



Spring 2018 (Quad II)

Meeting days: M W	Instructor: Josh Dexheimer, PhDc, CSCS, PES
Meeting times: Section 2: 3pm-4:50pm	Phone: 951-536-0250
Meeting location: LSCC 202	E-mail: jdexheim@pointloma.edu
Prerequisites: KIN 325	Office hours: Monday and Friday 12pm-2pm

PLNU Mission
To Teach ~ To Shape ~ To Send

Point Loma Nazarene University exists to provide higher education in a vital Christian community where minds are engaged and challenged, character is modeled and formed, and service becomes an expression of faith. Being of Wesleyan heritage, we aspire to be a learning community where grace is foundational, truth is pursued, and holiness is a way of life.

COURSE DESCRIPTION

This class is designed to provide students with a mix of theoretical concepts and applied problem-solving in various biomechanical applications in human movement. Through the core math, physics, kinesiology, and anatomy classes students have taken to this point, you have been provided a breadth of information that will serve you in learning the basic concepts of kinematics and kinetics of whole body and joint movement.

STUDENT LEARNING OUTCOMES

1. Students will use the vocabulary, principles and relationships unique to the disciplines of applied biomechanics.
2. Students will apply the basic principles of kinematics in quantifying and describing joint movement.
3. Students will demonstrate a working knowledge of linear and angular kinetics and their effects on human movement.
4. Students will be exposed to various technology and methods employed to quantitatively measure joint kinematics and kinetics.
5. Students will use biomechanical techniques to evaluate joint movement in clinical-decision making and analyzing human performance.
6. Students will qualitatively apply the fundamental principles of biomechanics in identifying the movement patterns in basic clinical applications.
7. Students will collaborate in biomechanics laboratory sessions and work in groups to contrast efficient and maladaptive or poor mechanical motion.

8. Students will find, disseminate, interpret and present for the class a current topic in biomechanics as mined from the current professional literature to enhance research analysis and presentation skills.

REQUIRED TEXTS AND RECOMMENDED RESOURCES

- Flanagan, S.P. (2014). *Biomechanics: A Case-Based Approach*. Burlington, MA: Jones & Bartlett Learning. (Also available in digital format here: <http://www.coursesmart.com/9781284027686>)
- Handouts will be provided throughout the quad via Canvas.

ASSESSMENT AND GRADING

- **Lab Assignments:** There will be three lab assignments worth 10 points each to be scheduled throughout the quad. These assignments will vary in difficulty depending on the unit covered in class but they provide an excellent review of key concepts covered during the semester. (30 pts total)
- **Quizzes:** Quizzes will be administered via Canvas after each chapter. The quiz will be on material discussed in previous class meetings. Quizzes will be online and worth 10 points. There are no make-up quizzes. (90 pts total)
- **Mid-Term Exam:** A mid-term exam will be administered in class and will consist of multiple choice and T/F questions. (100 pts total)
- **Final Exam:** A comprehensive exam will be administered on the scheduled final exam date consisting of multiple choice and T/F questions addressing material covered the entire quad. (150 pts total)
- **Group Presentation:** Students will create groups of 3-4 and create a power point presentation addressing a topic in the current literature of biomechanics. Groups will be formed in Week 1 of class and presentations will take place the Wednesday during Week 7 of class. Materials will be handed out in class and a rubric with instructions will be on Canvas. (100 pts total)
- **Participation:** This is a fast-paced class covering much material in a short amount of time. Attendance and participation, collaborating with your peers and participating in pre-class review, is essential for an optimal learning environment. Being late or absent from class may result in lower participation points as students cannot participate if they are not present. (50 pts total)

ASSESSMENT	POINTS
Mid-Term Exam	100
Final Exam	150
Lab Assignments	30
Quizzes	90
Group Presentation	100
Participation	50
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Total	520

Grade	Percentage Points
A	93-100
A-	90-92
B+	87-89

B	83-86
B-	80-82
C+	77-79
C	73-76
C-	70-72
D+	67-69
D	62-66
D-	60-62
F	0-59

ATTENDANCE AND PARTICIPATION

Regular and punctual attendance at all classes is considered essential to optimum academic achievement. If the student is absent from more than 10 percent of class meetings, the faculty member has the option of filing a written report which may result in de-enrollment. If the absences exceed 20 percent, the student may be de-enrolled without notice. If the date of de-enrollment is past the last date to withdraw from a class, the student will be assigned a grade of W or WF consistent with university policy in the grading section of the catalog. Although attendance will be rarely taken, there is a strong negative correlation between number of absences and grade percentage in this class.

