

DEPARTMENT OF PHYSICS
PHYX 1200
PHYSICS by HANDS-ON EXPLORATION
FALL 2019

Course Information

Textbook:	Class Notes available in bookstore – Required (about \$14)
Instructor	Tonya Triplett, SER 234, 797-8308, tonya.triplett@usu.edu
Classroom	ESLC 130, broadcast on Zoom, and recorded
Time	10:30-11:45 Tuesday and Thursday Lab as registered
Office hours	T/H 1:30-4:00 and Wednesday and by appointment
Website	Use USU's Canvas program
Course Fee	\$6.00

Course Goal

The goal of this course is to acquaint you with some of the "big ideas" in physics, to let you see those ideas in action in your own experimentation, and to convince you that physics can (at least some of the time) be fun. We will explore the enterprise of science as we acquaint you with some of the major players in science, the people who came up with the big ideas, how they did it, and how and on what scientists are working today.

Tests

This course will have four exams over four general areas. These tests will be in a combined Canvas format including multiple choice, matching, and problem solving/calculations. You will solve the calculation problems on paper and then upload them as a pdf or jpg file within the program and should feel exactly like homework. Each one is equally weighted such that tests will comprise 60% of the total points in the course. Exams will cover concepts, labs, and problem solving. The last test will be given as the scheduled final and will NOT be comprehensive. Tests will be open on Canvas during the testing window and you will be allowed a data page (provided), paper and pencil, a calculator, and a ruler. You will need a means such as a phone to upload images of your work.

Homework

Homework will be assigned approximately weekly. Each homework assignment will be graded out of 20 points. Homework will be worth 20% of the total score. 13 assignments will be given; you may drop your two lowest scores. Assignments are listed on the calendar. Late homework will be heavily penalized.

Labs

Labs are your chance to "try it out". They will be held in SER 110 during your scheduled lab time. A total of 8 labs will be held during the semester and you will attend 4 of them in person and do 4 of them as online exercises. You will receive credit for attendance and for an

exit quiz. All labs will be graded out of 25 points. Due to strict COVID scheduling, you will not be allowed to make up a missed in-person lab. Lab points will comprise 20% of the total score.

Journal

At the beginning of each class there will be a thought question about the previous or current day's material. Students will answer these questions in a journal format. This completed journal will be turned in at the end of the course for up to 2.5% of extra credit. The intent of the journal is to measure and encourage attendance and to participate in our own enterprise of science. You will need a small notebook or about 8 designated pages of paper for your journal.

Class Lectures

So long as we are permitted to do so, it is my intent to hold class with proper social distancing and cleanliness standards. Students who attend in person must wear a mask and follow the guidelines established. We will also simulcast via Zoom for students who cannot attend. All lectures will be archived in Canvas so that everyone can participate regardless of circumstances. We have a large classroom and still not all enrolled students can be seated at one time so a sign-up system will be used in Canvas.

Composition of Final Grade

Chapter Tests	60%	
Homework	20%	
Labs	20%	
Question Journal	0%	up to 2.5 %
Total	100%	up to 102.5%

The assignment of letter grades will be as shown in the table below:

Letter grade	A	A-	B+	B	B-	C+	C	C-	D+	D
Percent Score	94.0	90.0	87.0	84.0	80.0	77.0	74.0	70.0	67.0	60.0

The scores represent the lower bound for the adjacent letter grades. Marks of 59.9% and below will be graded F.

Undergraduate Teaching Fellows (UTF)

This class is scheduled to have a UTF to assist with homework problem solving. More information about times and contact will be given soon. Another UTF will assist with materials, grading and classroom projects.

Course Fee

A fee has been assessed for this course to pay for lab materials and upkeep. It should have been paid at registration.

Materials for Persons with Disabilities

USU welcomes students with disabilities. If you have, or suspect you may have, a physical, mental health, or learning disability that may require accommodations in this course, please contact the Disability Resource Center (DRC) as early in the semester as possible (University Inn # 101, 435-797-2444, drc@usu.edu). All disability related accommodations must be approved by the DRC. Once approved, the DRC will coordinate with faculty to provide accommodations.

Honor Code

The honor code will be strictly enforced in this course. Any suspected violations of the honor code will be promptly reported to the honor system. For more information please visit: <http://www.usu.edu/policies/PDF/Acad-Integrity.pdf>

Course Calendar

All calendar dates are tentative and may be changed to meet course objectives.

Date	Course Material	Homework Due	Assigned Numbers
Aug 31-Sep 4	No lab this week		
Sep 1	Chapter 1, course information		
Sep 3	2-1 through 2-9 Structure of Matter		
Sep 7-11	Lab 1	Race Tracks* Monday lab meets the following week	
8	2-10 through 2-16 Quarks		
10	2-16 through 3-5 Motion	Homework #1	Chapter 2: 1,2,3,5
Sep 14-18	Lab 2	Force Carts* Monday lab meets the following week	
15	3-6 through 3-9 Graphing		
17	4-1 through 4-6 Newton's Laws	Homework #2	Chapter 2: 7 Chapter 3: 2,4,5,6,7
Sep 21-25	No Lab		
22	4-6 through 4-11 Newton's Laws		
24	Exam 1	Homework #3	Chapter 4: 2,5,7,10
Sep 28-Oct 2	No Lab		
29	5-1 through 5-5 Gravity		
1	5-5 through 6-2 Energy	Homework #4	Chapter 5: 1,2,3
Oct 5-9	Lab 3	Roller Coasters	
6	6-3 through 6-7 Energy Conservation		
8	6-8 through 6-9 Machines, Power	Homework #5	Chapter 6: 1,3,10,13
Oct 12-16	Lab 4	Heat and Machines	
13	6-9 through 6-11 Heat	Homework #6	Chapter 6: 14,15,16 (all parts)
15	6-12 through 6-14 Momentum, Entropy		
Oct 19-23	No Lab		
20	Exam 2	Homework #7	Chapter 6: 5,8,9,11
22	7-1 through 7-4 Charge		
Oct 26-31	Lab 5	Sew Electric	
27	7-5 through 7-9 Voltage		
29	7-10 through 7-14 Ohm's Law	Homework #8	Chapter 7: 1,2,3,4
Nov 2-6	Lab 6	Electricity	
3	7-15 through 7-18 Series/Parallel Circuits		
5	Circuits continued	Homework #9	Chapter 7: 5,6,7,8,9,10
Nov 9-13	No Lab		
10	7-18 through 7-25 Power and Magnetism		
12	Exam 3	Homework #10	Chapter 7: 11,12,13,14,15,16
Nov 16-20	Lab 7	Waves and Music	
17	8-1 through 8-7 Waves		
19	8-8 through 8-11 resonance	Homework #11	Chapter 8: 1,2,3
Nov 23-27	Lab 8	Light	
24	8-12 through 8-14 Light		
26	Thanksgiving- No Class		
Nov 30-Dec 4	No Lab		
1	8-14 through 8-16 Optics		

3	Optics Continued	Homework #12	Chapter 8: 4,5,6,7
Dec 7-11	Lab 9	Online	
8	9-1 through 9-5 Radiation		Journal Due Today
10	Health Effects of Radiation	Homework #13	Chapter 9: 1,2,3,4
Dec 14-18	Finals Week		
Tue Dec 15	Final Exam	Due by Tuesday midnight for grading	