

**UNIVERSITY OF FLORIDA**  
**COLLEGE OF MEDICINE SYLLABUS**  
**NEUROSCIENCE**

**GMS6029 Journal Club Section JC08 - Neuroinflammation (1 credit)**

Semester: Spring 2025 modules 2 and 3  
Delivery Format: On Campus: MBI L2-101  
Mondays 4:00-5:30 pm

Instructor Name: Paramita Chakrabarty, PhD and Ronald J Mandel, PhD  
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Office Hours: Monday 3:30 - 4:00 pm (Office: BMS J484)  
Graduate Assistant: None  
Preferred Course Communications: Email  
Prerequisites: Doctoral Students

**Purpose and Outcome:**

This journal club is intended for all PhD students interested in learning about neuroinflammation as they relate to neural pathology occurring in aging, neurodegenerative diseases, stroke, epilepsy and brain cancer.

**Course Overview:**

Neuroinflammation plays a double-edged sword effect on neural pathologies. In early days, the brain was thought to exist in an immune privileged milieu. Recent data using systems level knowledge shows that inflammatory pathways intersect with neuronal homeostasis during normal conditions as well as in diseases. In fact, CNS immunity exists as a continuum of beneficial and degenerative function, dependent on the spatio-temporal context. For example, microglia may have beneficial effects in clearing proteinopathy in early phases of neurodegenerative diseases such as Alzheimer's diseases but in later phases, these cells lead to neurodegeneration and dysfunctional homeostasis. On the flip side, peripheral immune dysfunction following gut dysbiosis may act as a potential trigger in related diseases such as Parkinson's disease. Chronic inflammatory signaling is considered to lead to adverse outcomes in stroke while in certain brain cancer, harnessing T cell mediated response has tremendous benefits. In addition, we will consider the effects of astrocytes and oligodendrocytes as additional components of the neuroinflammatory cascade and integrate their cellular function with neuronal health and demise.

The course will review seminal research publications that uncovered the exciting breakthroughs in this field and will seek to create discussion-based classroom integrating the cell autonomous

and non cell autonomous functions of inflammatory signaling in the brain. Each student will discuss a recent research article with the class followed by a detailed discussion on the rationale, data and rigor of each publication.

**Relation to Program Outcomes:**

Understanding the role of inflammation in neurologic disease as also investigating potential immune-based therapies are fundamental goals of the Neuroscience Program.

**Course Objectives and/or Goals:**

Upon completion of this course, students will have a critical perspective of the research publications that reveal the biology of neuroinflammation in different neural diseases and an appreciation of the current therapies targeting the immune system in these diseases.

**Instructional Methods:**

Each student will consult with the course directors to select recent publications for discussion. Students will prepare a powerpoint presentation to present the critical aspects of the paper. This will be followed by a critical discussion with the rest of the class moderated by the course directors.

**Blended Learning:**

*What is blended learning and why is it important?*

A Blended Learning class uses a mixture of technology and face-to-face instruction to help you maximize your learning. Knowledge content that, as the instructor, I would have traditionally presented during a live class lecture is instead provided online before the live class takes place. This lets me focus my face-to-face teaching on course activities designed to help you strengthen higher order thinking skills such as critical thinking, problem solving, and collaboration. Competency in these skills is critical for today's health professional.

*What is expected of you?*

You are expected to actively engage in the course throughout the semester. You must come to class prepared by completing all out-of-class assignments. This preparation gives you the knowledge or practice needed to engage in higher levels of learning during the live class sessions. If you are not prepared for the face-to-face sessions, you may struggle to keep pace with the activities occurring in the live sessions, and it is unlikely that you will reach the higher learning goals of the course. Similarly, you are expected to actively participate in the live class. Your participation fosters a rich course experience for you and your peers that facilitates overall mastery of the course objectives.

