BSC 525.01W Advanced Neuroscience

Fall 2022 Course Syllabus CRN: 87764

Course Location and Times: Web-based, D2L

INSTRUCTOR INFORMATION

Instructor: Hunkar Gizem Yesilyurt, PhD

Email: HunkarGizem.Yesilyurt@tamuc.edu

Office Location: STC 255

Office Hours: TR 10AM-12PM (in office and virtual (Zoom link will be shared at D2L), for other times, please email for a(n) (virtual) appointment

Preferred Form of Communication: Email

Communication Response Time: less than 48 hours

COURSE INFORMATION

Textbook (Recommended): Bear, Mark F., Connors, Barry W. and Paradiso, Michael A. Neuroscience: Exploring the Brain; Fourth Edition. Baltimore: Lippincott, Williams and Wilkins, 2016. ISBN: 9781284211283

Course Description: This course is designed for advanced students with a thorough background in biology and cell biology. Therefore, this course provides students with a greater understanding of molecular, developmental, and network mechanisms of neuronal function. Emphasis will be placed on molecular and cellular components of neurons and other nervous system cell types at their most basic level. In addition, unique specific systems, particularly sensory and movement systems as well as the topics of brain mechanisms of emotions, mental illness, brain wiring, learning and memory will be explored. Students are expected to gain an in-depth understanding of basic principles and concepts of neurons at the molecular levels, learn to reason scientifically, and to understand and describe the cooperative function of organelles in specialized neuronal cells.

The *syllabus/schedule are subject to change.*

Student Learning Outcomes

Upon completion of this course the students will be able to:

1. Describe unique and common characteristics of unifying concepts of neurons (foundations) including:
    - Cellular components of neurons
    - Functional Role of Glia
    - Membrane Potential, Action Potentials and Neurotransmitters
    - Receptors and Postsynaptic Integration
2. Understand sensory motor systems, particularly:
    - Chemical Senses
    - The Eye
    - The Somatic Motor System
3. Apply principles of neuroscience to demonstrate an understanding of the brain and behavior, particularly:
    - Sex and the Brain
    - Brain Mechanisms of Emotion
    - Mental Illness
4. Describe the concepts of complex neural processes (the changing brain) including:
    - Wiring the Brain
    - Molecular Mechanisms of Learning and Memory
5. Think **experimentally and critically** about the concepts described above

Course Requirements:

- Proficiency in using the D2L Brightspace Learning Management System through myLeo Online
- Proficiency in use of Microsoft Word, and PowerPoint
-Other relevant graphics programs for preparing effective PowerPoint presentations

Instructional Methods: Instruction will consist of web-based delivery of notes, some short videos and student-oriented appointments. Learning will also be achieved through reading of relevant chapters in the recommended textbook. PDF files of all notes will be made available in the D2L Learning, Management System at myLeo Online. Announcements and reminders for important events will also be regularly posted through this system. Course progress can be monitored through the online system.

Student Responsibilities:

- Dedicated study time each week to go over the materials at D2L and the information in the relevant book chapter(s)
- Regularly check both myLEO Online and university email accounts for announcements or class emails.
- Attend and participate in discussions via forums at D2L.
- Submit exams and assignments on time.

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Grading Scale:

A = 89.5-100%

B = 79.5-89.49%

C = 69.5-79.49%

D = 59.5-69.49%

F = <59.5%

Assessments (total of 400 points)

3 Term Exams – 60 points each = 180 points

Cumulative Final Exam = 100 points

2 Assignments = 120 points

Total = 400 Points

TECHNOLOGY REQUIREMENTS

Browser support

D2L is committed to performing key application testing when new browser versions are released. New and updated functionality is also tested against the latest version of supported browsers. However, due to the frequency of some browser releases, D2L cannot guarantee that each browser version will perform as expected. If you encounter any issues with any of the browser versions listed in the tables below, contact D2L Support, who will determine the best course of action for resolution. Reported issues are prioritized by supported browsers and then maintenance browsers.

Supported browsers are the latest or most recent browser versions that are tested against new versions of D2L products. Customers can report problems and receive support for issues. For an optimal experience, D2L recommends using supported browsers with D2L products. Maintenance browsers are older browser versions that are not tested extensively against new versions of D2L products. Customers can still report problems and receive support for critical issues; however, D2L does not guarantee all issues will be addressed. A maintenance browser becomes officially unsupported after one year.

Note the following:

- Ensure that your browser has JavaScript and Cookies enabled.
- For desktop systems, you must have Adobe Flash Player 10.1 or greater.
- The Brightspace Support features are now optimized for production environments when using the Google Chrome browser, Apple Safari browser, Microsoft Edge browser, Microsoft Internet Explorer browser, and Mozilla Firefox browsers.

