

Wesleyan Universal Syllabus 2024

Instructor Information

Name: Prof. Dr. Clarissa F. Cavarsan Muller

Office Location: Shanklin, 3rd floor, room 306

Office Hours Office: Monday to Friday: 11 am to 1 pm

Telephone (401)318-4632

Email cfantincavar@wesleyan.edu

Course Information

NS&B302 Neurobiology of Aging

Prerequisites: NS&B213 OR BIOL213 OR PSYC240

Course Description and Purpose

The "Neurobiology of Aging" course is designed to explore the intricate relationship between the aging process and the nervous system. As our population ages, understanding the underlying neurobiology of aging becomes increasingly important. This course delves into the physiological, cellular, and molecular aspects of how the nervous system changes over time and the impact of these changes on cognition, behavior, and overall well-being.

This course will introduce the student to studying aging (gerontology) and the effects of normal aging and pathological aging on the nervous system. We will discuss general concepts of aging, and biochemical, physiological, and behavioral age-associated changes in the motor, sensory, cognitive, and neuroendocrine systems. By the end of the course, the student should clearly understand what aging is and its effects on normal brain function. In class, I will introduce the topic with slides presentation and after that, we will discuss the topic based on the scientific article discussion. After the classes, students will have extensive opportunities for feedback and will be requested to write a project for the last, oral presentation of the project in the class. Student evaluation will include final exam, oral presentation regarding a scientific article and class participation/attendance.

Learning Objectives

By the end of this course, students will:

1. Gain a Comprehensive Understanding: Develop a comprehensive understanding of the neurobiological processes associated with aging, including neurodegenerative diseases.
2. Explore Structural Changes: Examine structural changes in the aging brain, such as alterations in neuron density, synapse formation, and brain volume.
3. Analyze Functional Changes: Analyze functional changes in the aging nervous system, including changes in memory, cognition, sensory perception, and motor function.
4. Study Neurodegenerative Diseases: Investigate common neurodegenerative diseases associated with aging, such as Alzheimer's disease, Parkinson's disease, and age-related macular degeneration.

5. Explore Cellular and Molecular Mechanisms: Explore the cellular and molecular mechanisms underlying age-related changes in the nervous system, including oxidative stress, inflammation, and genetic factors.
6. Examine Potential Interventions: Review potential interventions and strategies to promote healthy aging and delay or mitigate age-related neurobiological changes.

Textbooks and Materials

Cognitive Aging and Brain Health

Advances in Experimental Medicine and Biology, Zhanjun Zhang Editor. Springer Singapore.

978-981-99-1627-6 Published: 07 July 2023

<https://doi.org/10.1007/978-981-99-1627-6>

Handbook of Mental Health and Aging

Authors: Jeste, Dilip V; Van Patten, Ryan; Lee, Ellen E

ISBN: 978-0-12-800136-3

<https://doi.org/10.1016/b978-0-12-800136-3.00013-2>

Additional Supportive Text: When necessary, additional reference material containing supportive information and discussions relevant to topics covered in class will be made available on Moodle, Perusall, or as an in-class handout.

Classroom Behavior and Expectations

I want students to learn and receive the good grades they deserve for their hard work through full participation in this class. Please take the opportunity to clarify and discuss course material and assignments during my office hours or make an appointment. Office hours are not opportunities to obtain information missed during absences from class. Cell phones must be turned off at the beginning of class. Class attendance is mandatory unless other arrangements have been made, including online class discussions.

Participation

Come to class on time and use the bathroom before coming to class, so that the class discussions are not interrupted by students coming and going. Turn in homework on time and arrive at exams early or at least on time. Seek extra help when needed by making use of my office hours. Be respectful, attentive, and engaged in class. Learn both the conceptual aspects of neuroscience (theories, big questions) and concrete terms, definitions, and specific examples in the assigned readings and make an effort to solve and understand the problem sets.

Expectations from me

Start and end class on time and reply to e-mails within 24 hours on weekdays and 48 hours on weekends. Assign homework that adequately covers the material and meets the learning objectives of the course while adhering to the time expectations for a 1-credit course.

Grading

A+ >96.60%, **A** > 93.30% **A-** > 90.00%
B+ > 86.60%, **B** > 84.30% **B-** > 80.00%
C+ > 76.60% **C** > 73.30% **C-** > 70.00%
D+ > 66.60% **D** > 63.30% **D-** > 60.00%
E+ > 56.60% **E** > 53.30% **E-** > 50.00%
F <50.00%

Summary of Evaluation:

1 Exams (final)	500 pts
1 Assessment	225 pts
1 Oral Presentation	225 pts
Participation/Attendance	50pts (class participation x %attendance)
Total	1000pts total

Exams

Students are going to go for a final exam. At the end of the course, students will be evaluated about the concepts covered in the course. Final exam is worth 500 points. Exam will be composed of multiple-choice questions and open questions.

