

The University of Texas at El Paso  
College of Health Sciences  
Doctor of Physical Therapy Program

DRSC 5390

NEUROSCIENCE FOR HEALTH SCIENCES

Spring 2021

**COURSE SYLLABUS**

**Credit Hours: 3**

**Contact Hours: Total: 45 hrs - Lecture: 45; Lab: 0 hrs; Clinic: 0 hrs**

**Schedule:**

Wednesday / Friday 10:30 am-12 pm

**Coordinator/Instructor(s):**

Faculty: Jason B. Boyle

Office Location: Campbell Building Rm 213

Phone #: Ext #7239

E-mail: jdboyle@utep.edu (best way to reach me)

Office hours: by appointment

Teaching Assistant: N/A

**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 Prerequisites for DPT Students:** The UTEP DPT Program curriculum is a lock-step curriculum. Therefore, students must pass all courses in the prior semester of the DPT Program in order to enroll in courses in the subsequent semester. Faculty may consider exceptions for PT 6116 PT Capstone Project I and PT 6117 PT Capstone Project II.

**Course Objectives:**

1. Identify the gross anatomy of the nervous system and all major anatomical structures in the human brain, brainstem, and spinal cord. (7A: Anatomy, Neuroscience; 7C: Nervous System) [Comprehension]
2. Describe the cytoarchitecture of the nervous system and the physiology of neuronal and synaptic functions. (7A: Anatomy, Physiology, Neuroscience; 7C: Nervous System) [Comprehension]
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: Anatomy, Neuroscience; 7C: Nervous System) [Comprehension]
4. Describe the function and neuroanatomy of special sensory systems, including auditory, vestibular, and visual systems. (7A: Anatomy, Neuroscience; 7C: Nervous System)

5. Describe the functional consequences of neurological impairment to sensory and motor systems. (7A: Neuroscience; 7C: Nervous System) [Comprehension]
6. Describe the functional consequences of neurological impairment to sensory and motor systems. (7A: Neuroscience; 7C: Nervous System) [Comprehension]
7. Discuss processes involved in higher cognitive function, including memory formation, learning, motor control, and motor learning. (7A: Neuroscience; 7B: Teaching and Learning; 7C: Nervous System) [Comprehension]
8. Identify pathological pain processes related to peripheral and central pain mechanisms. (7A: Anatomy, Neuroscience; 7C: Nervous System) [Comprehension]

**Methods of Instruction:** Hybrid Lecture/Online: assignments, discussions, tests, textbook and scientific article 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. A minimum average of 70% is needed to pass the course with a grade of "C." Graded activities and their weight are as follows:

<u>Item</u>	<u>Grade Composition</u>
Quizzes	18%
Exam 1	18%
Exam 2	18%
Exam 3	18%
Exam 4	18%
Final Exam	10%
Total	100%

**Grading Scale:** The following letter grade scale is used for the UTEP Doctor of Physical Therapy Program:

<u>Letter Grade Scale</u>	<u>Numerical Grade Scale</u>
A	90-100
B	80-89
C	70-79
F	Below 70

**Required Textbooks and Other Learning Resources:**

1. Neuroscience: Fundamentals for Rehabilitation (4<sup>th</sup> edition)

**Recommended Textbooks and Other Learning Resources:**

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

**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.

### **Resources Available for Student Success:**

#### **Confidential Resources:**

- **Center for Accommodations and Support Services (CASS):** If you have or suspect a disability and need accommodations, you should contact the Center for Accommodations and Support Services (CASS) at 747-5148. You can also e-mail the office at [cass@utep.edu](mailto:cass@utep.edu) or go by their office in Union Building East, room 106 (next to the UTEP post-office). For additional information, visit the CASS website at <http://sa.utep.edu/cass>.
- **The UTEP Student Health Center:** Union East Suite 100; 915.747.5624; [www.utep.edu/chs/shc](http://www.utep.edu/chs/shc)
- **The UTEP Counseling and Psychological Services:** 202 Union West, 915.747.5302; [www.utep.edu/student-affairs/counsel](http://www.utep.edu/student-affairs/counsel)

#### **Additional Resources:**

- Division of Student Affairs. 915.747.5076, [www.utep.edu/student-affairs](http://www.utep.edu/student-affairs)
- DPT Library Research Guide: <http://libguides.utep.edu/pt>
- Writing Center: 915.747.5112. <https://uwc.utep.edu>
- Computer Labs: Independent Learning Center (ILC), 1<sup>st</sup> floor Campbell Building
- Military Student Success Center: 915.747.5342, [www.utep.edu/student-affairs/mssc](http://www.utep.edu/student-affairs/mssc)
- Student Wellness Program. 915.747.6738, [www.utep.edu/chs/wellness](http://www.utep.edu/chs/wellness)