## Description of Course Content:

### Topical Outline/Course Schedule

Week	Date(s)	Topic(s)	Presenter	Readings
1	02/17/2025	Group Activity	<p><b>Group 1:</b> Kelena Klippel, Zachary Strickland, Emily Miller</p> <p><b>Group 2:</b> Stephan Quintin, Aleyna Ross, Jessica Shubin, Jose Torrellas</p>	<p><b>Please review:</b>  <a href="https://www.nature.com/collections/gjjhiejfd">https://www.nature.com/collections/gjjhiejfd</a></p>
2	02/24/2025	NO CLASS: Neuroscience Event		
3	03/3/2025	Student Paper Presentation: Models and Innovation	<p><b>Kelena Klippel:</b> <i>Engineering Microphysiological Immune System Responses on Chips</i>. Trends Biotechnol. 2020 Aug;38(8):857-872. <a href="#">Pubmed</a></p> <p><b>Emily Miller:</b> <i>CRISPRi-based screens in iAssembloids to elucidate neuron-glia interactions</i>. Neuron. 2025 Jan 9; <a href="#">PubMed</a>.</p>	
4	03/10/2025	Student Paper Presentation: Blood brain barrier	<p><b>Stephan Quintin:</b> <i>Perivascular glial reactivity is a feature of phosphorylated tau lesions in chronic traumatic encephalopathy</i>. Acta Neuropathol. 2025 Feb 8;149(1):16. <a href="#">PubMed</a></p> <p><b>Zachary Strickland:</b> <i>The meninges host a distinct compartment of regulatory T cells that preserves brain homeostasis</i>. Sci Immunol. 2025 Jan 28;:eadu2910. Epub 2025 Jan 28 <a href="#">PubMed</a>.</p>	
5	03/17/2025	NO CLASS: SPRING BREAK		
6	03/31/2025	Student Paper Presentation: Circadian Clock	<p><b>Aleyna Ross:</b> <i>Circadian clock protein Rev-erba regulates neuroinflammation</i>. Proc Natl Acad Sci U S A. 2019 Mar 12;116(11):5102-5107. <a href="#">Pubmed</a></p> <p><b>Jessica Shubin:</b> <i>Single-cell variations of circadian clock and immune gene expression in microglia and neurodegeneration</i>. Biorxiv. 2024. doi: <a href="https://doi.org/10.1101/2024.06.16.599193">https://doi.org/10.1101/2024.06.16.599193</a></p>	
7	04/07/2025	Student Paper Presentation: Brain Aging	<p><b>Zachary Strickland:</b> <i>Plasma proteomics identify biomarkers and undulating changes of brain aging</i>. Nat Aging. 2025 Jan;5(1):99-112. Epub 2024 Dec 9 <a href="#">PubMed</a>.</p>	

			<b>Jose Torrellas: <i>Biological brain age and resilience in cognitively unimpaired 70-year-old individuals.</i></b> <i>Alzheimers Dement.</i> 2024 Dec 20; Epub 2024 Dec 20 PubMed.
8	04/14/2025	Student Paper Presentation: Gut microbiome	<b>Kelena Klippel: <i>Fecal microbiota transplantation attenuates Alzheimer's disease symptoms in APP/PS1 transgenic mice via inhibition of the TLR4-MyD88-NF-κB signaling pathway-mediated inflammation.</i></b> <i>Behav Brain Funct.</i> 2025 Jan 8;21(1):2. <a href="#">PubMed</a> .  <b>Emily Miller: <i>Targeting early tau pathology: probiotic diet enhances cognitive function and reduces inflammation in a preclinical Alzheimer's model.</i></b> <i>Alzheimers Res Ther.</i> 2025 Jan 18;17(1):24. <a href="#">PubMed</a> .
9	04/21/2025	Student Paper Presentation: Disorders in cellular metabolism	<b>Stephan Quintin: <i>Reducing microglial lipid load enhances β amyloid phagocytosis in an Alzheimer's disease mouse model.</i></b> <i>Sci Adv.</i> 2025 Feb 7;11(6):eadq6038. Epub 2025 Feb 5 <a href="#">PubMed</a> .  <b>Jose Torrellas: <i>APP lysine 612 lactylation ameliorates amyloid pathology and memory decline in Alzheimer's disease.</i></b> <i>J Clin Invest.</i> 2025 Jan 2;135(1): <a href="#">Pubmed</a>
10	04/28/2025	Student Paper Presentation: Systemic inflammation	<b>Aleyna Ross: <i>Association of immune-mediated diseases with the risk of dementia and brain structure in UK Biobank participants.</i></b> <i>Age Ageing.</i> 2024 Nov 28;53(12) <a href="#">PubMed</a> .  <b>Jessica Shubin: <i>Rebalancing Immune Interactions within the Brain-Spleen Axis Mitigates Neuroinflammation in an Aging Mouse Model of Alzheimer's Disease.</i></b> <i>J Neuroimmune Pharmacol.</i> 2025 Feb 7;20(1):15. <a href="#">PubMed</a> .
11	05/5/2025	Student Panel discussion: <b>Rigor, Reproducibility, Data Sanctity and Today's Scientist</b>	