Oral presentation

Additionally, students are required to go through an oral presentation day. In the class, students will make a short oral presentation, as desired (slide, podcast, video) and we will discuss the article. The students should show basic concepts about the aging of the Nervous System they have learned in the course. The presentation contribute to student class participation grade. Students are allowed to discuss their ideas with peers and are encouraged to look for scientific-related material to enrich the discussion.

- Students must be prepared to share the outline of the papers in the class discussion. I encourage them to bring me drafts before final submission to check you are on track.

Oral presentations are not going to be graded as “no show”, alternatives can be Zoom presentations, videos, or anything else recorded to be shown.

The dates for the quizzes are specified in the table below.

Participation and class attendance

Your participation is important for learning in this course. You will be evaluated on regular attendance (sign-in is required) and the quality of your contributions (participation).

Course Calendar

Class	Topic	Content - Lecture
1	Introduction to the course	Get to know

	The definition of cognitive decline and how it is associated with aging. <i>Cognitive Aging and Brain Health, chapter 1 and 2</i>	The Definition of Aging.
2		Cognitive Decline Associated with Aging
	<i>Cognitive Aging and Brain Health, chapter 3 and 4</i>	Cognitive Decline Associated with Aging
3	<i>Cognitive Aging and Brain Health, chapter 5 and 6</i>	Sociological Studies of Cognitive Aging
	The brain and biological mechanisms of aging patterns <i>Cognitive Aging and Brain Health, chapter 7 and 8</i>	The Aging Patterns of Brain Structure, Function, and Energy Metabolism
4	<i>Cognitive Aging and Brain Health, chapter 10</i>	Neurobiological Mechanisms of Cognitive Decline Correlated with Brain Aging.
	<i>Handbook of Mental Health and Aging, chapter 4</i>	Stress, mental health, and aging
5	<i>Handbook of Mental Health and Aging, chapter 6</i>	Sleep-dependent cellular chemical changes in the aging brain
	<i>Handbook of Mental Health and Aging, chapter 8 and 10</i>	Accelerated brain molecular aging in depression
	<i>Handbook of Mental Health and Aging, chapter 21</i>	Functional assessment in geriatric mental health
6	Disorders in aging <i>Handbook of Mental Health and Aging, chapter 9</i>	Cognitive dysfunction in late life psychiatric disorders: phenotypes, risk factors, and treatment targets
	<i>Handbook of Mental Health and Aging, chapter 14</i>	Alzheimer's disease and other neurocognitive disorders
7	<i>Handbook of Mental Health and Aging, chapter 19</i>	Neuropsychology with older adults
	<i>Handbook of Mental Health and Aging, chapter 23</i>	Psychopharmacologic treatment
8	<i>Handbook of Mental Health and Aging, chapter 16</i>	Sleep disorders and aging
	Clinical Studies of Abnormal Aging <i>Cognitive Aging and Brain Health, chapter 11</i>	The Early Stage of Abnormal Aging: Cognitive Impairment
	<i>Cognitive Aging and Brain Health, chapter 12</i>	The Late Stage of Abnormal Aging: Dementia
9/10	Oral presentation / Take home Final exam	

Syllabus Blurb

Working on your writing? Don't go it alone! Instead, make a free one-on-one appointment with peer writing tutors at the Writing Workshop. Trained to help Wesleyan writers at any stage of the writing process, writing tutors are available for online appointments, Sunday - Friday at a range of times. Let us help you get your ideas out of your head and onto paper!

Make an appointment by going to Wesportal→ Academics→ Writing Workshop Account. You'll be asked to make an account before being brought to our online scheduler.

Want semester long support? Apply for a writing mentor who will work with you for an hour every week. Focus on specific writing tasks like organization and time management with the help of a trained peer all while earning a .25 credit!

Time Commitment

While the exact time commitment for the class will vary individually and over the course of the semester, I recommend that you budget approximately three out-of-class hours for every class hour to complete the reading, assignments, homework, and project. I have designed the class so that it should be feasible to satisfactorily complete the requirements with approximately twelve hours per week of time commitment. If you are spending more time than this on a regular basis, I encourage you to check in with me.

Accommodation Statement

Wesleyan University is committed to ensuring that all qualified students with disabilities are afforded an equal opportunity to participate in, and benefit from, its programs and services. Since accommodation may require early planning and generally are not provided retroactively, please contact Accessibility Services as soon as possible.

If you have a disability, or think that you might have a disability, please contact [Accessibility Services](#) in order to arrange an appointment to discuss your needs and the process for requesting accommodations. Accessibility Services is located in North College, rooms 021/022, or can be reached by email (accessibility@wesleyan.edu) or phone (860-685-5581).

Religious/Spiritual Observance Resources

If you anticipate that your religious/spiritual observance may conflict with academic obligations such as attending class, taking examinations, or submitting assignments, you can work directly with your professor to make reasonable arrangements. Should you require additional support or guidance, please feel free to reach out to Rabbi David Teva, Director of the Office of Religious and Spiritual Life at dleipzig@wesleyan.edu or any of the chaplains in the Office of Religious and Spiritual Life at <https://www.wesleyan.edu/orsl/index.html>.

