

PSY 322: Cognitive Aging
Fall 2017
Tuesdays, 1:30 p.m. – 3:50 p.m. Olin 309

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COURSE DESCRIPTION

Healthy aging is associated with changes in the efficiency of cognitive and neural processes. While particular processes decline (such as attention and memory), others improve (such as emotion regulation). In the current course, we will examine current theoretical accounts of cognitive aging with a primary focus on identifying and evaluating the strategies older adults implement to deal with age-related changes in cognition. Although the course will primarily look at healthy aging, it will also include an examination of age-related diseases (e.g., Alzheimer's disease), allowing for a discussion of the ways in which the effects of disease differ from those of healthy aging. Readings in the course will be composed of theoretical articles as well as empirical studies that rely on a variety of research methods including behavioral testing and functional neuroimaging.

REQUIRED READING MATERIAL

+++All reading assignments are available through the course's Moodle site (access code: CogAging)

ASSIGNMENTS

Attendance (20 points)

As a seminar, this class is founded on discussion among students and you cannot contribute if you do not show up to class. Not including the first day, there are 13 class meetings throughout the semester. Students attending 12 or more classes will receive 20 points towards their attendance grade. Students attending 10 or 11 classes will receive 10 points, and students attending less than 10 classes will receive 0 points. If there are extenuating circumstances that prevent you from coming to class, please let me know in advance or as soon as possible after the class you missed.

Weekly discussion questions/comments (80 points)

You must submit *one* question or comment about *each* of the assigned reading to me via email (thutcheo@bard.edu) by 8:00 a.m. the day of our class meeting. These questions/comments are intended to help you think more deeply about the articles and to help me to organize our class discussion. There will be 8 questions due over the course of the semester. Questions will be graded as 0, 5, or 10 points.

Figure/Table Presentation (30 points)

On the first day of class, you will be randomly assigned to present 3 figures/tables from the readings over the course of the semester. For those figures/tables, you will be the class expert and will be expected to explain all aspects of the figure/table as well as the importance of that figure/table to the paper. Presentations will be graded as 0, 5, or 10 points.

Article Presentation (25 Points)

For this assignment, you will work in pairs. During our October 31st class, students will select an article that we have read to that point of the semester as one they are interested in learning more about. Each pair will identify a recent article that cites the article we read as a class. Each pair will read, and present that new article to the rest of the class during our November 7th class meeting. More specific information on this assignment will be provided over the course of the semester.

Final Paper (100 points)

In this assignment, you will propose a novel experiment that is relevant to the topics covered in this course. This project will be broken down into five parts

- 1) An initial 1-paragraph proposal in which you describe your general research idea. This proposal should include a summary of at least one relevant article that has not been read as part of class (10 points).
- 2) A draft of your paper for which you will receive feedback. This is an ungraded assignment. The length is up to you. You will receive feedback on your draft by the next class period. Any drafts handed in after the deadline will not be read (0 points).
- 3) A data analysis plan which you outline your independent variables, dependent variables, and expected results. You will receive a template for this later in the semester. I will use this to generate data for you to analyze and report in your final paper (10 points).
- 4) A five-minute PowerPoint presentation presented to the class describing your rationale, methods, results, and conclusions (20 points).

5) Final paper written in APA style (8 to 12 pages). This should be written as if you had collected the data and include your data analysis (60 points).

Extra Credit (5 points)

Throughout the semester you will have the opportunity to earn a maximum of 5 points of Extra Credit. You can earn credit through attendance at the psychology colloquium series (2.5 points for each talk) or through participation in research going on in the psychology program (2.5 points per study).

GRADING BREAKDOWN

POINT ALLOCATION

Attendance	20
Weekly Discussion Questions (8 X 10 points)	80
Figure Table Presentation (3 X 10 points)	30
Article Presentation	25
<u>Final Report</u>	<u>100</u>
Total Points	255

GRADING SCALE

A = 100.0000% – 93.0000%
A- = 92.9999% – 90.0000%
B+ = 89.9999% – 87.0000%
B = 86.9999% – 83.0000%
B- = 82.9999% – 80.0000%
C+ = 79.9999% – 77.0000%
C = 76.9999% – 73.0000%
C- = 72.9999% – 70.0000%
D = 69.9999% – 60.0000%
F = 59.9999% or less

$$\text{FINAL GRADE} = ((\text{Total Points Earned} + \text{Extra Credit})/255) * 100$$

SUMMARY OF DUE DATES

Weekly Questions	See weekly schedule
Figure/Table Presentations	Will be assigned during first class meeting
Final Paper Proposal	October 31
Article Presentation	November 7
Final Paper Draft	November 21
Data Analysis Plan Due	November 28
Final Paper Presentations	December 12
Final Paper Due	December 19

COURSE SCHEDULE**September 5th: Welcome to cognitive aging!**

Readings: None

Assignments: None

September 12th: Inhibition failures

Readings:

Hasher, L., & Zacks, R. T. (1988). Working memory, comprehension, and aging: A review and a new view. In G. H. Bower (Ed.), *The psychology of learning and motivation* (pp 193-225). San Diego, CA: Academic Press.

