

**The University of Texas at El Paso
College of Health Sciences
Department of Rehabilitation Sciences**

DRSC 5390

Neuroscience for Health Sciences

Spring 2019

COURSE SYLLABUS

Credit Hours: 3

Contact Hours: 45

Schedule: Wednesday / Friday 10:30 -12pm
Rm 234 Campbell Building

Instructor: Jason B. Boyle, Ph.D.
Office: Rm 114 Campbell Building (Motor Control Lab)
Office hours: by appointment
E-mail: jbb Boyle@utep.edu

Course Description: Human neuroscience with an emphasis on normal and abnormal structures and functions of the nervous system, as applied to neurological dysfunction and its impact on physical and occupational functioning of an individual are studied.

Course Objectives: Upon completion of this course, the student will be able to:

1. Identify the gross anatomy of the nervous system and all major anatomical structures in gross dissection of the human brain, brainstem, and spinal cord. (7A, 7C)
2. Describe the cytoarchitecture of the nervous system and the physiology of neuronal and synaptic functions. (7A, 7C)
3. Outline the functional anatomy and organization of general sensory and motor pathways, including all tracts and CNS structures used to process sensory information and convey motor commands. (7A, 7C)
4. Describe the function and neuroanatomy of special sensory systems, including auditory, vestibular, and visual systems. (7A, 7C)
5. Describe the functional consequences of neurological impairment to sensory and motor systems. (7A, 7C)
6. Discuss processes involved in higher cognitive function, including memory formation, learning, motor control, and motor learning. (7A, 7C)

Required Texts: Neuroscience: Fundamentals for Rehabilitation (4th edition)

Supplemental Atlas: Available on Blackboard; O'Connor P, Demes B. Atlas of Neuroanatomy.

Methods of Instruction: Lecture and assigned readings.

Methods of Evaluation: Evaluation of course content will consist of quizzes and written exams. Quizzes and exams will not be graded on a curve. Exams will be tentatively scheduled however,

quizzes will be un-announced. A minimum average of 70% is needed to pass the course with a grade of “C.” Graded activities and their weight are as follows:

Quizzes = 20% of final grade

Exams (4 total, each 20% of final grade) = 80% of final grade

Course grades will be assigned using the following scale:

A -- 90-100

B -- 80-89

C -- 70-79

F -- Below 70

Course Content: Refer to the “Topic outline” at the end of the syllabus.

Accumulated Knowledge:

The student must have a working knowledge of human gross anatomy before undertaking the study of neuroscience. While some review is incorporated into the course material, there is insufficient time to allow extensive detail or instruction. All students are expected, at the start of this course to be familiar with all material presented in the preceding semester of their curriculum.

Attendance: Attendance is expected for all classes. You must contact the professor by email if you will not be able to attend class that day. Make up quizzes or exams will only be given to students with an excused absence. Any unexcused absences will result in a 5% lowering of the final grade, refer to Student Handbook.

Course and Program Policy: See Program Handbook for all policies on exams, electronic device use, dress code, attendance, and scholastic dishonesty. Your instructors encourage you to periodically review all handbook policies, but in light of past experiences, particularly direct you to review the policies on cheating, accumulated knowledge, generic abilities, attendance, and the disclaimer that the syllabus is subject to change.

Students in Need of Assistance: UTEP seeks to provide reasonable accommodations for all qualified individuals who need accommodations or support for their learning. This university adheres to all applicable federal, state, and local laws, regulations and guidelines with respect to providing reasonable accommodations as required, affording equal educational opportunity. It is the *student's responsibility* to register with the Center for Accommodations and Support Services <http://sa.utep.edu/cass/> in the UTEP Union Bldg. East Wing, Room 106 *within the first two weeks of classes*, and inform the faculty member to arrange for appropriate accommodations or support.

Tentative Topic Outline: The following outline is a tentative schedule for the topics in this course. These are subject to change in the event of extenuating circumstances or by mutual agreement between the instructor and the students.

- Introduction to Neuroscience
- Physical and Electrical Properties of Cells in the Nervous System
- Synapses and Synaptic Transmission
- Neuroplasticity
- Development of the Nervous System
- Somatosensory System
- Somatosensation-Clinical Application
- Neuropathic Pain, Pain Matrix Dysfunction, and Pain Syndromes
- Autonomic Nervous System
- The Motor System- Motor Neurons
- Basal Ganglia, Cerebellum, and Movement
- Peripheral Nervous System
- Spinal Region
- Cranial Nerves
- Brainstem Region
- Vestibular and Visual Systems
- Cerebrum
- Cerebrum-Clinical Applications
- Support Systems- Blood Supply and Cerebrospinal Fluid System

DATE		Schedule
Feb 15	Fri	Exam 1
March 15	Fri	Exam 2
April 17	Wed	Exam 3
May 10	Fri	Exam 4 PT Students: 9 – 12pm ILC OT Students : 1 -4pm ILC