayhorn pre-approves. Details are provided in the last 2 pages of this syllabus. (NOTE: Each paper will receive a numerical grade from 0-100.) During the last two days of class, you will be required to present a brief 7 minute presentation that describes your research topic. *Electronic submissions will not be accepted.* Late submission will result in 5 points deducted per day late.

3) Mini-paper Assignment (10%). Mini-papers must be typed and submitted on time. Late submission will result in 5 points deducted per day late. See last page of this syllabus for instructions. *Electronic submissions will not be accepted.*

ANTICIPATED LECTURE, READING, AND EXAM SCHEDULE

Date	Day	General Topic	Reading Assignment
1/12	Tuesday	Welcome and Introduction	----------
1/14	Thursday	Cognitive Psychology: History and Concepts	Chapter 1
1/19	Tuesday	Cognitive Neuroscience	Chapter 2
1/21	Thursday	Cognitive Neuroscience	Chapter 2
1/26	Tuesday	Attention	Chapter 4; Strayer, Drews, & Johnston (2003)
1/28	Thursday	Attention	Chapter 4
2/2	Tuesday	Perception	Chapter 3 **(Mini-paper assigned)**
2/4	Thursday	Perception	Chapter 3
2/9	Tuesday	Memory: Models and Methods	Chapter 5
2/11	**Thursday**	**Exam #1**	----------
2/16	Tuesday	Memory	Chapter 6; Park & Kidder (1996)
2/18	Thursday	Memory	Chapter 6; Roebers & Schneider (2000)
2/23	Tuesday	Knowledge Representation	Chapter 7
2/25	Thursday	Knowledge Organization	Chapter 8 **(Mini-paper Due)**
3/2	Tuesday	Language Acquisition	Chapter 9
3/4	Thursday	Language in Context	Chapter 10; Sharit, Czaja, Nair, & Lee (2003)
3/9	Tuesday	Problem Solving	Chapter 11
3/11	**Thursday**	**Exam #2**	----------
3/16	*Tuesday*	*Spring Break (No class)*	----------
3/18	*Thursday*	*Spring Break (No class)*	----------
3/23	Tuesday	Creativity	Chapter 11
3/25	Thursday	Creativity	Chapter 11, Marsh, Landau, & Hicks (1996)
3/30	Tuesday	Decision Making	Chapter 12
4/1	*Thursday*	*Spring Holiday (No Class)*	
4/6	Tuesday	Decision Making	Chapter 12; Kaempf, Klein, Thorsden, & Wolf (1996)
4/8	Thursday	Cognitive Development	----------
4/13	Tuesday	Cognitive Development	----------
4/15	Thursday	Intelligence	Chapter 13
4/20	Tuesday	Intelligence and Artificial Intelligence	Chapter 13; McClelland (1973) **(Research Paper Due)**
4/22	Thursday	Catch Up	
4/27-4/29	Tuesday-Thursday	Class Presentations	----------
5/13	**Thursday 1:00-4:00 PM**	**Exam #3 (Final Exam)**	----------

CRITICAL DATES:

EXAMS:

- Exam 1 Thurs, February 11
- Exam 2 Thurs, March 11
- Final Thurs, May 13 at 1-4pm

MINI-PAPER & RESEARCH PAPER:

- Mini-paper Due—Thurs, February 25
- Research Paper Due— Tues, April 20

Supplemental Readings

Kaempf, G. L., Klein, G., Thordsen, M. L., & Wolf, S. (1996). Decision making in complex naval command-and-control environments. Human Factors, 38(2), 220-231.

Marsh. R. L., Landau, J. D., & Hicks, J. L. (1996). How examples may (and may not) constrain creativity. Memory and Cognition, 24(5), 669-680.

McClelland, D. C. (1973). Testing for competence rather than intelligence. American Psychologist, 1-15.

Park, D. C., & Kidder, D. P. (1996). Prospective memory and medication adherence. In M. Brandimonte, G. O. Einstein, & M. A. McDaniel (Eds.), Prospective memory: Theory and applications (pp. 369-390). Mahwah, NJ: Lawrence Erlbaum Associates.

Roebers, C. M., & Schneider, W. (2000). The impact of misleading questions on eyewitness memory in children and adults. Applied Cognitive Psychology, 14, 509-526.

Sharit, J., Czaja, S. J., Nair, S., & Lee, C. C. (2003). Effects of age, speech rate, and environmental support in using telephone voice menu systems. Human Factors, 45(2), 234-251.

Strayer, D. L., Drews, F. A., & Johnston, W. A. (2003). Cell phone-induced failures of visual attention during simulated driving. Journal of Experimental Psychology: Applied, 9(1), 23-32.

IMPORTANT: Regardless of when an exam is taken, it will be assumed that a strict honor code applies. During an examination, no one should use any notes or books. No one should seek information from or provide information to another. If, at any other time, you are talking with someone who has not yet taken a particular exam or if you yourself still need to take it, you should conscientiously avoid discussing the examination in any way.

NCSU does not discriminate on the basis of race, color, national origin, religion, sex, age, or disability. With respect to disabilities, Section 504 of the Rehabilitation Act of 1973 provides that: "No otherwise qualified handicapped individual in the United States shall, solely by reason of his or her handicap be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving Federal financial assistance." NCSU abides by these regulations. I, the instructor, will make "reasonable adjustments" to ensure that students with hearing, visual, motor, or learning disabilities can participate as fully as possible and that the academic requirements of the course are administered in a non-discriminatory manner. For further information and/or assistance in arranging special needs, please contact the Office of Disability Services for Students, located in the Student Health Center, 2815 Cates Avenue, Suite 1900 (voice phone: 515-7653; TDD: 515-8830).

