

SYLLABUS

College of Medicine

Department: Neuroscience

Course Number: NeuroSc 7050

Course Title: Neurobiology of Disease

Term: Spring 2023

Instructor: Chien-liang Glenn Lin, Ph.D.

Contact: lin.492@osu.edu

Phone Number: 614-688-5433

Office Hours: By Appointment

Course description

This course will explore the basis of major disease affecting the nervous system. Experts from throughout the university will provide state of the art overviews on the clinical, pathological, physiological and molecular features of diseases. Lecturers will also discuss key areas that hold promise for future research, including the development of rational therapies. Diseases to be discussed will include: neurodegenerative diseases, neurotrauma, autism, depression, brain tumor, epilepsy, and neuropathic pain. There will be a paper discussion and a quiz following the lectures for each subject. Furthermore, students will write a research proposal or collaboratively write a comprehensive literature review. During the final week of classes, students will present and discuss their research proposal or literature review with the class.

Prerequisites

Requires permission of instructor

Course learning outcomes

By the end of this course, students should successfully have general knowledge of neurological diseases learned in the class, including clinical and neuropathological features, molecular mechanisms, and current therapeutic developments.

How this class will work

The class will meet at Room 1187 Graves Hall on Tuesday and Thursday 1:00 – 2:00 or 1:00 – 3:00 pm. Additional office hours may be set up as needed.

The syllabus is set up into 12 disease subjects. Materials will be available prior to the start of each subject so you may go through it at your own pace.

Individual office hour

By appointment

Credit hours and work expectations

This is a 3-credit-hour course. According to Ohio State policy (go.osu.edu/credithours), students should expect around 3 hours per week of time spent on direct instruction (instructor content and Carmen activities, for example) in addition to 6 hours of homework (reading and assignment preparation, for example).

Attendance and participation requirements

You are expected to attend every lecture and paper discussion. If you have a situation that might cause you to miss an entire week of class, discuss it with me as soon as possible.

Recommended text

There is no recommended text.

Exams and grading

The grade will be based on research proposal/literature review, participation in paper discussion, quiz, and class attendance.

Research Proposal or literature review	30 points
Paper discussion	30 points
Quiz	30 points
Class attendance	10 points

<u>Grade</u>	<u>Total points</u>
A	90-100
B	80-89
C	70-79
D	60-69
E	<60

Course technology

Technology Support

For help with your password, university email, Carmen, or any other technology issues, questions, or requests, contact the Ohio State IT Service Desk. Standard support hours are available at ocio.osu.edu/help/hours, and support for urgent issues is available 24/7.

- Self-Service and Chat support: ocio.osu.edu/help
- Phone: 614-688-4357(HELP)
- Email: servicedesk@osu.edu
- TDD: 614-688-8743

Technology skills needed for this course

- Basic computer and web-browsing skills
- Navigating Carmen (go.osu.edu/canvasstudent)

Required equipment

- Computer: current Mac (MacOs) or PC (Windows 10) with high-speed internet connection. Note exams will be using Respondus Lockdown Browser which will NOT work on Chrome notebooks.

Required software

- Microsoft Office 365: All Ohio State students are now eligible for free Microsoft Office 365. Full instructions for downloading and installation can be found at go.osu.edu/office365help. This will be needed if you are going to download the Powerpoint presentations.

Carmen access

You will need to use BuckeyePass (buckeyepass.osu.edu) multi-factor authentication to access your courses in Carmen. To ensure that you are able to connect to Carmen at all times, it is recommended that you take the following steps:

- Register multiple devices in case something happens to your primary device. Visit the BuckeyePass – Adding a Device help article for step-by-step instructions (go.osu.edu/add-device).
- Request passcodes to keep as a backup authentication option. When you see the Duo login screen on your computer, click **Enter a Passcode** and then click the **Text me new**

codes button that appears. This will text you ten passcodes good for 365 days that can each be used once.

- Download the Duo Mobile application (go.osu.edu/install-duo) to all of your registered devices for the ability to generate one-time codes in the event that you lose cell, data, or Wi-Fi service

Academic integrity

Academic integrity is essential to maintaining an environment that fosters excellence in teaching, research, and other educational and scholarly activities. Thus, The Ohio State University and the Committee on Academic Misconduct (COAM) expect that all students have read and understand the university's *Code of Student Conduct* (studentconduct.osu.edu), and that all students will complete all academic and scholarly assignments with fairness and honesty. Students must recognize that failure to follow the rules and guidelines established in the university's *Code of Student Conduct* and this syllabus may constitute "Academic Misconduct."