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Desktop Support Browser	Supported Browser Version(s)	Maintenance Browser Version(s)
Microsoft® Edge	Latest	N/A
Microsoft® Internet Explorer®	N/A	11
Mozilla® Firefox®	Latest, ESR	N/A
Google® Chrome™	Latest	N/A
Apple® Safari®	Latest	N/A

Tablet and Mobile Support Device	Operating System	Browser	Supported Browser Version(s)
Android™	Android 4.4+	Chrome	Latest
Apple	iOS®	Safari, Chrome	The current major version of iOS (the latest minor or **point** release of that major version) and the previous major version of iOS (the latest minor or **point** release of that major version). For example, as of June 7, 2017, D2Lsupports iOS 10.3.2 and iOS 9.3.5, but not iOS 10.2.1, 9.0.2, or any other version. Chrome: Latest version for the iOS browser.
Windows	Windows 10	Edge, Chrome, Firefox	Latest of all browsers, and Firefox ESR.

• You will need regular access to a computer with a broadband Internet connection. The minimum computer requirements are:

o 512 MB of RAM, 1 GB or more preferred

o Broadband connection required courses are heavily video intensive

o Video display capable of high-color 16-bit display 1024 x 768 or higher resolution

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• **For Zoom Meeting sessions *8 Mbps* is required.** You must have a:

o Sound card, which is usually integrated into your desktop or laptop computer

o Speakers or headphones.

o *For courses utilizing video-conferencing tools and/or an online proctoring solution, a webcam and microphone are required.

• Both versions of Java (32 bit and 64 bit) must be installed and up to date on your machine. At a minimum Java 7, update 51, is required to support the learning management system. The most current version of Java can be downloaded at: JAVA web site http://www.java.com/en/download/manual.jsp

• Current anti-virus software must be installed and kept up to date.

• Running the browser check will ensure your internet browser is supported.

Pop-ups are allowed.

JavaScript is enabled.

Cookies are enabled.

• You will need some additional free software (plug-ins) for enhanced web browsing. Ensure that you download the free versions of the following software:

o Adobe Reader https://get.adobe.com/reader/

o Adobe Flash Player *(version 17 or later)* https://get.adobe.com/flashplayer/

o Adobe Shockwave Player https://get.adobe.com/shockwave/

o Apple Quick Time http://www.apple.com/quicktime/download/

• At a minimum, you must have Microsoft Office 2013, 2010, 2007 or Open Office. Microsoft Office is the standard office productivity software utilized by faculty, students, and staff. Microsoft Word is the standard word processing software, Microsoft Excel is the standard spreadsheet software, and Microsoft PowerPoint is the standard presentation software. Copying and pasting, along with attaching/uploading documents for assignment submission, will also be required. If you do not have Microsoft Office, you can check with the bookstore to see if they have any student copies.

ACCESS AND NAVIGATION

You will need your campus-wide ID (CWID) and password to log into the course. If you do not know your CWID or have forgotten your password, contact the Center for IT Excellence (CITE) at 903.468.6000 or helpdesk@tamuc.edu**.**

Note: Personal computer and internet connection problems do not excuse the requirement to complete all course work in a timely and satisfactory manner. Each student needs to have a backup method to deal with these inevitable problems. These methods might include the availability of a backup PC at home or work, the temporary use of a computer at a friend's

home, the local library, office service companies, Starbucks, a TAMUC campus open computer lab, etc.

COMMUNICATION AND SUPPORT

Brightspace Support

Need Help?

Student Support

If you have any questions or are having difficulties with the course material, please contact your Instructor.

Technical Support

If you are having technical difficulty with any part of Brightspace, please contact Brightspace Technical Support at 1-877-325-7778 or click on the **Live Chat** or click on the words "click here**"** to submit an issue via email.

System Maintenance

D2L runs monthly updates during the last week of the month, usually on Wednesday. The system should remain up during this time unless otherwise specified in an announcement. You may experience minimal impacts to performance and/or look and feel of the environment.

Interaction with Instructor Statement

The grading of the assignments, quizzes, and exams will be completed within 1-5 days depending on the length of the assignment or test. In most cases the grading will be completed within 24 hours and the questions will be discussed during the next class period. Students are encouraged to make an appointment with the instructor outside the office hours to discuss any issue related to the course individually or in groups.

COURSE AND UNIVERSITY PROCEDURES/POLICIES

Course Specific Procedures/Policies

Assignments: At home questions and/or research will be assigned two times during the semester. Be sure to check D2L announcements for updates.

Exams: Consist of multiple-choice questions (40-50%) and essay-type answer questions (50-60%). The term exams will be taken at the date range in the course schedule below and the final exam will be cumulative and take place during the university final exam week. Some questions for exams from a given chapter may be derived from the same Test Pool and repeated.

Makeup Policy: The student is responsible for requesting a makeup when they are unable to attend the regularly scheduled examination and must schedule the makeup within 2 days of the absence. Makeup exams will be scheduled only in the event of an EXCUSED absence (as defined in the Student's Guidebook). If the test is not made-up, the student will receive a zero for that exam.

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Syllabus Change Policy: The syllabus is a guide. Circumstances and events, such as student progress, may make it necessary for the instructor to modify the syllabus during the semester. Any changes made to the syllabus will be announced in advance.

