

## Advanced Cognitive Psychology

CrCrTh651

Fall 2015

Monday, 4:00-6:45 PM

Online

### **Contact Information**

**Instructor:** Orin C. Davis, Ph.D.

**Office Hours:** Mondays, by appointment only

**Email:** professor.orin.davis+crcrth651@gmail.com

Textbooks:

- 1) Daniel Reisberg. (2013) *Cognition: Exploring the Science of the Mind*. 5<sup>th</sup> Edition. New York: W.W. Norton & Company.
- 2) Kahneman, Daniel (2011) *Thinking Fast and Slow*. New York: Farrar, Straus, and Giroux.
- 3) Other readings as assigned (see [course wiki](#))

### **Course Description**

This course gives a survey of the field of cognitive psychology from an information-processing viewpoint. The course considers how people encode, organize, transform, and output information. Emphasis is given to such topics as concept formation, problem-solving, and creative thinking.

### **Course Overview**

From the massive amount of information available to us, we manage to create a coherent picture of ourselves and the world around us that enables us to be active global citizens. But, how do we do that? Throughout the course, we will be tackling that question from a host of different perspectives, including how we represent information, solve problems, attend to percepts, remember experiences, and engage in both rational and irrational thought processes. We will elicit general patterns of "how the mind works" and examine the experimental methods through which the field is advanced. In addition, we will consider how the abstract research and ideas in the field of cognition apply in business, education, and other fields.

### **Course Objectives**

- Become familiar and conversant with some of the main principles of cognitive psychology about how people perceive, remember, pay attention, reason, make decisions, and solve problems.
- Become aware of the role of conscious and unconscious processes in thinking.
- Understand the many changes that occur in knowledge representation, thinking, and problem solving with the development of expertise, the strengths and limits of different problem solving methods, and the factors that promote the development of expertise.
- Reflected on the tools, practices, and perspectives from the course that you intend to bring into you specific professional or personal endeavors that you can use in the [Reflective Practitioner's Portfolio](#).

### **Communication**

I will post course materials and announcements on the wiki (<http://crrcrth651.wikispaces.umb.edu/>). You are required to check the wiki regularly (at least 4 times per week). *You are responsible for being cognizant of all course announcements.*

Please remember that you are responsible for knowing how to attend the online course punctually and with limited technological glitches. Go to <http://cct.wikispaces.umb.edu/OnlineGuideStudents> for guidelines. *Also note that this course is synchronous and requires all students to attend at the time listed.*

### **Course Prerequisites**

Through courses and other personal and professional experience you should have an interest in psychology, in understanding more about how people organize and represent knowledge, solve problems, make decisions, and learn. The course also assumes you are interested in using this knowledge to know how to support the development of strong critical and creative thinking in yourself and others, that you have excellent critical reading and writing skills and are capable of doing independent research on a topic of your choice.

### **School Cancellations**

In the event of a school cancellation, we will resume class as usual on the next scheduled class day. Changes to the class schedule will be discussed during the first class meeting following the cancelled class.

### **Code of Conduct**

The University's Student Code of Conduct ([http://www.umb.edu/life\\_on\\_campus/policies/code](http://www.umb.edu/life_on_campus/policies/code)) exists to maintain and protect an environment conducive to learning. It sets clear standards of respect for members of the University community and their property, as well as laying out the procedures for addressing unacceptable conduct. Students can expect faculty members and the Office of the Dean of Students to look after the welfare of the University community and, at the same time, to take an educational approach in which students violating the Code might learn from their mistakes and understand how their behavior affects others.

It is your own responsibility to understand and abide by UMass's [Student Code of Conduct](#), which includes the university's academic honesty policy. Please note that failing to observe this policy can result in severe penalties ranging from a 0 on an assignment, to failing the course, to being expelled from the university.

### **Accommodations**

Sections 504 and the Americans with Disabilities Act of 1990 offer guidelines for curriculum modifications and adaptations for students with documented disabilities. If applicable, students may obtain adaptation recommendations from the Ross Center (287-7430). The student must present these recommendations to each professor within a reasonable period, preferably by the end of the Drop/Add period.

