

## ***Psychology 2210y*** ***Cognition: Basic Processes***

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Office Hours: Monday and Wednesday, 4-5

*This syllabus may change before the start of the class.*

***Class meets:*** Monday and Wednesday, 2:40-3:55 pm  
January 23<sup>rd</sup> through May 5<sup>th</sup>

***Course description:*** This course will cover theories of how the mind works from the perspective of cognitive psychology. We will cover topics in thinking and information processing, learning, language, memory, attention, creativity, judgment and decision making and consciousness. Various theories and selected experiments will be described and discussed. In addition to readings from the textbook, each week we will read at least one scientific journal related to the current topic and discuss the experimental findings in class.

***Course objectives:*** The objective of this course is to introduce and familiarize students with the field of cognitive psychology. We are not passive recipients of phenomenon in the world and thus, one goal of this class is to acquaint students with how the brain interprets, processes and manipulates information. By the end of the course students should be able to think critically about scientific journal articles and be able to fluently critique the methods and conclusions of the experimental findings.

***Textbook:*** Medin, D.L, Ross, B. H. & Markman, A. B. (2005). *Cognitive Psychology*, 4<sup>th</sup> Ed. John Wiley & Sons, Inc.  
Additional readings and research articles will be posted on Courseworks.

***Course requirements:***

Grades will be based a midterm worth 30%, a final exam worth 30%, a (short 10 page) research paper worth 20% that will be due near the end of class, 3 in class quizzes worth 5% each, and Thought Questions worth 5%. The breakdown of the grades is listed below. Each week we will discuss 1-2 scientific journal articles related to the current topic. The midterm and final exams will be made up of multiple choice, short answer and at least one essay. The final paper is a short research/review paper, comparing at least 2 findings in the cognitive literature. Two sources that were not discussed in class are expected be cited in the paper. More details on writing and researching the paper will be discussed in class.

**Grade breakdown:**

- 3 Quizzes 5% each
- 1 Midterm 30%
- 1 Final Exam 30%
- 1 Final paper 20%
- Thought Questions 5%

**Schedule**

<b><u>Class:</u></b>	<b><u>Date:</u></b>	<b><u>Topic/Reading:</u></b>
1	January 23	Introduction, History of the field and Class Overview <ul style="list-style-type: none"><li>• MRM Chapter 1</li></ul>
2	January 28	Introduction to basic cognitive neuroscience <ul style="list-style-type: none"><li>• MRM Chapter 1</li><li>• Brain Facts, <i>SfN</i> pp 4-9</li></ul>
3	January 30	Perception I <ul style="list-style-type: none"><li>• MRM Chapter 3</li></ul>
4	February 4	Perception II <ul style="list-style-type: none"><li>• MRM Chapter 3</li><li>• Five plus two equals yellow, <i>Nature</i></li></ul>
5	February 6	Attention I QUIZ I <ul style="list-style-type: none"><li>• MRM Chapter 4</li></ul>
6	February 11	Attention II <ul style="list-style-type: none"><li>• MRM Chapter 4</li><li>• Change Blindness, <i>CDCS</i></li></ul>
7	February 13	Basic Learning <ul style="list-style-type: none"><li>• MRM Chapter 2</li></ul>
8	February 18	Working Memory <ul style="list-style-type: none"><li>• Working Memory. <i>Science</i></li></ul>

