

Cognitive Aging, PSY 620.10
Spring 2019 Syllabus (updated 12/11/2018)
Tuesday, Thursday 10-11:20 AM
Psychology B-316

Contact Information, Instructor

Instructor: Lauren Richmond, PhD

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Office Location: Psychology B-342

Office Hours: Tuesdays 1-4 pm

Course Description

This course will give students a graduate-level introduction to themes, topics, methodologies and theoretical constructs relevant to cognitive aging in both healthy and clinical populations.

Course Materials

All required materials and readings will be accessible through Blackboard.

Grading Information

Assignment Weights

- Presentations(2): 10% each (20% total)
- Discussion questions: 30%
- Class Participation: 10%
- Term Paper: 40%

Grading Scale

Grade cutoffs are at the 7s and 2s for +/- (e.g. 87-89 =B+, 80-82 =B-).

Late Policy

Assignments turned in after the due dates will not be accepted unless first approved by the instructor. Permission to turn in assignments after the deadline must be requested *prior* to the deadline.

Expectations for Student Attendance

Students should plan to attend each class meeting, although formal attendance will not be taken.

Calendar

Below is a tentative schedule for topics and readings. This schedule is subject to change.

January 29: Syllabus, Course Intro & Overview

January 31: Conceptual and Methodological Issues in Aging Research

Arking R. A. (2006). Perspectives on aging. In *Biology of Aging*, pp. 3-26.

Salthouse T. A. (2000). Methodological Assumptions in Cognitive Aging Research. In Craik, F.I.M. & Salthouse, T.A. (Editors). *Handbook of Aging and Cognition*. (2nd Ed.) (pp 467-498). Hillsdale, NJ: Lawrence Erlbaum Associates

February 5: Sensory functions and connection to cognition

Lindenberger U., & Baltes P. B. (1994). Sensory functioning and intelligence in old age: A strong connection. *Psychology and Aging*, 9, 339-355.

Monge A., Madden D. J. (2016). Linking cognitive and visual perceptual decline in healthy aging: the information degradation hypothesis. *Neuroscience and Biobehavioral Reviews*, 69, 166-173.

February 7: Theories of Cognitive Aging: The Common Cause Hypothesis

Anstey, K. J., Luszcz, M. A., & Sanchez, L. (2001). A reevaluation of the common factor theory of shared variance among age, sensory function, and cognitive function in older adults. *Journals of Gerontology Series B Psychological Sciences & Social Sciences*, 56, 3.

Baltes, P. B., & Lindenberger, U. (1997). Emergence of a powerful connection between sensory and cognitive functions across the adult life span: A new window to the study of cognitive aging. *Psychology and Aging*, 12, 12-21.

February 12: Theories of Cognitive Aging: Processing Speed

Salthouse, T. A., & Meinz, E. J. (1995). Aging, inhibition, working memory, and speed. *Journals of Gerontology. Series B, Psychological Sciences & Social Sciences*, 50, P297-306.

Salthouse T. A. (1996). The processing-speed theory of adult age differences in cognition. *Psychological Review*, 103, 403-428.

February 14: Theories of Cognitive Aging: Inhibitory Deficit

Hasher, L., & Zacks, R. T. (1988). Working memory, comprehension, and aging: A review and new view. *The Psychology of Learning and Motivation*, 22, 193-225.

Lustig C., Hasher L., Zacks R. T. (2007). Inhibitory deficit theory: recent developments in a new view. In Gorfein and McLeod (Eds) *Inhibition and Cognition* (pp. 145-162).

February 19: “Use it or lose it” hypothesis

Hultsch, D. F., Hertzog, C., Small, B. J., & Dixon, R. A. (1999). Use it or lose it: Engaged lifestyle as a buffer of cognitive decline in aging? *Psychology and Aging*, 14(2), 245–263.

Staff, R. T., Hogan, M. J., Williams, D. S., & Whalley, L. J. (2018). Intellectual engagement and cognitive ability in later life (the “use it or lose it” conjecture): longitudinal, prospective study. *BMJ*, k4925.

February 21: Fluid vs Crystallized Abilities

Horn J. & Cattell R. (1967). Age differences in fluid and crystallized intelligence. *Acta Psychologica*, 26, 107-129.

Staff R. T., Hogan M. J., Whalley L. J. (2014). Aging trajectories of fluid intelligence in later life: the influence of age, practice and childhood IQ on Raven’s Progressive Matrices. *Intelligence*, 47,194-201.

February 26: Recollection and Familiarity in Old Age

Jennings, J. M., & Jacoby, L. L. (1993). Automatic versus intentional uses of memory: Aging, attention, and control. *Psychology and Aging*, 8(2), 283–293.

