Philadelphia University		**Approval date: 28-2-2026**
Faculty: Allied Medical Sciences		**Version: 1**
Department: Physiotherapy		**Credit hours: 1**
Academic year 2025/2026	**Course Syllabus**	**Bachelor**

Course information

Course#	Course title	Pre-requisite	
112023300	**Biomechanics and Kinesiology Lab**	Human Anatomy (1110141) & General Physics for Health Sciences (0216135**)**	
Course type		**Class time**	**Room #**
☐ University Requirement ☐ Faculty Requirement ☐ Major Requirement ☐ Elective ☒ Compulsory		sunday, tuesday 10:15 – 11:05	61203

Course Level*				Hours No.*
☐ 6th	☑ 7th	☐ 8th	☐ 9th	**2**

Instructor Information

Name	Office No.	Phone No.	Office Hours	E-mail
Dr. Mohamed Ali abdullah	**61214**	**2319**	**Sat 09:15 -11:15** **Sun 11:15- 13:15** **Tue 08:15- 10:15**	**mabdullah@philadelphia.edu.jo**

Course Delivery Method

Course Delivery Method			
☒ **Physical**	☐ **Online**	☐ **Blended**	
Learning Model			
Precentage	**Synchronous**	**Asynchronous**	**Physical**
			100%

Course Description

This course is designed to impart knowledge to students about biomechanical principles and its analysis in the context of physical therapy. This course covers structure, kinematics, and kinetics of all joints of human body. It also covers biomechanical analysis of normal posture and its abnormalities as well as normal gait and its variations. The practical aspects of the material included in this course will be covered in (1120227) Biomechanics lab.

Course Learning Outcomes

	Number	Outcomes	Corresponding Program outcomes
	Knowledge		
1	**K1**	Identify the Kinetics and Kinematics of Joints of the Human Body Using the Biomechanical Principles	**KP1**
2	**K2**	Identify the Normal Gait and Its Variables, Optimum Posture and Abnormal Posture by Applying Biomechanical Analysis	**KP1**
	Skills		
3	**S1**	Demonstrate the Biomechanical Analysis of Joints on Human Simulator.	**SP1**
	Competencies		
4	**C1**	Analyze the Movements of All Joint by Applying the Basic Biomechanical Principles of Kinetics and Kinematics.	**CP1**
5	**C2**	Differentiate Between Normal Posture, Abnormal Postures, Normal Gait Using Observation, Spatial and Temporal Variables of Gait.	**CP1**

Learning Resources

Course Textbook	Joint Structure and function: A comprehensive Analysis, Pamela K. Levangie, Cynthia C. Norkin and Micheal D. Lewek ,6th edition; 2019; ISBN-13: 978-0-8036-5878-3
Supporting References	Basic Biomechanics, Susan J. Hall, 8th edition; 2018: ISBN-9781260085549
Supporting Websites	
Teaching Environment	☐**Classroom** ☒ **laboratory** ☐**Learning platform** ☐**Other**

Meetings and Subjects timetable

Week	Topic	Learning Methods	Learning Material
1 (1-3 Mar)	Introduction to the Course Syllabus Introduction to Biomechanics and Its Principles	Lecture Discussion	Prepared Slides Textbook Chapter 1 Supporting Ref Chapter 1& 2
2 (8-10 Mar)	Kinetics NEWTON LAWS	Lecture Tutorial	Prepared Slides Textbook Chapter 1 Supporting Ref Chapter 3
3 (15-17 Mar)	Shoulder Complex Components, Structure Kinematics	Lecture Discussion	Prepared Slides Textbook Chapter 7 Supporting Ref Chapter7
4(22-24 Mar)	Shoulder Complex Kinetics	Lecture Problem Solving Based Learning	Prepared Slides Textbook Chapter 7 Supporting Ref Chapter 7 Quiz 1
5 (29-31 Mar)	Elbow Complex Components, Structure Kinematics Kinetics	Lecture Tutorial	Prepared Slides Textbook Chapter 8 Supporting Ref Chapter 7
6 (5-7 Apr)	The Wrist and Hand complex Components, Structure Kinematics Kinetics	Lecture Discussion	Prepared Slides Textbook Chapter 9 Supporting Ref Chapter 7
7 (12-14 Apr)	**Midterm Exam**		
8 (19-21 Apr)	Hip Joint Components, Structure Kinematics	Lecture Discussion	Prepared Slides Textbook Chapter 10 Supporting Ref Chapter 8
9 (26-28 Apr)	Hip Joint Kinetics	Lecture Case Based Learning	Prepared Slides Textbook Chapter 10 Supporting Ref Chapter 8
10 (3-5 May)	Posture	Lecture	Prepared Slides

