

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

PT6407

Title of Course: Medical Kinesiology & Motion Analysis

2026

COURSE SYLLABUS

Credit Hours: Four (4)

Contact Hours: Total: 90 hours (45 hours lecture, 45 hours lab)
Lecture: 3 hours/week; Lab: 3 hours/week

Schedule: Lectures:

Mondays 10:30a - 12:00p

Tuesdays 10:30a - 12:00p

Labs:

Lab B on Wednesdays 1:30- 4:30p

Lab A on Thursdays 1:30p – 4:30p

Location: All lectures and labs in Mesa 120

Instructors:

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Course Description: Medical Kinesiology and Motion Analysis (3-3). The kinematics and kinetics of the human body, postural control, and the basics of gait analysis are comprehensively studied. Biomechanical principles that control human movement are applied to motion analysis.

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

1. Identify the kinesiological and biomechanics principles that create and govern human movement. (7A Kinesiology; 7A Biomechanics) [Application]
2. Apply osteokinematic and arthrokinematic principles that govern movement at each diarthrodial joint in open and closed chain function. (7A Kinesiology) [Application]
3. Apply biomechanical rules to calculate muscle and joint reaction forces, and direct efficient external loads and forces. (7A Kinesiology; 7A Biomechanics) [Application]
4. Analyze force vectors related to anatomical origins and insertions to determine individual, agonistic and antagonistic muscle contribution to functional human movement, including gait. (7A Kinesiology; 7D19i) [Application]
5. Identify motion restraints, both dynamic and static, that help control human movement at all joints, including gait. (7A Kinesiology; 7D19i) [Application]
6. Identify anatomical characteristics and anatomical structures including bony prominence, origin, insertion, muscle, and ligament, which influence human movement. (7A Anatomy) [Comprehension]
7. Match all joints in the human body with joint type, lever, degrees of freedom and axes of rotation. (7A Kinesiology) [Comprehension]
8. Identify potential joint and soft tissue consequences to altered posture related to static activities and positions. (7A Kinesiology; 7D19r) [Application]
9. Demonstrate osteokinematic and arthrokinematic rules, joint gliding force vectors, and tissue restraint loading related to arthrodial joints using human subjects or joint models. (7A Kinesiology; 7D19k; 7D27f) [Application]
10. Access, critically analyze, and summarize scientific literature related to kinesiological concepts and joint systems. (7C1) [Evaluation]

UTEP DPT Curricular Threads:

Cultural / Linguistic Engagement and Competence:

Students will practice using Spanish Language in select portions of at least 3 laboratory sessions. These sessions will be led by fluent Spanish speakers in the cohort.

Clinical Reasoning:

Apply kinesiological knowledge and principles to functional movement patterns in exams and skills checks. Analyze movement patterns at multiple joint systems to discern where tissue stress or limitation may be present in exams and skills checks.

Interprofessional Collaborative Practice:

None

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 PT 6116 PT Capstone Project I and PT 6117 PT Capstone Project II.

Methods of Instruction: *Lecture/PowerPoint and Recordings, Text Reading, Group work and discussion, Video analysis, Peer motion analysis, Reading and Reporting of the Literature, Psychomotor Learning and Practice*

Methods of Evaluation: *Evaluation of learning will consist of exams, quizzes, lab skills check. Note: Written Examinations WILL Include Lab Content/Material*

Graded Components	% final grade	EDGE Advantage
<i>Exam 1:</i>	10%	<i>Communication Critical Thinking Confidence Problem Solving Empirical Reasoning Quantitative Reasoning</i>
<i>Exam 2:</i>	15%	<i>Communication Critical Thinking Confidence Problem Solving Empirical Reasoning Quantitative Reasoning</i>
<i>Exam3:</i>	25%	<i>Communication Critical Thinking Confidence Problem Solving Empirical Reasoning Quantitative Reasoning</i>
<i>Final Exam:</i>	25%	<i>Communication Critical Thinking Confidence Problem Solving Empirical Reasoning Quantitative Reasoning</i>
<i>Lab Skills Checks:</i>	25%	<i>Communication Critical Thinking Confidence Problem Solving Empirical Reasoning</i>

		<i>Quantitative Reasoning</i>
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EDGE Framework Integration

This Doctor of Physical Therapy (DPT) course intentionally embeds the EDGE framework across its design and assessment structure. EDGE experiences are integrated into the course to support applied learning, professional development, and student engagement, and to ensure that students obtain measurable EDGE advantages aligned with program and institutional outcomes. Through this course, students are provided with structured EDGE experiences and are expected to demonstrate corresponding EDGE advantages as part of their academic and professional progression. In this course, the specific EDGE experiences offered, and the EDGE advantages expected to be gained by students are outlined below and are embedded within graded course activities, assignments, and assessments.

