

**PHYSICS 304 – CLASSICAL MECHANICS
FALL 2018**

Prof. Gene Bickers

QUESTIONNAIRE

Please complete and turn in the following:

NAME (printed) _____

NAME (signed) _____

USC IDENTIFICATION NUMBER _____

MAJOR _____

MATH COURSES TAKEN IN 2017 AND 2018 (INCLUDING THIS TERM)

PHYSICS COURSES TAKEN IN 2017 AND 2018 (INCLUDING THIS TERM)

PHYSICS 304
FALL 2018

Prof. Gene Bickers
Office: ACB 439H
Email: bickers@usc.edu
Office hours: MW 4–6 PM

Lecture hours: MW 12–1:50 PM
Lecture location: VHE 217

NOTES

Physics 304 is an intermediate-level course in classical mechanics, the study of the dynamics of objects that can range in size from a few microns to the scale of planets and stars. The USC prerequisites are Physics 151 or 161 and Math 245. We'll make heavy use of concepts from single-variable and multivariable calculus, as well as differential equations, right from the start. The goal is to build on ideas from introductory mechanics while developing a range of new math skills. The topics include oscillations, the calculus of variations, Lagrangian mechanics for free and constrained systems, Hamiltonian mechanics, noninertial reference frames and rotational dynamics. It's possible we'll look at the treatment of normal modes for coupled oscillators if we have time.

TEXTS:

John R. Taylor: *Classical Mechanics*, University Science Books (2005)

ONLINE COURSE SUPPORT:

The PHYS 304 home page is at

<https://blackboard.usc.edu> .

Under the home page you'll find a copy of this lecture syllabus; homework assignments and solutions; and background material to prepare for exams.

HOMEWORK:

Homework will be assigned every ten days or so. You're encouraged to collaborate on solving the homework problems, and it's possible to get an arbitrary amount of help from me. Graded homework will be returned in class, and solutions will be posted online.

Each homework set has a target date. If an assignment is turned in to 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 FIVE late days over the course of the semester with no point penalty. You may choose to use late days on homework sets 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 Friday, August 31; you may turn in that assignment “on-time” as late as 9 AM on Tuesday, September 4.

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

EXAMINATIONS:

There will be two midterm exams and a final exam. The midterm exams will be given on Wednesday, **October 3**, and Wednesday, **November 7**. The final exam is scheduled for Friday, **December 7**, from 11–2 PM.

The grade will be based on the following distribution of points:

Midterms	$2 \times 25%$	=	50%
Homework			20%
Final exam			30%

ACADEMIC INTEGRITY:

Homework assignments may be done in collaboration with other students, and help is always available. **Under no circumstances should you seek out homework solutions from alumni of PHYS 304 or from any other printed or online solution sets/manuals.** Failure to abide by this rule will result in an automatic zero for the assignment and a report to the Office for Academic Integrity.

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.

IMPORTANT DATES

Midterm Exam #1 – Wednesday, October 3
Midterm Exam #2 – Wednesday, November 7
Last day to drop with a “W” – Friday, November 9
Last day of class – Wednesday, November 28
Final Exam – Friday, December 7, 11–2 PM