



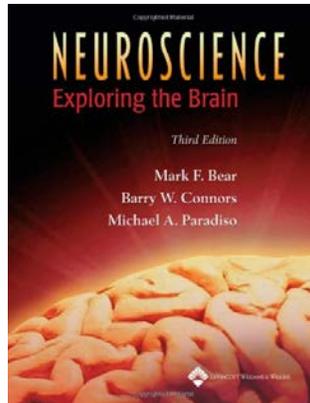
Department of Biological and Environmental Sciences
BSC 425.01E FUNDAMENTALS OF NEUROSCIENCE (CRN: 21494)
COURSE SYLLABUS: SPRING 2015

Instructor: Izhar A. Khan
Office Location: Science 215
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COURSE INFORMATION

Materials – Textbooks, Readings, Supplementary Readings

Textbook(s) Required: Bear, Mark F., Connors, Barry W. and Paradiso, Michael A.
Neuroscience: Exploring the Brain; Third Edition. Baltimore: Lippincott, Williams and Wilkins,
2007. ISBN-13: 978-0-7817-3944-3
Optional: None.



Course Description

This course is designed for 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 cognitive development and aging 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.

Student Learning Outcomes

Upon successful completion of this course, students will be expected 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

COURSE REQUIREMENTS

Instructional Methods/Activities/Assessments

This course consists of a series of activities and assessments to assist you in achieving the outcomes for all instructional units in the course.

Formal lectures will be supplemented with appropriate audiovisual materials, at home problems, and discussions. PowerPoint of all lectures will be available for you in the Doc Sharing portion of eCollege. I strongly encourage you to print these slides (4 or 6 slides per page) so you can take notes pertaining to the relevant slides in class. Alternatively laptop computers can be used during the lecture. I will post announcements on the home page of the course for reminders of important due dates. Progress in the class can be monitored using the Gradebook.

Your entire course grade is based on your performance on various assignments, quizzes and exams. Some of these activities will require you to answer a set of multiple choice/short answer questions, whereas other assignments will require you to write short essays and prepare in-depth presentations using Microsoft PowerPoint or similar presentation software. Each student will pick a week and topic for his/her presentation.

Resources

There are a variety of resources at your disposal to aid with your studies. This lecture course will be “Web Enhanced.” The course has an *eCollege* site that you will be expected to use regularly. You may enter the course website via your *myLeo* account.

The Academic Calendar includes information regarding University holidays, deadlines to add, drop, withdraw, and other such activities. This page also includes the link to the Final Exam

schedule for each semester: <http://www.tamuc.edu/admissions/registrar/academicCalendars/>

Grading

Three Term Exams – 100 points each = 300 points

Comprehensive Final Exam = 100 points

Quizzes, Assignments and Presentation = 100 points (Five quizzes 50 points, three assignments 30 points, and one paper discussion/presentation 20 points)

Attendance/participation = 10 bonus points for extra credit

At the end of the semester, the students' grade will be determined by calculating the percentage of the total possible points received by the student. Percentages are then converted to letter grades using the following rubric:

Percentage of Total Possible Points Received by student	Letter Grade
Greater than or equal to 89.5	A
Greater than or equal to 79.5, but less than 89.5	B
Greater than or equal to 69.5, but less than 79.5	C
Greater than or equal to 59.5, but less than 69.5	D
Less than 59.5	F

COURSE AND UNIVERSITY PROCEDURES

Course Specific Procedures

Academic Honesty

Texas A&M University-Commerce does not tolerate **plagiarism** and other forms of academic **dishonesty**. Conduct that violates generally accepted standards of academic honesty is defined as academic dishonesty. "Academic dishonesty" includes, but is not limited to, plagiarism (the appropriation or stealing of the ideas or words of another and passing them off as one's own), cheating on exams or other course assignments, collusion (the unauthorized collaboration with others in preparing course assignments), and abuse (destruction, defacing, or removal) of resource material.