		<ul style="list-style-type: none"> <li>Processes of working memory in mind and brain, <i>CDCS</i></li> </ul>
9	February 20	Memory I <ul style="list-style-type: none"> <li>MRM Chapter 5</li> </ul>
10	February 25	Memory II <ul style="list-style-type: none"> <li>MRM Chapter 6</li> </ul>
11	February 27	Stress & Memory <ul style="list-style-type: none"> <li>Chapters 1 &amp; 2, <i>Why zebras don't get ulcers</i></li> </ul>
12	March 3	Emotion & Cognition Guest lecture by Julie Spicer <ul style="list-style-type: none"> <li>The cognitive control of emotion, <i>TCS</i></li> <li>Conflict and Cognitive Control, <i>Science</i></li> </ul>
13	March 5	Visual Memory <ul style="list-style-type: none"> <li>MRM Chapter 8</li> <li>The Mind's Eye Mapped Onto the Brain's Matter, <i>CDCS</i></li> </ul>
14	March 10	Midterm review session
15	March 12	Midterm
16	March 24	Concepts and Categories <ul style="list-style-type: none"> <li>MRM Chapter 7 pp 209-227</li> <li>MRM Chapter 10</li> </ul>
17	March 26	Language I <ul style="list-style-type: none"> <li>MRM Chapter 9</li> </ul>
18	March 31	Language II <ul style="list-style-type: none"> <li>MRM Chapter 9</li> </ul>

			<ul style="list-style-type: none"> <li>• Why do we gesture when we speak? <i>TCS</i></li> <li>• Talking and thinking with our hands, <i>CSCS</i></li> </ul>
19	April 2	Language III	<ul style="list-style-type: none"> <li>• Can an ape create a sentence? <i>Science</i></li> </ul>
20	April 7	Metacognition QUIZ II	<ul style="list-style-type: none"> <li>• MRM Chapter 7 pp 241-249</li> <li>• Rhesus monkeys know when they remember. <i>PNAS</i></li> </ul>
21	April 9	Judgment and Decision Making I	<ul style="list-style-type: none"> <li>• MRM Chapter 14</li> </ul>
22	April 14	Judgment and Decision Making II	<ul style="list-style-type: none"> <li>• MRM Chapter 14</li> <li>• Altruistic punishment in humans, <i>Nature</i></li> <li>• The neural basis of altruistic punishment, <i>Science</i></li> </ul>
23	April 16	Reasoning & Problem Solving	<ul style="list-style-type: none"> <li>• MRM Chapter 11 &amp; 12</li> </ul>
24	April 21	Expertise and Creativity QUIZ III	<ul style="list-style-type: none"> <li>• MRM Chapter 13</li> </ul>
25	April 23	Theory of Mind	<ul style="list-style-type: none"> <li>• Metcalfe &amp; Kober chapter, <i>The Missing Link in Cognition: Origins of Self-Knowing Consciousness</i></li> <li>• The cognitive basis of a biological disorder: Autism. <i>TNS</i></li> </ul>

26	April 28	Consciousness <ul style="list-style-type: none"> <li>• The problem of consciousness, SA</li> </ul>
27	April 30	Consciousness
28	May 5	Final Exam Review Session
	May 14	Final Exam

### ***Thought Questions***

Thought Questions are designed to get you thinking about cognitive psychology in your day to day life. Typically these questions will ask you to relate something you learned in class to an experience you or someone else had. Please write out a 1-page description (no longer) of your experience, your findings, and analysis and hand in on the date listed below.

Date due:

Topics

January 30

Perception

Find examples of the way perspective is represented and/or manipulated in art. Have examples that are accessible on line. If none are available, attach a paper copy. You can also come up with your own perceptual illusion. Be able to discuss what aspect of perspective are being manipulated and/or why a particular illusion occurs.

Starting points:

[http://mathforum.org/sum95/math\\_and/perspective/perspect.html](http://mathforum.org/sum95/math_and/perspective/perspect.html)

<http://www-history.mcs.st-andrews.ac.uk/HistTopics/Art.html>

February 6

Attention

Try to meditate for 10 minutes a day, every day this week. If you already do so, great. While you meditate pay attention to your breath coming in and out of your nostrils, and/or how your chest and stomach rise and fall. After you meditate for 10 minutes, write down your impressions of what your experience was. Where was your attention? How long could you pay attention to your breathing? Was it difficult to remain attuned? Why? What took your attention from your object of focus?

February 13

Learning

Learn a simple new skill this week. Make notes of how you perform the activity from day 1 to day 5. What changes over time, what skills or components of actions are consolidated? Be able to discuss your new skill in the context of learning and attention.

