**Neur 201 Introduction to Neuroscience**

**Fall 2021**

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**Office Hours:** Tuesdays 10:30 - 11:30am, Thursdays 2:00 - 3:00pm and by appointment

Office hours will be hybrid you can either come by my office or attend via zoom at the following link: (<https://lafayette.zoom.us/j/96550065628?pwd=djlsUWtBT3I4UlUvZnA2Z1hhM25lZz09>) which is also on the course moodle page. If you are making an appointment with me to meet outside scheduled office hours please let me know if you prefer zoom or in person from the meeting. During office hours students can discuss anything they want with me. Ideas of things to discuss include topics you want to go over again, any class sessions’ learning objectives, and general strategies to succeed in the class. You do not need to make an appointment with me to attend regularly scheduled office hours, just drop by. If you cannot make my regularly scheduled office hours I’m happy to arrange another time to meet with you just send me an e-mail.

**Class Meetings:** Mondays, Wednesdays, Fridays: 3:10 – 4:00pm (Oechsle Hall 224)

**Textbook:** There is no required textbook for this class. In place of a textbook I will be including links to freely available readings, videos, simulations, etc on the outline for each class session. If you would like to read a textbook in conjunction with the material presented in class I would recommend the following:

*Neuroscience: Exploring the Brain* (4th edition

Bear MF, Connors BW, Paradiso MA

#### ISBN: 9780781778176

**Course Website:** <https://moodle.lafayette.edu>

All assignments and readings will be posted on the course website. You should make sure to check the website regularly to keep up with the class material.

Moodle privacy statement: Moodle contains student information that is protected by the Family Educational Right to Privacy Act (FERPA).  Disclosure to unauthorized parties violates federal privacy laws.  Courses using Moodle will make student information visible to other students in this class.  Please remember that this information is protected by these federal privacy laws and must not be shared with anyone outside the class.  Questions can be referred to the Registrar's Office.

**Course Description:**

This course introduces students to the interdisciplinary field of neuroscience by providing an overview of how the nervous system works at a molecular, cellular, systems and behavioral level. Students will apply what they learn about basic nervous system function to human behavior and disease. Students will also learn about current research and techniques in the field of neuroscience through the analysis of primary scientific literature. Course learning objectives will be accomplished through a combination of assigned readings, lectures, problem solving activities, and class discussions.

**Course Learning Objectives:**

At the end of this course students will be able to:

* Explain how the cells of the nervous system work to communicate via electrical signals.
* Explain how the interaction of cells and neuronal circuits leads to sensation, cognition and behavior.
* Predict the consequences of disruptions of molecules, cells, and pathways of the nervous system and alternatively predict the disruptions that would cause certain consequences.
* Describe what is happening in your nervous system as you go about your day to day life
* Read and analyze primary scientific literature.

**Class format:**

Course sessions will feature a combination of lecture, in class problem solving and group discussion. I will present material using both PowerPoint slides and the white board. I will regularly be asking you questions that you will work on both independently and in small groups to assure that you are actively participating in the learning process. You should also feel free to stop me at any point during class with questions you may have relevant to the course material. Before each class session readings and/or videos, an outline and lecture slides will be posted on the moodle website. It is expected that you will look at the posted material **before** class and come prepared to discuss and use the information. You should be on time for class sessions as I may make important announcements at the beginning of the lecture period

**Class Attendance:**

I expect students to attend and participate in all class sessions, however, I realize circumstances might pop up during the semester that force you to miss a class. I will excuse absences for illness, religious observances, university-sponsored events, and other unforeseen circumstances. If you have to miss a class session please let me know as soon as possible. For everyone’s safety you should obviously not attend class if you suspect you are sick. I will work with students to make up material they miss due to excused absences.

**Evaluation and Grading:**

Grades will be assessed by a combination of assignments and exams as outlined below.

Exams (70%): There will be three exams over the course of the class that will focus on the material covered in class. You will not be responsible for material in readings that is not covered during class. Exams will be on **9/24, 11/3 and during the final exam period**. If you must miss an exam because of illness or reasonable conflict that arises during the semester you must make arrangements with me as soon as possible in advance and provide documentation for your absence. I will determine what is reasonable. I will only offer makeup exams after the scheduled exam time if you have a Dean’s Excuse.

Final Project (15%): One of the course learning objectives is to understand how the cells and circuits of the nervous system work together in complex behaviors. For your final project, you will work in small groups to describe what is happening in the nervous system during a specific scenario.

Miscellaneous Assignments (10%): On occasion work you complete in class will be collected and graded based on completion. There will also be occasional small assignments on moodle you will be expected to complete to prepare for class.

Outside Activities (5%): You will be required to attend two outside activities related to the field of neuroscience. I will announce opportunities that will count for this activity as they come up and post details on the moodle site. After attending the event you will be required to write a one-page summary of the event and how it related to the class. You will have one week after the event to turn in the summary.

Final grades will be determined by the following scale:

|  |  |  |  |
| --- | --- | --- | --- |
| **Grade** | **Percentage** | **Grade** | **Percentage** |
| A | 93.0 to 100 | C | 73.0 to 76.9 |
| A- | 90.0 to 92.9 | C- | 70.0 to 72.9 |
| B+ | 87.0 to 89.9 | D+ | 67.0 to 69.9 |
| B | 83.0 to 86.9 | D | 63.0 to 66.9 |
| B- | 80.0 to 82.9 | D- | 60.0 to 62.9 |
| C+ | 77.0 to 79.9 | F | 0.0 to 59.9 |

**Please note that out of fairness for all students, final grades will not be bumped or rounded up or down.**

**Compliance statement:**

The student work in this course is in full compliance with the federal definition of a four-credit hour course. Please see the Registrar’s Office web site (<https://registrar.lafayette.edu/wp-content/uploads/sites/193/2013/04/Federal-Credit-Hour-Policy-Web-Statement.doc>) for the full policy and practice statement.

