

PHYS 2210: Physics for Scientists and Engineers I

Fall 2019

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Office Hours: Wednesdays 3-4pm and by appointment

Introduction

Welcome to Physics 2210, every student in this course can get, and should work towards, an A! This course is designed for students to learn physics through collaborative work and active engagement in the lectures and discussion sections. Active participation and engagement is critical to your success, and reflected in how the course is constructed and assessed. Physics is something that we all have to challenge ourselves and work on to learn, everyone can learn physics and grow their intelligence through studying, group work, and problem solving. I look forward to learning physics together and having all of you in my course.

Website	This course is on canvas. All assignment and handouts are available there. Please always check canvas before reaching out.
Lectures	MW 1:25pm-2:45pm, JFB 101 Please be on time, participate fully, and respect your peers.
Textbook	<i>Physics for Scientists and Engineers, 4th Ed. by Knight</i> The electronic version of the book, associated resources, and mastering physics are available for purchase online. You can procure a paper copy of the book if you like through the Mastering Physics web interface.
Course	This is the first part of a two-part calculus based sequence in introductory physics. This course assumes robust skills in algebra as well as a working knowledge of calculus. We will be learning about standard concepts in classical mechanics as outlined below.
Objectives	<ul style="list-style-type: none">• Learn through group work and participation• Understand the methods of scientific thinking and problem solving• Develop physical and scientific intuition• Taking on interesting challenges and approaching them as puzzles to be solved

Course Format

In addition to your professor the course will also be home to other instructors to support your learning. In the lectures, and discussions, you will be actively working with graduate teaching assistants and undergraduate learning assistants as you work cooperatively with your peers to solve problems.

Your classroom time will include both the lectures and discussion sections. In the lectures you will be working together in small groups in local “neighborhoods” of students. You will have an LA/TA assigned to your “neighborhood” for the duration of the course. In your discussion sections you will primarily be solving more complex problems with your peers.

This course will *NOT* be graded on a curve. You are on a team with your peers to master the content and score well in the course. Your peers are there to support and help you, and this will be reflected in how your course grade is calculated.

Homework will be assigned weekly through mastering physics and due by 6pm on Monday of each week. In addition to standard physics problems, you will also be required to complete Mastering Physics modules by the end of each chapter to test your conceptual knowledge.

Quizzes will be given throughout the term to test your knowledge on the week’s content.

Participation will be scored by your attendance, attention in the lectures and discussions, and by your peers in your working groups.

Exams will be cumulative up until that point in class and include a group work section. There will be two midterms and one final in the course. The **Final Exam** will be cumulative and held December 9th 3:30-5:30pm.

Extra Credit will be given for one written assignment described in class.

Grading

Your grade will be calculated with the two different schemes below. You will receive which ever grade is highest.

Scheme	1	2
Homework	25%	25%
Quizzes	10%	10%
Participation	10%	10%
Midterm 1	15%	
Midterm 2	15%	
Final Exam	25%	55%

Score (%)	Grade	Score (%)	Grade
93-100	A	70-75	C+
89-93	A-	65-70	C
85-89	B+	60-65	C-
80-85	B	<60	D,E
75-80	B-		

Course Schedule

HW: Homework (Due the next Monday), MP: Mastering Physics Conceptual Module (Due Fri)

Class	Date	Content	Reading	HW	MP
1	August 19 th	Introduction & Assessment			
2	21 st	Kinematics	Ch 1, 2	1	
3	26 th	Kinematics	Ch 3		
4	28 th	Kinematics	Ch 4	2	1-4
	September 2 nd	Labor Day			
5	4 th	Kinematics	Ch 4	3	5, 6
6	9 th	Dynamics	Ch 6		
7	11 th	Dynamics	Ch 7	4	
8	16 th	Dynamics	Ch 8		7, 8
9	18 th	Work and Energy	Ch 9	5	
10	23 rd	Exam Review			
11	25 th	EXAM 1			
12	30 th	Work and Energy	Ch 9		
13	October 2 nd	Work and Energy	Ch 10	6	
	7 th	Work and Energy	Ch 10		
	9 th	Work and Energy	Ch 10	7	9
14	14 th	Fall Break			
15	16 th	Fall Break			
16	21 st	Conservation of Energy	Ch 11		
17	23 rd	Linear Momentum and Collisions	Ch 11	8	10
18	28 th	Rigid Bodies	Ch 12		
19	30 th	Rigid Bodies	Ch 12	9	
20	November 4 th	Angular Momentum and Static Eq.	Ch 12		
21	6 th	Angular Momentum and Static Eq.	Ch 12	10	11-13
22	11 th	Exam Review			
23	13 th	EXAM 2			
24	18 th	Harmonic Oscillator	Ch 15		
25	20 th	Harmonic Oscillator	Ch 15	11	
26	25 th	Harmonic Oscillator	Ch 15		16
27	27 th	Waves	Ch 16	12	
28	December 2 nd	Waves and Assessment	Ch 17		17
29	4 th	Final Review			

Diversity and Inclusion

Physics is for everyone. This class is designed to support student engagement and learning. This is also a class of robust conversation and group work. It is critical that each student be respectful of every other student, and intentionally think to be inclusive of everyone around you regardless of their gender, sex, ability, race, ethnicity, sexual orientation, religion, or any other human characteristic. We are here to work as a team to learn physics, and part of this is valuing and respecting everyone. Please feel free to reach out if you ever have any concerns about the course or your full participation.

University Policies

1. ***The Americans with Disabilities Act.*** The University of Utah seeks to provide equal access to its programs, services, and activities for people with disabilities. If you will need accommodations in this class, reasonable prior notice needs to be given to the Center for Disability Services, 162 Olpin Union Building, (801) 581-5020. CDS will work with you and the instructor to make arrangements for accommodations. All written information in this course can be made available in an alternative format with prior notification to the Center for Disability Services.
2. ***University Safety Statement.*** The University of Utah values the safety of all campus community members. To report suspicious activity or to request a courtesy escort, call campus police at 801-585-COPS (801-585-2677). You will receive important emergency alerts and safety messages regarding campus safety via text message. For more information regarding safety and to view available training resources, including helpful videos, visit safeu.utah.edu.
3. ***Addressing Sexual Misconduct.*** Title IX makes it clear that violence and harassment based on sex and gender (which includes sexual orientation and gender identity/expression) is a civil rights offense subject to the same kinds of accountability and the same kinds of support applied to offenses against other protected categories such as race, national origin, color,

religion, age, status as a person with a disability, veteran's status or genetic information. If you or someone you know has been harassed or assaulted, you are encouraged to report it to the Title IX Coordinator in the Office of Equal Opportunity and Affirmative Action, 135 Park Building, 801-581-8365, or the Office of the Dean of Students, 270 Union Building, 801-581-7066. For support and confidential consultation, contact the Center for Student Wellness, 426 SSB, 801-581-7776. To report to the police, contact the Department of Public Safety, 801-585-2677(COPS).

- 4. *Undocumented Student Support Statement.*** Immigration is a complex phenomenon with broad impact—those who are directly affected by it, as well as those who are indirectly affected by their relationships with family members, friends, and loved ones. If your immigration status presents obstacles to engaging in specific activities or fulfilling specific course criteria, confidential arrangements may be requested from the Dream Center. Arrangements with the Dream Center will not jeopardize your student status, your financial aid, or any other part of your residence. The Dream Center offers a wide range of resources to support undocumented students (with and without DACA) as well as students from mixed-status families. To learn more, please contact the Dream Center at 801.213.3697 or visit dream.utah.edu.