CSP 502: Cognitive Foundations of Behavior
Summer 2019
Meliora 352

Instructor: Wednesday Bushong (wbushong@ur.rochester.edu)
Office hours: by appointment (Meliora 421)

Course Meetings
Friday 8/09: 10:30-11:30am
Monday-Friday 8/12-16: 9:00-11:30am
Tuesday 8/20: 9:00-11:30am

Course Description
This course is a broad survey of cognitive science. The major goal is for students to get a general idea of broad themes in cognitive science and be able to relate these themes and concepts to their own research and interests in clinical psychology. In each class, we'll cover at least one classic paper in the field and then a selection of more recent empirical papers, including work on clinical populations.

Class Structure
Each class during the main week (8/12-16) will be broken up into two sections. First, we will discuss the papers that have student leaders (see next section for more details). We'll spend 30-45 minutes on each paper (depending on how many papers we have to go through), starting with a short presentation followed by discussion facilitated by the student leader. In the second part of class, I will give a short lecture to give some background for the next day's topic. Note that students are required to read all assigned readings, not just those that will be discussed in class. The additional readings provide important background needed to understand the more specific papers we will discuss in class.

Expectations and Grading
Participation (30%)
Students are expected to attend class, complete all readings in advance, and come prepared to participate in the discussion of the papers. In order to foster discussion, you will be asked to post one discussion question on the Blackboard discussion forum about **each** of the bolded readings on the syllabus for that day. Your discussion questions should be posted by 3:00pm the day before class so that discussion leaders have time to review them.

Discussion leading (30%)
Each student will facilitate discussion of one paper during the course. Prepare a 10-15 minute presentation that gives relevant background information and summarizes the take-home points of the paper. After the presentation, provide a few open-ended prompts or questions to open the floor to discussion of the paper.

You'll notice that the papers vary quite a bit in length. If you end up leading discussion on a longer paper, don't feel as though you have to cover every single point; just hit the high notes! Conversely, if you're covering a very short paper, you may want to bring in additional background on the topic (e.g., by introducing some of the previous research cited in the current paper).

Final paper and presentation (40%)
A major goal of this course is for students to make connections between what we learn about cognitive science and their own interests in clinical psychology. Thus, each student will be expected to write a short paper (approx. 1,000 words) about any topic of their choice that links cognitive and clinical psychology. The scope of the paper is also up to you: it can be as broad as a review of how a topic in clinical psychology has been studied in the cognitive science literature, or as narrow as proposing an experiment that blends methods from cognitive and clinical psychology to address a specific question. Please clear your topic with me by emailing me a short description of what you plan to write about and two references you plan on using no later than Wednesday 8/14 at 11:59pm. The final paper will be due Tuesday, 8/20 at 11:59pm. On the final day of the course, you will give a 10-minute presentation on your paper.

Final grades for the course will be decided as follows:
94-100%: A
90-93%: A-
88-90%: B+
84-87%: B
80-83%: B-
70-80%: C
<70%: E

Schedule and readings
Papers in **bold** will be assigned to students to lead discussion on.

Day	**Date**	**Topic**	**Readings (to be done before lecture)**
1	8/09	What is cognitive science?	Miller (2003) Marr & Poggio (1976)
2	8/12	Perception	Palmeri & Gauthier (2004) **Balcetis & Dunning (2006)** **Wang et al. (2004)** **Bejjanki et al. (2014)**
3	8/13	Learning & Memory	Saffran et al. (1996) **Kleinschmidt & Jaeger (2015)** **Gobet et al. (2001)** Loftus (2009) **Brady et al. (2009)**
4	8/14	Attention; Reasoning & decision-making	Driver (2001) **Yu & Smith (2012)** Tversky & Kahneman (1974)

			Alloy & Abramson (1979) **Jollant et al. (2005)**
5	8/15	Language use and understanding	Clark & Marshall (1981) pp. 10-26 **Brennan & Clark (1996)** **Loukusa & Moilanen (2009)**
6	8/16	Computational models of cognition	Ernst & Banks (2002) **Hinton & Shallice (1991)** **Xu & Tenenbaum (2007)**
7	8/20	Final presentations	13 presentations, ~10 minutes each

Full References

Day 1 (8/09)

Marr, D., & Poggio, T. (1976). From understanding computation to understanding neural circuitry.

