Haverford College - Physics Department
Physics 102b: Classical and Modern Physics II
F. Crawford
Spring 2003 General Course Information and Policies

Welcome to the Spring 2003 edition of Physics 102: Classical and Modern Physics II. This is the second part of the year-long sequence of the general survey of physics. We will cover a number of topics this semester which are outlined in more detail in the **Lecture Topics** listing and the **Course Schedule**. Physics, the most fundamental science, is a challenging subject, but is also very satisfying once mastered. A surprising amount of our everyday experience with the physical world can be understood precisely with the use of only a few fundamental principles that we will cover in this course. In addition, these principles provide a fundamental understanding of the behavior of the universe in situations far beyond our common experience. We depend on your willingness to invest significant effort in order to master the ideas. However, we will do everything in our power to teach you efficiently and to reveal the fun side of physics.

Location and Times

It is essential that you come to all classes to master the concepts and material in this course. All absences, for any reason (including illness, athletic events, etc.) should be discussed *in advance* with the instructor. Excessive absences can result in a grade of “Incomplete”.

- **Lectures:** MWF 11:30 - 12:30 in Koshland INSC H109.
- **Labs:** Tuesday or Wednesday 1:15 - 4:00 pm in Koshland INSC H105 (West Wing). You will be assigned to one day or the other on the basis of a form to be filled out in class on Wednesday January 22. You may not switch sections without approval, since we need to keep the sections approximately equal in size for logistical reasons. The laboratory does not meet every week; a schedule is contained in the lab manual. It is expected that you will attend every lab on your schedule; any departures from the schedule must be discussed *in advance* with the instructor. *All labs must be completed and all lab reports turned in satisfactorily in order to pass the course.* You will only be able to complete the lab in the allotted time if you have read the instructions thoroughly and made a good effort to understand them in advance. *Therefore, you are required to come to each lab fully prepared, having read the manual and having answered all pre-lab questions beforehand.*
- **Physics Clinic:** An optional Physics Clinic staffed by experienced and friendly physics majors will be run weekly on Wednesday and Thursday evenings in the Physics Lounge (Koshland INSC H107) from 7 to 9 pm.

Instructors

Lectures and Labs:	Fronefield Crawford
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Phone:	(610) 896-2973 (office)
Email:	fcrawfor@haverford.edu
Office Hours:	TBA
Labs:	Scott Shelley
Office:	Koshland INSC Link L207
Phone:	(610) 896-1310 (office), (610) 649-6671 (home)
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Please do not hesitate to contact us; no question or topic is too small. If you are having a lot of trouble with the homework, be sure to come to see one of us as *soon* as possible. A good way to get together is to arrange a mutually agreeable time with us, either by email or in person after class. We expect you to read your email as we will send announcements and answer some questions in this way (or possibly also on the course web page). You should feel free to send us email when you have a question or comment.

Feedback: If you have concerns about the course or ideas about how to make it better, you should let us know immediately, either in person or by e-mail. Don't wait!

Textbooks and Supplies

- *Physics: Calculus (second edition)* by Eugene Hecht (This text is available in the bookstore; you can shop around for used copies, but be careful the edition is the same. Study guides, etc. are optional.)
- You will also need to purchase a laboratory manual for this course from the bookstore. All other supplies needed in the laboratory will be provided.
- A pocket calculator will be needed for problem sets and tests and in the laboratory.

Assignments and Tests

- Written work will be assigned weekly, and is due at the start of class on the assigned date (ordinarily the next Friday). There will also be assigned reading to prepare you for class discussion.
- There will be two in-class midterm examinations plus a self-scheduled final exam.

Grading

Midterm Exam #1	15%
Midterm Exam #2	15%
Final Exam	20%
Laboratory	20% (*Note: ALL labs must be completed to pass the course*!)
Homework/Quizzes	25%
Participation and Attendance	5%

Late Policies

- Labs must be done on the scheduled date unless cleared in advance by the lab instructor or department assistant. Individual experiments are not kept set up after the week in which they are used.
- The following late penalties will be in effect for homework. You are permitted *three 1-week extensions without any penalty* during the semester. Just turn in a sheet of paper to the instructor indicating that you are giving yourself a free extension on a particular problem set. The three extensions must be used for separate problem sets; they cannot be combined to get a three-week extension on one problem set. Save them for when you really need them. Other than these extensions, work turned in late will be given 75% credit up to one week late, and 50% credit thereafter. We cannot accept split up assignments.
- Exams must be turned in not later than the stated times, except by prior agreement. You may get an extension on an examination ONLY with a Dean's excuse.

