

General Physics I Physics 1351G §2 12–12:50pm MWF PHYS2153 Fall 2008
Prof. Don Pakey office PS2450, 581-3420 ddpakey@eiu.edu
office hours: 11am-12pm MTW, 1–2pm W, or by appointment
(or call or email me or stop by any time). I am usually out of town on Thursdays.

Welcome to physics! This is a course on classical mechanics, which deals with the motion of material objects, mainly based on the work of Isaac Newton (1642–1727). It does not deal with extremely small (atom-sized or smaller) objects, for which quantum mechanics must be used, & it does not apply at speeds close to the speed of light, for which Einstein's theory of relativity must be used. Quantum mechanics and relativity are studied in Physics 1371. In particular we will study statics, kinematics, dynamics, simple harmonic motion; straight-line, projectile, and rotational motion; also conservation principles, work, energy, and momentum. This is first of a three-semester sequence designed for students in chemistry, pre-engineering, mathematics, physics, etc.

This is a very important class, & you should plan to put in sufficient effort. The material for this course serves as a basis for every other physics course, & is also important in most physics & engineering careers. Your first college physics class is also a good time to learn good study skills if you haven't already.

Books: Physics for Scientists & Engineers by Serway & Jewett (6th edition, 2004). We will cover Chapters 1–15 with the exception of sections 1.2, 6.5, & 11.6. The Textbook Rental Service will also distribute the Student Solutions Manual & Study Guide (Vol .I). This course must be taken concurrently with Physics 1352, General Physics I Lab.

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|---|------------|
| Evaluation: best 5 of 6 hour exams | 70% |
| final exam | 20% |
| homework | <u>10%</u> |
| | 100% |

Normally the grading scale is 90% – A, 80% – B, 70% – C, 60% – D, below 60% – F, & these boundaries will be shifted down by no more than about 1 percentage point at the end of the semester, depending on factors such as improvement & consistency.

Exams: There will be 6 exams, tentatively scheduled for 9/17, 10/1, 10/17, 11/3, 11/17, & 12/8. Your lowest hour exam score will be dropped. Usually, make-up exams will not be given. If you miss one exam for a very good reason, please let me know as soon as possible and bring some documentation to back up your excuse. You will not be penalized if your reason for missing the exam is acceptable to me (i.e., you will be excused from this exam & your exam average will be calculated from the top 4 of the other 5 exams). If you have documented excused absences for two exams, then you have to arrange with me to make up the second exam. Because the lowest hour exam score is dropped, if you have an unexcused absence ("I overslept", "I for-

got", anything undocumented, etc.), it will be dropped, but any further unexcused absences will receive failing grades.

The final exam, at 12:30 pm Tues. Dec. 16 will be comprehensive. If you forget or oversleep or otherwise have an unexcused absence from the final exam, you can make it up by Thurs. 12/18, but the exam grade will suffer a 20% penalty.

Homework: I will assign homework for each chapter, normally due the day after we finish that chapter. Always show your work and include proper units. Points (25%) will be subtracted for late homework (after I have given it to the grader), & homework will not be accepted after solutions have been posted or we have gone over it in class. I will drop your lowest homework grade. Homework should be your own work, of course.

Equations: The more equations you know, the faster you will be able to do problems, & the deeper your understanding of the concepts will be. However, for many people it is impractical to try to memorize them all, & you will probably have access to resource materials when you are out of the university anyway. Therefore, for exams, I will provide an equation sheet. I will also furnish any numerical constants you might need. In future courses, the professor may legitimately require you to know the more common equations from this course. As you use the equations again & again, you will probably learn the most important ones anyway. I won't supply common trigonometry formulae such as areas of triangle or circle, or circumference of circle

Units: All answers must include proper units, so make sure you know these. You should know the prefixes for powers of 10: pico (p) = 10^{-12} , nano (n) = 10^{-9} , micro (μ) = 10^{-6} , milli (m) = 10^{-3} , centi (c) = 10^{-2} , kilo (k) = 10^3 , mega (M) = 10^6 .

How to get a good grade: Read the material & try to do the assigned problems before coming to class. I do not grade on attendance, but it's always a good idea to come to class. If you don't understand something, talk to the physics tutors, to me, or to your classmates. To study for exams, work out as many problems as possible, always starting "from scratch" without looking at the solution. Also, be sure to stay up to speed with your math skills - if the math gives you problems, come talk to me or to the math department tutors.

Disabilities & Safety: If you have a documented disability and wish to receive academic accommodations or services, please contact Julie or Kathy in the Office of Disability Services at 581-6583. If you need to know where the areas of rescue assistance are located in case the building must be evacuated, please notify me.

approximate schedule - Physics 1351 Fall 2008

| | Monday | Wednesday | Friday |
|------------------|-----------------------------|------------------------|--------------------------|
| August | 1 intro/syllabus §1.1 | 2 §1.3-7 | 3 H1 §2.1-3 |
| | Labor Day | 4 §2.4-7 | 5 H2 §3.1 |
| | 6 §3.2-4 | 7 H3 §4.1-3 | 8 §4.4-6 |
| September | 9 H4 §5.1 | 10 E1, ch1-3 | 11 §5.2-7 |
| | 12 §5.8 | 13 H5 §6.1 | 14 §6.2-3. |
| | 15 §6.4 | 16 E2, ch4-5 | 17 H6 §7.1-4 |
| | 18 §7.5-9 | 19 H7 §8.1 | Fall Break |
| October | 20 §8.2-4 | 21 §8.5-6 | 22 E3, ch6-7 |
| | 23 H8 §9.1-2 | 24 §9.3-5 | 25 §9.6-7 |
| | 26 H9 §10.1-4 | 27 §10.5-8 | 28 §10.9 |
| | 29 E4, ch8-9 | 30 H10 §11.1-2 | 31 §11.3-5 |
| | 32 H11 §12.1-3 | 33 §12.3-4 | 34 H12 §13.1-3 |
| | 35 E5, ch10-11 | 36 §13.4-7 | 37 §14.1 |
| November | 38 H13 §14.2-6 | 39 §14.7 | 40 H14 §15.1-2 |
| | 41 E6, ch12-13 | 42 §15.3-7 | 43 H15 evaluations |

Final exam: 12:30pm Tues. Dec. 16