

**BIOL 4395: Topics in Biology
Cell & Molecular Neuroscience
Fall 2022**

College of Business Administration Rm 304 or via
Zoom Tuesdays and Thursdays 10:30 – 11:50 AM

Lectures will also be recorded and uploaded on Blackboard.

Attendance is *not* required, but you are required to watch the lectures.

Professor: Travis Moschak
E-mail: tmmoschak@utep.edu
Office Hours: Email me to schedule a virtual or in-person appointment M-F

Course Description:

This course focuses on cellular and molecular mechanisms that underlie the development and function of the nervous system. This includes aspects of gene expression (transcription, mRNA, translation, epigenetics) and cell biology (cellular transport, cytoskeleton, cell cycle, signal transduction, signaling pathways) as they pertain to neurons and glia. Lectures supplemented by discussion of primary research articles and laboratory activities will also serve as an introduction to microscopic, electrophysiological, molecular biological, and genetic techniques, as well as to the animal models used to study the nervous system and the molecular and cellular alterations that occur during a variety of neurological disorders.

Prerequisites: Undergraduate student in good standing. Psychology 2324 or Biology 2340 with a C or better.

Learning Objectives:

This course will provide a broad introduction to nervous system structures and functions. At the end of the academic term, students who successfully complete this course will be able to: 1) understand the basic mechanisms of neuronal development; 2) explain the underpinnings of neuronal communication and signaling; and 3) apply molecular insights to neurological disorders

Accommodations and Support Services:

If you have a disability and need classroom accommodations, please contact The Center for Accommodations and Support Services (CASS) at 747-5148, by email to cass@utep.edu, or visit their office located in UTEP Union East, Room 106. For additional information, please visit the CASS website at www.sa.utep.edu/cass. The instructor must be notified by CASS by the end of the first week of classes to facilitate accommodations support implementation.

Blackboard:

Everything you need for this class can be found on Blackboard. Please check Blackboard for announcements at least once per week. Blackboard is also where you will find the zoom link to the lectures, recorded lectures, online quizzes and other supplemental materials relevant to the course. Make sure you check your email regularly for updates from me via Blackboard. If you are not receiving emails from Blackboard, reach out to UTEP tech support (number provided below).

Attendance (in person or streaming):

To do well in this course, you are required to watch every lecture and stay on top of the course videos. Lectures will be given in person and streamed via Zoom. **Note that you are not required to attend the lectures in person.** Respondus Lockdown pop quizzes will occur randomly throughout the semester and will be based on the lecture material (and are worth extra credit, see below). Watching is the key to success in this course, and historically – students that regularly keep up with the lectures end up performing better in Dr. Moschak's courses than those who do not.

COVID-19 precautions:

Please stay home if you have been diagnosed with COVID-19 or are experiencing COVID-19 symptoms. If you are feeling unwell, please let me know as soon as possible, so that we can work on appropriate accommodations. If you have tested positive for COVID-19, you are encouraged to report your results to covidaction@utep.edu, so that the Dean of Students Office can provide you with support and help with communication with your professors. The Student Health Center is equipped to provide COVID 19 testing.

The Center for Disease Control and Prevention recommends that people in areas of substantial or high COVID-19 transmission wear face masks when indoors in groups of people. The best way that Miners can take care of Miners is to get the vaccine. If you still need the vaccine, it is widely available in the El Paso area, and will be available at no charge on campus during the first week of classes. For more information about the current rates, testing, and vaccinations, please visit epstrong.org

Grades:

Exams: 400pts

- There will be 4 exams, each worth 100 points during the course of the semester (dates below).
- Combinations of multiple choice, short answer and/or essay, matching, true/false, labeling or fill in the blank questions will be included.
- No test scores will be dropped. No make-up exams will be administered under any circumstances, no matter how compelling.**
- Each exam will be focused on lecture material. Note that the final is *not* cumulative.
- Exams will take only 90 minutes and are timed.** If you require any additional time or accommodation you must provide appropriate documentation at least one week prior to the first exam.
- All exams will be available on Blackboard for a 48 hour window, during which you can take the exam at your convenience; however, be advised that if you run into technical issues in the middle of the night, I won't be able to assist you until the next day.

