



California State University, Chico
Department of Kinesiology

**KINE 322 Biomechanics
Fall 2015**

Lecture Information

Instructor:	Melissa Mache, PhD	Phone:	530.898.6617
Email:	Blackboard Learn	Mailbox:	Yolo 243
Office:	Yolo 254	Office Hours:	W 11:00 AM – 4:00 PM
Lecture Time:	TR 2:00 PM – 3:15 PM	Lecture Location:	Yolo 143

Lab Information

Instructor:	Claire Holley	Email:	ceholley@mail.csuchico.edu
Office Hours:	R 11:00 AM - Noon - Yolo 258A	Mailbox:	Yolo 243
Lab Time:	TR 9:00 AM - 10:50 AM	Lab Location:	Yolo 119 (9:00 AM Labs)
	TR Noon – 1:50 PM		Yolo 124 (Noon Labs)

Catalog Description

Anatomical and mechanical bases of human movement with application to more skillful and safe performance. Qualitative and quantitative methods of analysis are introduced.

Course Prerequisite

BIOL 103 Human Anatomy or equivalent
If you have not passed this course you will be dropped (absolutely no exceptions).

Required Text and Course Materials

Multi-media “text” in development for publication. Photocopies can be purchase at cost (purchasing information will be provided by your instructor during the first week of class). All material will also be available on Blackboard Learn.
Flash Drive

Recommended Text and Course Materials

Hall, Susan J. Basic Biomechanics (Any Edition) Boston: McGraw-Hill.
Scientific Calculator (with trigonometric functions)
Ruler and Protractor

General Course Guidelines

Because the course content is cumulative minimal absences are expected. Most biomechanical concepts build on previous biological and mechanical concepts. A poor understanding of one concept will lead to a poor understanding of later concepts. Do not allow yourself to fall behind. Ask questions early and often; seek help immediately if you encounter difficulty with the material.

Email Policy

All email communication for this course will be conducted through Blackboard Learn. Both students and your instructor are expected to check their university email account daily. Your instructor will attempt to respond to all student email messages within 24 hours.

Blackboard Learn

Copies of the course materials may be found on Learn. You are responsible for regularly checking the online resources, which can be accessed through the portal at: <http://portal.csuchico.edu>

Attendance Policy

All absences must be reported to the instructor **prior** to the missed class although this does not ensure the absence will be excused. It is the student's responsibility to provide documentation for the excused absence **immediately** upon his/her return to class (i.e., the following class period) and make arrangements for the missed assignment(s) to be completed in a timely manner. If you miss an exam, you must provide written documentation of your absence and schedule a make-up exam (that will be different and more difficult).

Lecture Notes

An **outline** of the notes for each lecture will be provided as an aid to learning. They are not a substitute for coming to class. Notes will be posted on Learn the evening before each lecture. It is **highly** recommended that you bring a printout of the notes to class (or your 'textbook'). You are responsible for all material presented in lecture, whether included in the notes or not.

Course Objectives

This course is intended to be consistent with the NASPE Guidelines for Undergraduate Biomechanics (NASPE Biomechanics Academy, 1980/2003) and the CSU, Chico Department of Kinesiology Student Learning Outcomes. Each course objective is listed beside one of the Kinesiology department student-learning outcomes and refers to expected student competencies by the end of the semester.

STUDENT LEARNING OUTCOME	DESCRIPTION	PERTINENT KINE 322 COURSE OBJECTIVES	METHOD OF ASSESSMENT
Content Knowledge	Students will demonstrate knowledge and disciplinary concepts related to the field of Kinesiology.	<ul style="list-style-type: none"> ○ Discuss mechanisms related to movement for bones, joints, muscles, and nerves ○ Discuss mechanical factors that characterize or contribute to human movement 	Exams Homework Class Activities Labs Project
Communication	Students will apply knowledge of effective verbal, nonverbal, and media communication techniques to enhance learning and engagement in physical activity.	<ul style="list-style-type: none"> ○ Develop a visual vocabulary for observing and describing movement 	Exams Homework Class Activities Labs Project
Reflection and Critical Thinking	Students will demonstrate reflection and critical thinking in order to refine professional practice.	<ul style="list-style-type: none"> ○ Analyze movement by measuring the magnitude of each relevant core concept ○ Prescribe the magnitude of each core concept for a skilled person for a specific purpose ○ Use diagrams/matrices/formulas to determine solutions to movement problems 	Exams Homework Class Activities Labs Project
Programming and Assessment	Students will demonstrate evidence-based knowledge and skills (and best practices) for assessing client/student needs and for designing, implementing and evaluating programs.	<ul style="list-style-type: none"> ○ Prescribe a movement for a given area and purpose (e.g., strengthening, lengthening) ○ Evaluate/prioritize critical core concepts and direction of change for a specific mover in order to modify the movement to achieve safer/more skillful performance 	Exams Labs Project
Professionalism and Ethics	Students will demonstrate professional behaviors, including commitment to excellence, valuing diversity and collaboration, service to others, and techniques for lifelong learning.	<ul style="list-style-type: none"> ○ Demonstrate the ability to work and communicate effectively and sensitively with people from diverse backgrounds 	Class Activities Labs
Value Physical Activity and Fitness	Students will articulate a philosophy that physical activity programs are important to health and well being of individuals, and that physical activity can foster self-expression, development, and learning.	<ul style="list-style-type: none"> ○ Evaluate/modify a movement for specificity, safety, and skill to promote lifelong safe and skillful movement 	Exams Labs Project