## Course Requirements and Grading

### Overview of the Grading

Class participation:	25%
Reflection journal:	50% (10 entries x 5% each)
Final paper:	25%

***Class participation.*** This is a course rooted in thoughtful discussion and consideration of the material. Ergo, it is incumbent upon you to be prepared *at all times*. Class participation is a major part of the course, and will require that you be active and engaged at each meeting, in addition to occasionally leading class discussions. You will be graded as a function of the depth, thoughtfulness, and activity of your participation. In order to do this, you need to be attentive, and to make substantive statements that go beyond merely [dis]agreeing and/or providing an example of your own experience. You need to explain your line of reasoning and show why the example is relevant. At minimum, constructive commentary requires analysis of the sources to defend a contention. Better is insightful performance that leads the listener to new insights and ideas through complex arguments that are rooted in the interplay and analysis of multiple sources. Often this requires a thesis, a discussion of the caveats to the thesis, and a resolution (synthesis) that indicates when the thesis does and does not apply. A good guideline is to make sure you have spoken substantively at least 2-3 times per class.

***Literature Review.*** The final will require you to write a review of the last 5-10 years of research literature (*plus any prior seminal articles in the field*) on a course-relevant topic of your choice (should include at least 15 articles, over and above anything covered in class). The paper should be about 10-12 pages (20 max) double-spaced, 12-point Times New Roman font, 1" margin. Please make an appointment with a reference librarian if you need help finding research articles (<http://umb.libanswers.com/>). This assignment is suitable for inclusion in the [Reflective Practitioner's Portfolio](#). **PAPER IS DUE 12/23 AT 5 PM EASTERN.**

Here are some [guidelines](#) on how to write a literature review (click the link for additional):

- 1) Describe the topic and its current importance and relevance to the field, including the implications for a practitioner of critical and creative thinking.
- 2) Describe and review the theoretical work regarding the topic.
- 3) Describe and evaluate the empirical work conducted on the topic over the past 5-10 years.
- 4) Critique the theory and recent studies to identify any gaps in the literature and propose directions for future research.

Plan to start this assignment in the FIRST WEEK OF CLASS, and assume that you will spend roughly 2-3 hours *each week* working on this assignment. You are very strongly advised to get approval for your topic, and to submit an outline of the paper for review. The last date to submit an outline for review is Sunday, November 1<sup>st</sup> – any outlines received afterward will not receive feedback.

*Journal.* Based on the *new* readings for a given week, identify *one* "general principle" about how the mind works that you found interesting. Provide two specific examples of this general principle and a brief critical commentary.

Entries should include:

1) A brief statement of the general principle: typically one complete sentence. A principle is a general rule (or law) about how something works (not a definition of a word). Many important general principles in science are simple, but not obvious (e.g., Newton's idea that for every action there is an equal and opposite reaction; the principle of conservation of mass that states that in an isolated or closed system, mass cannot be changed by processes acting in the system; or Darwin's principle that the adaptation of a population to an environment is produced through the twin processes of the production of random heritable variation and selection.) *The principle should be stated in your own words.*

2) Two specific examples of the general principle. A general principle by its nature applies to more than one situation. Show that your principle has some generality by providing two different examples. Be sure to explain how the examples illustrate all aspects of the principle. One example may come from the book, but at least one should come from your everyday experiences.

3) A brief critical reflection on the principle: The critical reflection can take a variety of forms (and might vary from principle to principle). For example, you might consider why you found it interesting or significant, the questions you have about it, or its possible application to teaching and learning. You might consider how strong the evidence is for the principle, alternatives to the principle that should be considered, or possible limitations in the contexts to which the principle applies. Or, you might consider how this principle connects to other principles (from previous weeks). You need only consider one of these things (or anything else that you think qualifies as a critical reflection).

4) Submit your entry for the coming week to me *via the correct email address* (listed above) by Monday at 4 PM EASTERN TIME. No late journal entries will be accepted for any reason whatsoever, so do not wait until the last minute to submit the entry.

5) **Guidelines:** 1-2 pages, double-spaces, 1" margin, Times New Roman font, well-written. If doing the readings for the week and writing this paper took fewer than 90 minutes to complete, expect a 0 on the journal entry and a reduced class participation grade.