**University Policies:** All students are responsible for following UTEP policies and procedures found in the Handbook of Operating Procedures at [www.utep.edu/vpba/hoop](http://www.utep.edu/vpba/hoop)

**Program Policies:** All DPT students are responsible for following all policies and procedures documented in the current DPT Student Handbook. Course policies found in the DPT Student Handbook apply to all courses in the DPT curriculum. The current DPT Student Handbook may be found on the DPT Student Resources site on Blackboard.

**Academic Integrity:** The UTEP DPT Program has a “zero tolerance policy” for scholastic dishonesty. DPT students must demonstrate academic integrity at all times. The current DPT Student Handbook outlines specific definitions, expectations, details, and consequences related to academic integrity and scholastic dishonesty. Additional information related to academic integrity is available through the UTEP Division of Student Affairs at [www.utep.edu/student-affairs/osccr/student-conduct/academic-integrity.html](http://www.utep.edu/student-affairs/osccr/student-conduct/academic-integrity.html)

**Course-Specific Policies:**

1. **Attendance Policy - Absences:** Refer to current DPT Student Handbook “Attendance and Classroom Behavior” for the DPT Program policy. Additional course-specific policy are as follows:
  - 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.
2. **Attendance Policy - Tardiness & Early Departures:** Refer to current DPT Student Handbook “Attendance and Classroom Behavior” for DPT Program policy.
3. **Electronic Devices:** Refer to current DPT Student Handbook “Electronic Devices” for DPT Program policy.
4. **Professional Behavior Policy:** See DPT Student Handbook “Attendance and Classroom Behavior”, “Professional Behaviors” and “Unprofessional Behavior:” for general program policy.
5. **Late or Missed Assignments and Assessments Policy:** See current DPT Student Handbook “Written Examination Policy”.
6. **Skills Check Policy:**
  - Not applicable
7. **Practical Exam Policy:**
  - Not applicable

**Course Content and Schedule:** (Note: Students will be notified of changes via Blackboard or email. Additional details may be available in supporting course documents provided by the course instructor).

Spring 2021 Tentative ONLINE Schedule			
Week 1	January 18 - January 24	- Introduction to Neuroscience  - Physical and Electrical Properties of Cells in the Nervous System	- Quiz 1  - Quiz 2
Week 2	January 25 - January 31	- Synapses and Synaptic Transmission  - Neuroplasticity  - Development of the Nervous System	- Quiz 3  - Quiz 4  - Quiz 5
Week 3	February 1 - February 7	- EXAM 1(ch1-5)	
Week 4	February 8 - February 14	- Somatosensory System  - Somatosensation-Clinical Application	- Quiz 6  - Quiz 7
Week 5	February 15 - February 21	- Neuropathic Pain, Pain Matrix Dysfunction, and Pain Syndromes  - Autonomic Nervous System	- Quiz 8  - Quiz 9
Week 6	February 22 - February 28	- EXAM 2 (ch6-9)	

Week 7	March 1 - March 7	- The Motor System- Motor Neurons  - Basal Ganglia, Cerebellum, and Movement	- Quiz 10  - Quiz 11
Week 8	March 8 - March 14	- Peripheral Nervous System  - Spinal Region	- Quiz 12  - Quiz 13
Week 9	March 15 - March 21	<b>SPRING BREAK</b>	
Week 10	March 22 - March 28	- <b>EXAM 3(ch10-13)</b>	
Week 11	March 29 - April 4	- Cranial Nerves  - Brainstem Region	- Quiz 14  - Quiz 15
Week 12	April 5 - April 11	- Vestibular and Visual Systems (speaker: Dr. Michelle Gutierrez)	- Quiz 16
Week 13	April 12 - April 18	- Cerebrum  - Cerebrum-Clinical Applications	- Quiz 17  - Quiz 18
Week 14	April 19 - April 25	- Support Systems- Blood Supply and Cerebrospinal Fluid System	- Quiz 19

Week 15	April 26 - May 2	- EXAM 4 (ch14-19)	
Week 16	May 3 - May 9	- <i>Open week if schedule needs to adjust. If on track: Review/Study week</i> - <i>Exit Survey (Quiz 20)</i>	- Quiz 20
Finals	May 10 - May 14	- Final Exam (ch1-19)	