

PHYSICS 100
FALL 2020

Prof. Gene Bickers
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Synchronous lecture hours: MWF 11-11:50 AM PDT
Synchronous office hours: MW 4-6 PM PDT and by appointment

WELCOME TO PHYSICS 100. This general education course provides credit in Category E (Physical Science). Physics 100 is intended for the non-science major with little, if any, previous background in the sciences and mathematics. **The course is primarily conceptual**, i.e., there will be few instances in which you will be required to perform complicated calculations or to memorize formulas. The goal of the course is to introduce you to a variety of natural phenomena and the physical theories that have been developed to describe them. Just as you don't have to be a sculptor to appreciate art or a violinist to appreciate music, you don't have to be a nuclear theorist to appreciate physics.

LEARNING OBJECTIVES:

- (1) Acquire a qualitative understanding of physical concepts ranging from Newton's Laws of Motion to the quantum theory of radiation and matter.
- (2) Gain an appreciation for physics as the basic science that underlies most of modern technology.
- (3) Be able to apply ideas and insights from physics to everyday life beyond the university.

TEXTS:

- Paul Hewitt: *Conceptual Physics*, 12th Edition, Pearson (2015).
You can rent a book or buy either a used or new book. You should be able to get by with an older edition – only the Homework Problems differ substantially between editions, and I will post these online.
- *Physics 100 Lab Manual*.
This will be available online. There is nothing to buy.

BLACKBOARD SITE:

The PHYS 100 website is maintained on Blackboard at <https://blackboard.usc.edu> .
Under the home page you will find

- a copy of this lecture syllabus and schedule
- a running archive of lecture videos for this semester
- Homework and Quiz assignments
- a record of your scores on assignments and exams.

READING AND QUIZZES:

A very short online Quiz (five multiple-choice questions) will be assigned **prior to each class meeting after August 17**. The Quizzes will cover the new material, as well as ideas from the previous class.

The Quizzes may be taken by logging onto Blackboard through a web browser. You can take each Quiz up to three times, so it will be possible to correct mistakes. **Only your final submission counts.**

Each Quiz will be **due by 11:10 AM PDT on the day of class**, but it would be better to take them ahead of time unless you are desperate. The Quizzes account for 10% of the final course grade.

HOMEWORK:

Homework exercises will be assigned weekly and will be turned in online as either a Word or pdf attachment. The homework exercises will be short and generally qualitative - they are intended to reinforce ideas and to develop logical reasoning, not to provide practice in algebra. It should be possible to do a Homework in an hour or less if you have been keeping up with class.

Homework will be **due by 11:10 AM PDT each Wednesday beginning in Week 2**. Late homework may not be accepted. The Homeworks account for 10% of the course grade. Collaboration on homework is *encouraged*, but you should turn in your own work, not a copy of a group solution.

LABORATORY:

A laboratory component is included in Physics 100 as part of the university's general education requirement. **The lab sections meet for the first time during Week 1, then every two weeks after that.** Lab procedures will be described during the first session. The labs can be done asynchronously, but be sure to attend the first session live or to watch the tape.

The complete lab schedule is as follows:

Week of . . .	Topic
August 17 - 21	Basic aspects of physics
August 31 - September 4	Acceleration down an incline
September 14 - 18	Fluids
September 28 - October 2	Waves
October 12 - 16	Electric circuits
October 26 - 30	Light and color

The rubric for lab grading will be explained during the first meeting. The laboratory accounts for 20% of the course grade.

MIDTERM AND FINAL EXAMS:

The course will have two midterm exams and a comprehensive final exam. The format is multiple-choice. All exams will be open-book, open-notes and open-internet. Each exam will be available for 24 hours online. The midterms are scheduled to be posted on **Wednesday, September 23** and **Wednesday, October 28**. You must take both midterm exams. Your higher midterm score will account for 20% of the course grade, and your lower midterm score for 15% of the course grade.

The final exam is scheduled to be posted on **Tuesday, November 17**. The final exam accounts for 25% of the course grade, and you must take the final exam in order to pass the course.

SUMMARY OF COURSE GRADE:

Quizzes (taken online)	10%
Homework (submitted online)	10%
Laboratory	20%
Midterms	
Low Score	15%
High Score	20%
Final Exam	25%
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Total:	100%

STUDENTS WITH DISABILITIES:

Students who need to request accommodations based on a disability are required to register each semester with the Office of Disability Services and Programs (DSP). In addition a letter of verification to the instructor from DSP is needed for the semester you are enrolled in this course. If you have any questions concerning this procedure, please contact the instructor and DSP.

ACADEMIC INTEGRITY:

Homework assignments may be done in collaboration with other students, but you should hand in your own work, not a group solution. **Under no circumstances should students seek out homework solutions from alumni of Physics 100 or from any other printed or online solution sets/manuals.** Failure to abide by this rule will result in a zero for the Homework portion of the grade.

Academic integrity violations on any exam will result in an F for the course.

STUDENT OMBUDSMAN:

All courses in the Department of Physics & Astronomy have an assigned Student Ombudsman to serve students as a confidential, neutral, informal and independent resource when they wish to discuss issues concerning their course without directly confronting their instructor. The Student Ombudsman for this course is

Professor Chris Gould
gould@usc.edu .

SCHEDULE

Week	Date	Chapters	Topics	HW Due Date
1	8/17	1–3	About Science Newton's First Law Linear Motion	8/26
2	8/24	3–5	Linear Motion Newton's Second Law Newton's Third Law	9/2
3	8/31	5–7	Newton's Third Law Momentum Energy	9/9
4	9/9	7–8	Energy Rotational Motion	9/16
5	9/14	8–9, 13	Rotational Motion Gravity Liquids	9/23
● MIDTERM EXAM 1 posted – Wednesday, September 23 – Chs. 1–9 ●				
6	9/21	14–15	Gases Temperature and Heat	9/30
7	9/28	15–17, 19	Temperature and Heat Heat Transfer Change of Phase Vibrations and Waves	10/7
8	10/5	19-21	Vibrations and Waves Sound Musical Sounds	10/14
9	10/12	22-23	Electrostatics Electric Current	10/21

Week	Date	Chapters	Topics	HW Due Date
10	10/19	23–26	Electric Current Magnetism Electromagnetic Induction Properties of Light	10/28
• MIDTERM EXAM 2 posted – Wednesday, October 28 – Chs. 13–17, 19–23 •				
11	10/26	26–28	Properties of Light Color Reflection and Refraction	11/4
12	11/2	28–29, 31	Reflection and Refraction Light Waves Light Quanta	11/11
13	11/9	31–33	Light Quanta The Atom and the Quantum The Atomic Nucleus and Radioactivity	
• FINAL EXAM posted – Tuesday, November 17 – Cumulative •				

IMPORTANT DATES

Last day to add classes or receive a tuition refund – September 4

Midterm Exam 1 posted – September 23

Last day to drop without a mark of W – October 5

Midterm Exam 2 posted – October 28

Last day to drop with a mark of W – November 6

Last day of class – November 13

Final Exam posted – November 17