COGNITIVE NEUROSCIENCE OF AGING FALL 2019

Course: PSB 4934; Class 21789; Section 17G9
Credits: 3
Room: Weil 0279
Tues 4:05 – 4:55 PM, Thurs 4:05 – 6:00 PM

INSTRUCTOR
Jared Tanner, PhD
Office: DG-86 (Shands)
Office Hours: Thursdays 1 – 3 or by appointment (preferred)
Email: jjtanner@phhp.ufl.edu
Phone: 352-273-5928

COURSE INFORMATION

COURSE WEBSITE: http://elearning.ufl.edu. This website is updated frequently. You will find class announcements, a current copy of the syllabus, links to the assigned readings, a copy of the lecture slides, weekly quizzes, and all assignments. All assignments will be entered online or uploaded.

COURSE COMMUNICATIONS: Messages through Canvas are preferred but direct email is also acceptable.

REQUIRED OR RECOMMENDED TEXTBOOKS: There is no required textbook for this course. Readings are strongly encouraged each week of the course and will be provided on the course website.

COURSE DESCRIPTION

This course is designed to provide you with an overview of age-related changes in brain structure and function and the link between these changes and neurocognition in the elderly. Both normal and pathological aging will be considered. Course content will focus on the latest research in human behavioral and cognitive neuroscience, cognitive aging, and neuropsychology. Animal models of aging are not typically covered. The course will highlight the importance of integrating information and methodologies from various disciplines (e.g., cognitive experimental designs, epidemiologic studies, neuroimaging, and clinical neuropsychological approaches) to tackle the challenges of performing research in the behavioral neuroscience of human aging.

PREREQUISITE KNOWLEDGE AND SKILLS: A background in psychology is helpful but not required. Interest in applied education or careers (e.g., healthcare field, clinical psychology, etc.) can also be
helpful but isn’t required. The course is designed to be accessible to a broad set of students who are interested in the aging brain and cognition.

**COURSE GOALS AND/OR OBJECTIVES**

By the end of the semester, you should have an understanding of:

1. The brain changes that occur in “normal” aging
2. Specific brain changes that are associated with pathological conditions, such as dementing disorders and other psychological conditions
3. The impact of neural changes on cognition in the elderly
4. Methods for studying brain structure, brain function, and cognition in older adults
5. Modifiers of cognitive and brain aging

You will also gain experience in critically thinking about and analysis of original research articles and gain experience in public presentation of research. A major purpose of the course is to build skills in understanding scientific literature and demonstrating information comprehension through writing. Each assignment was carefully selected to mirror activities done in graduate or medical school and/or help prepare students for graduate or medical school.

**INSTRUCTIONAL METHODS:** Each class period will comprise of a mixture of lecture, video, discussion, and presentations. Questions and comments are encouraged.

**COURSE POLICIES**

**ATTENDANCE POLICY:** Attendance is strongly recommended. Lectures and discussions reinforce material in the reading and add many new concepts, ideas, and interpretations that will optimize your learning in the course. Students attending class are expected to arrive on time. Please be considerate of your fellow classmates by turning off cell phone ringers during class. Requirements for class attendance and make-up quizzes, assignments, and other work in this course are consistent with university policies that can be found at: https://catalog.ufl.edu/ugrad/current/regulations/info/attendance.aspx

**QUIZ POLICIES:** Quizzes are taken on Canvas. Students may use notes, the internet, and other sources except for other students.

**MAKE-UP POLICY:** There are no make-up quizzes except in extenuating circumstances through arrangement with the instructor.

**ASSIGNMENT POLICY:** The policy for assignments is discussed more in-depth in the grading policies section. The grade for late assignments is reduced by 5% each day.
COURSE TECHNOLOGY: Lecture slides and readings are posted on Canvas. All quizzes and submissions are through Canvas. If you require technical assistance, refer to the following sources for help (or contact your instructor)

- http://helpdesk.ufl.edu
- (352) 392-HELP - select option 2

ONLINE COURSE EVALUATION: Students are expected to provide professional and respectful feedback on the quality of instruction in this course by completing course evaluations online via GatorEvals. Guidance on how to give feedback in a professional and respectful manner is available at https://gatorevals.aa.ufl.edu/students/. Students will be notified when the evaluation period opens, and can complete evaluations through the email they receive from GatorEvals, in their Canvas course menu under GatorEvals, or via https://ufl.bluera.com/ufl/. Summaries of course evaluation results are available to students at https://gatorevals.aa.ufl.edu/public-results/.

UF POLICIES

UNIVERSITY POLICY ON ACCOMMODATING STUDENTS WITH DISABILITIES: Students with disabilities requesting accommodations should first register with the Disability Resource Center (352-392-8565, www.dso.ufl.edu/drc) by providing appropriate documentation. Once registered, students will receive an accommodation letter which must be presented to the instructor when requesting accommodation. Students with disabilities should follow this procedure as early as possible in the semester.

