

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

DRSC 6390

NEUROSCIENCE FOR HEALTH SCIENCES

Spring 2023

COURSE SYLLABUS

Credit Hours: 3

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

Schedule:

Wednesday 11:00 am – 12:30 pm (Campbell 213)

Friday 11:00 am – 12:30 pm (Campbell 213)

Coordinator/Instructor(s):

Faculty	Balachandar Kathirvelu, MBBS, PhD (Primary)	Camila Torriani-Pasin, PhD
Office location	3333 N. Mesa Bldg (115T)	3333 N. Mesa building (115C)
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Office hours	by email request	by email request

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 Students: The UTEP DPT/DOT Program curriculum is a lock-step curriculum. Therefore, students must pass all courses in the prior semester of the DPT/DOT Program in order to enroll in courses in the subsequent semester.

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]

- **Cultural / Linguistic Engagement and Competence:** n/a
- **Evidence-Based Practice and Research:** n/a
- **Clinical Reasoning:** Clinical reasoning is woven across the course during teaching. We address videos of patients and case discussions to stimulate clinical reasoning under a Neuroscience background.
- **Interprofessional Collaborative Practice:** Students from OT and PT interact during classes and clinical examples of each professional specificity are provided.

Methods of Instruction: Lecture, blackboard handouts and textbook readings, chapter workbooks and online lab activities, video discussions.

Methods of Evaluation: Evaluation of course content will consist of quizzes and 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:

Item	Grade Composition
Quizzes	20%
Exam 1	15%
Exam 2	15%
Exam 3	15%
Exam 4	15%
Exam 5 Finals	20%
Total	100%

*If you are consistently performing **below 80%** you are required to arrange a meeting with the instructor to develop study strategies for performance improvement.

Grading Scale: The following letter grade scale is used for the UTEP DOT and DPT Program:

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

Required Textbooks and Other Learning Resources:

1. Neuroscience: Fundamentals for Rehabilitation (5th edition) or current

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 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
- **The UTEP Counseling and Psychological Services:** 202 Union West, 915.747.5302; www.utep.edu/student-affairs/counsel

Additional Resources:

- Division of Student Affairs. 915.747.5076, 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), 1st floor Campbell Building
- Military Student Success Center: 915.747.5342, www.utep.edu/student-affairs/mssc
- Student Wellness Program. 915.747.6738, 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

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

Academic Integrity: The UTEP MOT and DPT Program have a “zero tolerance policy” for scholastic dishonesty. All students must demonstrate academic integrity at all times. Both programs Student Handbook’s outline 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

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:
 - As a student enrolled in a professional program, it is also expected that every student will be seated and attentive as soon as class begins. Tardiness is unprofessional and impacts your fellow peers by interrupting the classroom dynamics.
 - An attendance sheet will be circulated at the end of some lecture randomly for your signature.
 - If you miss a class, you must contact your instructor via email: bkathirvelu@utep.edu or ctorrianip@utep.edu within 24 hours of the missed class.
 - If you miss a class, you are responsible for the material that was covered in lecture, and any announcements that were made in class that you missed.
 - There will be no make-up exams unless arrangements are made prior to the scheduled date, or in the case of an unforeseen emergency situation.
 - Missed exams will be entered as a zero grade unless the student has made prior arrangements with the instructor.
 - The instructor will endeavor to arrange a convenient make-up date for both of our schedules.
 - Make-up quizzes and exams will cover the same content, but the format of the test may be different. 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.
 - It will not be the policy of this instructor to routinely allow students to take advantage of missing quizzes and exams with the expectation that they will be able to make up the work later.

