

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

PT 6207

Motor Control and Motor Learning

Spring 2020

COURSE SYLLABUS (ONLINE Adjusted)

Credit Hours: 2

Contact Hours: 30 (15 weeks)

Schedule: Thursdays, 11:30 am- 1:30 pm
Rm 113 Campbell Building

Coordinator/Instructor: Jason B. Boyle, Ph.D.
Office: Rm 114 Campbell Building (Motor Control Lab)
Office hours: by appointment
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Course Description: The neural, physical, and behavioral processes that govern human motor performance across the lifespan are studied. Theories of motor learning and re-learning following trauma are emphasized, with attention given to how intervention and feedback variables impact the learning process. Factors that influence postural control and gait during life are addressed.

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 for PT 6207 Motor Control and Motor Learning

1. Identify the theoretical framework of motor control and learning. (7A: Neuroscience; 7B: Teaching and Learning) [Comprehension]
2. Define key neuroscientific principles and anatomical influences underlying motor control and motor learning. (7A: Neuroscience) [Comprehension]
3. Identify the sequence of motor development for mobility and posture control. (7A: Neuroscience; 7C: Nervous System) [Comprehension]
4. Identify components of normal and abnormal gait patterns and their related mechanisms. (7A: Anatomy, Neuroscience; 7C: Nervous System) [Comprehension]
5. Explain the elements of the motor function examination. (7A: Neuroscience ; 7D19n) [Comprehension]
6. Identify the functional consequences of deficits in motor planning. (7A: Neuroscience) [Comprehension]
7. Differentiate between different teaching and learning styles (7B: Teaching and Learning) [Analysis]

Methods of Instruction: Hybrid Lecture/Online: assignments, discussions, tests, textbook and scientific article readings.

Why Team-based Learning as a Teaching Strategy?

Much research exists on how groups become high performing teams. Several pre-conditions must exist in order for a high-performing team to develop.

A group of individuals must

- Spend significant time together working on meaningful challenges;
- Learn and apply socially appropriate behaviors and work habits;
- Be willing to give and receive honest feedback about behaviors that help or hurt the team’s learning;
- Receive feedback about individual and group performance;
- Be able to identify common goals and commit to achieving them together;
- Have sufficient human resources (e.g. knowledge) available to successfully conquer challenges,

These principles are the foundation for the team-based learning (TBL) strategy used in this and other DPT classes. Working in a high performing team is an awesome experience, but building such a team is not easy, and requires commitment and honesty of all members. In this class, permanent teams of 4-6 members will work on challenging in-class assignments each class session, and will have the opportunity to evaluate each other’s teamwork behavior regularly.

Methods of Evaluation: Evaluation of course content will consist of four exams, a number of team and individual quizzes, and a comprehensive final exam. A minimum average of 75% is needed to pass the course with a grade of “C.” Graded activities and their weight are as follows:

Course Evaluation before Spring Break:

Team Component	% final grade
t-RAT	10
Team Adjustment (midway + final evaluations)	5
Individual Components	
iRAT	10
Exams 1, 2	20
Total	45%

Course Evaluation after Spring Break:

Individual Components	% final grade
Retention Quiz (4pts each)	20
Exams 3 & 4	20
Final Exam (Cumulative)	15
Total	55%

Exams: Five Exams will be administered. There will be four exams covering current class content and a cumulative final exam at the end of the semester. Students must be present on those days to take the exam. Students not present will receive a grade of zero on the exam. Conflicts with the exam dates must be brought up two weeks in advance to the instructor for accommodation. Conflicts notified after this period will not be accommodated.

Readiness Assurance Process (RAP): As part of the RAP you will take an individual Readiness Assurance Test (i-RAT) on Blackboard **at the start of class**. You need to study the material prior to starting the i-RAT because each question is limited in time. NOTE: The i-RAT is to be taken individually without help from others. The same quiz will be administered immediately following the i-RAT in the t-RAT.

UTEP DOCTOR OF PHYSICAL THERAPY PROGRAM GRADING SCALE

The following letter grade scale is used for the UTEP Physical Therapy Program:

<u>Letter Grade Scale</u>	<u>Numerical Grade Scale</u>
A	90-100
B	80-89
C	75-79
F	Below 75

Required Text:

Shumway-Cook A, Woollacott MH. *Motor Control: Translating Research into Clinical Practice, 5th ed.* New York: Lippincott, Williams and Wilkins; 2011. ISBN-10: **1608310183** | ISBN-13: **978-1608310180**

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 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

Course-Specific Policies:

1. **Attendance Policy - Absences:** Refer to current DPT Student Handbook “Attendance and Classroom Behavior” for the DPT Program policy.
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:**
 - NA
7. **Practical Exam Policy:**
 - NA

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).

Content Covered this Semester

Unit 1: Theories and Structures of Motor Control

Chapter 1: Motor Control: Issues and Theories

Chapter 2: Motor Learning and Recovery of Function

Chapter 3: Physiology of Motor Control

Unit 2: Constraints and Recovery

Chapter 4: Physiological Basis of Motor Learning and Recovery

Chapter 5: Constraints on Motor Control

Unit 3: Posture

Chapter 7: Normal Posture Control

Chapter 8: Development of Postural Control

Chapter 9: Aging and Postural Control

Chapter 10: Abnormal Postural Control

Unit 4: Gait

Chapter 12: Control of Normal Mobility

Chapter 13: Life Span Perspective of Mobility

Chapter 14: Abnormal Mobility

Jan 23	Thurs	Introductions: the class, the topic, the lab, TBL team formation, etc.		
Jan 30	Thurs	Motor Control & Motor Learning Theories	Chapters 1 & 2	iRAT / tRAT
Feb 6	Thurs	Physiology of motor control (part 1)	Chapter 3	
Feb 13	Thurs	Physiology of motor control (part 2)	Chapter 3	iRAT / tRAT
Feb 20	Thurs	EXAM 1 (CH 1-3)		
Feb 27	Thurs	Physiology of Motor Learning	Chapter 4	iRAT / tRAT

March 5	Thurs	Constraints on Motor Control / Framework for Clinical Practice	Chapters 5 & 6	
March 12	Thurs	EXAM 2 (CH 4-6)		
March 19	Thurs	SPRING BREAK		
March 26	Thurs	Normal Posture	Chapter 7	Retention Quiz
April 2	Thurs	Posture through the life span	Chapters 8 & 9	Retention Quiz (2 quizzes at 2pts each)
April 9	Thurs	Abnormal Posture	Chapter 10	Retention Quiz
April 16	Thurs	EXAM 3 (CH 7-10)		
April 23	Thurs	Normal Mobility	Chapter 12	Retention Quiz
April 30	Thurs	Mobility through the life span	Chapter 13	Retention Quiz
May 7	Thurs	EXAM 4 (CH 12 & 13)		
May 14	Thurs	FINAL EXAM (1pm – 4pm)	Chapters (1-13)	

Please note that all ONLINE quizzes and Exams will require you to use Respondus Lockdown Browser with webcam enabled. For Instructions on using this technology, please see: https://www.utep.edu/technologysupport/ServiceCatalog/BB_Tool_RespondusLockdown.html#S03