

Neuroimmunology (NEU 492)
Michigan State University, Spring 2024

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He/him/his

Lectures (in-person): Rm Wells Hall A301, Mondays and Wednesdays, 3:00 – 4:20 PM

Office hours: Wednesdays, 9:00-10:00 AM, via Zoom, or at ISTB 5018 by appointment.
Office hours Zoom link is: <https://msu.zoom.us/j/91036150146>
Meeting ID: 910 3615 0146
Passcode: 780127

COURSE DESCRIPTION:

This is a one-term lecture course for advanced undergraduate Neuroscience majors. The main focus is to provide i) an understanding of the mechanisms underlying the interactions between neurons and immune cells at the molecular, cellular, and system levels, and ii) the contribution of neuro-immune communications to health and disease. The information will be presented in two ways: 1) lectures delivered by the instructor and 2) presentation and discussion of primary scientific literatures. Every week discusses a different topic, on Mondays the instructor does an introductory lecture and on Tuesday, a group of students (2 or 3 students) will present a scientific article related to the topic of the week. The instructor will provide the potential article to present. If the students want to present a different article, they need to seek approval from the instructor. Students will be expected to participate vocally and consistently in scientific article presentations and discussions.

Prerequisites: NEU 301 and 302 or permission of instructor.

COURSE REQUIREMENTS:

Attendances is required and scored.

Reading:

There will be a variety of scientific articles that will require reading and the subject of in-depth class discussion. There may be additional handouts or reading assignments to accompany the lecture material. There is no textbook for this course.

Scientific article Discussions:

Every Wednesdays (unless instructed otherwise below) a group of 2-3 students will present a research article. Students are expected to prepare a PowerPoint presentation on a USB drive. All students (not only the presenters are expected to read the article before class). All students will be expected to participate vocally in discussion of each section presented. It is expected that you attend class ready to participate during your scheduled class time. Ready to participate entails reading the required readings prior to

class. You will need to be prepared for each class so that you can contribute to the class discussion. This course involves active discussion among the entire class. The ideal student will contribute to discussions in class but will also let others participate.

The proposed scientific articles will be posted on D2L*. You will need your MSU NetID to log in to the course from the [D2L homepage](#). The [D2L](#) folder **SS24-NEU-492-005-Special Topics. Folder Neuroimmunology** contains:

- Scientific article Materials
- Review Exams
- Syllabus

*Glitches sometimes occur contact me if you cannot access the materials posted on D2L.

EXAMINATIONS:

There will be 2 in-class written exams based on the lecture material. The exams will not be cumulative; however, concepts learned before the first exam may be required to properly answer questions on the second exam. Various types of questions (e.g., multiple-choice, short-answer, fill-ins, and essay questions) might be included. The research articles discussed in class will not be directly tested on the exams, but knowledge of the techniques used in those articles may be required to properly answer exam questions.

If you are going to miss an exam, you must contact the instructor before the exam takes place, and you must produce a written excuse from your doctor or the dean's office. If you miss an exam and you do not contact the instructor before the exam, you will receive a zero (0) for that exam.

Presentation of scientific articles: The presentation will be graded, and it is the main examination of this course. Grades will be determined based on the clarity and depth of presentation, and on the level and depth of discussion raised by each individual.

Attendance is recorded. Attendance at 10 of 13 sessions is necessary for full credit. This means that students are allowed to miss 3 classes for any reason (sick, appointment, transportation trouble, interview, etc.). Additional absences will not be excused (so there is no need to contact the instructor for a missed paper discussion) and will need justification in accordance with MSU guidelines.

Participation is recorded and scored. All students will be expected to participate vocally in discussion of each section presented. Grades will be determined based on the level and depth of discussion raised by each individual.

GRADE DISTRIBUTION:

Two Exams	40% of final course grade (20% each)
Article Presentations	40% of final course grade
In-Class Vocal Participation	15% of final course grade
Attendance	5% of final course grade

It is critical to note that your in-class vocal participation in discussion is **TRACKED DAILY**. If you do not vocally participate, getting 100% on all other portions of the class will earn you an 85% (3.5 on GPA scale). If you earn less than 100% in all other portions of the class, your maximum grade will be ≤84.4% (≤3.0 on GPA scale).

Grading Scale:

4.0	≥ 90%
3.5	85-89%
3.0	80-84%
2.5	75-79%
2.0	70-74%
1.5	65-69%
1.0	60-64%
0.0	≤ 59%

ACADEMIC HONESTY:

Article 2.3.3 of the Academic Freedom Report states that "The student shares with the faculty the responsibility for maintaining the integrity of scholarship, grades, and professional standards." In addition, we will adhere to the policies on academic honesty as specified in General Student Regulations 1.0, *Protection of Scholarship and Grades*; the all-University Policy on *Integrity of Scholarship and Grades*; and Ordinance 17.00, *Examinations*. *Therefore, you are expected to complete all exams without assistance from any source. Students who violate MSU rules may receive a penalty grade, including - but not limited to - a failing grade on the assignment or in the course.* Contact your instructor if you have any questions about this policy.

(See <http://www.msu.edu/unit/ombud/honestylinks.html> and/or *Spartan Life: Student Handbook and Resource Guide*)

Behavior that is disrespectful to the instructor or fellow students during class will not be tolerated. This includes exchanging electronic or other notes, web-surfing, talking amongst each other, playing with any electronic gadget, etc.