**The Importance of an Inclusive Classroom**

I would like to create a learning environment for my students that supports a diversity of thoughts, perspectives and experiences, and honors your identities (including race, gender, class, sexuality, religion, ability, etc.) To help accomplish this:

* If you have a name and/or set of pronouns that differ from those that appear in the class roster, please let me know. Additionally, please let me know if I am mispronouncing your name.
* If you feel like your performance in the class is being impacted by your experiences outside of class, please don't hesitate to come and talk with me. If you do not feel comfortable discussing the issue directly with me, I encourage you to seek out another, more comfortable avenue to address the issue. You may want to consider contacting your class dean (<https://advising.lafayette.edu/class-deans/>).
* If any of our class meetings or assignments conflict with your religious events please let me know during the first two weeks of the semester so we can make arrangements for you.
* If you have suggestions to improve the effectiveness of the course for you personally or other students or student groups please let me know. I will provide the opportunity to give anonymous feedback during the semester for those not comfortable discussing something with me directly.
* I (like many people) am still in the process of learning about diverse perspectives and identities. If something was said in class (by anyone) that made you feel uncomfortable, please talk to me about it.

**Resources for Student Support**

There are a number of resources available to support your learning at Lafayette. The following link (<https://citls.lafayette.edu/student-academic-support/>) provides access information on available offices and programs for academic support. Additionally, the Counseling Center (<https://counselingcenter.lafayette.edu/>) is available to provide counseling and educational programs to help you achieve your academic, social and personal development goals.

**Disability statement:**

In compliance with Lafayette College policy and equal access laws, I am available to discuss appropriate academic accommodations that you may require as a student with a disability. Requests for academic accommodations should be made during the first two weeks of the semester if possible, so arrangements can be made. Students must register with the Office of the Dean of Advising and Co-Curricular Programs for disability verification and for determination of reasonable academic accommodations. You can find more information about the accomodations process at the following link (<https://hub.lafayette.edu/disability-services/>)

**Proper Usage of Course Materials**

At Lafayette College, all course materials are proprietary and for class purposes only. This includes posted worksheets, assignments, and other course items. Reposting such materials or distributing them through any means is prohibited. If you have any questions about proper usage of course materials please ask me.

**Academic Honesty:**

All students are expected to abide by the Student Code of Conduct including policies around academic integrity. Please be sure to review the Student Code of Conduct at the following link (<https://conduct.lafayette.edu/student-handbook/student-code-of-conduct/>). If you have any questions on when collaboration is allowed or what sources you are allowed to use as it pertains to abiding by the Student Code of Conduct please contact me.

**Course Schedule**

Please note the schedule of covered material may change as the course progresses.

Exam dates and assignment due dates will not change unless there are extenuating circumstances and students would be consulted and able to weigh in on any change.

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| --- | --- | --- |
| Week | Day | Topic |
| 1 | 8/30  9/1  9/3 | Introduction to the course  Neurons and Glia  Neuronal Membrane at Rest |
| 2 | 9/6  9/8  9/10 | Neuronal Membrane at Rest (continued)  Neuronal Membrane at Rest (continued)  Neuronal Membrane at Rest (continued) |
| 3 | 9/13  9/15  9/17 | Action Potential  Action Potential (continued) & Multiple Sclerosis  Synaptic Transmission |
| 4 | 9/20  9/22  9/24 | Synaptic Transmission (continued)  Application & Problem-Solving Day  **Exam 1** |
| 5 | 9/27  9/29  10/1 | Structure of the Nervous System  The eye  The eye (continued) |
| 6 | 10/4  10/6  10/8 | Discussion of group projects, The eye (continued)  The Central Visual System  The Central Visual System |
| 7 | 10/11  10/13  10/15 | \*\*Fall Break  The Auditory System  The Auditory System (continued) |
| 8 | 10/18  10/20  10/22 | The Auditory System (continued)  Paper Discussion - Noise induced hearing loss  The Auditory System (continued) |
| 9 | 10/25  10/27  10/29 | Spinal Control of Movement  Brain Control of Movement  Brain Control of Movement (continued) |
| 10 | 11/1  11/3  11/5 | Application and Problem-Solving Day  **Exam 2**  Brain Mechanisms of Emotion (continued) |
| 11 | 11/8  11/10  11/12 | Brain Mechanisms of Emotion (continued)  Brain Mechanisms of Emotion (continued)  Mental Illness |
| 12 | 11/15  11/17  11/19 | Mental Illness  Paper Discussion - Depression Treatment  Brain Rhythms Epilepsy and Sleep |
| 13 | 11/22  11/24  11/26 | Sleep (continued) and Circadian Rhythms  \*\*Thanksgiving Break  \*\*Thanksgiving Break |
| 14 | 11/29  12/1  12/3 | Epilepsy and Memory Systems  Memory Systems (continued)  Memory Systems (continued) |
| 15 | 12/6  12/8  12/10 | Language  Language (continued)  Application and Problem-Solving Day  **Final Projects Due End of Day 12/10** |

**Exam 3 During Finals**