EDGE experiences		EDGE advantages	
Capstone Experience		Communication (oral/written)	
Research, Scholarly, and creative inquiry	x	Confidence	x
Community Engagement		Critical Thinking	x
First-Year Experiences		Entrepreneurship	
Student Employment		Global Awareness	
Internships		Leadership	x
Learning Communities		Problem-Solving	x
Study Abroad/Study Away		Social Responsibility	
Student Leadership	x	Teamwork	x

UTEP PHYSICAL THERAPY PROGRAM GRADING SCALE

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

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

Required Texts: Required: Neumann DA. *Kinesiology of the Musculoskeletal System: Foundations for Rehabilitation*. 3rd ed. Mosby (Elsevier): 2016.

Resources Available for Student Success:

Confidential Resources:

Center for Accommodations and Support Services (CASS): If you have or suspect a disability and need accommodation, 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 always demonstrate academic integrity. 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: See DPT Program Handbook for all policies on exams, electronic device use, dress code, attendance, and scholastic dishonesty. We encourage you to periodically review all handbook policies, but considering past experiences, we particularly direct you to review the policies on cheating, accumulated knowledge, professional behaviors/generic abilities, attendance, and the disclaimer that the syllabus is subject to change.

Attendance/Tardiness:

Attendance is expected; however, life happens. Therefore, **ONE excused absence of a single class*** is permitted for *any* reason. For your first absence to be excused, you must meet the expectations described further down. HOWEVER (with very rare exception [eg, documented serious illness or emergency] that will be considered on a case-by-case basis) there will be NO accommodation offered for missed class time. Specifically, there is NO opportunity to make up in-class exams, either in advance of or after the scheduled class, or provide individual tutoring for missed content. Additionally late work caused by your absence will not be accepted. You should make prior arrangements with a classmate to find out what you missed, turn in any work, and/or pick up any handouts. **(*NOTE: Single class is defined as 2 or 3 hours, including labs).**

In order to be excused for your first missed class, you must do the following:

Email the Kinesiology faculty at least 2 hours in advance if you will not be attending class. A message from one of your classmates is not acceptable.

If you miss a second (or more) class for any reason, it will be considered unexcused unless it is due to documented illness or emergency. In these cases, you should email and then arrange a meeting with upon your return to school to discuss why you missed the class. Documentation will be required for any additional absence (eg, doctor's note documenting illness or treatment). We will notify you after our meeting and review your documentation whether the absence will be considered excused or unexcused.

Missing 50% or more of a class will be considered an absence. Nevertheless, every class and lab count toward your learning! If you are only going to be able to attend 1 hour of a 3-hour lab, please do so, even though you will still receive an absence. For each incident of an unexcused absence, 5% will be deducted from your final semester grade.

Late or Missed Assignments and Assessments Policy: See current DPT Student Handbook "Written Examination Policy". Additional course-specific policy is as follows:

- No opportunities will be provided for missed examinations unless it is for an excused reason (eg, documented medical emergency).
- All written assignments are due at the date and time indicated. Assignments submitted after the deadline but on the due date will result in a 25% deduction due to the late submission. Assignments submitted after the due date will result in ZERO credit.

Skills Check Policy: See information from the UTEP DPT Student Handbook

Course and Program Policy:

Each student is responsible for reviewing and understanding all policies and procedures documented in the most current DPT Student Handbook for his/her cohort. Course policies found in the DPT Student Handbook apply to all courses in the DPT curriculum. The current DPT Student Handbook for each cohort may be found on the DPT Student Resources site on Blackboard. The course policies include very important information about: Written/Computer-based examinations, practical examinations, attendance and participation, professional behavior, academic integrity, accumulated knowledge, and use of electronic devices.

Special Accommodations (ADA):

“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. For additional information, visit the CASS website at <http://sa.utep.edu/cass/>

Exams

Throughout the semester, there will be 3 exams. The quizzes will be 10-15 questions each. Each exam will be over the content covered in prior lectures/labs and will not be comprehensive, meaning content covered for exam 1 will not be on exam 2. Exam questions will be based upon readings, lectures/labs, and materials provided on the blackboard course. Questions may involve clinical scenarios to develop clinical reasoning skills and application of knowledge from prior courses along with the current course's content. The final exam is comprehensive.

