Physics 250-260-270 Introductions
Skyline College

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Here you will find important information about the course including due dates, sample exams, lab handouts, and miscellaneous links. I hope you find the site interesting and useful. Check it regularly.

No-Question-Too-Dumb Office Hours: Check my web page for my current schedule and office hours. If my office hours are not convenient for you, either call me and leave a message, or email me. It is also possible to see me during labs, but keep in mind that lab students have priority.

Course Descriptions and Prerequisites

Physics 250: This course is about Newtonian mechanics. It is the first of Skyline's three-semester calculus based physics sequence designed for scientists and engineers. You will study the following topics: measurement, motion along a straight line, vectors, motion in two and three dimensions, Newton's laws, kinetic energy and work, potential energy and conservation of energy, systems of particles, collisions, rotation, angular momentum, equilibrium, and gravitation. You should have at least one semester of Calculus (Math 251) under your belt with a grade of *C* or better. You should be concurrently enrolled in Math 252 or higher. If you are thinking about a health-related field, Physics 210-220 may be the sequence you need; I will be glad to talk to you about it.

Physics 260: This course is about electric and magnetic fields, how they are generated by electric charges and how they in turn influence the motion of electric charges. You will study the following topics: electric charge, electric fields, Gauss' Law, electric potential, capacitance, current and resistance, circuits, magnetic fields, magnetic fields due to currents, induction and inductance, magnetism of matter, electromagnetic oscillations, and alternating currents. You should have passed *Physics 250* with a grade of *C* or better and have completed Math 252 with a grade of *C* or better.

Physics 270: This course covers the following topics: fluids, oscillations, mechanical waves, sound waves and resonance, the first law of thermodynamics, the kinetic theory of gases, entropy and the second law of thermodynamics, electromagnetic waves, images, interference, diffraction, and the special theory of relativity. You should have passed *Physics 250* with a grade of *C* or better and have completed *Math 252* with a grade of *C* or better. Numerical order to the contrary, *Physics 260* is not a prerequisite to *Physics 270*.

Required Materials

Text: *Fundamentals of Physics* by Halliday, Resnick, and Walker (7th Edition). You may purchase the complete hardcover edition which will last you 3 semesters, or you may purchase paperback versions of just the parts you will need:

Physics 250: Part 1 and Part 2.

Physics 260: Part 3
Physics 270: Part 2 and Part 4

WebAssign access code: You will need this for obtaining and submitting homework. You can get this either at the Bookstore (ask at the register) or directly from WebAssign over the Internet. The cost is about $15 and it is good for one semester. It is also possible to purchase Webassign Plus for about $30 which gives you some nice (but optional) extras: a complete online textbook, student study guide, student solutions manual, and interactive study aids.

Graphing calculator: Any good graphing calculator will be fine. Be sure to check out The Calculator Help Site which can be accessed through my website. This site has useful tutorials for most of the graphing calculators now on the market.

Graph paper: You should purchase a package of good quality engineering graph paper. I suggest *National Brand Engineering Forms* 12-282 or 12-281. Both have 10 squares for every major division and 5 squares for every semi-major division. The Bookstore should have these in stock., and one package should easily last a semester or two.

Problem Sets

Problem sets will be assigned regularly and graded through an Internet site called *WebAssign*. I determine the problem sets, but *WebAssign* administers the homework delivery and grading. You can find more information about getting started with *WebAssign* on my website. **Without a doubt, the best way to learn physics and do well in this course is to take the problem sets seriously.** You can get an automatic extension to an assignment by clicking the appropriate link at the bottom of the assignment page in Webassign, but this extension will cost you 5 points from your assignment total. The request must be made within 1 day of the original due date, and will give you another 2 days from the time of the request. The hopelessly disorganized can get an extension of the extension for yet another 5 points. After that, only God can help you.