Course Evaluation

3 Exams	60%
Lab Assignments	15%
Individual Project	15%
Homework	3%
Class Activities	7%
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Total	100%

Exams

All exams will be completed during your assigned lab time. Exams will include a mixture of true/false, short-essay, short answer, and critical-thinking questions. The exams will cover all of the assigned reading, class discussions, lectures, in-class activities, homework assignments, and lab assignments. A study guide will be provided for each exam. See the course schedule for the approximate date of each exam.

Lab Assignments

Each lab will consist of a pre-lab assignment that must be completed **PRIOR** to lab and an assignment that will be completed during lab. The pre-lab assignment will involve reading from your textbook and answering a series of brief questions. The pre-lab will count towards 20% of your lab grade. All lab handouts will be posted on Learn. Lab assignments are to be completed in groups of 2-3 students during lab time and submitted on the document provided on Learn (**Note: labs not submitted on the lab handout will not receive credit**). Some labs involve moderate physical activity and students should come prepared in shoes and clothing appropriate for physical activity. Lab assignments are normally due at the end of the lab session. For any week in which extra time is needed, you have until Friday at 5:00 PM to submit your work.

Individual Project

This project will require you to complete a comprehensive biomechanical analysis of a movement of your choosing. The project is designed to allow you to apply the concepts and ideas you will learn throughout the semester. A complete description of the project and a grading rubric for the project can be found on Learn. See the course schedule for important dates related to this project.

Homework Assignments

Two homework assignments will be required during the semester. These assignments are designed to provide you with an opportunity to practice some of the quantitative methods learned throughout the course. Homework assignments will be graded for completeness and correctness. Homework assignments can be found on Learn. It is imperative that you begin working on each assignment as soon as possible. See the course schedule for the due date of each assignment.

Class Activities

Class attendance and participation are considered important parts of the learning process. Throughout the semester activities will be completed and turned in during lecture. Some of these activities require that you bring a handout with you to class. These documents can be found on Learn (see Course Schedule for more information). Each of these assignments will be graded on a credit, no-credit basis. To receive credit, you must be present and the answers you submit must be reasonable and include appropriate justification based on biomechanical concepts presented in lecture. For each activity missed your grade will drop by 1% (**NOTE: a student can lose a maximum of 10% of their total grade**).

Late Assignments

An assignment is considered late if it is not turned in by the day and time indicated by the instructor or on the course schedule. Assignments submitted after the indicated due date will be accepted and graded; however, there will be a penalty of 10% per day for late work.

Grading System

Definitions of Grades at CSU, Chico

A	Superior Work	A level of achievement so outstanding that it is normally attained by relatively few students.
B	Very Good Work	A high level of achievement clearly better than adequate competence in the subject matter/skill, but not as good as the unusual, superior achievement of students earning an A.
C	Adequate Work	A level of achievement indicating adequate competence in the subject matter/skill. This level will usually be met by a majority of students in the class.
D	Minimally Adequate Work	A level of achievement which meets the minimum requirements of the course.
F	Unacceptable Work	A level of achievement that fails to meet the minimum requirements of the course. Not passing.