Assignments

Throughout the semester, there is the possibility of a variety of required assignments designed to reinforce lecture and lab content and promote application of course concepts. At the instructor's discretion, some assignments may also be used as opportunities for extra credit, or as part of the method of evaluation, with specific criteria and weighting to be determined and communicated during the semester. All assignment expectations and evaluation methods will be provided in advance through Blackboard or in class.

Course Content: *Please Refer to Topic Outline Below:*

**Med Kinesiology PT 5407 Schedule and Due Dates
Spring Semester 2025: UTEP DPT**

Tentative Topics for Classroom Learning

Date	Time	Topic	Reading Assignment (Readings may be added/or	Course Objective: Please see Syllabus
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			changed at the discretion of the instructor)	
Week 1: January 20- 23	<u>Lecture:</u> Jan 20 th : 10:30-12:00pm <u>Lab:</u> B: Jan 21st 1:30-4:30pm A: Jan 22 nd 1:30-4:30pm	<u>Lecture</u> Mod 1: Background Getting Started and Joint Systems Mod 2: Joint Systems Cont. [VALDEZ] <u>Lab:</u> Joint Systems [VALDEZ/AOYAGI]	Neumann Chapter 1-2	1,2
Week 2: January 26-30	<u>Lecture:</u> Jan 26 th 10:30-12pm Jan 27 th : 10:30-12pm <u>Lab:</u> B: Jan 28th 1:30-4:30pm A: Jan 29 th 1:30-4:30pm	<u>Lecture:</u> Module 3 & 4: Biomechanics Part 1 and 2 Module 5: Muscular Systems Assignment due on 1/31 on Bb [VALDEZ] <u>Lab:</u> Muscular System, Mastication and Ventilation, Biomechanics Review [VALDEZ/SINGLETON]	Neumann Chapter 3-4	1,3,4
Week 3: February 2-6	<u>Lecture:</u> Feb 2 nd 10:30-12pm Feb 3rd: 10:30-12pm <u>Lab:</u> B: Feb 4 th 1:30-4:30pm A: Feb 5 th 1:30-4:30pm	<u>Lecture:</u> Mod 6: Ventilation/Mastication Module 28: Kinesiology of Running [VALDEZ] <u>Lab:</u> Ventilation/Mastication Module 28: Kinesiology of Running [VALDEZ/SINGLETON]	Neumann Chapter 11,16	2,4,5,6,7,8,9
Week 4: February 9-13	<u>Lecture:</u> Feb 9 th 10:30-12pm Feb 10 th : 10:30-12pm <u>Lab:</u> A&B Feb 12th 1-2:30pm	<u>Lecture:</u> Module 7: Hip 1 Module 8: Hip 2 [VALDEZ] Exam 1: Modules 1-6 (Wednesday Feb 12th) [TBD Proctor]	Neumann Chapter 12	2,4,5,6,7,8
Week 5: February 16-20	<u>Lecture:</u> Feb 16 th 10:30-12pm Feb 17 th : 10:30-12pm <u>Lab:</u>	<u>Lecture:</u> Module 9: Knee 1 Module 10: Knee 2 [VALDEZ] <u>Lab:</u> Hip/Knee [SINGLETON/VALDEZ]	Neumann Chapter 13	2,4,5,6,7,8