- **No make-up exams will be administered under any circumstances, no matter how compelling.**
You must take the exam during the allotted 48 hour window.
- Exams require you to use Respondus Lockdown, a program that will “lock” you out of being able to use other websites or items to take the exam. No notes, books, power points, electronic devices, devices that transmit audio or materials are allowed during the exams. You are also prohibited from discussing the exam with each other during the 48 hour exam window. However, you are strongly encouraged to study together virtually before the window begins. You should download Respondus Lockdown and install it on your computer ASAP:
https://www.utep.edu/technologysupport/ServiceCatalog/BB_Tool_RespondusLockdown.html#S03

Assignments: 100pts

- **Mini Homework Worksheets (8-15 pts each)**
 - Keeping up with the lectures is necessary to do well in this class. To facilitate this, there will be 9 short homework assignments that review what we learned in class for each week. These homework assignments will be due at 11:59pm on the dates listed on the syllabus calendar.

Extra Credit:

- **Respondus Lockdown Lecture Pop Quizzes (??)**
 - Occasionally there will be unannounced pop quizzes, and you will have the opportunity to earn extra credit based on performance on these quizzes. These will typically only be open for 24 hours at the most. There will be 2.5-5pts possible via in class pop quizzes between each exam, and points will be added to the exam that follows the quiz. For example, a quiz occurring after Exam 1 will mean that any points earned get added to the Exam 2 grade.
 - The goal of these is to familiarize you with the Respondus program, and allow you to check for any technical issues with your wifi/internet service.
 - You are not permitted to use other devices, the internet or your book/notes during these pop quizzes. These quizzes are designed to help you prepare for the test environment.

□ **Extra Credit Homework (10pts)**

- There is one extra homework assignment that you can do to help boost your grade at the end of the semester. For this homework, you will have to read an original research article covering some of the techniques we learn about in class. This worksheet will be worth up to 10 points extra credit (added to your total out of 500 at the end of the semester), and you can turn it in any time during the semester, but it must be completed on Blackboard no later than 11:59pm on Sunday December 4th. Late assignments will not be eligible for extra credit.

□ **Exam Extra Credit (??)**

- There are typically 1-2 extra credit questions on each exam. These are extra, and if you get them wrong you will not be penalized but answering them correctly will get you full or partial extra credit points. They are typically more difficult than the rest of the exam questions and will usually be worth 2.5-5pts extra added to each exam grade.

Academic Dishonesty: Academic dishonesty is prohibited and is considered a violation of the UTEP Handbook of Operating Procedures. It includes, but is not limited to, cheating, plagiarism, and collusion. Cheating may involve copying from or providing information to another student or possessing unauthorized materials during a test. Plagiarism occurs when someone intentionally or knowingly represents the words or ideas of another person's as one's own. Collusion involves collaborating with another person to commit any academically dishonest act. Any act of academic dishonesty attempted by a UTEP student is unacceptable and will not be tolerated. Violations will be taken seriously and will be referred to the Dean of Students Office (Office of Student Conduct and Conflict Resolution) for possible disciplinary action. Students may be suspended or expelled from UTEP for such actions.

Important Contact Information

University Counseling Center

202 Union West 747-5302

Center for Accommodations and Support Services

106 Union East 747-5148

University Career Center

103 Union West 747-5640

Final Grade Calculation: Final grades will be calculated as follows (points earned + extra credit/500) x 100.

Grading scale:

A = 90.0-100.0%

B = 80.0-89.9%

C = 70.0-79.9%

D = 60-69.9%

F < 60.0%

Please note that grades will not be "rounded up".

If you have any questions or disputes regarding grades, you must raise these in writing within ten days of the grade being released. Grades will only be changed in cases of administrative error. The instructor does not hand back exams, if you wish to see your exam after it has been graded, you must schedule an appointment to come meet with the instructor or with the TA. Typically, the TA will meet with you first and if you have lingering questions, Dr. Moschak can also meet with you.

If you have a problem with the grading policies outlined above, you are welcome to drop the course before the drop deadline. If you disagree with your final grade in this course, despite the clear outline above of the way grades are calculated, you are welcome to file a complaint to the Chair of the Biological Sciences Department or the UTEP grievance committee. Note that there is already information about extra credit written above. Do not ask for additional extra credit opportunities beyond what is provided on the syllabus or in class to the entire group.

Class Schedule: Lecture title bold, RED indicates assignment deadlines. Yellow highlight indicates Exams.