## How to Succeed in This Course

I would like very much for all of you to be successful in this course and to enjoy the learning experience. To that end, these are my recommendations for doing well in my course:

- Keep in mind that this is a graduate-level seminar and that the workload is accordingly higher. Failing to keep up with the readings is not an option in this course, and neither is failing to participate. This holds likewise for preparing the final paper, which you should be working on every week.
- Remember that, although the workload in this course is high, you are going to be going through rapid self-development and learning a great deal. To that end, also make sure that you take space to reflect! You are advised to find a reflection partner with whom you can have a chat outside of class once per week.
- Email me if you have questions, but try to solve the issue yourself, first. When you email me, I will want to know how you have attempted to answer the question so that I may guide you more effectively. Remember, *try to solve it yourself*, and then email me if you cannot do so.
- Remember the following adage: prepare for at least twice as long as the schedule hours of the course. Since there are 3 hours of class per week in this course, you should devote at least 6 additional hours per week to preparing for this course. That's less than an hour a day!
- Bring your passion! This is a very exciting subject, and I encourage you to dive in fully.

## Classroom Dynamics

*My teaching style is a bit different from what you have likely encountered previously, so here is some advice and guidelines to orient you.*

***Your success and enjoyment of the course are contingent upon your doing the work. Review the workload and assignments, and drop the course if you are not prepared to do all of it.***

- There are no formal lectures. The entirety of the class is discussion and analysis.
- Make sure you have a study partner or two in the course. This is a must!
- As you prepare the class readings, note your observations and questions. Does anything fail to make sense to you? Has something been overlooked by the author(s)? Do you agree or disagree with the authors? Can you refute the perspective(s) presented? Compare the readings to the overview question(s) provided in the syllabus. How do the readings answer (or fail to answer!) the question(s)?
- Many times during the semester, you will find yourself facing ambiguity, and you will be tempted to seek out “the answer the professor is looking for” or “what the professor wants.” Don’t!
  - Instead, use that opportunity to start with an inquiry that is of interest to you, or to provide a piece of information that is a relevant starting point.
  - Remember that this course is meant to be a *learning and growth opportunity* for you, so make the line of discussion, assignment, etc., personally meaningful.
  - The purpose of the ambiguity is to leave room for you to chart your own path!
- During class discussions, you are going to be wrong, you are going to make mistakes, you are going to get your ideas shot down, and you are going to fail. EXPECT THIS.
  - Again, remember that these are *all* opportunities for learning and growth – use them accordingly!
- It is OK to be wrong, it is OK to fail, and it is OK not to have the answer to a question. This will not affect your grade as long as there is evidence that you have prepared the readings (and that will generally be evident in your errors; there is a world of difference between an informed error and an uninformed error!).
  - Remember that I am going to ask you to think beyond the readings, and that will mean hazarding a guess when you don’t actually know the answer. Give it your best shot based on the information you have!
- It is OK to request a moment to think about a response
  - We’ll wait – better that you think for 30 seconds to organize your thoughts than waste our time with an ill-considered response.
- What is *not* acceptable, however, is to be unprepared. If you come to class without preparing the readings *thoroughly*, have the decency and maturity to remain silent unless called upon and accept the penalty for non-participation that day. The only possible exception is if you can back your statement with other information (and think carefully first).
  - *Your uninformed opinion is of no value to those who have done the readings and prepared, and providing it is both rude and a waste of class time. Expect any such rudeness to receive a stern backlash.*
- If you did prepare the readings carefully, then speak up and don’t worry about making errors (honest misconceptions are totally legitimate, and are one of the reasons we discuss in class!).

## Course Calendar and Reading Assignments

### 9/7 – Introduction to Cognitive Science

Online lecture posted

### 9/14 – Hypnosis: How We Map Our Worlds

Guest lecturer: Robby Howell

*No journal or readings for today's class*

### 9/21 – Introduction to Cognitive Science

*Why do we care about cognitive science? How is it relevant to my life?*

Serious Introductions (prepare one for class; [instructions here](#))

Readings: Reisberg, Ch. 1

*No journal for today's class*

***CAPS drop deadline: 9/21***

### 9/28 – Introduction to Research

Online tutorial posted: How to Read a Journal Article

This class time is designated for you to get started on your literature review. A reference librarian will be on hand for those who need assistance. Those who feel comfortable with their research skills need not attend class. Students should form pairs and work together.

