

PHYS 151

Principles of Physics I

<http://blackboard.miracosta.edu>

Fall 2007: Class #1477

TTh 5:15 pm – 8:05 pm

Classroom: OC 4526

Instructor:

[Rica S. French](#)

Office: OC 4512

Hours: MW 1:00 pm – 2:00 pm
others by appointment

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Catalog Description

This course is designed to give a thorough understanding of the fundamental principles of physics in the area of mechanics. For engineering, physics, mathematics, and science majors. Lecture 3 hours, laboratory 3 hours (1902.00). 4 units. Acceptable for credit: CSU, UC – credit limitation. (CAN PHYS 8; PHYS 151 + PHYS 152 + PHYS 253 = CAN PHYS SEQ B)

Prerequisites and Corequisites

Prerequisites: MATH 150 with a grade of “C” or better or approved equivalent.

Materials

Required: Each student is required to have the following:

- ◆ textbook: *Physics for Scientists and Engineers: A Strategic Approach, volume 1 (Chapters 1-15) – 1st edition*, by Randall D. Knight (2004, Pearson / Addison-Wesley, ISBN: 0-8053-8963-6) [a full-text version is available that contains volumes 1-5 in one book];
- ◆ workbook: *Student Workbook for Physics for Scientists and Engineers: A Strategic Approach, volume 1 – 1st edition*, by Randall D. Knight (2004, Pearson / Addison-Wesley, ISBN: 0-8053-8965-2) [a full version is available that contains volumes 1-5 in one book];
- ◆ workbook: *Course Packet for Physics 151 (includes SPIRAL physics and laboratory exercises)*, by Jonathan Cole (2007, MiraCosta College);
- ◆ reliable access to the internet (available in campus computer labs):
 - course website is on MiraCosta’s Blackboard web <<http://blackboard.miracosta.edu>>;
 - Student Resource Websites:
 - Mastering Physics <<http://www.masteringphysics.com>>,
 - ActivPhysics OnLine <<http://www.aw-bc.com/knight>>, and
 - Addison-Wesley Tutor Center <<http://www.aw.com/tutorcenter>>;
- ◆ valid email address that you check regularly (free web-based email is available from Yahoo, Hotmail, etc.); and
- ◆ calculator with basic scientific functions.

Purpose, Objectives, and Instructional Philosophy

While there are many varied motivations for taking a physics course, an overarching theme that should emerge is an appreciation for and basic understanding of the physical world around you. In this particular course, our focus is on *mechanics* – the science of motion. I invite you to read the “Overview” to Newton’s Laws, found in your textbook immediately preceding Chapter 1. And while the “Preface to the Student” found in most texts is typically ignored by students, I believe you will find the short write-up in our textbook to be refreshing and informative. It includes an excellent message about student expectations in the course, and some useful suggestions for studying physics. And finally, I would recommend also reading the textbook “Introduction” for an overview of our “Journey into Physics,” especially those of you intending to continue in physics past this course, say in the sequence of 152 or 253.

Most science is best learned by employing a variety of instructional methods in a collaborative, active-learning environment. Traditional lectures may be augmented by demonstrations and collaborative learning exercises and problem-solving. Some, but not all, of these activities will be graded. And of course there are the associated laboratory sessions. While I am here as a facilitator to assist you through the exercises and aid in learning the

concepts and techniques, ultimately you are responsible for making the most of your own learning experiences. You are expected to engage fully in these activities in order to obtain the maximum benefit. **Ultimately, it is not what I do [or what anyone else does!] that matters; it is what you do.**

Course Format and Grading

Your overall grade in the course will be determined by your performance in four areas: (1) class participation and activities, (2) tests, (3) laboratory exercises, and (4) a final exam.

Class Participation and Activities: A small portion of your grade is based on participation in class. If you are present and actively participate in a session, you will receive credit. **There is no make-up work. Missing a graded in-class activity will result in a zero.** In order to account for the occasional missed class, the “Class Participation” portion of your grade will be tallied as shown below.

Score Range (%)	Grade
86 – 100	A
74 – 85.9	B
62 – 73.9	C
50 – 61.9	D
≤ 49.9	F

Periodic Tests: Six tests will be administered as indicated on the course schedule. Test dates are subject to change, but you will be notified as soon as practical if any such changes are necessary. Each test will take approximately one hour and will typically consist of one or two problems similar to the workbook or textbook exercises, and one or two problems similar to the text and *SPIRAL* problems (in the course packet). Although the test is closed-book and closed-notes, you will be allowed one 3” x 5” card on which you may write whatever you wish (both sides). **No makeup tests, early or late, are permitted.** If you miss a test you will receive a zero. I will drop your lowest of the six scores.

Laboratory Exercises: Your lab work will be conducted in groups. Each group will turn in one write-up for each exercise and all group members receive the same grade. More information will be provided during the first lab session. **You must be on time for laboratory sessions. If you are late to a lab session, you may not receive full credit for the lab.** Your lowest lab score will be dropped and the remaining ones contribute to your overall grade as indicated below.

Final Exam: The final exam is cumulative and required of all students. **Do not make plans that interfere with the final exam. You cannot be excused from it and you cannot take it at a different time. If you do not take the final exam at the scheduled time you will receive a zero.** Your final exam will be Tuesday, 11 December 2007, from 5:00 pm – 7:00 pm. If you have an irresolvable conflict with the final exam for another class, you must contact both instructors as soon as possible and well in advance to determine if there are other options. The exam will consist of four to eight problems and will take two hours. At least one problem will be on material covered since the last test, and the rest of the final will be cumulative over the entire semester. You will be allowed to bring one 8½” x 11” sheet of paper on which you may write whatever you wish (both sides).