Grading Scale

A	94-100 %	C+	77-79%
A-	90-93 %	C	74-76%
B+	87-89 %	C-	70-73%
B	84-86 %	D+	67-69%
B-	80-83 %	D	60-66%
		F	0-59%

Academic Integrity

Students are expected to be familiar with the University's Academic Integrity Policy. Your own commitment to learning, as evidenced by your enrollment at California State University, Chico, and the University's Academic Integrity Policy requires you to be honest in all your academic course work. Faculty members are required to report all infractions of the University's Academic Integrity Policy to the Office of Student Judicial Affairs. The policy on academic integrity and other resources related to student conduct can be found at:

<http://www.csuchico.edu/sjd/integrity.shtml>.

Services for Students With Disabilities

Americans with Disabilities Act: If you need course adaptations or accommodations because of a disability or chronic illness, or if you need to make special arrangements in case the building must be evacuated, please make an appointment with me as soon as possible, or see me during office hours. Please also contact the Accessibility Resource Center (ARC) as they are the designated department responsible for approving and coordinating reasonable accommodations and services for students with disabilities. ARC will help you understand your rights and responsibilities under the Americans with Disabilities Act and provide you further assistance with requesting and arranging accommodations. ARC is located in Student Services Center 170, www.csuchico.edu/arc, 530.898.5959.

Tentative Course Schedule (*Indicates a supplemental handout. All handouts can be found on Learn and must be brought to lecture.)

Week	Dates	Topic	Reading	Labs	Important Dates
1	08/25	Course Introduction and Syllabus Overview		No Lab	
	08/27	01 Biomechanics and Core Concepts Introduction	Ch 1 & Ch 3 Hudson (1995)		
2	09/01	02 Three Component Model and Analysis**	Chapter 2	01 Planes and Axes and 02 Joint Actions	Project Proposal September 3 rd
	09/03	03 Understanding Force**	Chapter 4		
3	09/08	04 Muscles**	Chapter 7	03 Prime Movers	
	09/10	04 Muscles - Continued 05 Bones	Chapter 5		
4	09/15	06 Joints** 07 Nervous System	Chapter 6 Chapter 8	04 Expanded Muscle Analysis	
	09/17	07 Nervous System - Continued 08 Anatomical Integration and Application**	Chapter 10		
5	09/22	09 Anatomical Evaluation and Modification	Chapter 11	05 Advanced Muscle Analysis	Digital Video September 24 th
	09/24	Anatomical Exam Review			
6	09/29	10 Basic Quantitative Skills**	Hall (2003) and Ch 4 (14-17)	No Lab	Muscular Analysis Oct 1 st
	10/01	11 Forms of Motion and Displacement	Chapter 12 (1-6)		
7	10/06	12 Linear and Angular Velocity	Chapter 12(6-9)	Anatomical Exam	
	10/08	Exam Results (<i>Tentative</i>) 13 Linear and Angular Acceleration	Chapter 12 (9-14)		
8	10/13	14 Projectile Motion	Chapter 14 (1-10)	06 Running Kinematics	
	10/15	15 Quantitative Projectile Motion	Chapter 14 (11)		
9	10/20	15 Quantitative Projectile Motion	Chapter 15	07 Jumping	
	10/22	16 Kinematic Integration and Application**	Chapter 16 Chapter 13		
10	10/27	17 Kinematic Evaluation and Modification	Chapter 13	08 Qualitative Kinematics	Homework #1 October 27 th
	10/29	18 Measuring Movement – Kinematics**			
11	11/03	19 Traditional Mechanics	Chapter 17 (1-2, 4, 7-12, 14)	No Lab	Mechanical Analysis Nov 5 th
	11/05	20 Laws of Motion** Kinematics Exam Review	Chapter 17 (2-3, 13)		
12	11/10	21 Summation of Forces and Torques	Chapter 17 (15-16)	Kinematics Exam	
	11/12	22 Impulse-Momentum	Chapter 17 (4-6, 12-13)		
13	11/17	Exam Results (<i>Tentative</i>) 23 Work, Power, Energy	Chapter 17 (5-7, 12)	No Lab	
	11/19	<i>No Class – POSSUM Assumptions & Guidelines Activity (Out of Class)**</i>	Chapter 20 (4-6)		
		<i>No Class – Thanksgiving Break</i>			
14	12/01	24 Kinetic Integration and Application	Ch 19 and Ch 20 (1-3)	09 Balance Measurement	Homework #2 December 3 rd
	12/03	25 Measuring Movement – Kinetics**	Chapter 18		
15	12/08	26 Special Forces	Chapter 17b (3-9)	10 Kinetic Concepts	Individual Project December 11 th
	12/10	Kinetics Exam Review			
Final Exam		Kinetics Exam			Extra Credit December 17 th

Friday September 4th is the last day to add or drop this course without special permission.