	Static and Dynamic Kinematics and Kinetics	Tutorial	Textbook Chapter 13
11 (10-12 May)	Gait Kinetics and Kinematics Distance and Temporal Variables + Pathological gait	Lecture Problem Solving Based Learning	Prepared Slides Textbook Chapter 14 Quiz 2
12 (17-19 May)	Knee Joint Components, Structure Kinematics and Kinetics	Lecture + assign from 15 Apr- 20 May	Prepared Slides Textbook Chapter 11 Supporting Ref Chapter 8
13(24-26 May)	Patellofemoral Joint Components, Structure Kinematics Kinetics	Lecture Problem Solving Based Learning	Prepared Slides Textbook Chapter 11 Supporting Ref Chapter 8
14(31May- 2Jun)	Ankle and Foot Complex Components, Structure Kinematics Kinetics	Lecture Tutorial	Prepared Slides Textbook Chapter 12 Supporting Ref Chapter 8 + quiz 3
15(9-11 Jun)	Spine Components, Structure Kinematics Kinetics	Lecture	Prepared Slides Textbook Chapter 4 Supporting Ref Chapter 9
16	**Final Exam**		

* Includes: Lecture, flipped Class, project- based learning, problem solving based learning, collaborative learning

☐ Online session

Course Contributing to Learner Skill Development

Using Technology
Learnt Evidence-Based Assessment Tools in This Course Will Develop Their Critical Thinking and Problem-Solving Skills
Communication skills
Develops Interpersonal Skills While Interacting with the Simulator
Application of concepts learnt
Learnt Concepts in This Course Will Facilitate Critical Thinking, Clinical Reasoning and Decision-Making Skills While Assessing the Patients/Simulator

Assessment Methods and Grade Distribution

Assessment Methods	Grade Weight	Assessment Time (Week No.)	Link to Course Outcomes
Midterm exam	30%	7th week	S1, C1, K1
Various Assessments *	10% Assignment 20% Quizzes	Assign from 15 Apr- 20 May Overall Course Duration	K1, K2, S1
Final Exam	40%	16th week	K1, K2, S1, C1, C2
Total	100%		

* Includes: quiz, in class and out of class assignment, presentations, reports, videotaped assignment, group or individual projects.

Alignment of Course Outcomes with Learning and Assessment Methods

Number	Learning Outcomes	Learning Method*	Assessment Method**
Knowledge			
K1	Explain the Kinetics and Kinematics of Joints of the Human Body Using the Biomechanical Principles	Lecture Tutorial	Exam
K2	Classify the Normal Gait and Its Deviation, Optimum Posture and Abnormal Posture Using the Biomechanical Principles	Lecture Problem-Solving Based Learning	Exam Quiz
Skills			
S1	Display the Biomechanical Analysis of Joints on Human Simulator	Lecture Tutorial Problem Solving Based Learning	Assignment
Competencies			
C1	Analyze the Movements of All Joint by Applying the Basic Biomechanical Principles of Kinetics and Kinematics.	Lecture Tutorial Problem Solving Based Learning	Exam Quiz Assign
C2	Differentiate Between Normal Posture and Abnormal Postures, Normal Gait, Pathological Gait using Observation, Spatial and Temporal Variables of Gait.	Lecture Problem-Solving Based Learning	Exam Quiz

* Includes: Lecture, flipped Class, project- based learning, problem solving based learning, collaborative learning

** Includes: quiz, in class and out of class assignment, presentations, reports, videotaped assignment, group or individual projects.

