This is the syllabus from Spring 2006; there will be changes for Spring 2007

Cognitive Psychology: Mind and Brain W2215 (Room 614)

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Course content: This course is an introduction to the new study of mind and brain, what is called “cognitive neuroscience”. Cognitive neuroscience is an inter-disciplinary area that represents an attempt by cognitive psychologists and neuroscientists to discover how mental processes are implemented in the brain. The approach focuses on human cognitive processes and relies heavily on the methods and findings of neuroscience.

The topics covered are the major ones in higher-level cognition, and include: concepts and mental representations, long-term memory, working memory, attention, executive processes, emotion, decision making, reasoning, problem solving, and language processing. To understand the cognitive-neuroscience approach to these topics, students will be introduced to some elementary neuroanatomy, to the logic of studies with neurological patients, and to functional neuroimaging techniques, particularly Positron Emission Tomography (PET), and functional Magnetic Resonance Imaging (fMRI). The goal is to use these techniques, along with behavioral measures, to understand the topics of interest at both a cognitive (or psychological) and neural level.

Classes: Classes consist of lectures and a couple of review sessions. Between 2-4 classes will be devoted to the discussion of a topic (e.g., working memory). The intent is to provide a substantially deeper treatment of each topic than would be available in an introductory-level course.

Readings: The readings include (1) chapters from an in-press textbook, (2) required articles and (3) suggested articles. The in-press textbook is authored by Smith and Kosslyn (hereafter, S&K), and is entitled, “Cognitive Psychology: Mind and Brain” (the observant may notice a resemblance to the course’s title—no accident). The book is being published by Prentice Hall this spring, and the publisher has kindly made available copies of a preliminary version of the book. The publisher has kindly made the S&K text available for this class free of charge. Copies can be obtained from Amy Cole in 310 Schermerhorn Hall.
The required articles are typically literature reviews, but sometimes critical research papers. The level of these papers is often higher than that of the book chapters. The suggested articles are usually even more advanced, and intended for students who are particularly interested in the topic. There are also two supplemental books, both by Pinker; some of the required and suggested readings are from these books. Many of the non-assigned chapters in these two books may also be of interest, so copies of the books are on reserve. All articles, required and suggested, will be available on the web.


Supplemental recommended books (copies will be on reserve):

Exams/Grading: Grades will depend on three factors: (1) an in-class midterm, scheduled for March 1st, which covers all the material up to that point and is worth 30%; (2) an in-class final, scheduled for May ?, which covers material from the entire semester but emphasizes the material presented in the second part of the semester; and (3) a short (6-8pp.) paper on a course topic that you find of particular interest. This paper will be due near the end of the course.

SYLLABUS
Below are listed the intended topic of each lecture, along with the readings for that lecture. Please do the readings before the lecture so that you can understand what is being said in class. (Obviously, Week 1 is an exception.)

Week 1
1/18: Lecture 1 Introduction to course

Week 2
1/23: Lecture 1 Historical overview and basics about cognitive neuroscience

Required: S&K: Chapter 1


1/25: Lecture 2 Conceptual representations: Object recognition
Week 3
1/30 Lecture 1  
Conceptual representations: Faces, places, and expertise

Required:  


2/1: Lecture 2  
Conceptual representations: Perceptual vs. functional features

Required:  

Week 4
2/6: Lecture 1  
Conceptual representations: Modality specificity

Required:  


Suggested:  


2/8: Lecture 2  
Long-term memory (LTM): Different kinds of memories

Required:  
S&K: Chapter 5


**Week 5**

2/13: Lecture 1  
**LTM: Different kinds of memories (cont.)**

**Required:**  

2/15: Lecture 2  
**Explicit LTM: Stages**

**Required:**  

**Week 6**

2/20: Lecture 1  
**Explicit LTM: Role of emotion**

**Required:**  
S&K: Chapter 8


2/22: Lecture 2  
**Implicit LTM: Implicit stereotypes and attitudes (Jason Mitchell)**

**Required:**  
NONE

**Week 7**

2/27: Lecture 1  
**Review session – no readings (Rachel)**

3/1: Lecture 2  
**MIDTERM**

**Week 8**

3/6: Lecture 1  
**Implicit LTM: Priming and prototype learning?**

**Required:**  


3/8: Lecture 2       WM: Content specificity


Week 9
3/20: Lecture 1       WM: Storage and Processing

Required: S&K: Chapter 6


3/22: Lecture 2       WM: Breakdown in normal aging and pathology


Week 10
3/27: Lecture 1       Executive processes: Attention

Required: S&K: Chapter 7


Suggested: S&K: Chapter 3

3/29: Lecture 2  Executive processes: Inhibition


Week 11
4/3: Lecture 1  Executive Processes: Controlling emotion


4/5: Lecture 2  Decision making: Rationality?

Required:  S&K: Chapter 9

Week 12
4/10: Lecture 1  Decision making: Role of emotion


4/12: Lecture 2  Reasoning and problem solving: Heuristics in reasoning

Required:  S&K: Chapter 10


Week 13
4/17: Lecture 1  Reasoning and problem solving: General heuristics and effects of expertise


4/19: Lecture 2 Language processing: Overview and syntactic process

Required: S&K: Chapter 12


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Week 14
4/24: Lecture 1 Language processing: Breakdowns


TBD

4/26: Lecture 2 Visit to fMRI center at Neurological Institute


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Week 15
5/1: Lecture 1 Review session – no readings

PAPER DUE IN CLASS - NO EXCEPTIONS.

5/8: Lecture 2 FINAL