Labs

The weekly two-and-a-half hour time slot for labs will be used for experiments, problem sessions, demonstrations, and exams. You will work on experiments with two or three lab partners. There is no lab manual to purchase, but you will be able to download the appropriate files from my website. Although it is difficult to fully understand the lab procedures until you are in the lab with the equipment, it is important to spend about a half hour looking over the procedures *before* the lab period so you do not waste precious time trying to figure out what to do *during* the lab period.

For about half the labs a formal report will be required. This report will be due at the beginning of the next laboratory period. Late reports will be penalized 5 points for each day late, and no report will be accepted after the others have been returned (generally after 1 week). A penalty grade will also be imposed if you leave the lab without checking your data with me first or without putting away your equipment.

Because of equipment and scheduling problems, missed labs cannot be made up. Don't even think of using someone else's data. If you miss a lab because of a verifiable sickness or family emergency, see me as soon as possible for special arrangements. *Two or more unexcused absences will earn you an incomplete for the course.*

Exams

There will be three exams. The first two will be held during laboratory time slots, and the third during final exam week. Each will be 2.5 hours in duration and will consist of five to seven

problems similar in scope and difficulty to homework problems. As your understanding of new material hinges quite critically on your knowledge of past material, each exam may be somewhat cumulative in nature. During each exam you may use one 3-by-5 inch index card with any formulas you think you may need. **I will be testing your understanding of concepts, not mindless plugging of numbers into formulas.**

Attendance

Although formal attendance will not be taken, you are urged to attend the lectures; after all, you paid for them. Besides, material not in the text will be presented; homework problems discussed; assignments made, and tests scheduled. You are responsible for all material presented in class, including announcements about class procedures. Please be on time. If necessary the door will be locked after I begin my lecture.

Withdrawals

Pay attention to the withdrawal procedures and deadlines. You will find the pertinent dates on the Skyline Academic Calendar which can be accessed from my website. You must fill out all official withdrawal forms and return them to the registrar's office to be removed from my roll sheets. If your name appears on my roll sheets at the end of the semester I must give you a grade, and that grade cannot be a *W*. Students who simply disappear into the fog risk a failing grade for the course.

Missed Work

Generally missed work is counted as a zero, so don't miss any. If you have a *valid and verifiable* excuse (e.g., you donated a kidney to a member of my immediate family) stop by my office and we'll talk.

Academic Integrity

I do not limit the number of *A's* and *B's* I award, so there is no disadvantage in working with others on homework sets and laboratories, and there are obvious advantages — but do so responsibly. A good rule of thumb is to openly discuss problems together in any way you like, but part company and work alone when it is time to put your ideas on paper. *WebAssign* randomizes numerical data on homework problems; this encourages you to discuss conceptual ideas with your classmates, but forces you to work through the final solution on your own.

My sincere desire is to act as facilitator—not enforcer!—for your studies in physics. Accordingly, I operate on the assumption that all of our interactions are based on openness, honesty, and good faith. I expect all of us to be honest and to treat each other fairly and with respect. Because our trust in each other is absolutely *crucial* to the effectiveness of our relationship, I take an uncompromising stance, as should you, on the necessity for sanctions when it is violated. **If two or more people turn in a laboratory report that indicates copying, then each will receive a grade of zero. If it happens again, you fail the course. Receiving or giving help on an examination is immediate grounds for failing the course.**

Grades

Your course grade will be a weighted average of your homework, lab, and exam scores:

Lab Average	10%
Homework Average	15%
First Exam	25%
Second Exam	25%
Third Exam	25%

Final course averages will be rounded to the nearest integer, with letter grades determined by the following cutoff points:

A:	90
B:	80
C:	70
D:	60

Exception 1
If you receive or give help to anyone during an examination, you fail the course.

Exception 2
If you miss 2 or more lab experiments, you will receive a grade of incomplete for the course (assuming you have a passing grade otherwise).

Exception 3
If you miss 6 or more lectures I will withdraw you from the class.

Special Arrangements

If you have a *verifiable* condition that will make it difficult to complete the course without special arrangements, please notify me as soon as possible.