CLASS SCHEDULE:

Session	Dates	
1	8-Jan	Introduction
	10-Jan	Sickness behavior I
	15-Jan	Closed (MLK day)
2	17-Jan	Sickness behavior II
	22-Jan	<i>Article presentation by the instructor</i>
3	24-Jan	Microglia
	29-Jan	<i>Article presentation by students</i>
4	31-Jan	Neuromodulation by cytokines
	5-Feb	<i>Article presentation by students</i>
5	7-Feb	Neurogenic inflammation
	12-Feb	<i>Article presentation by students</i>
6	14-Feb	Anti-inflammatory reflex
	19-Feb	<i>Article presentation by students</i>
7	21-Feb	Exam 1
	26-Feb	Spring break
	28-Feb	Spring break
8	4-Mar	Introduction II
	6-Mar	Depression I
	11-Mar	<i>Article presentation by students</i>
9	13-Mar	PNS microbes and cancer
	18-Mar	<i>Article presentation by students</i>
10	20-Mar	Depression II
	25-Mar	<i>Article presentation by students</i>
11	27-Mar	Cognition
	1-Apr	<i>Article presentation by students</i>
12	3-Apr	PsychoNeuroImmunology
	8-Apr	<i>Article presentation by students</i>
13	10-Apr	Exam Review
	15-Apr	Guest lecture
14	17-Apr	Exam 2

PNS: peripheral nervous system

HONORS OPTION:

To receive an Honors Option for NEU 492, students must achieve a 3.5 overall grade in the class (>84.5%) and complete an additional assignment. Students are required to write a short review on the topic of Neuroimmunology. The form for the Honors Option (<https://reg.msu.edu/StuRes.aspx>) should be turned in before Feb 5th, 5pm.

The short review may be based on the primary literature presentations made throughout the semester or on different scientific articles. The format of the article is 3-5 pages, single

spaced, extensive citation, and with figures or illustrations optional. The article **should NOT be a summary of a scientific article presented in class. If a presented article is referred, no more than one or two short paragraphs should be used to explain the results of this primary article.** The goal should be to introduce the problems that the primary article is addressing by summarizing the state of the field prior to the work in the primary article, and then to integrate the results of the primary article with the field and speculate as to future studies that may stem from this work. Successful assignments will make copious use of other peer-reviewed primary literature (rather than textbooks or Wikipedia-like sources) and will display a deep understanding of the field and of the interpretations of the primary article. The potential use of ChatGPT or other Artificial Intelligence applications will be checked.

The assignment is due on April 26, 2024. However, assignments turned in before April 3, 2024, will be assessed and returned to the student with suggestions for improvement, making successful completion of the assignment **MUCH more likely.**

Safety Considerations: Follow [MSU's COVID-19 Directives](#) to keep our community safe. We intend for course modality to remain in-person. However, should there be an emergency or change in the public health that makes it unsafe to hold in-person activities then we will pivot to an online format.

Do not come to class if experiencing COVID symptoms!

Other Course Information:

Inform Your Instructor of Any Accommodations Needed.

From the Resource Center for Persons with Disabilities (RCPD): Michigan State University is committed to providing equal opportunity for participation in all programs, services and activities. Requests for accommodations by persons with disabilities may be made by contacting the Resource Center for Persons with Disabilities at 517-884-RCPD or on the web at rcpd.msu.edu. Once your eligibility for accommodation has been determined, you will be issued a Verified Individual Services Accommodation ("VISA") form.

Please present this form to Dr. Laumet as soon as possible (preferably within the first two weeks of class) so that accommodation can be made. Requests received after this date may not be honored.

Resource Persons with Disabilities (RCPD)

- To make an appointment with a specialist, contact: (517) 353-9642 or TTY: (517) 355-1293
- Web site for RCPD: <http://MYProfile.rcpd.msu.edu>

Limits to Confidentiality

Essays, journals, and other materials submitted or presented for this class are generally considered confidential pursuant to the University's student record policies. However, students should be aware that University employees, including instructors, may not be

able to maintain confidentiality when it conflicts with their responsibility to report certain issues to protect the health and safety of MSU community members and others. As the instructor, I must report the following information to other University offices (including the Department of Police and Public Safety) if you share it with me:

- Suspected child abuse/neglect, even if this maltreatment happened when you were a child,
- Allegations of sexual assault or sexual harassment when they involve MSU students, faculty, or staff, and
- Credible threats of harm to oneself or to others.

These reports may trigger contact from a campus official who will want to talk with you about the incident that you have shared. In almost all cases, it will be your decision whether you wish to speak with that individual. If you would like to talk about these events in a more confidential setting you are encouraged to make an appointment with the MSU Counseling Center.

Grief Absence Requests

Course instructors are sensitive to and will accommodate the bereavement process of a student who has lost a family member or who is experiencing emotional distress from a similar tragedy so that the student is not academically disadvantaged in his/her classes. It is the responsibility of the student to: a) notify the Associate Dean of his/her college of the need for a grief absence prior to leaving campus, b) provide appropriate verification of the grief absence as specified by the Associate Dean, and c) complete all missed work as determined by the instructor. It is the responsibility of the Associate Dean or designee to: a) determine with the student the expected period of absence – it is expected that some bereavement processes may be more extensive than others depending on individual circumstances, b) notify the faculty that the student will be absent, and c) receive verification of the authenticity of a grief absence request upon the student's return. It is the responsibility of the instructor to work with the student to: a) make reasonable accommodations and b) to include appropriate language describing such accommodations in their course syllabus, so that the student is not penalized due to a verified grief absence.

Students who believe their rights under this policy have been violated should contact the University Ombudsperson.

For the Grief Absence Request form go to:

<https://reg.msu.edu/StuForms/Stuinfo/GriefAbsenceForm.aspx>.

<http://splife.studentlife.msu.edu/regulations/selected/grief-absence-policy>