Course Syllabus

This course is the first of a two semester series intended primarily for engineers. Physics majors and majors from other departments in the college should take either the 2100 or 3200 series, both of which are smaller classes and somewhat more advanced – particularly 3200. Premeds should take either the 2000 or 2100 series depending on their math background and interests. Anyone who has questions about the proper series to be in should contact me on the first day of class.

The book for the course is Physics for Scientists and Engineers (with Modern Physics): A Strategic Approach, 2nd edition by Knight. Homework will be from the book but handled through WebAssign as in the past. The syllabus for the class is included below. Lectures will follow the schedule indicated as closely as possible, but since this is the first time through this book deviations may occur.

The class is structured as follows. There will be lectures on M-W-F and discussion sections on T-Th. The discussions sections on Tuesday will consist of the instructor working examples as indicated in the syllabus, plus any other topics that the students wish to discuss. The discussion on Thursday will go over the homework assigned for that day, again as indicated in the syllabus. In other words, there will be one homework assignment per week rather than the usual two. In the past students have complained that they spent so much time on the mechanics of the homework that they had too little time to actually learn the subject. While I am skeptical about this claim, I am going to honor it.

Grading will be as follows. There are three exams and a final in addition to the homework. The midterm exams (100 points each) will be taken from the problems in the book so that there is no question of a mismatch between exams and homework. They midterm exams are schedule for 90 minutes beginning with your scheduled lecture time. They will be closed book, no crib sheets, no cell phones or laptops, etc. Scientific calculators on the level of a Ti89 are recommended and may be used in the exams. Since the course is curved the exams will be designed with the following goal in mind. In order to get the maximum possible information from them and the most accurate ranking of students, I will try to achieve an average of 50% with a low of 1% and a high of 99%. If you think carefully about it you will find that that is the way to get maximum information from an exam. It also means that it is not necessary to get everything right in order to get an A, so don’t be depressed if you don’t get 90% on each exam!

The final exam (2 hours) will be comprehensive and count 200 points, or 1/3 of the grade. It will also be taken from the problems in the book, and will be administered in the same way as the midterm exams.

The homework will count as a one hour exam and will be normalized to 100 points. No homework or exams will be dropped. On the homework you are encouraged to organize groups to work on the problems. However, you would be very foolish not to also be sure you thoroughly understand each problem, even if someone else did most of the work. Obviously most people will do well on the homework, which means that it will not be what separates people at grading time. If you do not do the homework yourself you will not do well on the exams, which is where people are separated.

The homework part of the course is through an on-line homework system, WebAssign. The charge for the homework portion is $22.95 per student per semester. Payment can be made with credit card purchase or using a checking account that is linked to a Paypal account.

Once these six scores (homework total, midterms, and final) are in, grades are determined as follows. First the total for each student is calculated. All totals are listed in decreasing order, where the median is determined and placed at the middle of the B- range. Then I use my best judgment to assign
letter grades. Once this is done I do the same for the final exam alone. This gives two grades for each student, and he/she gets the higher of the two. Note that the final exam counts in both grades and hence is the most important factor in determining your grade.

There are no makeup exams, so if you need to miss one you **MUST** see me before the exam to make arrangements to take it at some other time. As long as you don’t abuse the privilege you will find me very reasonable about making special arrangements.

Now a little educational philosophy. I need you to understand that you **CANNOT** succeed in this class by memorizing. It is simply not possible. What you must do is hurt your head until you truly understand where everything comes from. This is very different from what you encounter in most courses in the university, and as a result is hard to adjust to at first. However, it will pay great rewards — not only in this class, but in all others you subsequently take. If you merely memorize, then a week after the class you have nothing to show for the year you spent in it save for a grade. That is a pretty small wage.

There is a byproduct of this fact. Success is not determined by how many hours you spend on the course, but rather by the quality of that time. Four hours spent memorizing equations or derivations will accomplish little. One hour spent working things out without the benefit of the book will do wonders, and virtually assure success. I have no magic potion to make this class easy, but I and the TAs will always be ready and willing to help any of you who seek it. It is an unfortunate fact that the vast majority of people who do not succeed in this class will be ones neither I nor the TAs will ever see. Don’t be one of them.

Other details, such as help lab, SI sessions, etc, will be discussed in class as the need arises. This should be a great experience for all of you. I wish you the best and will do my best to see that it is not only educational but enjoyable. Your comments and criticisms will always be welcome.