

## COGNITION AND EDUCATION

Graduate Seminar #80491-001, SPRING 2011

Mondays and Wednesdays, 12:30-1:45, Kent Hall #076

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OFFICE HOURS: Mondays 2:00-3:30, Wednesdays 11:00-12:30, or by appointment.

**COURSE READINGS:** Electronic copies are available through the library system, or you can do it the old-fashioned way (i.e., go to the library and manually copy from the hard copy on the shelf). If for some reason you are not able to get a copy of an article via these means, let me know in advance (coming to class unprepared because you couldn't get an article will not be an acceptable excuse).

**COURSE GOALS:** Although a considerable amount of research in cognitive psychology has focused on exploring and explaining human learning and memory, there is a surprising disconnect between cognitive research and educational practice. Our primary goal in this course is to begin bridging this gap.

The need to improve student learning is a real and increasingly pressing problem. For example, the Program for International Student Assessment (PISA) is a system of international assessments that measures 15-year-olds' performance in reading literacy, mathematics literacy, and science literacy every 3 years. In 2006, fifteen-year-old students in the United States scored lower on science literacy than their peers in 16 of the other 29 Organization for Economic Cooperation and Development (OECD) member countries and lower on mathematics literacy than in 23 OECD countries (for more information, go to <http://nces.ed.gov/ssbr/pages/pisa06.asp?IndID=42>).

First and foremost, I would like you to approach this course as a scientist, thinking critically about theory and application, as well as limitations and outstanding questions. In addition, you are currently a student and hopefully will continue to be a life-long learner, someday you may be an educator or practitioner, and someday you may be a parent, so I hope that much of what we discuss will also be of personal and practical relevance to you.

**ASSIGNMENTS:** Too often, a student's ultimate goal becomes getting a grade, rather than expanding one's knowledge and thinking skills. If you have any residual "grade blinders" left over from your undergraduate days, shed them now. As a graduate student, your goal for this class (or any class) should be to continue your development as a scientist—to think critically about theoretical claims, methods, data, and their relationship to one another, and to further expand your knowledge about cognitive phenomena and research.

Note that the "work" that I am "assigning" you is first and foremost designed to support your learning and critical evaluation of the theories and research in this area, and only secondarily as stuff that can be graded. Your grade will be based on two factors, reading responses and class participation (50% each).

- **READING RESPONSES:** For most class meetings, I will only be assigning one reading (or two at the most, if they're short), so we will have time to think carefully through each one and have meaningful in-depth discussions about them (i.e., we're going to take a quality over quantity approach). To help prepare you to contribute to meaningful class discussions, for each class, I would like you to write a short response. By "short" I mean short—no more than one page! You should bring a print copy of your weekly response to class with you to turn in at the end of each class.

- For THEORY papers (Jan 12 – Jan 31):
  - First, each response should begin with a brief summary of what you think are the most important theoretical claims—note the emphasis on brief (anyone can write a long summary; distilling down to the most important ideas is the better intellectual exercise). We will be revisiting these theories repeatedly over the semester, so you'll thank yourself for reading carefully and coming up with a concise synopsis of the crux of the theory.
  - Next, briefly describe what you think might be an important implication for educational practice/student learning.
  - Last, briefly describe what you think might be an important limitation or weakness of the theory with respect to “real-world” application.
- For APPLICATION papers (Feb 2 – Apr 27):
  - First, each response should begin with a brief summary of the main question, the basic method, and the key results. In other words, imagine that you were trying to give a colleague who hadn't read the paper the upshot of what the paper was about and the main take-home message.
  - Next, briefly describe how your assigned theory (see below) would explain the results (or if it can't, why not).
  - Last, briefly list what you see as 1-2 limitations or outstanding questions with respect to “real-world” application of the intervention under investigation. They should be the kind of question that would provide good fodder for discussion in the class. For example, “I wonder why they only ran 20 participants instead of 30” is NOT a good question. Instead, your questions should be hitting at a higher conceptual level, such as questioning generalizability, practicality, etc. Good meaty stuff like that.
- CLASS PARTICIPATION: I'll expect everyone to be talking during every class! Think about it like this—imagine we're all on the same rowing crew, on the same team working together to get to the same destination (to learn a lot from thoughtful and enjoyable discussions of science). But everyone has to row! If you're not talking, you're not rowing, and that's not fair to let everyone else on the crew do all the pulling.
  - VAT OF HONOR: At the beginning of each class, one student will be selected as the “lead” for that day. Your role will be to first provide a brief summary of the paper and then to kick off discussion of the paper. (Given that you'll be coming to class with a reading response that contains a good summary and thoughtful questions, this should be a no-brainer.) Each day, a name will be drawn from the “vat of honor”, and whoever is selected will lead that paper. Each of you will have one “free pass.” You can use this pass either (1) because you just don't feel like presenting on a day you are chosen or (2) because you need to miss a class for whatever reason.
  - PICK A HAT: Once we start the application papers, at the end of each class, each student will draw a theory from the “hat box.” That will be your assigned theory to use in your reading response for the next class meeting (if you draw a ‘wildcard’, you can pick any theory you want or can even come up with your own).