Millar, P. R., Balota, D. A., Maddox, G. B., Duchek, J. M., Aschenbrenner, A. J., Fagan, A. M., ... Morris, J. C. (2017). Process dissociation analyses of memory changes in healthy aging, preclinical, and very mild Alzheimer disease: Evidence for isolated recollection deficits. *Neuropsychology*, 31(7), 708–723.

February 28: BOLD Signal Changes with Age

Park D., Reuter-Lorenz P. (2009). The adaptive brain: aging and neurocognitive scaffolding. *Annual Review of Psychology*, 60, 173-196.

Ward, A. M., Mormino, E. C., Huijbers, W., Schultz, A. P., Hedden, T., & Sperling, R. A. (2015). Relationships between default-mode network connectivity, medial temporal lobe structure, and age-related memory deficits. *Neurobiology of Aging*, 36(1), 265–272.

March 5: Attention

Aschenbrenner, A. J., & Balota, D. A. (2017). Dynamic adjustments of attentional control in healthy aging. *Psychology & Aging*, 32, 1-15.

Kramer A.F., & Kray J. (2006). Aging and attention. In F. I. M. Craik and E. Bialystock (Eds.), *Lifespan Cognition* (pp. 57-69). Mahwah, NJ: Erlbaum.

March 7: Cognitive Control

Cohen-Shikora, E. R., Diede, N. T., & Bugg, J. M. (in press). The flexibility of cognitive control: Age equivalence with experience guiding the way. *Psychology and Aging*.

Paxton, J. L., Barch, D. M., Storandt, M., & Braver, T. S. (2006). Effects of environmental support and strategy training on older adults' use of context. *Psychology and Aging*, 21(3), 499–509.

March 12: Prospective Memory

Bugg, J. M., Scullin, M. K., & Rauvola, R. (2016). Forgetting no-longer relevant prospective memory intentions is (sometimes) harder with age but easier with forgetting practice. *Psychology and Aging*, 31, 358-369.

Ball, B. H., & Aschenbrenner, A. J. (2018). The importance of age-related differences in prospective memory: Evidence from diffusion model analyses. *Psychonomic Bulletin & Review*, 25(3), 1114-1122.

March 14: Working Memory

Hale, S., Rose, N. S., Myerson, J., Strube, M. J., Sommers, M., Tye-Murray, N., & Spehar, B. (2011). The structure of working memory abilities across the adult life span. *Psychology and Aging*, 26(1), 92.

Vaughan, L., Basak, C., Hartman, M., & Verhaeghen, P. (2008). Aging and working memory inside and outside the focus of attention: Dissociations of availability and accessibility. *Aging, Neuropsychology, and Cognition*, 15(6), 703-724.

No class March 19 or March 21: SPRING BREAK

March 26: Declarative Memory

Balota, D. A., Dolan, P. O., and Duchek, J. M. (2000). Memory changes in healthy older adults. In E. Tulving and F.I.M. Craik (Eds.) *The Oxford handbook of memory*, 395-411.

Naveh-Benjamin M (2000). Adult age differences in memory performance: tests of an associative deficit hypothesis. *Journal of Experimental Psychology: Learning, Memory and Cognition*, 26, 1170-1187.

March 28: Nondeclarative Memory

Hashtroudi S, Chrosniak LD, Schwartz BL. (1991). Effects of aging on priming and skill learning. *Psychology and Aging*, 6, 605-615.

Mitchell, D. B., & Bruss, P. J. (2003). Age differences in implicit memory: conceptual, perceptual, or methodological?. *Psychology and aging*, 18(4), 807.

April 2: Spatial Cognition

Ariel, R., & Moffat, S. D. (2017). Age-related similarities and differences in monitoring spatial cognition. *Aging, Neuropsychology, and Cognition*, 1–27.

Head, D., & Isom, M. (2010). Age effects on wayfinding and route learning skills. *Behavioural Brain Research*, 209(1), 49–58.

April 4: Event Cognition and Event Memory

Bailey, H. R., Kurby, C. A., Giovannetti, T., & Zacks, J. M. (2013). Action perception predicts action performance. *Neuropsychologia*. 51(11), 2294-2304.

Zacks, J. M., Speer, N. K., Vettel, J. M., & Jacoby, L. L. (2006). Event understanding and memory in healthy aging and dementia of the Alzheimer type. *Psychology and Aging*, 21(3), 466–482.

April 9: Metacognition

Hertzog, C., Sinclair, S. M., & Dunlosky, J. (2010). Age differences in the monitoring of learning: Cross-sectional evidence of spared resolution across the adult life span. *Developmental Psychology*, 46(4), 939–948.

Hines, J. C., Touron, D. R., & Hertzog, C. (2009). Metacognitive influences on study time allocation in an associative recognition task: An analysis of adult age differences. *Psychology and Aging*, 24(2), 462–475.