***No journal for today's class. No class on 10/5.***

### 10/12 – Biology of Cognitive Science

*What does biology teach us about how we think? How can we see the effects of biology in day-to-day thinking?*

Readings: Reisberg, Ch. 2

***Students unable to attend must say so in advance to receive an alternate assignment.***

### 10/19 – Perception

*True or false: "Reality is nothing; perception is everything."*

Readings: Reisberg, Ch. 3; Treisman (1986)

### 10/26 – Attention

*How does attention shape our reality?*

Readings: Reisberg, Ch. 4; Smallwood, Obonsawin, & Heim (2003)

***SIGN UP FOR A MEETING WITH THE PROFESSOR NEXT WEEK***

### 11/2, 11/9, 11/16 – Memory

*How do we integrate and encode the information of the world, and how does that affect our behavior?*

Readings:

11/2: Reisberg, Ch. 5 (skim Ch. 6); Baddeley (2000); Raaijmakers & Shiffrin (1981)

11/9: Reisberg, Ch. 7; Loftus (1997); Gieselman (1986)

11/16: Hofmann et al. (2008); Wiley & Jarosz (2012)

### 11/23 – Expertise

*How do we become experts and apply our expertise?*

Readings: Ericsson & Charness (1994); Ericsson et al. (2007); Ericsson (2014); Plomin (2014)

***11/25 is the last day to drop a course.***

11/30 – Creativity and Cognition

*How does the way we think affect our ability to be creative?*

Readings: Lee & Thierault (2013); Sagiv et al. (2010); Excerpt from Baer & Kaufman (2012); Beaty et al. (2014) (Background reading: Hennessey & Amabile [2010])

12/7 – System 1 & System 2

*What are the implications of having a fast and slow thinking system?*

Readings: Kahneman Part 1

12/14 – Heuristics & Biases

*When are heuristics useful, and when are they harmful?*

Readings: Kahneman Part 2; Reisberg Ch. 11

*Please remember to do evaluations: <http://bit.ly/CCTEval>*

*The syllabus is subject to change at any time with notice from the professor.*



## References

- Baddeley, A. (2000) The episodic buffer: A new component of working memory? *Trends in Cognitive Sciences*, 4 (11), 417-423.
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- Beaty, R. E., Nusbaum, E. C., & Silvia, P. J. (2014). Does insight problem solving predict real-world creativity?. *Psychology of Aesthetics, Creativity, and the Arts*, 8(3), 287.
- Ericsson, K. A. (2014). Why expert performance is special and cannot be extrapolated from studies of performance in the general population: A response to criticisms. *Intelligence*, 45, 81-103.
- Ericsson, K.A. & Charness, N. (1994) Expert performance: Its structure and acquisition. *American Psychologist*, 49, 725-747.
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- Geiselman, E.E., Fisher, R.P, MacKinnon, D.P. & Holland, H.L (1986) Enhancement of eyewitness memory with the cognitive interview. *American Journal of Psychology*, 99, 385-401.
- Hofmann, W., Gschwendner, T., Friese, M., Wiers, R. W., & Schmitt, M. (2008). Working memory capacity and self-regulatory behavior: toward an individual differences perspective on behavior determination by automatic versus controlled processes. *Journal of Personality and Social Psychology*, 95(4), 962.
- Lee, C. S., & Theriault, D. J. (2013). The cognitive underpinnings of creative thought: A latent variable analysis exploring the roles of intelligence and working memory in three creative thinking processes. *Intelligence*, 41(5), 306-320.
- Loftus, Elizabeth (1997) Creating false memories, *Scientific American*, (September 1997)
- Plomin, R., Shakeshaft, N. G., McMillan, A., & Trzaskowski, M. (2014). Nature, nurture, and expertise: Response to Ericsson. *Intelligence*, 45, 115-117.
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- Smallwood, J., Obonsawin, M., & Heim, D. (2003). Task unrelated thought: The role of distributed processing. *Consciousness and cognition*, 12(2), 169-189.
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