



MARTHA BRADLEY EVANS
Center for Teaching Excellence

THE UNIVERSITY OF UTAH

PHTH 6080: Pathokinesiology
Fall Semester 2024

Faculty:

Course Director and Residential Lead:

Jesse C. Christensen, DPT, PhD, MSCI, SCS
Assistant Professor (Clinical)

Hybrid Lead:

Laura Wenger, DPT, DSc, OCS, FAAOMPT
Assistant Professor (Clinical)

Office Hours:

Residential office hours: Friday virtually from 9:30am-10:30am (MT) or by appointment.

- See Zoom link on Home page of Canvas.

Hybrid Faculty-Student Facetime: Mondays from 11:00 am- 12:00pm (MT)

Supplemental Instructor Tutoring:

- See instructor information and specific pathway times below.

Course Description

This course is designed to develop in students a working knowledge of human motion, including the biomechanical aspect of movement and muscle/joint interplay in the production of motion. An overall goal of the course is to develop in students the ability to utilize current literature as well as textbooks in analyzing information about human movement. Prerequisites for this course include anatomy and pathophysiology content.

Course Outcomes and Objectives

By the end of this course, you will be able to:

- Discern normal human motions from deviations
- Describe, calculate and identify biomechanical influences on motion verbally or upon written examination to the instructor including a. equilibrium b. displacement, velocity, and acceleration c. forces including gravity, friction, compression, tension, torsion, bending and shearing and d. levers
- Describe, calculate, draw and identify pertinent biology and mechanics of joint, muscle, bone and connective tissues in allowing motion, verbally or upon written examination to the instructor including: a. the design, classification, and biologic make-up of human joints b. the review of muscle physiology, classification of muscles, muscle tension and force, and factors affecting muscle function and c. the structure of bone and connective tissues and their response to stress
- Describe, calculate, draw and identify how motion occurs at joints of the trunk, lower and upper extremity verbally or upon written examination to the instructor including: a. the structure of the joint (involved muscles and arthrokinematics) b. the function of the joint (specific biomechanics) c. motion allowed at the joint d. the influences of different postures on the joint motion and e. the effects of injury or disease on the joint

- Describe, calculate, draw and identify the components of human gait verbally or upon written examination to the instructor including: a. the influence of upper body on gait, b. the definition of the gait cycle, including phases of the cycle and kinematics and, c. the effects of injury or disease on the gait pattern
- Demonstrating in writing or verbally with the instructor that you can analyze how the human can perform movement utilizing which muscles, driven by which nerves and allowed by which joints or combination of joints
- Demonstrating in writing or verbally with the instructor that you know the consequence of dysfunction in a muscle or nerve, or an abnormal joint play, upon normal human motion

Course Requirements

Assessments:

Below are the assessments that you will be graded upon in this course. Further details on description, due dates, etc. can be found on Canvas.

10 Homework Assignments

3 Quizzes

2 Mid-term Examinations

Final Group Presentation

Lab Participation- Attendance, Group Q&A Assignments, Gait Deviation Group Assignment

Final Examination

Grading Scale

Student grades will be determined by:

Component	% Course Grade
Homework Assignments (10 points each x10 =100 total)	10%
Quizzes (25 points each x3 =75 total)	7.5%
Mid-Term Examinations (200 points each x2 =400 total)	40%
Final Group Presentation (50 points)	5%
Lab/Live Session Participation (75 points)	7.5%
Final Examination (300 points)	30%
TOTAL (1000 points)	100%

Grading Scale:

Passing grades:	
100% to 93%	A
<93% to 90%	A-
<90% to 88%	B+
<88% to 83%	B
<83% to 80%	B-
<80% to 78%	C+
<78% to 73%	C
Non-passing grades:	
<73% to 70%	C-
<70% to 68%	D+
<68% to 63%	D
<63% to 60%	D-

< 60% to 0%	F
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University Policies

Updated mandatory syllabus policies regarding the ADA Act, Safety at the U, Addressing Sexual Misconduct, and Academic Misconduct can be viewed at: <https://cte.utah.edu/instructor-education/syllabus/institutional-policies.php>

Preliminary Course Schedule

Week	Content	Activities and Assignments
0	Welcome Module	Intro Video
1 Aug 19	Module 1: Introduction to Biomechanical Principles	Math Review Assignment No Lab Q&A Groups
2 Aug 26	Module 2: Joint/Muscle Structure/Function	Lab: Q&A Groups 1-5 Homework 1
3 Sept 2	Module 3: TMJ/Spine Introduction/Cervical Spine	Quiz 1 Lab: Q&A Groups 6-10 Homework 2
4 Sept 9	Module 4: Thoracic Spine/Muscles of Ventilation	Lab: Q&A Groups 1-5 Homework 3
5 Sept 16	Module 5: Lumbar Spine/SIJ	
6 Sept 23	Module 6: Shoulder	MIDTERM 1 Monday 9/23 9-11am Lab: Q&A Groups 6-10 Homework 4
7 Sept 30	Module 7: Elbow/Forearm	Lab: Q&A Groups 1-5
8 Oct 7	FALL BREAK	FALL BREAK
9 Oct 14	Module 8: Wrist	Lab: Q&A Groups 6-10 Quiz 2 Homework 5
10 Oct 21	Module 9: Hand	MIDTERM 2 Friday 10/25 9-11am Lab: Q&A Groups 1-5 Homework 6
11 Oct 28	Module 10: Hip	Lab: Q&A Groups 6-10 Homework 7

12 Nov 4	Module 11: Knee	Lab: Q&A Groups 1-5 Homework 8
13 Nov 11	Module 12: Foot/Ankle	Lab: Q&A Groups 6-10 Quiz 3 Module 13 Gait Deviation Assignment Due Homework 9
14 Nov 18	Module 13: Gait Part 1	
15 Nov 25	Module 14: Gait Part 2	Thanksgiving Homework 10
16 Dec 2	Final Presentations	Group Project
17 Dec 9	Exam Week	Final Exam Thursday 12/12 9am- 12pm