NEURO 305: Alzheimer's Disease and Other Dementias
Spring 2026

Syllabus

Classes meet on Wednesday and Fridays, 1:00pm – 2:15pm in SCCT-3021
Professor: Lok-Kin Yeung
Email: lyeung@hamilton.edu
Office Hours: Tuesdays 11am – noon, 1pm – 2pm, and Wednesdays, 10-11am, 3-4pm (Taylor Science Center, room 3058) or by appointment (via email)

Feel free to email me if you have any questions related to the class or neuroscience in general. I will do my best to respond to email in a timely fashion during working hours (Monday - Friday, 9am – 5 pm, excluding holidays); note that I may not necessarily see your email until the next working day if you contact me in the evenings or over the weekend. Please include "Neuro 305" in the subject line if your email is about this class.

Course Details

Course Materials

There is no required textbook for this class. We will be reading extensively from the primary scientific literature, supplemented by videos available through the Hamilton Libraries. All course readings will be available both via Blackboard and Perusall.

Course Description

This course provides a broad survey into current research on dementias, with a particular focus on Alzheimer's disease. It is structured in the style of a graduate seminar: each class section will come with a set of readings on a particular topic (which you are expected to complete before class), and students will present and lead the discussion for one reading during that class. Dementia involves progressive loss of cognitive functions, associated with unique patterns of neurodegeneration in the brain. For example, Alzheimer's disease is associated with memory loss and temporal lobe atrophy, whereas frontotemporal dementia is characterized by behavioral changes associated with frontal lobe atrophy. This course will discuss the different etiologies of dementia, the biological changes associated with different subtypes, risk factors (behavioral, genetic, etc.), neuropsychological and imaging-based methods for diagnosis, current treatment options, and the emotional, social, and economic costs of dementia on patients and caregivers. We will delve into primary scientific literature covering current theories and findings and will explore cultural depictions to better understand dementia from multiple viewpoints.

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Blackboard & Perusall
Course readings and other materials will be provided via Blackboard. We will be using Perusall to track your progress in completing the readings, and also to spark questions and items of discussion for the class. Your grades will be posted on Blackboard throughout the semester. I will also be sending you updates via email. You are expected to check your email daily, so as not to miss any important details for this class.

Course Goals

This course has been developed to support your progress in achieving Hamilton's educational goals (www.hamilton.edu/academics/catalogue/educational-goals-and-curriculum) that include but are not limited to:

Intellectual Curiosity and Flexibility. In this class, we will be reading directly from the primary scientific literature on Alzheimer's disease and other dementias and learning how our understanding of these disorders has changed and continues to change in light of new findings and techniques.
Analytic Discernment. We will be examining the findings presented in the scientific literature, and drawing connections to find patterns and connections between different perspectives and techniques.
Disciplinary Practice. The practice of understanding, evaluating, and assessing the similarities and differences highlighted by different studies is an important disciplinary skill in neuroscience and research in general.
Communication and Expression. You will be presenting studies from the literature and leading discussions on these topics, which involves active practice of clear and effective communication.
Ethical, Informed and Engaged Citizenship. The burdens of dementia fall unequally along socioeconomic, racial, gender and national lines. Understanding these costs and how they should be more equitably shared is an important part of understanding dementia.

Course Structure and Grading

This class will consist of a mixture of lectures, and student-led presentations and discussions. You are expected to be engaged in the course (i.e. not be distracted by electronics) and are responsible for all readings (completed prior to class) in addition to materials presented in class. You will be assessed in your ability to understand, critique, and apply this information rather than strictly recall it. You will have several opportunities for assessment during this course, described in detail below. Each assessment is weighed

to a specific proportion of your overall grade. Your grade will be a culmination of the points earned throughout the semester on these assignments. This is an absolute scoring system and is not based on a curve. You are not in competition with each other.

Grading System

Assignment	**% of Grade**	**Points**
Presentations (3)	60%	3 x 20%
Final Exam	20%	1 x 20%
Persuall Reading & Reflections	10%	1 x 10%
Participation	10%	1 x 10%
Total	**100%**	

Grading Scheme

Percentage	**Grade**	**Percentage**	**Grade**
98-100	A+	78-80	C+
94-97	A	74-77	C
91-93	A-	71-73	C-
88-90	B+	68-70	D+
84-87	B	64-67	D
81-83	B-	61-63	D-
		≤ 60	F

Presentations

In each of the three course units, you will be asked (along with a fellow student) to lead the class by presenting one of the class readings for that day and leading the discussion of those readings. Each presentation will be worth 20% of your grade. You are not expected to memorize every last detail about your reading, but you should have a clear understanding of the theoretical motivations, experimental evidence, results, and implications of your reading. Early in the class, I will ask you to rank the topics based on your interest, and I will assign presentation dates according. *Lateness Policy: As you are expected to lead the class discussion on your presentation date, you will receive a grade of zero if you do not present. Please let me know if you anticipate missing any classes at the beginning of the semester, so I do not assign you a presentation date that you cannot make. In the case of unforeseen emergencies (e.g. family or medical emergency), I am willing to adjust the schedule, on an as needed basis.*