### Course Materials and Technology:

A list of publications that will be posted in the Canvas in the beginning of the semester.

Students who are interested in learning more can consult the following article collections:

*Nature Reviews in neurology*: <https://www.nature.com/collections/gjjhiejfd>

*Cell Press Selections*: <https://info.cell.com/cell-press-selections-neuro-immune-interactions-in-disease>

For technical support for this class, please contact the UF Help Desk at:

- [Learning-support@ufl.edu](mailto:Learning-support@ufl.edu)
- (352) 392-HELP - select option 2
- [UF eLearning](#)

## **Academic Requirements and Grading:**

### **Assignments:**

Each student is expected to present at least one paper during the semester and actively participate in the discussion every week. Student presenters will be selected by the instructor.

### **Grading:**

Satisfactory/Unsatisfactory. Grades will be determined based on class attendance and participation in paper discussions.

More information on UF grading policy may be found at:

<http://gradcatalog.ufl.edu/content.php?catoid=10&navoid=2020#grades>

### **Exam Policy:**

There are no examinations. All grading will be based on paper presentation, class attendance and class participation.

### **Policy Related to Required Class Attendance:**

Requirements for class attendance and make-up exams, 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>

Excused absences must be consistent with university policies in the Graduate Catalog (<http://gradcatalog.ufl.edu/content.php?catoid=10&navoid=2020#attendance>). Additional information can be found here:

<https://catalog.ufl.edu/ugrad/current/regulations/info/attendance.aspx>

### **Student Expectations, Roles, and Opportunities for Input:**

Class attendance will be assessed from active participation in all of these sessions, as well as class preparedness. Students are encouraged to ask questions in class and via email.

### **Expectations Regarding Course Behavior:**

Students are expected to be active and respectful of the instructors and fellow student students in class. Examples of expectations include muting or turning off cell phones, sound effects originating from laptops or tablets, or other behaviors that might be disruptive to the flow of the classroom. These instances preclude proper learning.

### **Communication Guidelines:**

Communication guidelines are expected to follow the Netiquette guidelines, which can be found in <http://teach.ufl.edu/wp-content/uploads/2012/08/NetiquetteGuideforOnlineCourses.pdf>

### **Academic Integrity:**

Students are expected to act in accordance with the University of Florida policy on academic integrity. As a student at the University of Florida, you have committed yourself to uphold the Honor Code, which includes the following pledge:

**“We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honesty and integrity.”**

You are expected to exhibit behavior consistent with this commitment to the UF academic community, and on all work submitted for credit 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.”**

It is your individual responsibility to know and comply with all university policies and procedures regarding academic integrity and the Student Honor Code. Violations of the Honor Code at the University of Florida will not be tolerated. Violations will be reported to the Dean of Students Office for consideration of disciplinary action. For additional information regarding Academic Integrity, please see Student Conduct and Honor Code or the Graduate Student Website for additional details:

<https://www.dso.ufl.edu/sccr/process/student-conduct-honor-code/>

<http://gradschool.ufl.edu/students/introduction.html>

**Please remember cheating, lying, misrepresentation, or plagiarism in any form is unacceptable and inexcusable behavior.**

### **Online Faculty Course Evaluation Process:**

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/>.

