

PHYSICS 100
SPRING 2019

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Lecture hours: TuTh 10-11:20 PM
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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 quantitative calculations or to memorize complicated 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 handed out in your first lab session. 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, typically five multiple-choice questions, will be assigned **prior to each class meeting after January 8**. The Quizzes will cover the new reading, 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. Please note only your final submission will be counted.

Each Quiz will be **due at 10:10 AM 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, rather than 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 at 10:10 AM each Thursday 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 2, then every two weeks after that.** Lab manuals will be handed out during the first meeting. There is no cost for a manual.

The complete lab schedule is as follows:

Week of . . .	Topic
January 14	Basic aspects of physics
January 28	Acceleration down an incline
February 11	Projectile motion
February 25	Fluids
March 11	SPRING BREAK
March 18	Waves
April 1	Electric circuits
April 15	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 midterm exams are scheduled for the regular class meeting periods on **Thursday, February 14** and **Thursday, March 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 for **Tuesday, May 7, 11 AM - 1 PM**. The final exam accounts for 25% of the course grade, and you must take the final exam in order to pass the course.

All exams are closed book, consist of multiple choice questions, and are machine-graded. **There are no makeup exams.**

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 at GFS 120, 740-0776.

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.

SCHEDULE

Week	Date	Chapters	Topics	HW Due Date
1	1/8	1–3	About Science Newton's First Law Linear Motion	1/17
2	1/15	3–5	Linear Motion Newton's Second Law Newton's Third Law	1/24
3	1/22	5–6	Newton's Third Law Momentum	1/31
4	1/29	6–8	Momentum Energy Rotational Motion	2/7
5	2/5	8–9	Rotational Motion Gravity	2/14
● MIDTERM EXAM I – Thursday, February 14 – Chs. 1–8 ●				
6	2/12	13–14	Liquids Gases	2/21
7	2/19	15–16	Temperature and Heat Heat Transfer	2/28
8	2/26	17, 19	Change of Phase Vibrations and Waves	3/7
9	3/5	20–22	Sound Musical Sounds Electrostatics	3/21

Week	Date	Chapters	Topics	HW Due Date
	3/12		SPRING BREAK	
10	3/19	22–24	Electrostatics Electric Current Magnetism	3/28
• MIDTERM EXAM II – Thursday, March 28 – Chs. 9, 13–17, 19–22 •				
11	3/26	24–25	Magnetism Electromagnetic Induction	4/4
12	4/2	26–28	Light Color Reflection and Refraction	4/11
13	4/9	28–29, 31	Reflection and Refraction Light Waves Light Quanta	4/18
14	4/16	31–32	Light Quanta The Atom and the Quantum	4/25
15	4/23	32–33	The Atom and the Quantum The Atomic Nucleus	
• FINAL EXAM – Tuesday, May 7, 11 AM - 1 PM – Cumulative •				

IMPORTANT DATES

Last day to change to PASS/NO PASS – Friday, January 25
 Midterm Exam #1 – Thursday, February 14
 Last day to drop without a mark of W – Friday, February 22
 Midterm Exam #2 – Thursday, March 28
 Last day to drop with a mark of W – Friday, April 5
 Last day of class – Thursday, April 25
 Final Exam – Tuesday, May 7