Miller, G. A. (2003). The cognitive revolution: a historical perspective. *Trends in cognitive sciences*, *7*(3), 141-144.

Day 2 (8/12)

Palmeri, T. J., & Gauthier, I. (2004). Visual object understanding. Nature Reviews Neuroscience, 5(4), 291.

Balcetis, E., & Dunning, D. (2006). See what you want to see: motivational influences on visual perception. Journal of personality and social psychology, 91(4), 612-625.

Wang, A. T., Dapretto, M., Hariri, A. R., Sigman, M., & Bookheimer, S. Y. (2004). Neural correlates of facial affect processing in children and adolescents with autism spectrum disorder. Journal of the American Academy of Child & Adolescent Psychiatry, 43(4), 481-490.

Bejjanki, V. R., Zhang, R., Li, R., Pouget, A., Green, C. S., Lu, Z. L., & Bavelier, D. (2014). Action video game play facilitates the development of better perceptual templates. Proceedings of the National Academy of Sciences, 111(47), 16961-16966.

Day 3 (8/13)

Learning

Saffran, J. R., Aslin, R. N., & Newport, E. L. (1996). Statistical learning by 8-month-old infants. Science, 274(5294), 1926-1928.

Kleinschmidt, D. F., & Jaeger, T. F. (2015). Robust speech perception: recognize the familiar, generalize to the similar, and adapt to the novel. Psychological review, 122(2), 148-203.

Gobet, F., Lane, P. C., Croker, S., Cheng, P. C., Jones, G., Oliver, I., & Pine, J. M. (2001). Chunking mechanisms in human learning. Trends in cognitive sciences, 5(6), 236-243.

Memory
Loftus, E. F. (2005). Planting misinformation in the human mind: A 30-year investigation of the malleability of memory. Learning & memory, 12(4), 361-366.

Brady, T. F., Konkle, T., & Alvarez, G. A. (2009). Compression in visual working memory: Using statistical regularities to form more efficient memory representations. Journal of Experimental Psychology: General, 138(4), 487-502.

Day 4 (8/14)
Attention
Driver, J. (2001). A selective review of selective attention research from the past century. British Journal of Psychology, 92(1), 53-78.

Yu, C., & Smith, L. B. (2012). Embodied attention and word learning by toddlers. Cognition, 125(2), 244-262.

Reasoning & Decision-Making
Tversky, A., & Kahneman, D. (1974). Judgment under uncertainty: Heuristics and biases. science, 185(4157), 1124-1131.

Alloy, L. B., & Abramson, L. Y. (1979). Judgment of contingency in depressed and nondepressed students: Sadder but wiser?. Journal of experimental psychology: General, 108(4), 441-485.

Jollant, F., Bellivier, F., Leboyer, M., Astruc, B., Torres, S., Verdier, R., ... & Courtet, P. (2005). Impaired decision making in suicide attempters. American Journal of Psychiatry, 162(2), 304-310.

Day 5 (8/15)
Clark, H. H., & Marshall, C. R. (1981). Definite reference and mutual knowledge. In A. K. Joshi, B. L. Webber, & I. A. Sag (Eds.) *Elements of discourse understanding* (pp. 10-63).

Brennan, S. E., & Clark, H. H. (1996). Conceptual pacts and lexical choice in conversation. Journal of Experimental Psychology: Learning, Memory, and Cognition, 22(6), 1482-1493.

Loukusa, S., & Moilanen, I. (2009). Pragmatic inference abilities in individuals with Asperger syndrome or high-functioning autism. A review. Research in Autism Spectrum Disorders, 3(4), 890-904.

Day 6 (8/16)

Ernst, M. O., & Banks, M. S. (2002). Humans integrate visual and haptic information in a statistically optimal fashion. Nature, 415(6870), 429.

Hinton, G. E., & Shallice, T. (1991). Lesioning an attractor network: Investigations of acquired dyslexia. ***Psychological review*****,** ***98*****(1), 74-95.**

Xu, F., & Tenenbaum, J. B. (2007). Word learning as Bayesian inference. Psychological review, 114(2), 245-272.