PHYSICS 4A
Classical Mechanics
WINTER 2014

Instructor: Kim Griest

Lecture: MWF 10:00am –10:50am, CSB 002
Discussion/Problems: Tu 6:30pm, Center Hall 216

Weekly Quizzes: Wed 9:00–9:50am, CSB 002, starting Wed, Jan 15
No make-up quizzes, but your two worst scores will be dropped;
(IF YOU ARE GOING TO MISS 3 OR MORE QUIZZES, DO NOT TAKE THIS COURSE.)

Griest Office: 337 SERF, 858–534–8914
Griest Office Hours: Tuesday: 11–12pm (337 SERF) or call for appointment

T.A.: Peter Kissin, pkissin@ucsd.edu
T.A. Office hours: Mondays 4–5pm, Mayer Hall 2702 (Physics Tutorial Center)
http://physics.ucsd.edu/students/courses/tutorialcenter/location.html

Web Page: http://physics.ucsd.edu/students/courses/winter2014/physics4a
Text: Wolfson and Pasachoff, Volume I, UCSD Custom Edition,
Physics for Scientists and Engineers, 3rd edition

Final: Friday, 21 March, 8:00am–10:59am, CSB 002
[NOTE: NO LATE OR EARLY FINAL; CHECK YOUR SCHEDULE NOW!]

GRADING POLICY

Quizzes: 60%
Final: 40%

Homework will be assigned weekly, but will not be collected or graded.
The solutions to odd numbered problems are in the textbook supplement;
answers to even numbers will be posted.

Note that the quizzes and final will closely resemble the homework
problems (and the examples in the book). If you can do all the homework
and book examples ON YOUR OWN you will get a good grade in this course.
If you skip doing homework, you will probably get a poor grade.
Physics is only learned by the pain of doing the problems ON YOUR OWN.
You cannot memorize things at the end, just read over examples,
or just watch others do the problems and expect to do well.

ACADEMIC DISHONESTY

You must do all the work on the quizzes and the final yourself and
may not help anyone else. Any copying
or cheating of any kind will be met with severe consequences.
This includes helping someone else cheat.
If you are thinking of cheating, don't take this class from me!

OUTLINE OF TOPICS

We'll cover pretty much everything in our custom book. While the book is
short, there are many difficult topics that will require all your math skills
and substantial insight. This course is the most basic in establishing your
understanding of how the physical world works. The concepts of mass, force,
acceleration, energy, power, torque, momentum, etc. are the foundation
on which all physics and engineering is based.
If you spend the time to really learn these concepts this quarter, it
will make the rest of your study of science
easier. There is no concept we learn this quarter that is not
useful in many many other areas of science and engineering.

Chap 1: Doing Physics
Chap 2: Kinematics: moving in a straight line

Chap 3: Vector description of motion
Chap 4: Motion in several dimensions
Chap 5: Force and movement
Chap 6: Newton's laws
Chap 7: Work, Energy, Power
Chap 8: Conservation of Energy
Chap 9: Motion under influence of Gravity
Chap 10: Systems of particles
Chap 11: Collisions and linear momentum
Chap 12: Rotation
Chap 13: Angular Momentum
Chap 14: Static equilibrium: buildings and bridges
Chap 15: Oscillations