Final Exam

There will be a final exam for this class, scheduled for Saturday, May 16th, 2026 at 7:00pm – 10:00 pm. The final exam will test you on content knowledge from the class, as well as your ability to synthetize and interpret other information in the context of the current scientific knowledge on dementia. The final exam will be worth 20% of your grade. *Lateness Policy: Students who miss the final exam will receive a score of zero. No make-up finals will be offered, so please plan accordingly. Final exams cannot be moved for reasons other than illness or once-in-a-lifetime events (please contact me about this as early as possible).*

Perusall Reading and Reflections

You will be expected to complete the readings prior to each lecture on Perusall (which tracks whether you actually did the reading). You are expected to engage with the material, not just passively skim it; I will ask you to make annotations on the readings as a basis for discussion in class. This will be worth 10% of your grade. *Lateness Policy: Perusall readings will not be accepted after the related class, as the expectation is that you will complete the readings ahead of time.*

Participation

Your active, focused, and respectful engagement in the learning experience will enhance your mastery of the subject and benefit our class as a whole. Your participation will be evaluated based on your effort (e.g., attendance, punctuality, clear class preparation, attempts to contribute to class discussion) and the quality of your participation (e.g., insightfulness of comments made in class, demonstrated respect for your classmates' contributions). Participation will be worth 10% of your grade in this class.

Course Policies

Please refer to the Hamilton College student handbook for general rules and expectations not covered here: www.hamilton.edu/student-handbook.

Attendance

You are expected to arrive on time, remain in the classroom for the duration of the class, and to be prepared to actively and respectfully participate in every class. Sharing your comments, questions, ideas, and thoughts is highly encouraged. You are expected to attend every class; missing class will make it difficult to succeed because you will not participate in the activities designed to support and enhance your learning. There are legitimate reasons to miss class (e.g. illness), and if you have one, I would appreciate it if you told me (beforehand if possible). Per Hamilton guidelines, students who will be absent from class for medical or family emergencies should notify the Office of the Dean of

Students and all course instructors as soon as possible. Please notify me in advance and/or as soon as possible regarding absences on exam or presentation days. I trust that you will request special arrangements with honesty and integrity, but I may ask you to provide documentation for certain absences.

Academic Integrity

All students are expected to be familiar with and follow the Hamilton College Honor Code (http://www.hamilton.edu/student-handbook/studentconduct/honor-code). Any instance of academic dishonesty is unacceptable and will be referred to the Honor Court. If you have any doubts, please ask me before engaging in questionable behavior. All submissions should be the original work of those named as authors (and therefore, use of large language models, such as ChatGPT, are not permitted).

Use of Technology

To encourage active listening and participation during class, the use of electronic devices such as phones or laptop computers during class is not allowed, unless you have official accommodations for their use. You are not allowed to make audio or video recordings during class. You are allowed to take notes on a tablet computer. Note that the use of technology during exams is prohibited and is a violation of academic integrity.

Incompletes

Only students who are prevented from completing the course due to special circumstances beyond their control (e.g., illness, accident) are eligible for an incomplete. The Committee on Academic Standing must grant approval for an incomplete grade. The work must be completed within six weeks of the end of the course, or the grade will automatically be converted to an F. See the Hamilton College catalogue for details.

Inclusivity and Respect for Others

Every student in this classroom, regardless of personal history or identity categories, is a valued member of this group, and should be treated with respect. Your experiences are valuable and important, and you should feel free to share them as they become relevant to our class. No student is ever expected or believed to speak for all members of a group. In this classroom, you have the right to determine your own identity. You have the right to be called by whatever name you wish, and for that name to be pronounced correctly. You have the right to be referred to by whatever pronouns you wish. You have the right to adjust those things at any point in your education. If you find there are aspects of course instruction, subject matter, or class environment that result in barriers to your inclusion, please contact me privately without fear of reprisal.

Religious Observances

Some students may wish to take part in religious observances that occur during this academic term. If you have a religious observance that conflicts with your participation in the course, please set up a meeting with me before the end of the second week of the term to discuss appropriate accommodation.

Support and Assistance

Students with Special Needs

I encourage anyone with a documented physical, visual, auditory, learning, or other disability to speak with me regarding any necessary accommodations. I am more than happy to make changes to the way I am teaching so that you can fully participate in class, but it may take a little planning, so be sure to talk to me as early as possible (ideally during the first two weeks of the semester). All conversations will remain confidential. You should also contact Dean Allen Harrison (aharriso@hamilton.edu, 315-859-4021) as he coordinates services for students with disabilities.

Academic Resources

- The Oral Communication Center may be useful to you as you prepare your debate presentation. Your group can schedule an appointment to practice and receive feedback on your presentation before giving it to the rest of the class. See: http://www.hamilton.edu/OralCommunication.

