

PHYSICS 161L
SPRING 2019

Prof. Gene Bickers
Office: ACB 439H
Phone: 740-1114
Office hours: MTuWTh 4-6 PM

Lecture hours: TuTh 2-3:50 PM
Lecture location: SLH 100

NOTES

This is the first course in a three-semester introductory honors sequence in physics. Math 126 (Calculus II) is a prerequisite and Math 226 (Calculus III) is a corequisite. Both differential and integral calculus will be used throughout the course. The statics and dynamics of particles and rigid bodies, wave motion, relativistic kinematics, and elementary thermal physics will be covered this semester.

TEXTS:

Kleppner and Kolenkow: *An Introduction to Mechanics*
Second Edition, Cambridge University Press
Bickers notes on oscillations, waves and thermal physics
Physics 151L/161L Laboratory Manual (online)

ONLINE COURSE SUPPORT:

The PHYS 161 home page is on Blackboard (<https://blackboard.usc.edu>). Under the home page you will find a copy of this lecture syllabus and schedule; homework and quiz assignments; scanned images of solutions for completed homework; copies of examinations from previous semesters; and webcasts for help with the problem sets.

HOMEWORK:

Homework will be assigned roughly every ten days. **Homework is an integral part of the class.** Two or three take-home “quizzes” (essentially pledged homeworks sets) will be assigned over the course of the semester.

Each homework set or quiz has a target date. If an assignment is turned in to my office, ACB 439H, before 9 AM on the day following the target date, it is considered on-time. If the assignment

is turned in after the target date, “late days” are assessed. **Everyone is allowed up to ten late days over the course of the semester with no point penalty.** You may choose to use late days on homework sets or quizzes as you see fit. Weekends and holidays do not count toward the late-day total. For example, the first homework assignment has a target date of Thursday, January 17; you may turn in that assignment “on-time” as late as 9 AM on Friday, January 18.

Your late day total will be updated online whenever you turn in an assignment. Once the tenth day is reached, any subsequent assignment must be turned in by the target date in order to receive credit. If you turn in an assignment that pushes your late-day total to exactly eleven days, that one assignment will receive half-credit. Any assignment after that must be turned in by the target date.

Help with challenging aspects of the homework is provided online through a series of webcasts. **It makes sense to try working problems first before turning to a webcast for clarification of specific points.**

Graded homework will be returned in class. Images of homework solutions will be posted online.

LABORATORY:

THERE WILL BE NO LAB MEETINGS DURING WEEK 1 (January 7 –11). Labs begin in the second week. If you miss the first meeting, your lab slot may be turned over to another student.

Physics is an experimental science, and the laboratory is an important part of any physics course. In Physics 161 (and 151), the laboratory is run on a separate basis from the lecture portion of the course. The procedures to be followed in the lab will be explained by the lab instructors at the first meeting.

The laboratory constitutes 20% of the final course grade. If you miss a laboratory period, *you* must make arrangements with your TA to make up the missing experiment. Questions concerning the laboratory should be referred to the laboratory director Dr. Gökhan Esirgen (esirgen@usc.edu), KAP B–19.

EXAMINATIONS:

There will be two midterm examinations and a final examination. The midterm exams will be given on **Thursday, February 7** and **Thursday, March 21**. The final examination will be given **Thursday, May 2**, from 2–5 PM. **Note the final is a three-hour exam.** The course grade will be based upon classroom and laboratory grades – 80% from the classroom and 20% from the lab.

The classroom grade will be based upon the following distribution of points:

Midterms	$2 \times 200 =$	400
Homework		200
Quizzes		150
Final		250
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	Total:	1000

Please seek assistance immediately if you are having difficulty with the course. Help is available from the instructor and the teaching assistants. At least one teaching assistant will be on duty at all times between the hours of 10 AM and 4 PM Monday through Friday in ACB-431. All TA's, not just your lab TA's, are available to help you with Physics 161L.

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, and help is also available as noted above. **Under no circumstances should students seek out homework solutions from alumni of PHYS 161 or from any other printed or online solution sets/manuals.**

Quizzes are essentially PLEDGED homework sets. **Collaboration on quizzes is NOT ALLOWED.** The other rules for homework hold for quizzes.

Failure to abide by these rules will result in an automatic zero for the assignment and a report to the Office for Academic Integrity.

TENTATIVE SCHEDULE

Week	Start date	Chapter	Subject
1	1/8	1	vectors, kinematics
2	1/15	2	Newton's Laws
3	1/22	3	Newton's Laws
4	1/29	4	momentum, center of mass
5	2/5	5	work, kinetic and potential energy
6	2/12	6	dynamics, collisions
7	2/19	7	angular momentum, fixed axis rotation
8	2/26	7, 8	rigid body dynamics
9	3/5	11	oscillations, simple harmonic motion
	3/12		SPRING BREAK
10	3/19	10	oscillations, waves
11	3/26	12	special relativity
12	4/2	12, 13	special relativity
13	4/9	13, OM 19	special relativity, ideal gases
14	4/16	OM 20, OM 21	heat, introduction to thermodynamics
15	4/23	OM 21	thermo continued

IMPORTANT DATES

Midterm Exam #1 – Thursday, February 7

Midterm Exam #2 – Thursday, March 21

Last day to drop with a “W” – Friday, April 5

Last day of class – Thursday, April 25

Final Exam – Thursday, May 2, 2–5 PM