INCOMPLETES AND LATE ASSIGNMENTS

- All assignments are to be submitted/turned by the beginning of the class session when they are due.
- Late assignments will be deducted 20% and if over 1-week late the resulting score will be a 0.
- Missed exams may ONLY be made up with a legal, written excuse. A missed exam for an approved reason MUST be completed prior to returning to the next class meeting.

ACADEMIC DISHONESTY

Students should demonstrate academic honesty by doing original work and by giving appropriate credit to the ideas of others. As stated in the university catalog, "Academic dishonesty is the act of presenting information, ideas, and/or concepts as one's own when in reality they are the results of another person's creativity and effort. Such acts include plagiarism, copying of class assignments, and copying or other fraudulent behavior on examinations. A faculty member who believes a situation involving academic dishonesty has been detected may assign a failing grade for a) that particular assignment or examination, and/or b) the course." See [Academic Policies](#) in the undergrad student catalog.

ACADEMIC ACCOMMODATIONS

While all students are expected to meet the minimum academic standards for completion of this course as established by the instructor, students with disabilities may require academic accommodations. At Point Loma Nazarene University, students requesting academic accommodations must file documentation with the [Disability Resource Center](#) (DRC), located in the Bond Academic Center. Once the student files documentation, the Disability Resource Center will contact the student's instructors and provide written recommendations for reasonable and appropriate accommodations to meet the individual needs of the student. See [Academic Policies](#) in the undergrad student catalog.

FERPA POLICY

In compliance with federal law, neither PLNU student ID nor social security number should be used in publically posted grades or returned sets of assignments without student written permission. This class will meet the federal requirements by (each faculty member choose one strategy to use: distributing all grades and papers individually; requesting and filing written student permission; or assigning each student a unique class ID number not identifiable on the alphabetic roster.). Also in compliance with FERPA, you will be the only person given information about your progress in this class unless you have designated others to receive it in the "Information Release" section of the student portal. See [Policy Statements](#) in the undergrad student catalog.

FINAL EXAMINATION POLICY

Successful completion of this class requires taking the final examination **on its scheduled day**. No requests for early examinations or alternative days will be approved.

COPYRIGHT POLICY

Point Loma Nazarene University, as a non-profit educational institution, is entitled by law to use materials protected by the US Copyright Act for classroom education. Any use of those materials outside the class may violate the law.

USE OF TECHNOLOGY

Point Loma Nazarene University encourages the use of technology for learning, communication, and collaboration. It is the responsibility of the student to confirm access to the essential applications needed for the class such as Excel as well as standard online research tools.

COURSE SCHEDULE AND ASSIGNMENTS

(schedule is subject to change depending on students and instructor's needs)

DATE	TOPIC	MATERIALS	DUE
2/28	Intro to Biomechanics Linear Kinematics	Read Ch. 2 (pp. 11-32)	
3/12	Linear Kinematics	Read Ch. 3 (pp. 34-39, 42-47)	Quiz Ch. 2
3/14	Linear Kinematics	Lab #1	Lab #1
3/19	Angular Kinematics	Read Ch. 4 (pp. 49-63)	Quiz Ch. 3
3/21	Inertia-Momentum	Read Ch. 5 (pp. 65-77)	Quiz Ch. 4
3/26	Inertia and Angular Motion	Lab #2	Lab #2
3/28	Linear Kinetics	Read Ch. 6 (pp. 79-86, 90-96)	Quiz Ch. 5
4/4	Angular Kinetics	Read Ch. 7 (pp. 101-116)	Quiz Ch. 6
4/9	Review		Quiz Ch. 7
4/11	Mid-Term Exam		
4/16	Work-Energy	Lab #3 + Read Ch. 8 (pp. 124-139)	Lab #3
4/18	Mechanics of the Human Frame	Read Ch. 10 (pp. 157-178)	Quiz Ch. 8
4/23	Muscle-Tendon Complex	Read Ch. 11 (pp. 181-206)	Quiz Ch. 10
4/25	Group Presentations	Power Point Presentation	Quiz Ch. 11 Group Presentation
5/3	TBD		
5/5			