Course Title: G4270, Section 002 - Cognitive Processes: METACOGNITION, Spring 2013

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Wednesdays
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Course description:

Metacognition is one of the latest psychological buzzwords, but what exactly is metacognition? Metacognition enables us to be successful learners, problem solvers, and decision makers, and as often been used synonymously with words such as language, awareness, and consciousness. In this seminar, we will examine various components of metacognition, including its role in learning and memory, and its existence in various non-human populations. In addition, we will explore the fragility of metacognition, including illusions of confidence and harmful control strategies that people use. Readings will include classic and important recent papers in the field, looking at metacognition as a higher-level cognitive process, and as knowledge individuals use to guide behavior.

Assignments:

Reading assignments will be the basis for the in-class discussion each class period. Thus, it is crucial that they be read carefully *before* each class meeting. For each week, students will be assigned as "discussion leaders" for the discussions, and will be responsible to briefly summarizing the hypotheses, methods, and results for that week's readings as well as guiding the discussion. Participation in class will count as 20% of your final course grade. There will also be 2 take-home paper assignments, one short paper due mid-semester (worth 30%), and one long paper due at the end of the semester (worth 50%). The short paper may be a short-version/introduction to your final longer paper.

What you will take away from this course:

1. An improved awareness for how to read and analyze scientific articles on a specific topic -- in this case, how to think about one's own thinking.
2. An understanding of metacognitive theories and mechanisms, and an improved understanding of scientific theory more generally, which includes facility in evaluating and debating about metacognitive theories.
3. Appreciation for the many components of metacognition, and an ability to bring knowledge from separate research themes to provide a big picture appreciation for why metacognition exists.
4. An improved awareness of one's own mental processes and how that awareness can lead to becoming a more effective learner and decision-maker.

Required Readings:

There will be one required textbook for this seminar: "*Metacognition*" edited by John Dunlosky and Janet Metcalfe, published in 2009. The book will be available at *Book Culture*, located on 112th St. between Broadway and Amsterdam. Each week, specific pages from this textbook will be assigned in addition to the various scientific articles listed below under each theme.

Scheduled Topics

Overview and Organization [January 23]

Theme 0: **Basic Cognition** - Quick Review [January 30]
How cognition works
Impressions of metacognition
Combining various backgrounds/experiences

Theme 1: **Definitions** - What is Metacognition? [February 6]
Chapter 1: D & M
Flavell, J. H. (1979). Metacognition and cognitive monitoring: A new area of cognitive-developmental
    inquiry. *American Psychologist*, 34(10), 906-911.
Koriat, A. (2007). Metacognition and consciousness. In P. D. Zelazo, M. Moscovitch, & E. Thompson
    (Eds.), *Cambridge handbook of consciousness* (pp. 289-325). New York: Cambridge University Press.

Theme 2: **Foundations** - What is Metacognition good for? [February 13]
Chapter 2: D & M
St. Augustine's *Confessions*.
Nelson, T. O., & Narens, L. (1994). Why investigate metacognition? In J. Metcalfe, & A. J. Shimamura
    (Eds.). (1994). *Metacognition: Knowing About Knowing*. (pp. 1-26). Cambridge, MA: MIT Press.

Theme 3: **Introspection** - Can verbal reports be used as data? [February 20]
Chapter 3: D & M
Nisbett, R. E., & Wilson, T. D. (1977). Telling more than we can know: Verbal reports on mental
    processes. *Psychological Review, 84,* 231-259.
Wilson, T. D. (1994). The proper protocol: Validity and completeness of verbal reports. *Psychological
    Science,* 5, 249-252.

Theme 4: **Measurement** - How are verbal reports analyzed? [February 27]
Chapter 4: D & M
Keren, G. (1991). Calibration and probability judgments: Conceptual and methodological issues. *Acta
    Psychologica, 77,* 217-273.
Titchener, E. B. (1912). Prolegomena to a study of introspection. *The American Journal of Psychology,
    23*, 427-448.

Theme 5: **Mechanisms** - How does Metacognition work? [March 6]
Chapter 5: D & M
Carruthers, P. (2009). How we know our own minds: The relationship between mindreading and
    metacognition. *Behavioral and Brain Sciences, 32*, 121-182.
Koriat, A. (2008). Easy comes, easy goes? The link between learning and remembering and its
    exploitation in metacognition. *Memory & Cognition, 36*, 416-428.

Theme 6: **Monitoring** - Can Metacognitive Knowledge Break down? [March 13]
Chapter 6: D & M
Wheeler, M. A., Stuss, D. T., & Tulving, E. (1997). Toward a theory of episodic memory: The frontal
    lobes and autonoetic consciousness. *Psychological Bulletin, 121,* 331-354.
Rhodes, M. G. & Castel, A. D. (2008). Memory predictions are influenced by perceptual information:
    evidence for metacognitive illusions. *Journal of Experimental Psychology: General, 137*, 615-625.

Spring Break [March 20]

Paper Break [March 27]
Short Paper Due/Final Paper Topic Proposals/Outlines Due on April 3 (by email)

Theme 7: **Control** - What are the consequences of metacognitive break down? [April 3]

Chapter 8: D & M

Metcalfe, J. & Finn, B. (2008). Evidence that judgments of learning are causally related to study choice. *Psychonomic Bulletin & Review, 15*, 174-179.

Son, L. K. & Kornell, N. (2008). Research on the allocation of study time: Key studies from 1890 to the present (and beyond). In J. Dunlosky & R. A. Bjork (Eds.), *A handbook of memory and metamemory* (pp. 333-351). Hillsdale, NJ: Psychology Press.

Theme 8: **Implicit Metacognition** - Metacognition's relation to Non-verbal species [April 10]

Terrace, H. S., & Son, L. K. (2009). Comparative metacognition. *Current Opinion in Neurobiology*, *19*, 67-74.

Washburn, D. A., Smith, J. D., & Shields, W. E. (2006). Rhesus monkeys (Macaca mulatta) immediately generalize the *uncertain* response. Journal of Experimental Psychology: *Animal Behavior Processes, 32*, 185-189.

Kornell, N., Son, L. K., & Terrace, H. (2007). Transfer of Metacognitive Skills and Hint Seeking in Monkeys. *Psychological Science*, *18*, 64-71.

Theme 9: **Development** - Who has it? [April 17]

Chapter 10: D & M

Lockl, L., & Schnieder, W. (2007). Knowledge about the mind: Links between theory of mind and later metamemory. *Child Development, 78*, 148-167.

Kuhn, D. (2000). Metacognitive development. *Current directions in psychological science, 9*(5), 178-181.

Theme 10: **Applications** - Does good metacognition help performance? [April 24]

Kornell, N., & Son, L. K. (2009). Learners' choices and beliefs about self-testing. *Memory*, *17*, 493-501.

Metcalfe, J., Kornell, N., & Son, L. K. (2007). A cognitive-science based program to enhance study efficacy in a high and low-risk setting. *European Journal of Cognitive Psychology*, *19*, 743-768.

Theme 11: **Self-awareness** - What does it mean to have privileged access? [May 1]

Chapter 7: D & M

Metcalfe, J., & Greene, M.J. (2007). Metacognition of agency. *Journal of Experimental Psychology: General, 136*, 184-199.

Miele, D. B., Molden, D. C., & Gardner, W. L. (2009). Motivated comprehension regulation: Vigilant versus eager metacognitive control. *Memory & Cognition, 37*, 779-795.

Final Papers Due [May 8]