Course Syllabus

Course Information

Course Number/Section	NSC 3361
Course Title	Introduction to Neuroscience
Term	Spring 2019
Days/Times/Room	MW 08:30am-09:45am JO4.102

Professor Contact Information

Professor	Dr. Siham Raboune
Email Address	siham.raboune@Utdallas.edu
Office Location	JO3.110
Office Hours	MW 11:00am-12:00pm
Other Information	Course Web Site: UTD eLearning

Teaching Assistant	Alghamdi Saad
Email	Alghamdi.saad@utdallas.edu
Office hours	By appointment

Course Pre-requisites, Co-requisites, and/or Other Restrictions

None

Course Description

This is an introductory course that explores the basic structure and function of the brain and spinal cord as well as nerves and their connections. This course includes an in-depth look at the principles of neurophysiology and the underlying processes responsible for sensation, learning and memory, as well as behavior.

Course Content

To begin to understand human behavior and disease you must first understand how the brain works. Since this is an introductory neuroscience course, we will first examine nerves cells and their physiological processes including the propagation of nerve impulses and the transfer of information from one neuron to another. This will include a survey of basic neuroanatomy and the development of the nervous system. This will be followed by a study of the overall organization of the central nervous system including parts of the brain stem, spinal cord, and cranial nerves. We will then look at the sensory, motor, and integrative systems, followed by a look at several behavioral and mental disorders. Basic neuropharmacology will be discussed as it relates to the above mentioned topics.

In order to understand and communicate about the nervous system, there will be a lot of new vocabulary that you will need to learn!

Student Learning Objectives/Outcomes

After completing the course, students should be able to:

1. Identify and describe basic neuro-anatomical structures, lobes of the brain, and their major functions
2. Describe the differences between neurons and glia, their primary functions, and their physiological processes
3. Describe the physiological processes associated with neuronal conduction, communication, and the transfer of information from neuron to neuron
4. Display a basic understanding of neurochemistry and basic neuropharmacology as it relates to neuronal function and mental disorders
5. Identify and describe basic neurochemistry as well as specific neurotransmitters and their functions
6. Describe the anatomical structures and mechanisms associated with both sensory and motor systems at both the cellular level and system level
7. Describe the anatomical structures and associated mechanisms involved with cognition, behavior, and some psychiatric disorders

Required Textbooks and Materials

Neuroscience: Exploring the Brain, 4th Ed., Bear

Optional Course Materials (Not required!)

If you desire additional sources of information -*because you just can't get enough to read*- you can look at (1) *Essential Neuroscience* by Siegel, (2) *Neuroscience* by Purves, (3) Foundations of Behavioral Neuroscience by Carlson, and/or (4) *Principles of Neural Science* by Kandel.

AGAIN, THESE TEXTBOOKS ARE NOT REQUIRED FOR THE CLASS.

Course & Instructor Policies

eLearning, course information, and UTD email

All course information including PowerPoints will be posted on eLearning. No portion of classroom material including all PowerPoint slides may duplicated, reposted, retransmitted, sold, or otherwise used without the express written approval of the author. I will use e-Learning to post announcements from time to time as well as any urgent changes to our class schedule including class cancellations should the need arise. To comply with FERPA regulations, all and any email correspondence related to the course MUST be sent through official UTD email/eLearning; I will not respond to emails sent via any outside email addresses. This is to protect your privacy. Grades will be posted as soon as they are available. Announcements may be made from time to time in class or via e-learning announcements.

Attendance and Readings

Learning about neuroscience can be a challenge even for the most studious student. Regular attendance and reading are vital to your understanding of the subject. Your performance in this course will probably be affected by your attendance. Attendance of classes is strongly recommended, as tests will be based on material taken from the classes and will not be restricted to the topics and textbooks indicated in this syllabus, which serves predominantly as a guideline to the course. Arrive on time and please give your entire attention to the class until dismissal. It is your responsibility to come to class or otherwise obtain information presented in class from another class member. The instructor will post lecture slides prior to class. Students are expected to read lecture material before coming to class. Students are also expected to participate in class discussions and activities. **I will often emphasize particular parts of a chapter that I think are critical for your future studies. If you are not in class, you will not know what parts I have emphasized!** In addition, I may from time to time present material in lecture that

is not covered in the textbook. This will often include material designed to enhance your knowledge and peak your interest. This should encourage you to attend class and to keep up on your reading assignments.

Special needs

Any student with special needs/circumstances that require special accommodations for this course should make this known to the instructor during the first week of class via email.

Academic Support/Tutoring

The Student Success Center offers Supplemental Instruction (SI) for this course free of charge. Study sessions are lead by an SI leader, someone who has taken the class and done well, and are held weekly. Sessions start during the second week of classes and are voluntary; there is no need to sign up. For details such as days and times and other additional information check http://www.utdallas.edu/studentsuccess/leaders/si.html

Your class TA is a good source of information and can be very helpful if you are having trouble in the class with regard to understanding the material. Teaching Assistants (TA) are graduate students with a good degree of knowledge about the material you are being given; many of them have taken this class. Please feel free to email your TA at any time during the semester His or her contact information is listed above.