Guidelines for Research Paper

In brief.

This is an important project, and you should read these instructions carefully. Your task is to design an experiment to test an interesting topic about human cognition. Hopefully, the topic will be inspired by some of the experiments and/or issues that you have heard about or read about in this course. Although you are not expected to conduct the project that you propose, you will write up an experimental design in APA journal format (see the APA style manual) **that is not more than 15 pages in length**. The Introduction explains the hypothesis and justifies it by reference to previous research and by logical argument. The Method section describes the participants, stimuli, design, apparatus, and procedure. The Results section should explain how you would analyze the data and the Discussion section should discuss possible outcomes and their applied implications. All papers must be typed, proofread, and in my hands by the end of class on the date that it is due. Electronic submissions will not be accepted!!!

Detailed Advice.

Pick an idea that can be tested in a simple manner. One tried and true method to design an experiment is to alter an established experiment in an *interesting* way. You read about an experiment that you find interesting or puzzling. For instance, you might think about alternate explanations of the data and determine a way to alter the experimental conditions to test whether the findings are the same or different using these new techniques. You read a few journal articles to see if your idea is feasible. And, voila, there you have it!!! Of course, you still have to convince others that the change you are proposing is interesting, usually by relating your topic to a broader issue in cognition. Early on, it is a good idea to consult with me about your ideas to get feedback and perhaps even relevant references. Your textbook is also a good source of relevant journal articles. In brief, I expect to meet with each of you individually (or in groups of 2-3) toward the middle of the semester.

Introduction.

You should have a clear hypothesis in mind, but you do not want to throw that idea at the reader first. You want to start by summarizing pertinent research on the topic in a broader context. This context should make your experiment look like a natural and interesting thing to do. It should be clear by now that personal justifications ("I thought it would be interesting to ....") are not appropriate. After you have described the context and presented and justified your hypothesis, the next step is to briefly outline how you plan to test your idea. This is the place where you might describe possible confounding variables and how you plan to control for them, but do not go into your procedures in detail because you will do that in the next section.

Method.

This section is subdivided into about four subsections such as: **Participants**, where you describe the number of participants you used in each condition, their demographic characteristics, and how they were recruited; **Design**, where you describe the exact experimental design (i.e., what are your independent and dependent variables), including conditions and manipulations; **Stimuli**, where you describe any materials (e.g., word lists to be studied and how they were constructed) used during data collection; and **Procedure**, where you describe what happened during an experimental session from start to finish,

usually including instructions to participants. Not every experiment will need all of these sections, and some may need additional ones, such as **Equipment**, usually called Apparatus, where you describe the equipment used (e.g., eye tracker, computers, etc.). In principle, the Method section should provide enough information for another researcher to replicate your study.

Results.

Here, you describe the comparisons in your data that are critical for testing your hypothesis. For instance, you might expect your experimental group to outperform your control group on certain measures.

Discussion.

Here you describe the applied implications of your findings, both the predicted and unpredicted ones. What is their meaning, that is, what would they imply about the *cognitive process* under investigation. First, describe specific implications, and then more general ones. Again, relate your work/ideas to other research in the field. How does your work fit into the "big picture" of previous work.

References.

You list, in APA format, the articles and books that you cite in your paper. Typically, magazines such as "Psychology Today", newspapers such as the "Charlotte Observer", and information plucked off the internet are not acceptable sources!!

Please get started early on topics and ideas; it is almost impossible to do this project at the last minute. Remember to get your topic pre-approved by me before you begin.

Psychology 508: Mini-Paper Topic

Due: Thursday, February 25, 2010

On a daily basis, we are bombarded by the news media with stories such as the following:

Mr. X, age 55, is driving down a secondary road, Hobart St., at 9:00 PM in an unfamiliar part of town. He is late because he promised to pick up his wife at 8:45. Mr. X is listening to the hockey game on the car radio while he looks for Front St., where his wife said to turn in order to reach his destination. Ms. Y, wearing a dark blue coat and white hat, crosses in the middle of Hobart St without looking. Mr. X does not see her and strikes Ms Y with his car. Police arrive and question Mr. X, who says that he never saw the pedestrian but is having difficulty remembering what occurred immediately following the accident. Witnesses to the accident make conflicting statements regarding Mr. X's driving behavior prior to the accident. For instance, one witness states that Mr. X suddenly braked and swerved before striking Ms. Y but another states that Mr. X appeared to speed up. Mr. X admits that he has had a few beers but his blood alcohol content is .06, within the legal limit. The police do not charge him with DUI. What caused the accident?

Part 1. (3-4 pages) Your assignment is to take this particular scenario and try to explain what happened using at least one concept from each of the sections of class (i.e., neuroscience, attention, perception, and memory) we have discussed to this point in the semester.

Part 2. (3-4 pages) Litigation regarding accident investigation and error analysis has become a new venue for applied cognition. Expert witnesses from a number of academic backgrounds are constantly consulted to explain how accidents occur and more importantly, how they can be avoided in the future. Identify and summarize a story from the popular press that you have encountered recently where such an expert might be consulted. Pretend that you are the expert in applied cognition on that particular case and tell me where you might focus your efforts in terms of a) explanation, and b) preventative measures.

Remember that all of your responses must be type-written. Please stay within the specified page length limitations. Any references that you cite must be included in an APA-style reference section.