BSC525: ADVANCED NEUROSCIENCE
COURSE SYLLABUS: SPRING 2013

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COURSE INFORMATION

Materials – Textbooks, Readings, Supplementary Readings
***Textbook(s) Required*:** Squire, L., Berg, D., Bloom, F.E., du Lac, S., Ghosh, S. and N.C. Spitzer. *Fundamental Neuroscience.* ISBN-13: 978-0123858702

Course Description:
This course is designed for graduate 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 at their most basic level as well in unique specific systems particularly sensory, and movement systems as well as cognitive development & aging. Students are expected to gain an in-depth understand of basic principles and concepts of neurons at the molecular levels, to learn to reason scientifically, and to understand and describe the cooperative function of organelles in the specialized cells.

Student Learning Outcomes (SLOs):
Upon successful completion of this course, students will be expected to:

- Describe unique and common characteristics of unifying concepts of neurons including:
  - Cellular components of neurons
  - Action Potentials and Neurotransmitters
  - Receptors and Postsynaptic Integration
- Understand Neural Development. Particularly as it pertains to:
  - Cell Determination and Pathfinding
  - Synapse Formation and Cell Death
  - Synapse Elimination and Learning/Memory
- Understand the concepts of neuronal contributions to senses and sensation including
  - Taste, Olfaction, and Somatosensory
  - Hearing and vision
- Apply principles of neuroscience to demonstrate an understanding of the Motor Systems and Movement particularly:
  - Local Control Arcs and Descending Control
  - Cerebellum, Eye Movements, and Attention

- Describe the concepts of Complex Neural Processes including:
    - Cognitive development and
    - Changes in neuronal properties during aging.

COURSE REQUIREMENTS

Instructional Methods / Activities / Assessments

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

Your entire course grade is based on your performance on various assignments. Some assignments will require you to answer a set of multiple choice questions (MCQs) whereas other assignments (case studies, CS; short answers, SA) will require you to write short answers and/or mini essays. Each assignment will therefore not be worth the same number of points.

Grading

The total number of points possible for each assignment will vary. At the end of the semester, the student's grade is 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

TECHNOLOGY REQUIREMENTS

This course is web-based, and will therefore be administered via eCollege (see "ACCESS AND NAVIGATION). All course announcements, which mainly include news about assignments, are posted through eCollege (usually via email). In addition to reading the announcements (my emails), you will be uploading your assignments to the Dropbox. As grades are updated, I update the Gradebook. Thus, the three major components used in eCollege are Announcements, Dropbox, and Gradebook.

The following information has been provided to assist you in preparing to use technology successfully in this course.

- Internet access/connection – high speed recommended (not dial-up)
- Word Processor (Microsoft Word, OpenOffice Writer, et cetera) and Slide Program (Microsoft PowerPoint, OpenOffice Impress, et cetera)

Our campus is optimized to work in a Microsoft Windows environment. This means our courses work best if you are using a Windows operating system (XP or newer) and a recent version of Microsoft Internet Explorer (6.0, 7.0, 8.0, or 9.0). Your courses will also work with Macintosh OS X and most Linux distributions. To launch a browser test within any operating system, login in to eCollege, click on the 'myCourses' tab, and then select the "Browser Test" link under Support Services.

ACCESS AND NAVIGATION

eCollege Access and Log in Information

This course will be facilitated using eCollege, the Learning Management System used by Texas A&M University-Commerce. To get started with the course, go to: https://leo.tamuc.edu/
You will need your CWID and password to log in to the course. If you do not know your CWID or have forgotten your password, contact Technology Services at 903.468.6000 or helpdesk@tamuc.edu.

Being a Successful Student

- What Makes a Successful Online Student?
- Self-Evaluation for Potential Online Students
- Readiness for Education at a Distance Indicator (READI)
    - *Login Information*: Login = ***tamuc***; password = ***online***

COMMUNICATION AND SUPPORT

Interaction with Instructor Statement

I will communicate with you primarily through your college email address (MyLeo email address). If you email me, expect a response within 24 hours; if I email you, I'll expect a response within 48 hours.

COURSE AND UNIVERSITY PROCEDURES/POLICIES

Course Specific Procedures

Academic Honesty Policy

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.

Assignment Policy

Official due dates are 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 account 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.

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

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 *Code of Student Conduct from Student Guide Handbook).*

COURSE OUTLINE / CALENDAR

Week	Topics	Textbook Chapter	Assessment
1	Introductory Chapters	1-4	MCQ
2	Membrane Potential and Action Potential	5	MCQ
3	Neurotransmission	6-9	
4	Neurotransmission	6-9	MCQ
5	Integration	10	MCQ
6	Cellular Determination	14	MCQ
7	Growth Cones and Axon Finding	16	MCQ
8	Synapse Formation	17	MCQ
9	Spring Break		
10	Cell Death	18	MCQ
11	Synapse Elimination	19	MCQ
12	Neuroendocrine Systems	38	MCQ
13	Cognitive Development and Aging	43	MCQ
14	Learning and Memory	47-48	MCQ
15	Sensory Systems	27	
16	Sensory Systems	22-26	MCQ
			CS?

*MCQ = Multiple Choice Questions; CS = Case Studies

Please note that the above schedule is tentative. Also, I may work in some case studies instead of MCQs. I will always give you plenty of time to complete assignments.