Assignments

Official due dates for each assignment will be announced through eCollege or directly by email. Assignments must be uploaded to the eCollege Dropbox. The format of the file may vary, depending on the assignment. Please note that for every file you submit, you must have your last name included in the filename as well as in the header.

Late Work

Late work will not be accepted.

Drop a Course

A student may drop a course by logging into their *myLEO* accounts and clicking on the hyperlink labeled 'Drop a class' from among the choices found under the *myLEO* section of the Web page.

Incompletes

Incomplete grade ("I") may be granted under extreme circumstances following the University guidelines.

University Specific Procedures

ADA Statement

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
Gee Library, Room 132, Phone (903) 886-5150 or (903) 886-5835, Fax (903) 468-8148**

StudentDisabilityServices@tamuc.edu or visit

<http://www.tamuc.edu/CampusLife/CampusServices/studentDisabilityResourcesAndServices/default.aspx>

Nondiscrimination Statement

A&M-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.

Student Conduct

All students enrolled at the University shall follow the tenets of common decency and acceptable behavior conducive to a positive learning environment. (See Student's Guide Handbook, Policies and Procedures, Conduct)

Access to Student Work

Copies of your work in this course including copies of any submitted papers and your portfolios may be kept on file for institutional research, assessment and accreditation purposes. All work used for these purposes will be submitted anonymously.

Weather Closings

Snow closings are generally announced on area television and radio stations. Unless otherwise advised by radio announcement or by official bulletins on the number listed above, students are expected to report for class as near normal time as possible on days when weather conditions are adverse. Decisions as to snow closing or delayed opening are not generally made before 5:00 AM of the working day. Students are expected to attend class if the University is not officially closed.

TENTATIVE SCHEDULE*

Week 1: January 19 th – 23 rd	MLK Holiday Chapter 1: Introduction Chapter 2: Neurons and Glia
Week 2: January 26 th – 30 th	Chapter 3: The Neuronal Membrane at Rest
Week 3: February 2 nd – 6 th	Chapter 4: The Action Potential Quiz 1 – Monday, January 27 th (Ch: 2 & 3)
Week 4: February 9 th – 13 th	Chapter 5: Synaptic Transmission
Week 5: February 16 th – 20 th	Chapter 6: Neurotransmitter Systems Exam 1 – Monday, Feb 10 th (Ch: 2, 3, 4 & 5)
Week 6: February 23 rd – 27 th	Chapter 7: The Structure of the Nervous System
Week 7: March 2 nd – 6 th	Chapter 17: Sex and the Brain Quiz 2 – Monday, Feb 24 th (Ch: 6)

Week 8: March 9 th – 13 th	Chapter 18: Brain Mechanisms of Emotion Exam 2 – Monday, Mar 24 th (Ch: 6, 7 & 17)
Week 9: March 16 th – 20 th	Spring Break
Week 10: March 23 rd – 27 th	Chapter 22: Mental Illness
Week 11: March 30 th – April 3 rd	Chapter 8: The Chemical Senses
Week 12: April 6 th – 10 th	Chapter 9: The Eye Quiz 3 – Monday, March 31 st (Ch: 18)
Week 13: April 13 th – 17 th	Chapter 12: The Somatic Sensory System Exam 3 – Friday, Apr 11 th (Ch: 22, 8 & 9)
Week 14: April 20 th – 24 th	Chapter 23: Wiring the Brain
Week 15: April 27 th – May 1 st	Chapter 25: Molecular Mechanisms of Memory and Learning Quiz 4 – Monday, Apr 21 st (Ch: 12 & 23)
Week 16: May 4 th – May 8 th	Open (Term exams may push some of the lectures back and the final week may be needed to cover some of the topics). Final Exam Review and Quiz 5 – Friday May 8 th

Final Exam: Wednesday, May 13, 2015, 8:00 – 10:00 AM

The schedule for paper discussions/presentations will be finalized in the class. Updated syllabus will be posted on the course website in eCollege.

***THE SCHEDULE IS TENTATIVE AND SUBJECT TO CHANGE**