The Ohio State University's *Code of Student Conduct* (Section 3335-23-04) defines academic misconduct as: "Any activity that tends to compromise the academic integrity of the university or subvert the educational process." Examples of academic misconduct include (but are not limited to) plagiarism, collusion (unauthorized collaboration), copying the work of another student, and possession of unauthorized materials during an examination. Ignorance of the university's *Code of Student Conduct* is never considered an excuse for academic misconduct, so I recommend that you review the *Code of Student Conduct* and, specifically, the sections dealing with academic misconduct.

If I suspect that a student has committed academic misconduct in this course, I am obligated by university rules to report my suspicions to the Committee on Academic Misconduct. If COAM determines that you have violated the university's *Code of Student Conduct* (i.e., committed academic misconduct), the sanctions for the misconduct could include a failing grade in this course and suspension or dismissal from the university.

If you have any questions about the above policy or what constitutes academic misconduct in this course, please contact me.

Other sources of information on academic misconduct (integrity) to which you can refer include:

- Committee on Academic Misconduct web page (go.osu.edu/coam)
- *Ten Suggestions for Preserving Academic Integrity* (go.osu.edu/ten-suggestions)
- *Eight Cardinal Rules of Academic Integrity* (go.osu.edu/cardinal-rules)

Instructor feedback and response time

Grading and feedback: For each exam, you may generally expect feedback within 4 days.

Email: I will reply to emails within 24 hours on days when class is in session at the university.

Copyright for instructional materials

The materials used in connection with this course may be subject to copyright protection and are only for the use of students officially enrolled in the course for the educational purposes associated with the course. Copyright law must be considered before copying, retaining, or disseminating materials outside of the course.

Statement on Title IX

All students and employees at Ohio State have the right to work and learn in an environment free from harassment and discrimination based on sex or gender, and the university can

arrange interim measures, provide support resources, and explain investigation options, including referral to confidential resources.

If you or someone you know has been harassed or discriminated against based on your sex or gender, including sexual harassment, sexual assault, relationship violence, stalking, or sexual exploitation, you may find information about your rights and options at titleix.osu.edu or by contacting the Ohio State Title IX Coordinator at titleix@osu.edu. Title IX is part of the Office of Institutional Equity (OIE) at Ohio State, which responds to all bias-motivated incidents of harassment and discrimination, such as race, religion, national origin and disability. For more information on OIE, visit equity.osu.edu or email equity@osu.edu.

Commitment to a diverse and inclusive learning environment

The Ohio State University affirms the importance and value of diversity in the student body. Our programs and curricula reflect our multicultural society and global economy and seek to provide opportunities for students to learn more about persons who are different from them. We are committed to maintaining a community that recognizes and values the inherent worth and dignity of every person; fosters sensitivity, understanding, and mutual respect among each member of our community; and encourages each individual to strive to reach his or her own potential. Discrimination against any individual based upon protected status, which is defined as age, color, disability, gender identity or expression, national origin, race, religion, sex, sexual orientation, or veteran status, is prohibited.

Your mental health

As a student you may experience a range of issues that can cause barriers to learning, such as strained relationships, increased anxiety, alcohol/drug problems, feeling down, difficulty concentrating and/or lack of motivation. These mental health concerns or stressful events may lead to diminished academic performance or reduce a student's ability to participate in daily activities.

No matter where you are engaged in distance learning, The Ohio State University's Student Life Counseling and Consultation Service (CCS) is here to support you. If you find yourself feeling isolated, anxious or overwhelmed, on-demand resources are available at go.osu.edu/ccsondemand. You can reach an on-call counselor when CCS is closed at 614-292-5766, and 24-hour emergency help is also available through the 24/7 National Prevention Hotline at 1-800-273-TALK or at suicidepreventionlifeline.org. The Ohio State Wellness app is also a great resource available at go.osu.edu/wellnessapp.

Accessibility accommodations for students with disabilities

The university strives to make all learning experiences as accessible as possible. If you anticipate or experience academic barriers based on your disability including mental health, chronic or temporary medical conditions, please let me know immediately so that we can privately discuss options. To establish reasonable accommodations, I may request that you register with Student Life Disability Services. After registration, make arrangements with me as soon as possible to discuss your accommodations so that they may be implemented in a timely fashion. SLDS contact information: slids@osu.edu; 614-292-3307; 098 Baker Hall, 113 W. 12th Avenue.

Safety and health requirements

All teaching staff and students are required to comply with and stay up to date on all University safety and health guidance, which includes wearing a facemask in any indoor space and maintaining a safe physical distance at all times. Non-compliance will be warned first and

disciplinary actions will be taken for repeated offenses. Please review the *University Safe and Healthy Campus Expectations* at the end of this syllabus and also on the Carmen Website for the course.

Religious accommodations

Our inclusive environment allows for religious expression. Students requesting accommodations based on faith, religious or a spiritual belief system in regard to examinations, other academic requirements or absences, are required to provide the instructor with written notice of specific dates for which the student requests alternative accommodations at the earliest possible date. For more information about religious accommodations at Ohio State, visit odi.osu.edu/religious-accommodations.