Grading Policy

Your grade will be determined as follow:

In Class Exams:	75%
Take Home Assignments:	15%
Quiz:	10%
Total earned	**100%**

Letter grades will be assigned according to the following cutoffs:

The plus/minus grading system is used in this course. A+ (97–100), A (94<97), A- (90<94), B+ (87<90), B (84<87), B- (80<84), C+ (77<80), C (74<77), C- (70<74), D+ (67<70), D (64<67), D- (60<64), F (< 60).

Exams (75%): There will be a total of four exams: Three during the semester and one last mandatory comprehensive exam during the final exam period. Exams will consist of multiple-choice, matching, and true/false questions and will be graded equally. The comprehensive final will draw on the material from Exam 1, Exam 2 and Exam 3. You may drop your lowest grade even the final if desired. Exams will begin promptly, and no one will be allowed to take the exam once the first person done has left the room and no extra time will be given. Make-up exams are rarely offered and only at my discretion. Excused absences for exams will be given only if: (a) you are seriously ill and have verifiable documentation from a physician, or (b) you made prior arrangements to attend a verifiable religious or family event. In all of these cases you must notify and discuss with the instructor in advance of the scheduled exam by email. Otherwise, you will receive a zero (0) for that exam. A maximum extension of one week (7 days) beyond the scheduled exam date can be granted for a make-up exam, except for the final comprehensive exam, which must be taken on the final exam date. Please DO NOT make early travel arrangements during Finals week. No other make-up exam will be given for any reason. **You will need scantron form 229630 and a pencil for each test**. Using the wrong scantron, not writing in your name and ID number correctly, or not bubbling-in your information correctly on the scantron may delay your grade being posted.

Take Home Assignments (15%): There will be a total of 3 assays during the semester. Each assay is worth (5%). This is a going to be a "small group" work, so collaboration is allowed, however every student needs to write their own assay independently and include names of all group members. These assays will be turned in class and need to be submitted by the due date (to be announced in class and Via e-learning announcement) and any change of those dates will be announced in the class and Via e-learning announcement. ***There is No make up for these assays***

Quiz (10%): There will be a 1 mid-term Quiz on the anatomy and terminology of the nervous system discussed in class. The date of the quiz will be announced in the class and Via e-learning announcement. ***There is No make up for the Quiz***

Scholarly Student Conduct

In order to create an environment that is conducive to learning, students assume the duty to conduct themselves in a manner appropriate to the university policy. Please plan to pay your full attention to class and be an active learner. If you have a cell phone in class, be respectful to your classmates and make sure you silence the ringer before class begins. Also restrict its use to course content. Behaviors that are disruptive or insulting to me or your classmates will not be accepted.

Academic Dishonesty

Violations of academic honesty (cheating, plagiarism, etc.) will not be accepted Please refer to your student handbook for a description of academic dishonesty policy.

The instructor reserves the right to amend this syllabus at any time. It is the responsibility of the student to be made aware of any changes in the syllabus by attending class and checking e-learning regularly.

Tentative Course Schedule

Week	Day	Topic	Reading
Jan 14	M	Introduction/Orientation	
	W	Neurons and Glia	Chapter 2
Jan 21	M	Neurons and Glia	Chapter 3
	W	The Neuronal Membrane at Rest	Chapter 3
Jan 28	M	The Neuronal Membrane at Rest	Chapter 3
	W	The Action Potential	Chapter 4
Feb 4	M	The Action Potential/Synaptic Transmission	Chapter 4-5
	W	Synaptic Transmission	Chapter 5
Feb 11	M	Neurotransmitter Systems	Chapter 6
	W	Neurotransmitter Systems	Chapter 6
Feb 18	M	**Review session**	
	W	**Exam I**	
Feb 25	M	The Structure of the Nervous System (Neurodevelopment)	Chapter 7
	W	The Structure of the Nervous System (Neuroanatomy) See Appendix starting on page 219	Chapter 7
Mar 4	M	The Structure of the Nervous System (Neuroanatomy) See Appendix starting on page 219	Chapter 7
	W	The Eye	Chapter 9
Mar 11	M	The Eye	Chapter 9
	W	The Central Visual System	Chapter 10
Mar 18	M	**Spring Break**	
	W	**Spring Break**	
Mar 25	M	**Review session**	
	W	**Exam II**	
Apr 1	M	The Somatic Sensory Systems	Chapter 12
	W	Olfaction and Audition	Chapter 8 &11
Apr 8	M	Spinal Control of Movement (The Somatic Nervous System)	Chapter 13
	W	Spinal Control of Movement (Spinal Control of Motor Units)	Chapter 13
Apr 15	M	Brain Control of Movement (Descending Tracts)	Chapter 14
	W	Brain Control of Movement (Cerebral Cortex, Basal Ganglia, &	Chapter 14
Apr 22	M	Chemical Control of the Brain and Behavior (Basic Neurochemistry, The Hypothalamus& Pituitary)	Chapter 15
	W	Chemical Control of the Brain and Behavior (The Autonomic Nervous	Chapter 15
Apr 29	M	**Review session**	
	W	**Exam III**	
		Final Exam (TBA)	