### **Policy Related to Guests Attending Class:**

Only registered students are permitted to attend class. However, we recognize that students who are caretakers may face occasional unexpected challenges creating attendance barriers.

Therefore, by exception, a department chair or his or her designee (e.g., instructors) may grant a student permission to bring a guest(s) for a total of two class sessions per semester. This is two sessions total across all courses. No further extensions will be granted. Please note that guests

are **not** permitted to attend either cadaver or wet labs. Students are responsible for course material regardless of attendance. For additional information, please review the [Classroom Guests of Students policy](#) in its entirety.

### **Support Services:**

#### **Accommodations for Students with Disabilities:**

Students with disabilities who experience learning barriers and would like to request academic accommodations should connect with the Disability Resource Center by visiting <https://disability.ufl.edu/students/get-started/>. It is important for students to share their accommodation letter with their instructor and discuss their access needs, as early as possible in the semester. The College is committed to providing reasonable accommodations to assist students in their coursework.

#### **Counseling and Student Health:**

Students sometimes experience stress from academic expectations and/or personal and interpersonal issues that may interfere with their academic performance. If you find yourself facing issues that have the potential to or are already negatively affecting your coursework, you are encouraged to talk with an instructor and/or seek help through University resources available to you.

- The Counseling and Wellness Center 352-392-1575 offers a variety of support services such as psychological assessment and intervention and assistance for math and test anxiety. Visit their web site for more information: <http://www.counseling.ufl.edu>. On line and in person assistance is available.
- You Matter We Care website: <http://www.umatter.ufl.edu/>. If you are feeling overwhelmed or stressed, you can reach out for help through the You Matter We Care website, which is staffed by Dean of Students and Counseling Center personnel.
- The Student Health Care Center at UF Health is a satellite clinic of the main Student Health Care Center located on Fletcher Drive on campus. Student Health at UF Health offers a variety of clinical services. The clinic is located on the second floor of the Dental Tower in the Health Science Center. For more information, contact the clinic at 392-0627 or check out the web site at: <https://shcc.ufl.edu/>
- UF Health Emergency Room / Trauma Center: For immediate medical care call 352-733-0111 or go to the emergency room at 1515 SW Archer Road, Gainesville, FL 32698, [ufhealth.org/emergency-room-trauma-center](http://ufhealth.org/emergency-room-trauma-center).

- University Police Department: Visit [police.ufl.edu/](http://police.ufl.edu/) or call 352-392-1111 (or 9-1-1 for emergencies).
- Crisis intervention is always available 24/7 from:

Alachua County Crisis Center:

(352) 264-6789

<http://www.alachuacounty.us/DEPTS/CSS/CRISISCENTER/Pages/CrisisCenter.aspx>

Do not wait until you reach a crisis to come in and talk with us. We have helped many students through stressful situations impacting their academic performance. You are not alone so do not be afraid to ask for assistance.

## Academic Resources

**E-learning technical support:** Contact the UF Computing Help Desk at 352-392-4357 or via e-mail at [helpdesk@ufl.edu](mailto:helpdesk@ufl.edu).

**Career Connections Center:** Reitz Union Suite 1300, 352-392-1601. Career assistance and counseling services [career.ufl.edu/](http://career.ufl.edu/).

**Library Support:** [cms.uflib.ufl.edu/](http://cms.uflib.ufl.edu/) ask various ways to receive assistance with respect to using the libraries or finding resources.

**Teaching Center:** Broward Hall 352-392-2010 or to make an appointment 352 392-6420. General study skills and tutoring. [teachingcenter.ufl.edu/](http://teachingcenter.ufl.edu/)

**Writing Studio:** 2215 Turlington Hall, 352-846-1138. Help brainstorming, formatting, and writing papers. [writing.ufl.edu/writing-studio/](http://writing.ufl.edu/writing-studio/)

**Student Complaints On-Campus:** [sccr.dso.ufl.edu/policies/student-honor-code-student-conduct-code/](http://sccr.dso.ufl.edu/policies/student-honor-code-student-conduct-code/)

**On-Line Students Complaints:** [distance.ufl.edu/student-complaint-process](http://distance.ufl.edu/student-complaint-process)