April 11: Decision Making

Mata, R., Schooler, L., & Rieskamp, J. (2007). The aging decision maker: Cognitive aging and the adaptive selection of decision strategies. *Psychology and Aging, 22*, 796-810.

Mikels J. A., Lockenhoff C. E, Maglio S. J., et al. (2010). Following your heart or your head: focusing on emotions versus information differentially influences the decisions of younger and older adults. *Journal of Experimental Psychology: Applied, 16*, 87-95.

April 16: Emotion Regulation

Carstensen, L. L., Isaacowitz, D. M., & Charles, S. T. (1999). Taking time seriously: A theory of socioemotional selectivity. *American Psychologist, 54*, 165-181.

Larcom M. J., & Isaacowitz D. M. (2009). Rapid emotion regulation after mood induction: age and individual differences. *Journal of Gerontology: Psychological Sciences, 64B*, 733-741.

April 18: Autobiographical Memory

Levine, B., Svoboda, E., Hay, J. F., Winocur, G., & Moscovitch, M. (2002). Aging and autobiographical memory: dissociating episodic from semantic retrieval. *Psychology and aging, 17*(4), 677.

Mather, M., & Carstensen, L. L. (2005). Aging and motivated cognition: The positivity effect in attention and memory. *Trends in cognitive sciences, 9*(10), 496-502.

April 25: Cognitive & Exercise Interventions in Older Adults

McDaniel, M. A., Binder, E., Bugg, J. M., Waldum, E., Dufault, C., Meyer, A., ...Kudelka, C. (2014). Effects of cognitive training with and without aerobic exercise on cognitively-demanding everyday activities. *Psychology and Aging, 29*, 717-730.

Rebok, G. W., Ball, K., Guey, L. T., Jones, R. N., Kim, H. Y., King, J. W., ... & Willis, S. L. (2014). Ten-year effects of the advanced cognitive training for independent and vital elderly cognitive training trial on cognition and everyday functioning in older adults. *Journal of the American Geriatrics Society, 62*(1), 16-24.

April 30: TBD

May 2: TBD

May 7: TBD

May 9: TBD

Some possible topics for “free” days:

Language

Alzheimer’s disease and other dementias

Structural brain changed with age

Intra-individual variability

Personality

Dopamine decline

Planning

Protective factors

Mental health

Biological theories of aging

Sleep

Optimal testing time

Practice effects

EMA studies of cognition

Collaborative cognition

Super agers

Cognitive impact of age-related changes in social activity

Assignment Descriptions and Details

- **Discussion Questions:** Students will be required to submit a discussion question for each article (at least 300 words in length) through Blackboard. These questions will serve as the basis for in-class discussion. **Questions are due at 12 noon the day before class (Mondays, Wednesdays) and will be submitted through Blackboard.**
- **Article Presentations:** Throughout the semester, students will be required to present 2 articles for discussion in class. These presentations will provide a short summary of the article and use either personal or discussion questions to serve as the jumping off point for in-class discussion.
- **Term Paper:** Students will be required to submit a 6-8 page term paper on a topic related to cognitive aging broadly defined. Additional details about this assignment will be provided later in the semester. Topics should be discussed with the instructor for approval before spring break. Papers should be written in APA format. This paper will be due on the last day of class (May 9).

University Policies

Academic Integrity Statement: Each student must pursue his or her academic goals honestly and be personally accountable for all submitted work. Representing another person's work as your own is always wrong. Faculty is required to report any suspected instances of academic dishonesty to the Academic Judiciary. Faculty in the Health Sciences Center (School of Health Technology & Management, Nursing, Social Welfare, Dental Medicine) and School of Medicine are required to follow their school-specific procedures. For more comprehensive information on academic integrity,

including categories of academic dishonesty please refer to the academic judiciary website at http://www.stonybrook.edu/commcms/academic_integrity/index.html

Disability Support Services (DSS) Statement: If you have a physical, psychological, medical or learning disability that may impact your course work, please contact Disability Support Services, ECC(Educational Communications Center) Building, Room 128, (631)632-6748. They will determine with you what accommodations, if any, are necessary and appropriate. All information and documentation is confidential.

Students who require assistance during emergency evacuation are encouraged to discuss their needs with their professors and Disability Support Services. For procedures and information go to the following website:

<http://www.stonybrook.edu/ehs/fire/disabilities>.

Critical Incident Management: Stony Brook University expects students to respect the rights, privileges, and property of other people. Faculty are required to report to the Office of University Community Standards any disruptive behavior that interrupts their ability to teach, compromises the safety of the learning environment, or inhibits students' ability to learn. Faculty in the HSC Schools and the School of Medicine are required to follow their school-specific procedures. Further information about most academic matters can be found in the Undergraduate Bulletin, the Undergraduate Class Schedule, and the Faculty-Employee Handbook.