

PHY 1200

Physics of Everyday Life – Winter 2021

Syllabus

Instructor: Alberto Rojo
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Office: 186C MTSC
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Office hours: T/TH 3:00-4:47PM

Textbooks:

There is no textbook required for this course. We will use the notes that you can download from <https://files.oakland.edu/users/rojo/web/p120/Schedule.htm>

Recommended Texts:

- Paul G. Hewitt, *Conceptual Physics*. The bookstore ordered the 11th edition but you can also use previous ones. Also I will distribute notes and send them by Moodle.
- D. Macauley *The Way Things Work* (occasional reference)
- L. Bloomfield *How Things Work* (occasional reference)
- L. Kirkpatrick & G. Wheeler *Physics A World View* (occasional reference)

Course Prerequisites and goals:

The essential prerequisite is *curiosity* and a desire to learn.

The goal is to learn some science, and find that doing so can be both enjoyable and useful.

Classroom Etiquette (The classes are going to be online and by zoom)

- Get to class on time
- Turn mobile phones off
- No food in the lab or classroom please

Course Structure:

In Physics 120, *The Physics of Everyday Life*, we will have some emphasis on learning by experiment combined with listening to lectures. The intended audience is students interested in natural phenomena in the world around us and in the working of the fruits of technology. Although no prior training in physical science is assumed, I will try to achieve a qualitative and, insofar as possible, a quantitative understanding of the systems we study. We will achieve this, I hope, by direct experiment, and by learning some basic principles--not by mathematical analysis.

Since we will do some experiments, which are performed in class, *attendance is mandatory*, and will be recorded. The primary record of a student's work will be the Laboratory Notebook, which includes notes, diagrams, graphs, results, and interpretation.

Required Work

- Attend ALL classes. Arrive promptly and stay the entire period.
- Complete all homework and return in the indicated date.
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- Take all tests.
- Explore, be attentive and interactive, pose questions to each other and figure things out.

Grading

30% Homework and Quizzes.

40% Tests. There will be two midterms and a final exam.

30% Attendance.

Up to 2 absences per term (with cause) will be permitted.

Each additional missed class will decrease the overall grade by 3%.

Grading will NOT be on a curve.

The final grade will be computed according to the chart on the right.

Letter Grade	Percent scale
A	96-100
A-	88-95
B+	80-87
B	73-79
B-	69-72
C+	64-68
C	60-63
C-	57-59
D+	53-56
D	50-52
F	<50

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with Professor Alberto Rojo

Class & Exam Dates	Subject/Experiment	Readings & Review	Homework HWs are due the posted dates
January 7	Class 1: Soap Bubbles	Surface Tension Notes	
January 12	Class 2: Surface Tension		Class 1 HW
January 14	Class 3: Air Pressure	Pressure Notes	Class 2 HW
January 19	Class 4: Density & Buoyancy		Class 3 HW
January 21	Class 5: Material & Atoms	Atomic Structure Notes	Class 4 HW
January 22	Class 6: Static Electricity	Static Electricity Notes	Class 5 HW
January 26	Class 7: Batteries	Batteries	Class 6 HW
January 28	Class 8: Circuits		Class 7 HW
February 2	Class 9: Series and Parallel	Series/Parallel Notes	Class 8 HW
February 4	Class 10: House Wiring		Class 9 HW
February 9	Class 11: Ohm's Law		Class 10 HW
February 11	Midterm Review		Midterm HW
February 16	Midterm I		
February 18	Class 12: Magnetism		Class 11 HW
February 23	Winter recess		
February 25	Winter recess		
March 2	Class 12: Magnetism		Class 11 HW
March 4	Class 13: Relays & Buzzers		Class 12 HW
March 9	Class 14: Motors		Class 13 HW
March 11	Class 15: Speaker		Class 14 HW
March 16	Class 16: Bernoulli Effect		Class 15 HW
March 18	Class 17: Waves and Sound		Class 16 HW
March 23	Class 18: Physics of Music(Lecture)		Class 17 HW
March 25	Midterm Review		
March 30	Midterm II		
April 1	Class 19: Reflection	Light	
April 6	Class 20: Refraction		
April 8	Class 21 Art And Physics (Lecture)		
April 13	Class 22: Polarization		
April 15	Final Review		
April 22 / 27 (depending on section)	Final Exam. See tentative schedule HERE		