UNIVERSITY POLICY ON ACADEMIC CONDUCT: UF students are bound by The Honor Pledge which states, “We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honesty and integrity by abiding by the Honor Code. On all work submitted for credit by students at the University of Florida, the following pledge is either required or implied: "On my honor, I have neither given nor received unauthorized aid in doing this assignment." The Honor Code (http://www.dso.ufl.edu/scr/process/student-conduct-honor-code/) specifies a number of behaviors that are in violation of this code and the possible sanctions. Furthermore, you are obligated to report any condition that facilitates academic misconduct to appropriate personnel. If you have any questions or concerns, please consult with the instructor or TAs in this class.

CLASS DEMEANOR OR NETIQUETTE: All members of the class are expected to follow rules of common courtesy in all email messages, threaded discussions and chats. You are expected to interact respectfully and courteously with other students and the instructor. Course communication should be civilized and respectful to everyone. The means of communication provided to you through eLearning
(e-mail, discussion posts, course questions, and chats) are at your full disposal to use in a respectful manner.

Abuse of this system and its tools through disruptive conduct, harassment, or overall disruption of course activity will not be tolerated. Conduct that is deemed to be in violation with University rules and regulations or the Code of Student Conduct will result in a report to the dean of students.

Refer to the Netiquette Guide for Online Courses for more information.

GETTING HELP

For issues with technical difficulties for Canvas, please contact the UF Help Desk at:

- http://helpdesk.ufl.edu
- (352) 392-HELP (4357)
- Walk-in: HUB 132

Any requests for make-ups due to technical issues MUST be accompanied by the ticket number received from the Help Desk when the problem was reported to them. The ticket number will document the time and date of the problem. You MUST e-mail your instructor within 24 hours of the technical difficulty if you wish to request a make-up.

Other resources are available at http://www.distance.ufl.edu/getting-help for:

- Counseling and Wellness resources
- Disability resources
- Resources for handling student concerns and complaints
- Library Help Desk support

(Required) Should you have any complaints with your experience in this course please visit http://www.distance.ufl.edu/student-complaints to submit a complaint.

GRADING POLICIES

METHODS BY WHICH STUDENTS WILL BE EVALUATED AND THEIR GRADE DETERMINED

Weekly quizzes, research article critiques, in-class presentation of research article, research paper (final)
ASSIGNMENTS AND QUIZZES

Weekly Quizzes: You will be given a quiz that will cover the material from the week. You will need to log onto the course website to take the quiz in Canvas/e-learning. Each quiz will be available for 4 days following the first class each week (Wednesday through Saturday). Content will mostly focus on the lecture and readings, but on some weeks might also require you to look for or use online resources related to the topic. Quizzes will consist of 5 short answer, multiple choice, fill in the blank, and/or true/false questions. Each quiz will be worth 5 points. Each quiz is active for only 15 minutes but should take less time. Contact the instructor if you have any technical difficulties or need time accommodations. The quizzes together comprise 25% of your grade.

Research Article Critiques: During the semester, you will turn in two critiques (2 pages) of research articles that are related to the weekly lectures. At the bottom of the syllabus, you will find research articles related to the topic on each day of class. You will choose two different lecture dates and select one article out of the options to critique. Students are required to provide a summary of the research (not just a copy of the abstract) and list at least two strengths and two weaknesses of the chosen article with rationale supporting your criticisms. While the authors might list strengths and weaknesses, it is encouraged that you think of ones they did not mention. Students who demonstrate little critical thinking do not receive full marks. Students are not penalized for incorrect conclusions. You will submit the critique on the course website. The first critique will be due by midnight, October 3rd and the second critique will be due by midnight, November 7th. Each critique is worth 45 points and is worth 12.5% of your grade.

In-class Presentation of Research Article: During the semester students will be required to present a research article to the class. This can be one of the articles you choose for your critiques. It will be presented on the Thursday of the week we cover the topic. Your presentation should be 8-10 minutes and cover each of the major sections of the paper. Grading will be based on a published rubric available on the course website. These presentations will start with the 3rd week. No more than three presentations may be done on any date. This presentation is worth 45 points and scaled to equal 15% of your grade.

Research Paper (Final): Each student is required to write a critical review paper that focuses on a topic related to the course (e.g., neuroimaging studies of memory in older adults, brain changes in older patients with depression, post-mortem studies of Alzheimer’s disease). The topic can be of your choosing, but I must approve it no later than the end of day on Tuesday, October 29th. I would encourage you to begin thinking about potential topics early so that you will have time to revise the topic as needed by the deadline. This paper will serve as your final and will be due on Monday, December 3rd at midnight. Grading factors in quality of writing as well as content. The review paper
should be at least five pages (1500+ words) but more might be required to cover the topic in sufficient detail. It should be no more than 3000 words. More detailed instructions and the grading rubric are provided on the course website. The research paper is worth 100 points and scaled to be worth 35% of your grade. If you receive 79 or below and contact the instructor within 24 hours of receiving your grade, you will be given an option to revise your paper and potentially receive a B-.