	B: Feb 18th 1:00-5:00pm A: Feb 19th 1:00-5:00pm			
Week 6: February 23-27	<u>Lecture:</u> Feb 23 rd 10:30-12pm Feb 24 th : 10:30-12pm <u>Lab:</u> B: Feb 25 th 1:30-4:30pm A: Feb 26 th 1:30-4:30pm	<u>Lecture:</u> Module 11: Foot Ankle 1 Module 12: Foot Ankle 2 [VALDEZ] <u>Lab:</u> Foot and Ankle [VALDEZ/RANA]	Neumann Chapter 14	2,4,5,6,7,8
Week 7: March 2-6	<u>Lecture:</u> Mar 2 nd 10:30-12pm Mar 3 rd : 10:30-12pm <u>Lab:</u> B: Mar 4 th 1:30-4:30pm A: Mar 5 th 1:30-4:30pm	<u>Lecture:</u> Mod 13: Normal Gait: Osteokinematics Mod 14: Normal Gait: Muscle Action and Rancho Mod 26: Abnormal Gait Mod 27: Abnormal Gait [AOYAGI] <u>Lab:</u> Gait Analysis Observation and Rancho Los Amigos [AOYAGI/RANA]	Neumann Chapter 15-16 Handouts/Video	2,4,5,6,7,8
Week 8: March 9-13	<u>Lecture:</u> Mar 9 th 10:30-12pm Mar 10 th : 10:30-12pm <u>Lab:</u> B: Mar 11 th 1:30-4:30pm A: Mar 12 th 1:30-4:30pm	<u>Lecture:</u> Mod 15: Lumbar 1 Mod 16: Lumbar 2 Exam 2: Modules 7-12 (Tuesday March 10th) [RANA] <u>Lab:</u> Lumbar [RANA/SINGLETON]	Neumann Chapter 9-10	2,4,5,6,7,8
March 16-20		<u>SPRING BREAK NO CLASSES</u>		
Week 9: March 23-27	<u>Lecture:</u> Mar 24 th 10:30-12pm Mar 25 th : 10:30-12pm <u>Lab:</u> Combined Lab A&B Mar 26th 1:30-4:30	<u>Lecture:</u> Module 17: Sacroiliac Joint [SINGLETON] <u>Lab :</u> SI Joint Practice for skills check Lab A&B Thursday - Skills Check (LE, Normal Gait, Respiration and Mastication)	Neumann Chapters 9, 10	2,4,5,6,7,8

	Skills Check Mar 27th 1-5pm	[SINGLETON/AOYAGI/VALDEZ/RANA]		
Week 10: March 30- April 3	<u>Lecture:</u> Mar 30 th 10:30-12pm March 31 st : 10:30-12:00pm <u>Lab:</u> B: Mar 31 st 1-4:00pm A: April 2 nd 1:30-4:30pm	<u>Lecture:</u> Module 18: CT Spine 1 Module 19: CT Spine 2 [RANA] <u>Lab:</u> CT Spine [AOYAGI/RANA]	Neumann Chapter 9-10	2,4,5,6,7,8
Week 11: April 6-10	<u>Lecture:</u> April 6 th 10:30-12pm April 7 th : 10:30-12:00pm <u>Lab:</u> B: April 8 th 1-4:00pm A: April 9 th 1:30-4:30pm	<u>Lecture:</u> Module 20: Shoulder 1 Module 21: Shoulder 2 Exam 3: Modules 13-17 & 26-27 (Tuesday April 7th) [RANA] <u>Lab:</u> Shoulder [RANA/AOYAGI]	Neumann Chapter 5	2,4,5,6,7
Week 12: April 13-17	<u>Lecture:</u> April 13 th 10:30-12pm April 14 th : 10:30-12:00pm <u>Lab:</u> B: April 15 th 1:30-4:30pm A: April 16 th 1:30-4:30pm	<u>Lecture:</u> Module 22: Elbow/Forearm 1 Module 23: Elbow/Forearm 2 [RANA] <u>Lab:</u> Elbow and Forearm [AOYAGI/RANA]	Neumann Chapter 6	2,4,5,6,7,8
Week 13: April 20-24	<u>Lecture:</u> April 20 th 10:30-12pm April 21 st : 10:30-12:00pm <u>Lab:</u> B: April 22 nd t 1:30-4:30pm A: April 23 rd 1:30-4:30pm	<u>Lecture:</u> Module 24: Wrist Module 25: Hand [RANA] <u>Lab:</u> Wrist and Hand [SINGLETON/RANA]	Neumann Chapter 7 Neumann Chapter 8	2,4,5,6,8
Week 14: April 27- May 1	<u>Lecture:</u> TBD <u>Lab:</u> TBD	<u>Lecture:</u> Optional: Review [SINGLETON] <u>Lab:</u>		

		TBD		
Week 15: May 4-8	<u>Lecture:</u> TBD <u>Lab:</u> May 6th 1--5pm – Final Skills Check	<u>Lecture:</u> [SINGLETON] Optional: Review Wednesday - Skills Check B: UE, Abnormal Gait COMPREHENSIVE		
Finals Week	9-11	FINAL Examination: Date TBD	CT Spine UE/ System, COMPREHENSIVE 65% New Material 35% Previous Material	