University Specific Procedures

Student Conduct
All students enrolled at the University shall follow the tenets of common decency and acceptable behavior conducive to a positive learning environment. The Code of Student Conduct is described in detail in the Student Guidebook.
http://www.tamuc.edu/Admissions/oneStopShop/undergraduateAdmissions/studentGuidebook.aspx

Students should also consult the Rules of Netiquette for more information regarding how to interact with students in an online forum: Netiquette
http://www.albion.com/netiquette/corerules.html

TAMUC Attendance
For more information about the attendance policy please visit the Attendance webpage and Procedure 13.99.99.R0.01.

http://www.tamuc.edu/admissions/registrar/generalInformation/attendance.aspx

http://www.tamuc.edu/aboutUs/policiesProceduresStandardsStatements/rulesProcedures/13students/academic/13.99.99.R0.01.pdf

Academic Integrity
Students at Texas A&M University-Commerce are expected to maintain high standards of integrity and honesty in all of their scholastic work. For more details and the definition of academic dishonesty see the following procedures:

Undergraduate Academic Dishonesty 13.99.99.R0.03

http://www.tamuc.edu/aboutUs/policiesProceduresStandardsStatements/rulesProcedures/13students/undergraduates/13.99.99.R0.03UndergraduateAcademicDishonesty.pdf

Graduate Student Academic Dishonesty 13.99.99.R0.10

http://www.tamuc.edu/aboutUs/policiesProceduresStandardsStatements/rulesProcedures/13students/graduate/13.99.99.R0.10GraduateStudentAcademicDishonesty.pdf

ADA Statement
Students with Disabilities
The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you have a disability requiring an accommodation, please contact:

Office of Student Disability Resources and Services
Texas A&M University-Commerce
Waters Library- Room 162
Phone (903) 886-5150 or (903) 886-5835
Fax (903) 468-8148
Email: studentdisabilityservices@tamuc.edu
Website: Office of Student Disability Resources and Services
http://www.tamuc.edu/campusLife/campusServices/studentDisabilityResourcesAndServices/

Nondiscrimination Notice
Texas A&M University-Commerce will comply in the classroom, and in online courses, with all federal and state laws prohibiting discrimination and related retaliation on the basis of race, color, religion, sex, national origin, disability, age, genetic information or veteran status. Further, an environment free from discrimination on the basis of sexual orientation, gender identity, or gender expression will be maintained.

Campus Concealed Carry Statement
Texas Senate Bill - 11 (Government Code 411.2031, et al.) authorizes the carrying of a concealed handgun in Texas A&M University-Commerce buildings only by persons who have been issued and are in possession of a Texas License to Carry a Handgun. Qualified law enforcement officers or those who are otherwise authorized to carry a concealed handgun in the State of Texas are also permitted to do so. Pursuant to Penal Code (PC) 46.035 and A&M-Commerce Rule 34.06.02.R1, license holders may not carry a concealed handgun in restricted locations.
For a list of locations, please refer to the Carrying Concealed Handguns On Campus document and/or consult your event organizer.
Web url:
http://www.tamuc.edu/aboutUs/policiesProceduresStandardsStatements/rulesProcedures/34SafetyOfEmployeesAndStudents/34.06.02.R1.pdf
Pursuant to PC 46.035, the open carrying of handguns is prohibited on all A&M-Commerce campuses. Report violations to the University Police Department at 903-886-5868 or 9-1-1.

Tentative Course Schedule (Subject to Change)

Week of	**Topics**
8/29	Syllabus/Welcome Chapter 1: Introduction
9/5	Chapter 2: Neurons and Glia Chapter 3: The Neuronal Membrane at Rest

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9/12	Chapter 4: The Action Potential Chapter 5: Synaptic Transmission
9/19	Chapter 5: Synaptic Transmission cont'd Chapter 6: Neurotransmitter Systems **Exam #1 (Sep 19-25 (midnight) Ch.s1-5)**
9/26	Chapter 6: Neurotransmitter Systems cont'd
10/3	Chapter 7: The Structure of the Nervous System Chapter 17: Sex and the Brain
	Assignment #1 due Oct 9th (Sunday midnight)
10/10	Chapter 18: Brain Mechanisms of Emotion
10/17	Chapter 22: Mental Illness **Exam #2 (Oct 17-23 Ch.s 6,7,17,18,22)**
10/24	Chapter 8: The Chemical Senses
10/31	Chapter 9: The Eye
	Assignment #2 due Nov 6th (Sunday midnight)
11/7	Chapter 12: The Somatic Sensory System
11/14	Chapter 23: Wiring the Brain **Exam # 3 (Nov 14-20 Ch.s 8,9,12)**
11/21	Chapter 24: Memory Systems **Thanksgiving Break (11/24-25)**
11/28	Chapter 25: Molecular Mechanisms of Memory and Learning
12/5	Big Picture/Current Hot Topics in the Field
Finals Week	**Final Exam (Sat, Dec 10th-Fri, Dec 16th; 50% cumulative + 50% from Chapters 23 &25/Big Picture)**

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