Extra Credit: You can earn 5 extra credit points, which will be added to the grade for your final research paper. Attend a research presentation on campus or elsewhere that focuses on cognitive or brain aging. Write no more than a 1-page (double-spaced) summary of the presentation. Briefly describe the research question, the method that was used, and the results. Explain why the topic of the presentation is important for understanding the cognitive neuroscience of aging. The summary must include the title of the presentation, name of the presenter, name of the seminar series (e.g., UF Neurology Grand Rounds), and date of the presentation. A few seminar series on campus that may include relevant presentations can be accessed at the following websites:

- Neurology conference schedule: [http://neurology.ufl.edu/education/residency-program/conferences/](http://neurology.ufl.edu/education/residency-program/conferences/)
- Neuroscience conference schedule: [http://neuroscience.ufl.edu/education/seminar-schedules/](http://neuroscience.ufl.edu/education/seminar-schedules/)
- UF Health Science Center calendar: [http://www.health.ufl.edu/calendar.shtml](http://www.health.ufl.edu/calendar.shtml)
- Institute on Aging seminars: [http://aging.ufl.edu/all-seminars/](http://aging.ufl.edu/all-seminars/)

You may also watch an archived lecture video provided on the NIH website if the lecture is related to aging and the brain or aging and cognition. Videos can be accessed at [https://www.youtube.com/user/nihvcast/videos](https://www.youtube.com/user/nihvcast/videos)

If you’re not sure that a presentation will count towards extra credit, it is recommended that you get approval before attending and writing your summary.

### Grading Scale

Grading will be determined as follows: 25% Quizzes, 25% Article critiques, 15% Article Presentation, 35% Research paper.

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<thead>
<tr>
<th>Grade</th>
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<th>Grade</th>
<th>Percent Range</th>
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<tbody>
<tr>
<td>A</td>
<td>93-100%</td>
<td>C</td>
<td>73-76%</td>
</tr>
<tr>
<td>A-</td>
<td>90-92%</td>
<td>C-</td>
<td>70-72%</td>
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Late and Make-up Work: Late work will be penalized 5% per late day unless 1) arrangements are made with me prior to the due date, or 2) there is a documented emergency. Be prepared to provide documentation of any emergencies that may arise (e.g., a doctor’s note if you are out sick, a police report if you have a car accident). This policy will be strictly enforced.

COURSE SCHEDULE

CRITICAL DATES:

October 3 – Critique 1 due

October 29 – Deadline for approval of research paper topic

November 7 – Critique 2 due

December 3 – Research paper due by midnight

WEEKLY SCHEDULE OF TOPICS AND ASSIGNMENTS

Providing a Context

August 20 and 22: Class overview and introduction; neuroanatomy review


Access: https://books.google.com/books?id=AaegBgAAQBAJ&lpg=PA15&pg=PA15#v=onepage&q&f=fa lse

August 27 and 30: Neuroimaging methods in the cognitive neuroscience of aging


Cognitive and Brain Changes in “Normal” Aging and Dementia

September 3 and 5: Structural and functional changes in the aging brain

September 10 and 12: Functional consequences of cognitive and brain aging

September 17 and 19: Cognitive correlates of “normal” brain aging

September 24 and 26: Neuropathology of aging, dementia, and neurodegenerative disorders

October 1 and 3: Cognitive profiles in Mild Cognitive Impairment, Alzheimer’s disease, and other neurodegenerative disorders

Modifiers of Cognitive and Brain Aging

October 8 and 10: Vascular Disease

October 15 and 17: Pain and the Aging Brain

October 22 and 24: Depression and emotional aging

October 29 and 31: Exercise and cognitive training

November 5 and 7: Sleep and the Aging Brain


November 12 and 14: Cognitive/brain reserve


November 19 and 21: Medical interventions and cognition in the aging population


November 26 and 28: Thanksgiving – NO CLASS

December 3: Dementia Case Examples

No required reading

OPTIONS FOR ARTICLE CRITIQUES

STRUCTURAL AND FUNCTIONAL CHANGES IN THE AGING BRAIN


**FUNCTIONAL CONSEQUENCES OF COGNITIVE AND BRAIN AGING**


**COGNITIVE CORRELATES OF “NORMAL” BRAIN AGING**


**NEUROPATHOLOGY OF DEMENTIA**


**COGNITIVE PROFILES IN MILD COGNITIVE IMPAIRMENT, ALZHEIMER’S DISEASE, AND OTHER DEMENTIAS**


**VASCULAR DISEASE**


**PAIN AND THE AGING BRAIN**
Articles to be determined

**DEPRESSION AND EMOTIONAL AGING**


**EXERCISE AND COGNITIVE TRAINING**


**SLEEP AND THE AGING BRAIN**

Articles to be determined

**COGNITIVE/BRAIN RESERVE**


**MEDICAL INTERVENTIONS AND COGNITION IN THE AGING POPULATION**


**DISCLAIMER**

This syllabus represents my current plans and objectives. As we go through the semester, those plans may need to change to enhance the class learning opportunity. Such changes, communicated clearly, are not unusual and should be expected.

Last update: August 12, 2019