

**Cognitive Aging, PSY 610.10**  
**Fall 2020 Syllabus (updated 09/09/2020)**  
**Monday, Wednesday 8:30 AM-9:50 AM**

**Contact Information, Instructor**

**Instructor:** Lauren Richmond, PhD

**Contact:** [lauren.richmond@stonybrook.edu](mailto:lauren.richmond@stonybrook.edu) (preferred method of contact)

**Phone:** 631-632-7832

**Location for Virtual Office Hours:** [Zoom](#)

**Office Hours:** Mondays & Wednesdays 10-11:30 AM

Reserve a slot for office hours by visiting [this link](#).

\*Alternate meeting times can be arranged; if you need to meet with the instructor but are unable to do so during regular office hours, please email for an appointment.

**Note:** *If you cannot reach your instructor, please email [CAS\\_Dean@stonybrook.edu](mailto:CAS_Dean@stonybrook.edu).*

**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 & Course Delivery Mode**

- All required materials and readings will be accessible through Blackboard.
- All sessions will be held via Zoom Meetings at our regularly scheduled class time. Please log onto Zoom Meetings through the Blackboard site for the course.
- Each class session will also be recorded in case of internet disruptions. Recordings are accessible through your Zoom Meetings account.

**Grading Information**

**Assignment Weights**

- Presentations (2): 10% each (20% total)
- Discussion questions: 30%
- Class Participation: 10%
- Term Paper Proposal: 5%
- Term Paper: 35%

**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.*

### **Monday, August 24: Syllabus, Course Intro & Overview**

### **Wednesday, August 26: 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*. (2<sup>nd</sup> Ed.) (pp 467-498). Hillsdale, NJ: Lawrence Erlbaum Associates

### **Monday, August 31: 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.

### **Wednesday, September 2: 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.

### **Monday, September 7: LABOR DAY, NO CLASS**

### **Wednesday, September 9: 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.

### **Monday, September 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).

### **Wednesday, September 16: “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.

### **Monday, September 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.

### **Wednesday, September 23: 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.

### **Monday, September 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.

### **Wednesday, September 30: 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.

### **Monday, October 5: Cognitive Control**

Cohen-Shikora, E. R., Diede, N. T., & Bugg, J. M. (2018). The flexibility of cognitive control: Age equivalence with experience guiding the way. *Psychology and Aging*, 33(6), 924-939.

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.

### **Wednesday, October 7: 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.

### **Monday, October 12: 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.

### **Wednesday, October 14: 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.

### **Monday, October 19: 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.

### **Wednesday, October 21: 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.

### **Monday, October 26: 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.

### **Wednesday, October 28: 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., Tournon, 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.

### **Monday, November 2: 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.

### **Wednesday, November 4: 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.

### **Monday, November 9: 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.

### **Wednesday, November 11: 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.

### **Monday, November 16: Cognitive Aging & Health Disparities**

Glymour, M. M., & Manly, J. J. (2008). Lifecourse social conditions and racial and ethnic patterns of cognitive aging. *Neuropsychology Review*, 18(3), 223–254.

Brewster, P. W. H., Melrose, R. J., Marquine, M. J., Johnson, J. K., Napoles, A., MacKay-Brandt, A., Farias, S., Reed, B., & Mungas, D. (2014). Life experience and demographic influences on cognitive function in older adults. *Neuropsychology*, 28(6), 846–858.

### **Wednesday, November 18: Stereotype Threat & Cognitive Performance**

Hess, T. M., Hinson, J. T., & Hodges, E. A. (2009). Moderators of and mechanisms underlying stereotype threat effects on older adults' memory performance. *Experimental Aging Research*, 35(2), 153–177.

Marquet, M., Missotten, P., Dardenne, B., & Adam, S. (2019). Interactions between stereotype threat, subjective aging, and memory in older adults. *Aging, Neuropsychology, and Cognition*, 26(1), 121–143.

### **Monday, November 23: NO CLASS (Thanksgiving Break)**

### **Wednesday, November 25: NO CLASS (Thanksgiving Break)**

### **Monday, November 30: TBD**

### **Wednesday, December 2: TBD**

### **Monday, December 7: 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/time of day effects

Practice effects

EMA studies of cognition

Collaborative cognition/Collective Memory

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 (Sundays, Tuesdays) 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 Proposal:** Students will submit a short description (2 pages or less, double spaced) of their term paper topic. The proposal should clearly indicate their selected format for the term paper, and cite at least 2 references that they plan to include in their final term paper. The proposal will be due by 11:59 PM on Wednesday, October 14.
- **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 posted to Blackboard. Papers should be written in APA format. This paper will be due by 11:59 PM on the last day of class (December 7).

### **Technical Requirements**

This course uses Blackboard for the facilitation of communications between faculty and students, submission of assignments, and posting of grades and feedback. The

Blackboard course site can be accessed at <https://blackboard.stonybrook.edu>

If you are unsure of your NetID, visit <https://it.stonybrook.edu/help/kb/finding-your-netid-and-password> for more information. You are responsible for having a reliable computer and Internet connection throughout the term. **Caution!** You will be at a disadvantage if you attempt to complete all coursework on a smart phone or tablet. It may not be possible to submit the files required for your homework assignments.

Students should be able to use email, a word processor, spreadsheet program, and presentation software to complete this course successfully.

The following list details a minimum recommended computer set-up and the software packages you will need to have access to, and be able to use:

- PC with Windows 10 or higher (we recommend a 3-year Warranty)
- Macintosh with OS 10.11 or higher (we recommend a 3-year Warranty)
- Intel Core i5 or higher
- 250 GB Hard Drive
- 8 GB RAM
- Latest version of Chrome or Firefox; Mac users may use Chrome or Firefox. (A complete list of supported browsers and operating systems can be found on the My Institution page when you log in to Blackboard.)



- High speed internet connection
- Word processing software (Microsoft Word, Google Docs, etc.)
- Headphones/earbuds and a microphone
- Webcam (recommended)
- Printer (optional)
- Ability to download and install free software applications and plug-ins (note: you must have administrator access to install applications and plug-ins).

### **Technical Assistance:**

If you need technical assistance at any time during the course or to report a problem with Blackboard you can:

- Phone: 631-632-9800 (client support, Wi-Fi, software and hardware)
- Submit a help request ticket: <https://it.stonybrook.edu/services/itsm>
- If you are on campus, visit the Walk-Up Tech Support Station in the Educational Communications Center (ECC) building.

## **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](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.