Weather or other short-term closing

Should in-person classes be canceled, we will meet virtually via CarmenZoom during our regularly scheduled time. I will share any updates via [CarmenCanvas, email or other mode of communication].

In-person proctoring alternatives

Students may request an in-person proctoring alternative to Proctorio or other online proctoring tools. The student is expected to contact the instructor as soon as possible to coordinate the accommodation. Students will not be permitted to take remotely proctored exams in their homes or residence halls unless they are willing to conduct a room scan. By choosing to take the exam in their home or residence hall, the student is consenting to the room scan of the area in which they take the exam.

COURSE SCHEDULE

Week 1

- Jan 10** 1-2 pm - Clinical and neuropathological features of Alzheimer's Disease (AD) by Dr. Douglas Scharre
- Jan 12** 1-3 pm - Molecular mechanisms and current therapeutic developments of AD by Dr. Jeff Kuret

Week 2

- Jan 17** 1-2 pm - Paper discussion & quiz (AD)
- Jan 19** 1-2 pm - Parkinson's disease (PD): Clinical and neuropathological features, therapy, molecular mechanisms, and current therapeutic developments
- 2-3 pm - discuss literature review/research proposal

Week 3

- Jan 24** 1-2 pm - Clinical and neuropathological features of Amyotrophic Lateral Sclerosis (ALS) by Dr. Adam Quick
- 2-3 pm - Molecular mechanisms and current therapeutic developments of ALS by Dr. Adam Quick
- Jan 26** 1-2 pm - Paper discussion & quiz (PD)

Week 4

- Jan 31** 1-3 pm - Clinical and neuropathological features, therapy, and current therapeutic developments of Huntington disease (HD) by Dr. Sandra Kostyk
- Feb 2** 1-2 pm - Paper discussion & quiz (ALS)

Week 5

- Feb 7** 1-2 pm - Paper discussion & quiz (HD)
- Feb 9** 1-2 pm - Clinical and neuropathological features of Spinal Muscular Atrophy (SMA) by Dr. Bakri Elsheikh
- 2-3 pm - Molecular mechanisms and current therapeutic developments of SMA by Dr. Arthur Burghes

Week 6

- Feb 14** 1-2 pm - Clinical and neuropathological features of Multiple Sclerosis (MS) by Dr. Emily Harrington
- 2-3 pm - Molecular mechanisms and current therapeutic developments of MS by Dr. Amy Lovett-Racke
- Feb 16** 1-2 pm - Paper discussion & quiz (SMA)

Week 7

- Feb 21** 1-2 pm - Paper discussion & quiz (MS)
- Feb 23** 1-2 pm - Clinical and neuropathological features of Autism Spectrum Disorder (ASD) by Dr. Jacquie Wynn
- 2-3 pm - Molecular mechanisms and current therapeutic developments of ASD by Dr. John Oberdick

Week 8

- Feb 28** 1-2 pm - Paper discussion & quiz (ASD)
- March 2** 1-2 pm - Molecular mechanisms and current therapeutic developments of Traumatic Brain Injury (TBI) by Dr. Jonathan Godbout
- 2-3 pm - discuss literature review/research proposal

Week 9

March 7 1-2 pm - Clinical aspects of CNS trauma by Dr. Brett Tracy

March 9 1-2 pm - Molecular mechanisms and current therapeutic developments of Spinal Cord Injury (SCI) by Dr. Andrea Tedeschi

2-3 pm - Paper discussion & quiz (TBI)

Week 10

March 14 spring break

March 16 spring break

Week 11

March 21 1-2 pm - Paper discussion & quiz (SCI)

March 23 1-3 pm - Clinical features, treatments, and molecular mechanisms of Neuropathic Pain by Dr. Kiran Rajneesh

Week 12

March 28 1-2 pm - Paper discussion & quiz (neuropathic pain)

March 30 1-2 pm - Clinical and neuropathological features of Epilepsy by Dr. Nabil Khandker

2-3 pm - Molecular mechanisms and current therapeutic developments of epilepsy by Dr. Bin Gu

Week 13

April 4 1-2 pm - Paper discussion & quiz (epilepsy)

April 6 1-2 pm - Clinical and neuropathological features of Brain Tumor by Dr. Brad Elder

2-3 pm - Molecular mechanisms and current therapeutic developments of brain tumor by Dr. Monica Venere

Week 14

April 11 1-2 pm - Paper discussion & quiz (brain tumor)

April 13 1-3 pm - Role of gut-brain communication in the pathophysiology of neurological disorders

Week 15

April 18 1-2 pm - discuss literature review/research proposal

April 20 1-3 pm - discuss literature review/research proposal

[April 7: Submit the 1st draft of literature review/research proposal](#)

[April 27: Submit the final literature review/research proposal](#)