COURSE POLICIES: I expect that all students know and will adhere to the university's honor code, and your continued enrollment in this class is taken as your agreement with this policy. The minimum penalty for failing to adhere to this honor code is an F in the course. If you are not familiar with the university's policy, you should visit <http://imagine.kent.edu/policyreg> and search on Policy # 3342-3-07. University policy 3342-3-18 requires that students with disabilities be provided reasonable accommodations to ensure their equal access to course content. If you have a documented disability and require accommodations, please contact the instructor at the beginning of the semester to make arrangements for necessary classroom adjustments. Please note, you must first verify your eligibility for these through Student Disability Services (contact 330-672-3391) or visit [www.kent.edu/sds](http://www.kent.edu/sds) for more information on registration procedures.

COURSE SCHEDULE: Note that this schedule is tentative and may be revised depending upon how quickly or slowly we move through these articles.

January	10	Introduction and course overview
	12	transfer-appropriate processing <ul style="list-style-type: none"><li>• Morris, Bransford, &amp; Franks (1977)</li></ul>
	17	[no class – MLK Day]
	19	encoding variability <ul style="list-style-type: none"><li>• McFarland, Rhodes, &amp; Frey (1979)</li></ul>
	24	distinctiveness theory <ul style="list-style-type: none"><li>• Hunt (2007) – I will make copies for you</li></ul>
	26	comprehension theory <ul style="list-style-type: none"><li>• Kintsch, Welsch, Schmalhofer, &amp; Zimny (1990)</li></ul>
	31	self-regulated learning theory <ul style="list-style-type: none"><li>• Dunlosky, Hertzog, Kennedy, &amp; Thiede (2005), pp. 4-6</li><li>• Dunlosky &amp; Metcalfe (2009), Chapter 9 – I will make copies for you</li></ul>
February	2	spacing effects: <ul style="list-style-type: none"><li>• Glenberg &amp; Lehmann (1980)</li></ul>
	7	spacing effects <ul style="list-style-type: none"><li>• Seabrook, Brown, &amp; Solity (2005)</li></ul>
	9	testing effects <ul style="list-style-type: none"><li>• Karpicke &amp; Roediger (2008)</li><li>• Pyc &amp; Rawson (2010)</li></ul>
	14	testing effects <ul style="list-style-type: none"><li>• Butler (2010)</li></ul>
	16	really spaced testing: <ul style="list-style-type: none"><li>▪ Cepeda, Vul, Rohrer, Wixted, &amp; Pashler (2008)</li><li>▪ Bahrack, Bahrack, Bahrack, &amp; Bahrack (1993)</li></ul>
	21	interleaving effects <ul style="list-style-type: none"><li>• Kornell &amp; Bjork (2008)</li><li>• Taylor &amp; Rohrer (2010)</li></ul>
	23	interleaving effects <ul style="list-style-type: none"><li>• Mayfield &amp; Chase (2002)</li></ul>
	28	[no class – independent reading day]
March	2	worked examples <ul style="list-style-type: none"><li>• Sweller &amp; Cooper (1985)</li></ul>
	7	elaborative interrogation <ul style="list-style-type: none"><li>• Pressley, Symons, McDaniel, Snyder, &amp; Turnure (1988)</li></ul>

	9	elaborative interrogation	<ul style="list-style-type: none"> <li>• Woloshyn, Pressley, &amp; Schneider (1992)</li> </ul>
	14	self-explanation	<ul style="list-style-type: none"> <li>• Chi, de Leeuw, Chiu, &amp; LaVancher (1994)</li> </ul>
	16	self-explanation	<ul style="list-style-type: none"> <li>• Rittle-Johnson (2006)</li> </ul>
	21	[no class – Spring Break]	
	23	[no class – Spring Break]	
	28	discovery learning vs. guided instruction	<ul style="list-style-type: none"> <li>• Klahr &amp; Higam (2004)</li> <li>• Kirschner, Sweller, &amp; Clark (2006)</li> </ul>
	30	multimedia effects	<ul style="list-style-type: none"> <li>• Mayer &amp; Anderson (1992)</li> </ul>
April	4	animation vs. static display	<ul style="list-style-type: none"> <li>• Mayer, Hegarty, Mayer, &amp; Campbell (2005)</li> </ul>
	6	seductive details	<ul style="list-style-type: none"> <li>• Mayer, Griffith, Jurkowitz, &amp; Rothman (2008)</li> </ul>
	11	[no class – independent reading day]	
	13	metacognition	<ul style="list-style-type: none"> <li>• Thiede, Anderson, &amp; Therriault (2003)</li> </ul>
	18	metacognition	<ul style="list-style-type: none"> <li>• Delclos &amp; Harrington (1991)</li> </ul>
	20	TBA – class choice of topic	
	25	TBA – class choice of topic	
	27	TBA – class choice of topic	

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