

**Psychology 7110**  
Advanced Cognitive Psychology  
Fall, 2008

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**Instructor:** Kerry Jordan  
**Office:** 473 Education Bldg  
**Office hours:** By appointment

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**Class:** Tuesday 4:30-7:00 PM

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**Required Reading:**

Selected readings posted on Blackboard

**Course Overview.**

This course has three main goals:

- 1) to provide a survey of diverse human and animal cognitive activity
- 2) to provide a more in-depth understanding of certain cognitive processes that reappear in our readings from week to week including
  - storing information in memory
  - cognitive plasticity
  - information representation in the brain
- 3) to apply one or more of these cognitive processes to the enhancement/solution of some human endeavor/problem

**Objectives**

The student will:

- demonstrate understanding of a framework for organizing and applying cognitive principles
- examine controversies in cognition, such as the “no new neuron” doctrine
- explain the influence of nature and nurture on the development of cognition and behavior
- compare and contrast theories of knowledge acquisition
- appropriately apply cognitive principles to enhance some area of human performance and/or adaptability

**Class Format**

A weekly 2-2.5 hour discussion session over the assigned readings. I would like each student to facilitate 2 weeks of discussion to maximize student participation.

Student facilitators are free to make presentations either formally or informally.

- *It is imperative that everyone read the material before class and come prepared to discuss it.*

This class is intended to focus on application of high-level concepts, so you will be using the information we cover to develop plans to improve human functioning.

**Grading**

**Course Requirements**

**Points**

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Lead class discussion (2x)	12 pts	24
Reaction papers/participation (weekly)	3 pts	36
Paper		40
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Total		100

**Lead discussion:** 12 points each

One primary responsibility of the discussion leader is to present an *analysis/synthesis* and a possible *application* of the theories discussed in that week's readings. One interesting possibility would be to apply the theories from the readings to improve human functioning (e.g., enhancing mental health, learning, performance, etc.) or to solving human problems (e.g., pathological behaviors, overcoming cognitive and physical limitations, etc.). Plan to spend **no more than 15 minutes** explaining your application/synthesis of ideas for each of the readings. You should use the majority of your presentation time to encourage *discussion* of these ideas, rather than explanation of them.

Thus, the object of these student-led discussions is to obtain peer feedback on readings and ideas by stimulating discussion. Before class, you will obviously at the very least want to jot down particular points from the readings that were of interest to you and that you would like to discuss further.

### **Class Participation/Reaction papers**

By Monday morning 9am BEFORE each of our Tuesday evening classes, you should email me a 2-page single-spaced summary of your thoughts on that upcoming week's readings for your weekly reaction paper. I will return these at the beginning of each class so that you have notes for yourself during discussions.

No reaction paper is required the weeks you do your presentations.

### **Application paper:**

Each student will choose one or more of the cognitive principles discussed in class and will apply current understanding of that principle to the enhancement/solution of some human endeavor/problem in a 15-20 page paper. To do so, you will include the following:

1. a detailed overview of the principle(s) being applied (i.e., literature review)
2. an explanation of the human endeavor/problem you are addressing
3. application of the theory to the issue
  - a. How do they relate?
  - b. How can the principle be used to address the problem?
4. means of empirically testing your application (briefly outline a study that could be used to test the efficacy of your application).
5. discussion of how this application will affect other cognitive processing. This is important! You will want to show how this all fits into the broader framework of cognitive functioning. (It is likely that this discussion will include additional suggestions for addressing the endeavor/problem you are investigating.)

Alternative: You may develop a research proposal specifically investigating one or more of the cognitive processes discussed in class. In this case, the brief outline of a study will become much more detailed.

## Tentative Schedule

Supplemental readings may be added or changed throughout the semester

Week of	Topic	Assignment due
8/26 NO CLASS	Read syllabus	Rank order of weeks to present and email me them
9/2	The experience of memory: Remembering and knowing, cognitive neuroscience, and birds	Wagner et al., 1998 Schacter and Slotnick, 2004 Clayton and Dickinson, 1998
9/9	Cognitive neuropsychology case studies: Amnesics and artists	Hassabis et al., 2007 Bazner and Hennerici, 2007
9/16	Human consciousness: Recording from single neurons, nonconscious priming after 17 years, and subconscious attention to erotic images	Mitchell, 2006 Kreiman et al., 2002 Jiang et al., 2006
9/11	Controversies in cognition: The "No new neurons" doctrine revisited, Brain transplants and surgical treatment for Parkinson's Disease	Gould et al., 1999 Kornack and Rakic, 2001 Spector, 2001 Lewin, 1984 Lindvall et al., 1990
9/30	Plasticity in cognition and neuroscience: Sensory reorganization, phantom limbs, and higher order cognitive plasticity	Palca, 1991 Pons et al., 1991 Ramachandran et al., 1992 Holloway, 2003 Neville and Bavelier, 2002
10/7	NO CLASS	
10/14	Sleep: To improve memory?	Winson 2002 Dement 1960 Drummond et al., 2000 Stickgold et al., 2000 Payne et al., 2008
10/21	Causes and correlates of enhanced IQ, intelligence, and perception: videogame playing and green environments?	Shaw et al., 2006 Green and Bavelier, 2003 Rosser et al., 2007 Kaplan, 1995 Berto, 2005 Wells, 2000
10/28	Sign language and second languages in the brain; Learning to communicate: The classic problems of language acquisition	Petitto and Marentette, 1991 Hickok et al., 1996 Hickok, 2002 Kim et al., 1997

		Saffran et al., 1996
11/4	Nature and nurture in the development of anxiety, sexual behavior, and sexual preferences	Liu et al., 1997 Sapolsky, 1997 Cooke et al., 2000 LeVay, 1991
11/11	Neuroeconomics and addiction	King-Casas et al., 2005 Delgado et al., 2005 Martindale, 2003 Colantuoni et al., 2002
11/18	Social cognition: mirror neurons, social rejection, stereotype threat, and perspective-taking	Iacoboni et al., 2005 Somerville et al., 2006 Krendl et al., 2008 Libby et al., 2007
11/25	NO CLASS	Work on papers
12/2	Nonverbal cognition: Animals and infants	<b>Paper due</b> Spelke, 1998 Smith, 1999 Cech, 2001 Jordan and Brannon, 2008 Gil-da-Costa et al., 2004