Note: you can skip section III. B. (pp 204 – 208).

Gazzaley, Cooney, Rissman, & D'Esposito (2005). Top-down suppression deficit underlies working memory impairment in normal aging. *Nature Neuroscience*, 8, 1298-1300.

Campbell, K., Hasher, L., & Thomas, R. C. (2010). Hyper-binding: A unique age effect. *Psychological Science*, 21, 399-405.

Assignments:

Weekly Discussion Questions/Comments #1

September 19th: Limited resources

Readings

McDowd, J. M., & Craik, F. I. M. (1988). Effects of aging and task difficulty on divided attention performance. *Journal of Experimental Psychology: Human Perception and Performance*, *14*, 267-280.

Neider, M. B., Gaspar, J. G., McCarley, J. A., Kaczmarksi, H., & Kramer, A. F. (2011). Walking and talking: Dual-task effects on street crossing behavior in older adults. *Psychology and Aging*, *26*, 260-268.

Ragland, D. R., Satarino, W. A., & MacLeod, K. E. (2005). Driving cessation and increased depressive symptoms. *Journal of Gerontology: Medical Sciences*, *60*, 399-403.

Assignments

Weekly Discussion Questions/Comments #2

September 26th: Forgetting to remember

Readings

Einstein, G. O., McDaniel, M. A., Richardson, S. L., Guynn, M. J., & Cunfer, A. R. (1995). Aging and prospective memory: Examining the influences of self-initiated retrieval processes. *Journal of Experimental Psychology: Learning, Memory, and Cognition*, *21*, 996-1007.

Einstein, G. O., McDaniel, M. A., Manzi, M., Cochran, B., & Baker, M. (2000). Prospective memory and aging: Forgetting intentions over short delays. *Psychology and Aging*, *15*, 671-683.

Insel, K. C., Einstein, G. A., Morrow, D. G., Koerner, K. M., & Hepworth, J. T. (2016). Multifaceted prospective memory intervention to improve medication adherence. *Journal of the American Geriatrics Society*, *64*, 561-568.

Assignments

Weekly Discussion Questions/Comments #3

October 3rd: A wandering mind

Readings

- Jackson, J. D. & Balota, D. A. (2012). Mind-wandering in younger and older adults: Converging evidence from the sustained attention to response task and reading for comprehension. *Psychology and Aging, 27*, 106-119.
- Frank, D. J., Nara, B, Zavagnin, M., Touron, D. R., & Kane, M. J. (2015). Validating older adults' reports of less mind-wandering: An examination of eye movement and dispositional influences. *Psychology and Aging, 30*, 266-278.
- Jordano, M. L., & Touron, D. R. (2017). Stereotype threat as a trigger of mind-wandering in older adults. *Psychology and Aging, 32*, 307-313.

Assignments

Weekly Discussion Questions/Comments #4

October 17th: Outsourcing of cognition to the environment

Readings

- Spieler, D. H., Mayr, U., & La Grone, S. (2006). Outsourcing of cognitive control to the environment: Adult age differences in the use of task cues. *Psychonomic Bulletin & Review, 13*, 787-793.
- Mayr, U., Spieler, D. H., & Hutcheon, T. G (2015). When and why do older adults outsource control to the environment? *Psychology and Aging, 30*, 624-633.
- Rodin, J., & Langer, E. J. (1977). Long-term effects of a control-relevant intervention with the institutionalized aged. *Journal of Personality and Social Psychology, 35*, 897-902.

Assignments

Weekly Discussion Questions/Comments #5

October 24th: Changes in emotion regulation and social relationships

Readings

- Carstensen, L. L., Isaacowitz, D. M., & Charles, S. T. (1999). Taking time seriously: A theory of socioemotional selectivity. *American Psychologist*, *54*, 165-181.
- Lang, F. R., & Carstensen, L. L. (1994). Close emotional relationships in late life: Further support for proactive aging in the social domain. *Psychology and Aging*, *9*, 315-324.