- We consider extraordinary circumstances worthy of an excused absence to include: military duty, jury duty, documented hospitalization, documented illness, funerals, and/or religious observations.
2. **Attendance Policy - Tardiness & Early Departures:** Refer to current DPT/DOT Student Handbook “Attendance and Classroom Behavior” for DPT/DOT Program policy. Additional course-specific policy is as follows:
 3. **Electronic Devices:** Refer to current DPT Student Handbook “Electronic Devices” for DPT Program policy. Additional course-specific policy is as follows:
 - All cell phones must be turned off, or placed on vibrate, before the beginning of class. Cell phones can be disruptive and a distraction during valuable lecture time which can negatively impact all the students in the class.
 - Cell phones may not be used to photograph quizzes or exams. Exams are returned to the student for inspection, but they must be turned in before you leave class. They are filed and kept by the instructor until after graduation.
 4. **Professional Behavior Policy:** See DPT/DOT Student Handbook “Attendance and Classroom Behavior”, “Professional Behaviors” and “Unprofessional Behavior:” for general program policy. Additional course-specific is as follows:
 5. **Late or Missed Assignments and Assessments Policy:** See current DPT/DOT Student Handbook “Written Examination Policy”. Additional course-specific policy is as follows:
 - Your evaluation will be based on your performance on exams and quizzes conducted in the class
 - Quizzes will consist of questions given at the beginning of class covering the material from the previous class(es) as an on-line quiz.
 - In-class quizzes will be given at the start of class (first 10-15 minutes).
 - If you are late to class, you will only have the remaining time (of the test time) to complete the quiz.
 - If you miss the quiz entirely you will receive a zero.
 - In the case of an excused absence from class, the student and instructor will coordinate a make-up time convenient to both our schedules AND within a short window of time.
 - An unexcused absence resulting in a missed exam will result in a grade of zero on that exam and no make-up will be given.
 6. **Skills Check Policy:** No skill checks
 7. **Practical Exam Policy:** No practical examination

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).

Wed & Fri 11: 12:30pm

Classes begin: Jan 18, 2022

The last day of class in this course is Wednesday, May 3, 2023

The Final exam will be on Friday, May 12, 2023 (9am -12pm)

Schedule Neuroscience (Tentative)

Topics			Initial
1/18/2023	Wed	Introduction to Neuroscience & Neuroanatomy	Dr. Bala
1/20/2023	Fri	Physical and Electrical Properties of Cells in the Nervous System	Dr. Bala
1/25/2023	Wed	Neural Communication Synaptic and Extrasynaptic Transmission	Dr. Bala
1/27/2023	Fri	Neuroimaging and Neuroanatomy	Dr. Bala
2/1/2023	Wed	Neuroplasticity	Dr. Torriani
2/3/2023	Fri	Neuroplasticity & Development of the nervous system	Dr. Bala
2/8/2023	Wed	Development of the nervous system	Dr. Bala
2/10/2023	Fri	Exam 1 (15%)	
2/15/2023	Wed	Somatosensory system	Dr. Bala
2/17/2023	Fri	somatosensory system- Clinical Applications	Dr. Torriani
2/22/2023	Wed	Pain and syndromes	Dr. Bala
2/24/2023	Fri	Autonomic nervous system	Dr. Bala
3/1/2023	Wed	Autonomic nervous system	Dr. Bala
3/3/2023	Fri	Exam 2 (15%)	
3/8/2023	Wed	Motor system: Motor Neurons	Dr. Torriani
3/10/2023	Fri	Motor system & tracts (Start time 10:30am)	Dr. Torriani
3/15/2023	Wed	SPRING BREAK	
3/17/2023	Fri		
3/22/2023	Wed	Basal Ganglia, Cerebellum and Movement	Dr. Bala
3/24/2023	Fri	Basal Ganglia, Cerebellum and Movement	Dr. Bala
3/29/2023	Wed	Exam 3 (15%)	
3/31/2023	Fri	No Classes	
4/5/2023	Wed	Peripheral Nervous system	Dr. Bala
4/7/2023	Fri	Spinal and Cranial Nerves	Dr. Bala
4/12/2023	Wed	Brainstem region	Dr. Bala
4/14/2023	Fri	Vestibular system	Dr. G
4/19/2023	Wed	Visual system, Dizziness, unsteadiness	Dr. Bala
4/21/2023	Fri	Exam 4 (15%)	
4/26/2023	Wed	Cerebrum, Blood supply and CSF	Dr. Bala
4/28/2023	Fri	Clinical applications	Dr. Torriani
5/3/2023	Wed	Clinical applications	Dr. Torriani
5/12/2023	Fri	Final Exam (20%)	

NOTE: Topics subject to change as needed