NOTE: The Oral Communication Center gets very busy at peak times during the semester (e.g., midterms, end of semester). Aim to request appointments at least 7-10 days in advance. Appointments will be most useful if they take place early enough that you can effectively use the advice you receive, but also at a time when you know what specific tasks or issues you'd like to address.

Mental Health Services

Life and school can be stressful, and sometimes depression and anxiety get the best of us all. The Hamilton Counseling Center (www.hamilton.edu/offices/counselingcenter, 315-859-4340) is available to help support your mental health. If you need immediate assistance, phoning the Counseling Center and selecting option 2 will connect you with a counselor, 24 hours a day, 7 days a week. The Hamilton community cares and is available to help.

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Course Schedule

I have made every effort to make the schedule as comprehensive as possible. However, throughout the semester some minor adjustments to lecture topics, readings, and deadlines may be necessary. I reserve the right to make changes to the schedule (and will inform you of such changes with ample warning) should the need arise.

Date		Topics	Readings	Presenter
Unit 1: Biological Basis of Dementia				
W	21-Jan	Introduction	N/A	Prof. Yeung
F	23-Jan	Neuroanatomy Review	N/A	Prof. Yeung
W	28-Jan	Tau Progression in Alzheimer's	Braak & Braak (1991)	Prof. Yeung
			Yushkevich et al (2021)	Prof. Yeung
F	30-Jan	Amyloid Hypothesis	Kepp et al (2023)	Julia
			Van Dyck et al (2023)	Bhiro
W	4-Feb	Inflammation	Heneka et al (2024)	India
			Boche & Nicoll (2020)	Callie
F	6-Feb	Genetics: ApoE & Presenilin	Kim et al (2009)	Sophia
			Lopera et al (1997)	Tyrone
W	11-Feb	Vascular Demetia	O'Brien et al (2015)	Ellie
			Prins et al (2015)	David
F	13-Feb	Frontotemporal Dementia	Bang et al (2015)	Daniel
			Gorno-Tempini et al (2011)	Jelena
W	18-Feb	Lewy Body Dementia	Sekiya et al (2025)	Zach
			Walker et al (2015)	Sylvia
F	20-Feb	Mixed Dementias	Jellinger et al (2007)	Collier
			Garnier-Crussard et al (2023)	Amelya
Unit 2: Diagnosis and Risk Factors for Dementia				
W	25-Feb	Cognitive Staging	Jack et al (2010)	Sarah
			Jack et al (2018)	Prof. Yeung
F	27-Feb	Neuropsychological Assessment	Kueper et al (2018)	Prof. Yeung
			Rolf et al (2013)	Prof. Yeung
W	4-Mar	CSF & Blood-Based Biomarkers	Blennow et al (2010)	David
			Teunissen et al (2021)	Sophia
F	6-Mar	PET Tracers	Pemberton et al (2022)	Tyrone
			Therriault et al (2022)	Bhiro
W	11-Mar	Structural & Functional MRI	Planche et al (2022)	Ellie
			Sheline & Raichle (2013)	Collier
F	13-Mar	Genetic Risk Factors	Sirkis et al (2022)	Jelena
			Andrews et al (2023)	India
Spring Break				
W	1-Apr	Cognitive Reserve & Social Risk Factors	Stern (2002) & Stern et al (2020)	Daniel
			Kupier et al (2015)	Amelya

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F	3-Apr	Vascular Risk Factors & Exercise	Korte et al (2020)	Callie
			Valenzuela et al (2020)	Sarah
W	8-Apr	Diet	McGrattan et al (2019)	Sylvia
			Morris et al (2015)	Julia
F	10-Apr	Environmental Risk Factors	Killin et al (2016)	Zach
			Liu et al (2020)	Amelya
Unit 3: Human and Social Costs of Dementia				
W	15-Apr	Lived Experience of Patients	*Still Alice* (2014)	N/A
F	17-Apr	Impacts on Caregivers	Brodaty & Donkin (2009)	David
			Seetharaman et al (2026)	India
W	22-Apr	Treatment: Care	Olsen et al (2016)	Sylvia
			Krier et al (2016) & NYT Article	Sophia
F	24-Apr	Treatment: Medication	Chuansangeam et al (2025)	Zach
			Zuin et al (2022)	Ellie
W	29-Apr	Economic Perspectives	Zissimopoulos et al (2015)	Daniel
			Nandi et al (2022)	Tyrone
F	1-May	Socioeconomic Status & Racial Disparities	Barnes (2022)	Jelena
			Bodryzlova et al (2023)	Bhiro
W	6-May	Gender Disparities	Nebel et al (2018)	Julia
			Rocca et al (2024)	Callie
F	8-May	International Perspectives	Kerwin et al (2022)	Sarah
			O'Driscoll & Shaikh (2017)	Collier
S	16-May	Final Exam (7-10pm)	N/A	N/A