Homework: Homework assignments are listed in the course schedule. Although the homework will not be collected, it is probably the single-most important part of your class work. Physics is a skill-based discipline, not knowledge-based. Ironically, there are only a small number of fundamental concepts. We will apply these concepts to a variety of physical situations. Thus, proficiency in the discipline comes only with continued practice. **If you do not do the homework, you will not pass the tests.**

The homework problems are labeled “Required”, “Additional Practice”, and “Challenge Problems”. Those labeled “Required” are just that: these are fundamental to obtaining a real understanding of the concepts and are necessary for success on the tests. Those labeled “Additional Practice” are optional, but highly recommended to reinforce your confidence in the material. The “Challenge Problems” are more difficult than those you will encounter on a test. They are meant for students who want to test their abilities or explore a topic more deeply. It is better not to attempt these until you are comfortable with the other assigned problems. The “Challenge

Problems” are especially recommended for those students majoring in physics, engineering, math, etc., and/or those considering graduate level study in a related field.

Course Grade: Your letter grade is based on your absolute score. There will be no curve, i.e. no competition. It is in your best interest to take the assignments seriously and help each other learn the material.

Component	Contribution	Score Range (%)	Grade
Tests (best 5 of 6 @ 10% each)	50%	90 – 100	A
Final Exam	25%	80 – 89	B
Labs	20%	70 – 79	C
Class participation and activities	5%	60 – 69	D
		≤ 59	F

Incompletes will not be issued nonchalantly and can only result from “incomplete academic work for unforeseeable, emergency, and justifiable reasons.” See the [college catalog](#) for further information.

I do not give grades; you *earn* your grade.

Attendance Policy

Attendance is mandatory. Since this course is built around laboratory and collaborative learning exercises, your attendance and participation in class will be an essential component of your success in the course and will contribute to your overall course grade (see section on “Course Format and Grading”). **Do not be late to class.** Not only is tardiness disrespectful and sloppy, but it deprives you of the active learning environment. *Note that tardiness and absences can adversely affect your grade, i.e. if you are not present for a graded assignment.* **There is no makeup work** (see the section on “Course Format and Grading”). Missed assignments equal zeros. Homework, reading assignments, and ALL important documents and information are available on [Blackboard](#). **It is your responsibility to keep up with all work, regardless of your attendance.**

Academic Honesty

All work must be your own. **Plagiarism and/or cheating of any kind and to any degree will not be tolerated.** This includes copying from textbooks, websites, other students, etc. You each have your own brains and are expected to use them. Learning occurs when you can take the information given to you, synthesize it, and formulate your own coherent and appropriate response(s). In the event you do not adhere to these rules, the maximum allowed penalties will be pursued in every case (see the [college catalog](#) for further information). You may work with others only under the conditions described in the section “Collaboration”.

Collaboration

Science is a collaborative effort. Therefore, you are *expected* to work with your classmates, share ideas, discover together, and learn from each other. However, you must adhere to the rules:

- ◆ Clearly indicate your partners’ names at the beginning of all collaborative work;
- ◆ Distribute work fairly with each person making an equal contribution;
- ◆ Everyone writes his or her own notes, observations, reports, homework, etc. (unless otherwise instructed, i.e. laboratory sessions);
- ◆ Everyone turns in his or her own work (unless otherwise instructed, i.e. lab sessions);
- ◆ You **MUST** cite any external sources used;
- ◆ **DO NOT copy from anywhere, anyone, anything, etc.** (see section on “Academic Honesty”).

Classroom Etiquette

The advent of new technologies meant to improve and simplify our lives has unfortunately also provided us with a new set of annoyances and temptations. You must adhere to the following rules:

- ◆ **Turn off your cell phones, pagers, PDA alarms, etc. when you come into class (put them into silent or vibrate mode). If your phone rings during class, I reserve the right to answer it for you.**
 - Cell phones, pagers, PDAs, any electronic communication devices (including IR-enabled watches), headphone radios, CD players, MP3 players, iPods, etc. are all prohibited during tests. If you bring any of these items to any of the exams, you must place them out of arm’s reach until you have submitted your test. Any deviation from this policy will result in an automatic zero on the exam.

- ◆ **No capturing video/images/sound, working on assignments for other classes, reading newspapers, magazines, organizing your calendar, playing video games, listening to music, etc.**
- ◆ Eating and drinking anything other than water is prohibited in the classroom.

Important Dates

It is your responsibility to keep apprised of important dates and to take action accordingly. This list is provided merely for your convenience. These and other important dates can be found in the MCC [Credit Course Schedule](#).

20 August	First day of classes (full-term)
25 August	Last day to add a class
01 September	Last day to drop without a "W" Last day to drop and be eligible for refund
03 September	Holiday: Labor Day
21 September	Last day to switch between evaluative grade and CR/NC
12 November	Holiday: Veterans' Day
15 November	Last day to drop with a "W"
22-23 November	Holidays: Thanksgiving
07 December	Last day of classes (full-term)
08-14 December	Final Exams (full-term)

Students With Disabilities

MiraCosta College complies with both Section 504 of the Rehabilitation Act of 1973 and the Americans with Disabilities Act (ADA) of 1990. A student with a verified disability may be entitled to appropriate academic accommodations. Please notify your instructor and contact the [Disabled Students Program and Services Office](#) <<http://www.miracosta.edu/StudentServices/DSPS/index.htm>> (x6658, OC 3000).