Honor Code Matters

We value Haverford's honor code for the integrity it fosters and the pedagogical flexibility it affords. The important guiding principle of academic honesty is that you must never represent the work of others as your own. The following guidelines should govern your behavior in the course; please request clarification if you find yourself in any doubtful situations.

- You may seek assistance from the instructors, at the Physics Clinic, or from your fellow students in doing the weekly assigned exercises and preparing for class discussions. You may also work together with other members of the class on these assignments, and this is often quite beneficial. For your own good, avoid situations in which you are either contributing either too much or too little to such collaborations. *Just copying someone else's work is clearly a representation of another student's work as your own and is a violation of the Code. This applies to copying down results worked out on a blackboard by other students as well as solutions written down on paper.*

- Your textbook gives the answers for most of the odd-numbered exercises. These are given so that you will know if you have done a problem correctly. It is not sound learning procedure to try to work backwards from given answers, but doing so is not a violation of the honor code.

- Solutions to the written exercises will be made available on the due date. (If you are doing a late set, after one week you may consult the solutions, but you may not copy them. However, we encourage you strongly to give the problems an honest effort on your own first, so as to learn from them most effectively. Copying a solutions set slavishly IS a violation of the Honor Code.)

- *Take-home, in-class and self-scheduled exams must be entirely your own work.* Detailed instructions will be given on the exams themselves and discussed in advance. You must use only those materials allowed in the instructions given on the exam. No collaboration of any sort is allowed once you start an exam. The allowed time (a single contiguous block) must be strictly observed. Honor code guidelines for the lab are contained in the lab manual.

Advice

You may need to improve your study habits in order to do well in this course. The following suggestions are based on the experience of previous students:

- *Review* your class notes between lectures, and come prepared to ask questions. Annotate your class notes as you read them. When you take notes in class, *don't just write down equations*! Qualitative information is often essential!

- *Stay up to date* on the reading; preferably read the assigned material twice; for example, once before the relevant lecture, and once after.

- *Read with pen in hand* to work out things described only briefly in the text or lecture. Ask yourself what is the main point of each section, and answer the question. Highlighting the text as you read is no substitute for this exercise in thinking and reinterpreting what you have read!

- *Make drawings* of the physical situations we discuss in class or the ones you encounter in problem sets (and real life!). This helps you understand just what is going on much more than merely thinking about it.

- Don't spend more than one hour on a single homework problem. Show clearly where you're stumped and just move on. Don't feel badly if this happens occasionally, or worry about the effect on your grade. Consistency in doing the homework is more important.

- Try the homework problems first yourself, but do get help in clinic or during office hours if you need it. That's why these resources are provided. We expect you will make use of them as one more learning tool.

- You need to allocate about seven hours for study and homework per week (plus class time and lab responsibilities). This isn't merely a time budget. It's also how much time you need to allow the ideas and methodology to really sink in so that you have truly mastered the subjects.

- Do stop in to see one of us if you have questions or suggestions.

- When you are studying for an exam, *first* perform new problems and redo as many old problems as you have time for. Only after you have done so is it a good idea to *then* review the *solutions* to problems and previous exams. You always learn more from engaging in problem-solving than reviewing how someone else (even yourself in a previous week!) solved a problem.
- Study for the exams *in advance*. Your brain tackles problems differently if you have given it time to mull over new material and new approaches to problem-solving. You really think differently (and better) once you have literally slept on new ideas.
- Remember that if the material is new or unfamiliar for you, learning will take time, just as learning a new language takes time. Try not to become discouraged if the going is rough at times, and don't prejudge your ability to master the material. Generations of students have done it before you. There is no magic method of presenting the material that we can use to make it easy.