Course Polices

Policy	Policy Requirements
Passing Grade	The minimum pass for the course is (50%) and the minimum final mark is (35%).
Missing Exams	Missing an exam/term work without a valid excuse will result in a zero grade to be assigned to the exam or term work even late submission. A Student who misses an exam or scheduled assessment, for a legitimate reason, must submit an official written excuse within a week from the exam or assessment due date. A student who has an excuse for missing a final exam should submit the excuse to the dean within three days of the missed exam date.
Attendance	The student is not allowed to be absent more than (20%) of the total hours prescribed for the course, which equates to 6 lecture days. If the student misses more than (20%) of the total hours prescribed for the course without a satisfactory or compulsive excuse accepted by the dean of the faculty, he is prohibited from taking the final exam and his result in that subject is considered (zero), but if the absence is due to illness or a compulsive excuse accepted by the dean of the college that is considered. The article is introduced, it is considered withdrawn from that article, and the provisions of withdrawal shall apply to it.
Academic Honesty	Philadelphia University pays special attention to the issue of academic integrity, and the penalties stipulated in the university's instructions are applied to those who are proven to have committed an act that violates academic integrity, such as cheating, plagiarism (academic theft), collusion, intellectual property rights

Program Learning Outcomes to be assessed in this Course

Number	Learning Outcome	Course Title	Assessment Method	Target Performance level
KP1	Demonstrate Profound and Contemporary Knowledge in Basic, Clinical, Medical, and Psychosocial Sciences Relevant to the Practice of Physical Therapy.	Biomechanics	Theory Exam Quiz	75% of students have a minimum score 6 out of 10
SP1	Develop Critical Analysis and Decision-Making Skills and Ability to Integrate Basic and Clinical Knowledge within an Evidence-Based Framework.	Biomechanics	Assignment	75% of students have a minimum score 6 out of 10
CP1	Demonstrate Competent Entry-Level Skills and Abilities to Critically Reason in Terms of Screening, Evaluation, Re-evaluation, Diagnosis, Prognosis, and Development of a Plan of Care for Clients and Patients Seeking Physical Therapy Services.	Biomechanics	Exam Quiz	75% of students have a minimum score 6 out of 10

Description of Program Learning Outcome Assessment Method

Number	Detailed Description of Assessment
KP1	The Intended Program Learning Outcome (IPLO) will be Assessed by Theory Exam and Quiz
SP1	The IPLO will be Assessed by Using Out of Class Assignment. The Following Rubrics will be Used to Evaluate the Student's Skills.
CP1	The IPLO will be Assessed by Using Exam and Quiz.

- **Assignment Guidelines (20% grade)**

✓ Draw, label and describe heel rising movement with knee straight in standing position using concurrent force system and lever system.

✓ **Assignment Instruction**

i. Use Times New Roman. The font size for headings is 14 and the font size for text is 12. Use 1.5 lines of spacing between sentences in the text.
ii. A clear and proper assignment is a must.
iii. Teamwork is a must.
iv. Each question has 4 marks.
v. Any group that does exceed the deadline will lose 5 grades out of 20% in each week.
vi. The number of the assignment pages must not exceed four pages (word count of less than 2000 words).
vii. The assignment should be submitted through MOODLE only. Note: Make sure that your MOODLE is working, if you have any problem with your program ask the IT department to fix it. Do not wait till the submission day to start fixing your MOODLE.

✓ Assessment Rubric for Assignment

	Criteria	Weak (0-2)	Average (3-5)	Satisfactory (6-8)	Competent (9-10)	Score
1	**Identify the main issue/ problem**	Unable to identify issue/problem in complex situations. Uncertain and unable to assess adequately.	Able to identify an issue/problem in a complex situation but less able to assess adequately.	Able to identify a problem with clarity but moderately able to assess and justify the situation.	Able to identify issue/ problem in a complex situation and able to assess and justify the situation.	___ x 2
2	**Analysis of the issue/problem**	Unable to analyze issue/problem in complex situations and uncertain and unable to assess adequately.	Able to analyze issue/ problem in a complex situation but less able to assess adequately.	Able to analyze issue/problem with clarity but moderately able to assess and justify the situation.	Able to analyze issue/problem in a complex situation and able to assess and justify the situation.	___ x 2
3	**Information management**	Poorly updated the information and lack of correlation	Minimum updated information and needs improvement	Adequate updated information lack of correlation	High correlation of information with current trends and advances	___ x 2
4	**Relevance and List of references**	No relevance and fails to use the references in a correct way	Sufficient relevance, partially fulfill the required number of references	Good relevance, fulfill and appropriate use of references	Excellent relevance and exceed the required number of references	___ x 1

Do not hold off speaking with us until you are in a crisis. We've helped a lot of students deal with difficult situations that were affecting their academic performance. You are not alone, so don't be shy about seeking help.

Good luck ☺