Tues 08/22 **Course Overview**
Review: Basic Neuron Structure and Function

Thurs 08/25 **Review: Action Potential**

Mon 08/29 Homework 1 due at 11:59 PM

Tues 08/30 **Neural Induction**

Thurs 09/01 **Neural Proliferation and Differentiation**

Mon 09/05 Homework 2 due at 11:59 PM

Tues 09/06 **Axon Outgrowth**

Thurs 09/08 **Neuronal Polarity and Synapse Formation**

Mon 09/12 Homework 3 due at 11:59 PM

Tues 09/13 **Exam 1 Review**

Tues 09/20 **Exam 1**
Exam 1 opens at 12 am, closes at 11:59 PM on Wednesday 9/21

Thurs 09/22 **Neurotrophins and Calcium Signaling**

Tues 09/27 **G Proteins**

Wed 09/28 Homework 4 due at 11:59 PM

Thurs 09/29 **NO CLASS**

Tues 10/04 **Ion Channels 1**

Thurs 10/06 **Ion Channels 2**

Mon 10/10 Homework 5 due at 11:59 PM

Tues 10/11 **Exam 2 Review**

Tues 10/18 **Exam 2**

Exam 2 opens at 12 am, closes at 11:59 PM on Wednesday 10/19

Thurs 10/20 **Synaptic & Vesicle Function**

Tues 10/25 **Synaptic Plasticity and Networks**

Wed 10/26 Homework 6 due at 11:59 PM

Thurs 10/27 **Animal Models and Technology 1**

Tues 11/01 **Animal Models and Technology 2**

Wed 11/02 Homework 7 due at 11:59 PM

Thurs 11/03 **Exam 3 Review**

Thurs 11/10 **Exam 3**

Exam 3 opens at 12 am, closes at 11:59 PM on Friday 11/10

Tues 11/15 **Neurobiology of Disease 1**

Thurs 11/17 **Neurobiology of Disease 2**

Mon 11/21 Homework 8 due at 11:59 PM

Tues 11/22 **Neurobiology of Disease 3**

Thurs 11/24 **Thanksgiving**

Tues 11/29 **Interactions between the CNS and Immune system**

Mon 11/30 Homework 9 due at 11:59 PM

Thurs 12/01 **Exam 4 Review**

Sun 12/04 Extra Credit Homework due at 11:59 PM

Wed 12/07 **Exam 4**

Exam 4 opens at 12 am, closes at 11:59 PM on Thursday 12/08

****Please note: The syllabus is subject to change during the semester. Please make sure I have your best email contact information, to insure you always have the most up to date version of the syllabus. I will also always post the most recent version to Blackboard.**

Classroom Courtesy

Please adhere to the following:

1. Be mindful of your behavior and language both in person and online. Remember that members of the class and the instructor will be reading any postings.
2. Respect and courtesy must be provided to classmates and to instructor at all times. No harassment or inappropriate postings will be tolerated.
3. When reacting to someone else's discussion board post or in class questions, address the ideas, not the person. Post only what anyone would comfortably state in a F2F situation.
4. Blackboard is not a public internet venue; all postings to it should be considered private and confidential. Whatever is posted on these online spaces is intended for classmates and professor only. Please do not copy documents and paste them to a publicly accessible website, blog, or other space. If students wish to do so, they have the ethical obligation to first request the permission of the writer(s).
5. No solicitations. This includes "note takers for hire" and similar paid for tutoring services.

Frequently Asked Questions:

Q: What technology do I need to take this course?

A: Course content will be delivered in person, via Zoom, and through Blackboard. Exams, quizzes, and homework will only be available online via Blackboard. The main requirements are a device (tablet or computer) that can connect to the internet and that has a webcam (for Respondus Lockdown exams). Most of the course material (except exams) can also be viewed on smartphones. Google chrome is the most supported browser for Blackboard; however, joining live lecture on an Apple smartphone (e.g., iPhone) requires Safari. You can contact the UTEP Help Desk if you have any issues with technology. There is also an app for smartphones, if you want to participate in the group activity from your smartphone instead of a computer or tablet. Note that technical difficulties are not a valid excuse for late work, as deadlines are posted in advance. It is up to you to avoid waiting until the last minute to submit an assignment, to avoid technology-related errors or delays in upload speeds. Note that as UTEP changes its software offerings, it is possible we might also use software other than Zoom for streaming this course. Any changes from Zoom to another platform for lectures would be announced via Blackboard.

Q: What happens if a personal medical emergency or family emergency occurs during the semester?