Starting Points:

[http://www.frontiernet.net/~steve\\_glimpse/juggle1.html](http://www.frontiernet.net/~steve_glimpse/juggle1.html)

<http://www.wikihow.com/Do-a-Handstand>

<http://www.puzzles.com/PuzzlePlayground/MirrorDrawing/MirrorDrawing.htm>

February 20

Working Memory & Memory

Have you ever used a mnemonic device to try to get something from working memory into long term memory? Acronyms, the method of loci, and the pegword system are several common mnemonic devices. Describe your favorite mnemonic device and how it works. Be sure to talk about encoding and retrieval.

February 27

Stress & Memory

You are shopping for books on Cognitive Psychology at the Labyrinth and suddenly “she” (or “he”) walks down the aisle right toward you. Your hands start to sweat, you feel anxious and agitated and your heart is racing. Are you in love? Is this your mortal enemy? Describe what is happening at the level of the autonomic nervous system. How might this encounter affect your memory for the covers of the books you just read?

March 5

Visual Memory

Imagine that you give someone directions to the Hungarian pastry shop. When you are giving the directions what are you bringing to mind. Do you have to close your eyes? Where do you look? Do you picture the route in your mind’s eye or do you just “know”? Are the phonological loop and visuospatial sketchpad used in this process of remembering? How can the person you give directions to increase their chances of correctly remembering the directions?

March 12

No Thought Question due

March 19

No Thought Question due

March 26

Concepts & Categories

Think about a time when you encountered a novel object or situation (perhaps at time when you traveled to a new place). Did you apply category knowledge to the object or a schema to the situation? How did you know what category or schema to select? How did the category knowledge or the schema impact how you behaved? What function did it serve?

OR

Pick an object category, and select the first category member that comes to mind. Think about why you consider this member to belong to the category you chose. What are some features of this member that are likely and not likely found among other members of the category? Are there contexts where your chosen member would be considered a typical or an atypical member of the category?

April 2

Language

Take a photograph of a scene or look at a photograph that you have already taken. What is different about the way you represent the picture and the way that the camera represents the picture. What kinds of knowledge do you use to interpret what is happening the picture? Can you add sound? Are you experiencing emotion? Can you look at the picture without memory or language? Try. Look at the picture while saying 'the' repeatedly. What is that experience like? Can you go forward or backward from that moment in time? Why and how are photographs different than our mental representation of the scene? Be able to discuss your mental representation of the scene in terms of the different theories of mental representation.

Read an excerpt from On Photography, by Susan Sontag:

<http://www.susansontag.com/onphotographyexcrpt.htm>

April 9

Metacognition

Think of the strategies you use to learn information. Do you make flashcards? Why? How do you use them? If not, what other ways do you find out if you know something or not? When you don't know, what do you do? Do your strategies help you to learn? This week when you forget something, and then later remember it (a tip of the tongue experience for example) write down your experience, and how you searched your memory.

April 16

Judgment & Decision Making

Why do you think that people play the lottery even though the odds of winning are so low? Think about how you treat money from different sources differently. Do you engage in mental accounting behavior? What are the consequences? Does spending the \$100 you won from a scratch off ticket feel different than spending \$100 that you earned in overtime at work?

April 23

Consciousness

Think about the idea of collective consciousness. Is the consciousness of a crowd different from an individual's consciousness, can consciousness exist in a crowd? Have you ever played on a team, or worked in unison with a group, think about your experience and what and how you were conscious. Further think about how you might define consciousness- what determines consciousness- is a dog conscious, why or why not?

April 30

No Thought Question Due

## ***Reading Journal Articles***

***Introduction:*** What question are the researchers trying to answer? What is the hypothesis?

***Background information:*** e.g. Aspects of declarative memory. Foundations of research

***Methods:*** What were the experiments?

***Experimental Findings:*** What were the predictions and what were the results of the experiments? Numbers are not necessary. Know general information: “Memory for the low frequency words was higher than for the high frequency words.”

***Conclusions:*** Did the results support their hypotheses?