Assignments

Weekly Discussion Questions/Comments #6

October 31st: Changes in emotion regulation and cognition

Readings

- Fung, H. H. & Carstensen, L. L. (2003). Sending memorable messages to the old: Age differences in preferences and memory for advertisements. *Journal of Personality and Social Psychology*, *85*, 163-178.
- Mather, M., & Carstensen, L. L. (2003). Aging and attentional biases for emotional faces. *Psychological Science*, *14*, 409-415.
- Sasse, L. K., Gamer, M., Büchel, C., & Brassens, S. (2014). Selective control of attention supports the positivity effect in aging. *PLOS ONE*, *9*, e104180.

Assignments

Final Paper Proposal Due

Come to class with an idea the article you would like to present on next week.

November 7th: Student presentations*Readings*

None

Assignments

Your group should be prepared to present on the article you were assigned (October 31st).

November 14th: The aging brain*Readings*

Resnick, S. M., Pham, D. L., Kraut, M. A., Zonderman, A. B., Davatzikos, C. (2003). Longitudinal magnetic resonance imaging studies of older adults: A shrinking brain. *The Journal of Neuroscience*, *23*, 3295-3301.

Cabeza, R., Anderson, N. D., Locantore, J., & McIntosh, A. (2002). Aging gracefully: Compensatory brain activity in high-performing older adults. *Neuroimage*, *17*, 1394-1402.

Davis, S. W., Dennis, N. A., Daselaar, S. M., Fleck, M. S., & Cabeza, R. (2008). Que PASA? The posterior-anterior shift in aging. *Cerebral Cortex*, *18*, 1201-1209.

Assignments

Weekly Discussion Questions/Comments #7

November 21st: Cognitive reserve and terminal decline*Readings*

Stern, Y. (2002). What is cognitive reserve? Theory and research application of the reserve concept. *Journal of the International Neuropsychological Society*, *8*, 448-460.

Wilson, R. S., Beckett, L. A., Bienias, J. L., Evans, D. A., & Bennett, D. A. (2003). Terminal decline in cognitive function. *Neurology*, *60*, 1782-1787.

Assignments

Final Paper Draft

November 28th: Training the aging brain*Readings*

Erickson, K. I., Voss, M., Prakash, R. S., Basak, C., Szabo, A., Chaddock, L.,...& Kramer, A. F. (2011). Exercise training increases the size of the hippocampus and improves memory. *Proceedings of the National Academy of Sciences, 108*, 3017-3022.

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

Park, D. C., Lodi-Smith, J., Drew, L., Haber, S., Hebrank, A., Bischof, G. N., & Aamodt, W. (2014). The impact of sustained engagement on cognitive function in older adults. *Psychological Science, 25*, 103-112.

Makin, S. (2017, April 21). Fountain of youth? Young blood infusions “rejuvenate” old mice. *Scientific American*. Retrieved from: <http://www.scientificamerican.com>

Assignments

Data analysis plan due.

December 5th: Alzheimer's disease*Readings*

- Balota, D. A., Tse, C.-S., Hutchison, K. A., Spieler, D. H., Duchek, J. M., & Morris, J. C. (2010). Predicting conversion to dementia of the Alzheimer's type in a healthy control sample: The power of errors in Stroop color naming. *Psychology and Aging, 25*, 208-218.
- Rolland, Y., Pillard, F., Klapouszczak, A., Reynish, E., Thomas, D., Andrieu, S., Riverère, D., & Vellas, B. (2007). Exercise program for nursing home residents with Alzheimer's disease: A 1-year randomized controlled trial. *Journal of the American Geriatrics Society, 55*, 158-165.
- Rabey, J. M., Dobronevsky, E., Aichenbaum, S., Gonen, O., Gendelman, R., & Khaigrekht, M. (2013). Repetitive transcranial magnetic stimulation combined with cognitive training is a safe and effective modality for the treatment of Alzheimer's disease: A randomized, double-blind study. *Journal of Neural Transmission, 120*, 813-819.

Assignments

Weekly Discussion Questions/Comments #8.

December 12th: Final paper presentations*Readings:*

- Kolata, G. (2014, October 11). Breakthrough replicates human brain cells for use in Alzheimer's research. *The New York Times*. Retrieved from <http://www.nytimes.com>

Assignments:

Final Paper Presentations

December 19th: Completion days - no class*Assignments:*

Final Paper Due.