For a list of religious holidays celebrated by members of the Wesleyan community, go to Wesleyan's Multifaith calendar which can be found at: <https://www.wesleyan.edu/orsl/multifaith-calendar.html>.

Title IX Resources

If gender-based and/or sexual violence related trauma inhibits your ability to fully participate in class, please contact Debbie Colucci, Title IX Coordinator, at dcolucci@wesleyan.edu, or your

class dean. Additionally, and if you are comfortable, you can work directly with your professor to make reasonable arrangements. You may also choose to talk with a confidential resource about all of your options for care and support. Confidential resources can be found the Office of Counseling and Psychological Services (CAPS), WesWell, and the Office for Religious and Spiritual Life.

Classroom Behavior

Students and faculty each have responsibility for maintaining an appropriate learning environment. Those who fail to adhere to such behavioral standards may be subject to discipline. Professional courtesy and sensitivity are especially important with respect to individuals and topics dealing with differences of race, color, culture, religion, creed, politics, veteran's status, sexual orientation, gender, gender identity, gender expression, age, ability, and nationality. Class rosters are provided to the instructor with the student's legal name. I will gladly honor your request to address you by an alternate name or gender pronoun. Please advise me of this preference early in the semester so that I may make appropriate changes to my records. For more information, see the policies on [the student code](#).

Discrimination and Harassment

Wesleyan University is committed to maintaining a positive learning, working, and living environment and does not tolerate identity-based [discriminatory harassment](#) and/or [sexual misconduct](#) against students, faculty, staff, trustees, volunteers, and employees of any university contractors/agents. For purposes of this Wesleyan policy, identity refers to one's race, color, religion, national or ethnic origin, age, disability, veteran status, sexual orientation, gender, gender identity, and gender expression. The Office for Equity and Inclusion serves students, faculty, administrators and develops policies and procedures regarding issues of diversity and equal opportunity/affirmative action. Individuals who believe they have been discriminated against should contact the [Office for Equity and Inclusion](#) at 860-685-4771.

Honor Code

All Wesleyan students are responsible for knowing and upholding [the Honor Code](#). Feel free to contact me about any questions related to course expectations. If you have a question related specifically to the honor code, please contact Assistant Dean of Student/Director of Community Standards Kevin Butler - (kbutler@wesleyan.edu).

Health Accommodations:

If you feel ill, please stay home and test for covid. If positive, isolate per the Wesleyan Covid Policies. If you have very mild symptoms (and are covid-negative) or are healthy but are concerned that you may have been exposed to someone who was ill, please consider wearing a mask until your symptoms have resolved. Students who are unable to come to class due to illness are expected to connect with classmates to find out what they have missed and contact me to schedule make up work if necessary. See the university's current covid-19 policies [here](#).

During this course, in case of sickness, the student can consider participating in the class, and we can manage to open a Zoom meeting during the class. Remote attendance is allowed in case the student is not able to come to class due to illness.

Athletic Accommodations:

I will do my best to accommodate schedule disruptions for students who must be away from class due to their athletic schedule. Student athletes must make both their professors and coaches aware of conflicts from the beginning of the semester both verbally and in writing. In order to make accommodation possible, they must provide updates (i.e., playoffs) as soon as possible.

On Names and Naming:

It is important that we call each other by our names, by who we are, and whom we know ourselves to be in the world. In class and in communications, I prefer to be addressed by Dr. Clarissa or Professor Clarissa (she, her, hers). I ask that everyone in the class abide by each other's wishes for how they'd like to be addressed and known.

Content Warning Language

I acknowledge that each of you comes to Wesleyan with your own unique life experiences. This contributes to the way you perceive various types of information. In NS&B 344 Developmental Neurobiology, all of the class content, including that which may be intellectually or emotionally challenging, has been intentionally curated to achieve the learning goals for this course. The decision to include such material is not taken lightly. I encourage you to take care of yourself and utilize the resources available to you on campus. If the content of this class becomes distressing, please contact me (860) 685-3461, cfantincavar@wesleyan.edu, so that we can find solutions together. If you ever feel the need to step outside during one of these discussions, you may always do so.

Wellness Statement

Students may experience stressors that can impact both their academic experience and their well-being. These stressors may include academic pressures, sleep problems, relationship and social concerns, and challenges associated with adjusting to school, mental health, alcohol or other drugs, identities, finances, life events or something not listed here. If you or a friend are experiencing concerns, remember that we all benefit from assistance and guidance at times. Reach out to [CAPS](#), [WesWell](#), and visit the [Resource Room](#) to support your mental health and well-being.

AI Statement

Use of AI tools (ChatGPT or other similar) is allowed in this class for specific assignments only. When use of the tool is allowed, it will be explicitly noted in the assignment directions. If you utilize an AI tool for any part of the assignment (from idea generation to text creation to text editing), you must properly cite the tool. See [MLA](#) and [APA](#) for AI citation guidance. Failure to cite AI tools used is considered a violation of the plagiarism standard of Wesleyan's Honor Code.