A: If your personal or family circumstance limits your ability to perform in one or more courses, you should first take care of the emergency situation by contacting the proper medical officials. Upon discharge, please obtain documentation from your doctor that you had an emergency with dates of the event. If you will be out for longer than a day or two you should contact the CASS office, and your academic advisor to determine options. For example, if the emergency impacts all of your classes, you can apply for a complete medical withdrawal through the registrar's office. If this occurs to you, please contact CASS first (cass@utep.edu) to determine how to proceed with medical paperwork. It is the policy of the Department of Biological Sciences not to permit selective withdrawals due to medical/family emergencies. In other words, if you want to withdraw from only Dr. Moschak's course, and not your other courses, due to a medical circumstance or family emergency, the request will likely be denied without clear justification. In extremely rare cases, students might also be eligible for an incomplete. If you believe you are experiencing one of those rare circumstances, please contact CASS first, and then your academic advisor before approaching the instructor about an incomplete.

Q: What happens if I think someone in the course is engaging in academic dishonesty (cheating, plagiarism, etc)?

A: UTEP takes academic dishonesty very seriously. If you notice suspicious behavior during an exam or suspect academic dishonesty is occurring, please notify Dr. Moschak. Dr. Moschak might file a formal report to the Office of Student Conduct and Conflict Resolution (OSCCR). If he does, you are welcome to remain anonymous in reporting the suspected offense. To remain anonymous, simply let Dr. Moschak know that you wish to remain anonymous when you report the behavior to him via email or in person.

Q: The review sheets are really long. Is there any way to get a shorter version?

A: The review sheet is designed as a tool to help you focus your study efforts on the most important information. They need to be long in order to cover all possible information that might appear on an exam. If you don't want to do the review sheet, don't do it. However, completing the review sheet, and taking it like a practice test is the best way to study for the exams in this course.

Q: What should I expect for the exam review sessions?

A: In class exam review sessions are Dr. Moschak's way of helping you narrow down the breadth of information into specific areas you should focus on the night/nights before the test. To get the most out of the review session, you should view the lectures as they are uploaded. During the review session, come with your review sheet already completely filled out. If you don't study before the review session, it will be too late to master all of the information for the exam – so fill out the review sheet each day after class so that by the review session, you have a complete/nearly complete document. The best thing to do during the review is to write down the questions, not the answers. If you have the questions, you can spend the evening finding the answers on your own – and that will prepare you VERY well for the exam.

Q: I have lots of other exams during our exam window. Is there any way to take the exam early?

A: No. Exam dates are "set in stone" and must be taken during the posted exam window. If you do not take the exam within the window, it will be an automatic zero.

Q: I know Dr. Moschak provides the slides as a PDF, but I want the powerpoint version so I can take notes in powerpoint. Can I get a powerpoint file?

A: No. Dr. Moschak only provides a PDF to encourage you to take notes directly on the review sheet or on blank paper/word documents. This strategy is much more effective for learning and retaining information, as the cues are more similar to what you will see on the exam.

Q: I have a disability or medical condition that requires accommodation support. What options does Dr. Moschak provide for these circumstances?

A: Dr. Moschak will work with CASS to determine appropriate accommodations for your specific needs. If you wish to get accommodations, you must enroll at CASS and have CASS notify Dr. Moschak at least 1 week before the first exam. Dr. Moschak will reply within 5 business days (to you and CASS) with a list of accommodations that can be offered based on your specific needs and the course. If a medical emergency occurs during the semester, contact Dr. Moschak via email ASAP, and work to obtain a doctor's note with specific dates.

Q: I am not happy with my grade, and think I should drop. How can I do this?

A: To drop this class, please contact the [Registrar's Office](#) to initiate the drop process. If you cannot complete this course for whatever reason, please contact me. Often students might be incorrectly estimating their performance in the class, and I am always happy to discuss your grade via video chat or secure communication if you have questions.

Other Resources

- [UTEP Library](#): Access a wide range of resources including online, full-text access to thousands of journals and eBooks plus reference service and librarian assistance for enrolled students.
- [Help Desk](#): Students experiencing technological challenges (email, Blackboard, software, etc.) can submit a ticket to the UTEP Helpdesk for assistance. Contact the Helpdesk via phone, email, chat, website, or in person if on campus.
- [University Writing Center \(UWC\)](#): Submit papers here for assistance with writing style and formatting, ask a tutor for help and explore other writing resources.
- [Math Tutoring Center \(MaRCS\)](#): Ask a tutor for help and explore other available math resources.
- [History Tutoring Center \(HTC\)](#): Receive assistance with writing history papers, get help from a tutor and explore other history resources.
- [Military Student Success Center](#): UTEP welcomes military-affiliated students to its degree programs, and the Military Student Success Center and its dedicated staff (many of whom are veterans and students themselves) are here to help personnel in any branch of service to reach their educational goals.