



Physics 122: Fundamentals of Physics II

Spring 2006

Sections 0201-0206

General Course Information

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Teaching Assistants:

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Lectures: Tuesdays and Thursdays, 12:30-1:45, Rm. 1410, Toll Physics Building

Prerequisites: Successful completion of Physics 121 or equivalent course, and a good understanding of algebra and trigonometry (at the level of Math 151).

Books: You are required to have the *Physics 122 Tutorial and Laboratory Manual, Spring 2005 Edition*, published by the Department of Physics. This is the correct edition for this semester; there is no 2006 edition. Please note, however, that there will be two changes in the tutorial sequence in this *Manual*. Tutorial 7 will be replaced with a new tutorial on Electric Potential. Tutorial 8 will be deleted and replaced with Tutorial 7.

You will find *College Physics* by Serway & Faughn, 7th Edition, Thompson-Brooks/Cole Publishers, useful as a study reference and as a source of practice problems. This book is available in two forms: two separate volumes (I and II), and both volumes bound together. You may already have Volume I from Physics 121. In Physics 122 we will be covering subjects from both volumes. I will indicate which sections in which chapters are most relevant to your work as we proceed through the course. We will not cover all the material contained in the text and you will not be responsible for understanding it all.

Remote Answering Device (Clicker): You are required to have in lecture – and to use -- a remote answering device (RAD), colloquially known as a “clicker.” Its purpose is to help you actively engage your brain in the lecture sessions and to make them an interactive learning environment for all students. You should already have a clicker from Physics 121, but you will need to re-register it in order to get onto the database for Physics 122. You should do this immediately. There is a registration link on the Physics Department home page at www.physics.umd.edu/. Be sure to register it in **this** unit of Physics 122 (Sections 0201-0206), not one of the others.

If you do not have a clicker, acquire one. They are available at the book stores, and some students find it possible to buy used clickers from former students. One thing to beware of: The University has committed itself to developing a common campus-wide clicker system using equipment supplied by a manufacturer different from the company that makes the clicker system that has been used for some years in the Physics Department. The Department will eventually convert its system to the new University-wide system, but for this semester you should have the same kind of clicker used in Physics 121 last semester. They’re labeled “PRS” just below the number keypad.

WebAssign: Homework will be assigned and graded using an online computer system called WebAssign. You will need to register in the WebAssign system for this course. It is important that you do so right at the beginning of the semester in order not to risk losing credit for some of your homework. (Most of you are probably familiar with this system from last semester.) At the first lecture I will distribute more detailed instructions, but their essence is as follows: Go to <http://www.webassign.net/login.html>. The first time you do this, you will be required to enter an Access Code from your WebAssign PassCard, which you will either have acquired bundled with your text or have purchased online by selecting the Credit Card Registration button on the course WebAssign homepage. This course will have its own homepage and the course roster will have been linked to the homepage. You will need three pieces of information to log on: (1) Your WebAssign Username. In most cases this will be your surname. (2) Your school code. This is “umd.” (3) Your initial WebAssign Password. This is “12202xx.” You can change this password to whatever you wish later.

Lectures: We will do our best to make attendance at lectures worthwhile to you. They will involve your active participation via the use of your clickers, interactions with fellow students, and feedback to the instructor. Your responses to clicker questions will be tracked by the clicker system and will earn “participation points.” They will be modest in quantity, but will have some weight at the end of the course in determining your final grade. However, your clicker responses will **not** be scored according to whether they are “right” or “wrong.” Clickers are meant to be a learning tool for you and, as you know from experience, you can often learn more from your mistakes than from your successes.

Tutorials: These will provide additional opportunities for give-and-take between you, your fellow students, and your TA. It is important that you give your TA ample opportunity to understand what you are thinking and how he can help you come to an understanding of the subject at hand. Please bear in mind that the TA is not there simply to tell you what the right answers to your questions are, but rather to help you figure that out for yourself.

Laboratories: Participation in laboratories is required! Physics Department policy is that **you must complete every lab in order to pass the course!** There will be an opportunity for making up missed labs for excused absences.

Homework: Doing the homework is perhaps the single most important element of the course. Sets of homework questions will be assigned weekly, due the following week. They will be drawn mostly from the text and will be a mixture of conceptual questions and traditional “problems.” We will try to post solutions to each set class Web site. You should review these solutions carefully as a routine part of your work in the course.

You are urged to take advantage of every available resource in working on the homework problems (and you are urged to extend your work to additional problems to the extent possible). Among your resources are your fellow students. Feel free to work with them. The TAs will each have regular hours in the Physics 122 Course Center, and you are urged to work with them whenever you can. They’re all there to help you, whether they’re your section TA or not. Then there’s the Slawsky Clinic, which is available to help you most of the time. And, finally, please feel free to schedule time with me (Professor Langenberg), with Stephanie, contact information above. I do not keep regular office hours, because I’ve learned that my schedule and students’ schedules often do not mesh simply. But we can almost always find a mutually agreeable time. (Then you can find out whether I can do the problems, too.)

Exams: There will be two midterm exams (tentative dates: March 16 and April 20 (12:30-1:45), each covering the material preceding it since the beginning of the course or the previous exam. There will be a final exam, time to be determined, covering all of the course material. In order to reduce the effect of time pressures on you, the final exam will be designed as a two-hour exam, but you will be given four hours to complete the exam. Expect questions designed to reveal your thinking ability, not what you’ve memorized without understanding.

Each midterm exam will be followed by a makeup exam the following week. If you miss a midterm, you must take the makeup. There will also be a makeup exam for the final exam.

Grading: Point scores from the various elements of the course will be weighted as follows:

Midterm 1:	150 points
Midterm 2:	150 points
Final Exam:	300 points
Homework:	200 points
Laboratory:	200 points
Participation:	50 points

Total 1000 points

Yes, the arithmetic is a bit out of kilter, but we expect that few of you will exceed 1000 points. The participation points here are mostly clicker responses. You get a point per response, regardless of the answer you give. Final grades will be “curved.”

Calendar: Following is a tentative calendar of events during this semester. It is subject to adjustment as we go along.

Week Beginning	Lecture	Tutorial	Laboratory
01/22/06	Survey and Introduction	None	None
01/29/06	Things that Oscillate Homework (HW) 1	T1 Mass on a Spring	L0 Using Excel
02/05/06	Pulses and Waves HW 2	T2 Pulses on a Spring	L1 Damped Oscillations, Part One
02/12/06	Electrostatics HW 3	T3 Static Electricity	L2 Damped Oscillations, Part Two
02/19/06	Currents and Circuits HW 4	T4 Fields	L3 Ohmic Materials, Part One
02/26/06	More Circuits HW5	T5 Electric Circuits	L4 Ohmic Materials, Part Two
03/05/06	Circuits and Magnetism HW 6	T6 Electric Circuits	L5 Magnetic Force, Part One
03/12/06	MIDTERM 1 (03/16) HW 7	T7 Electric Potential	L6 Magnetic Force, Part Two
03/19/06	SPRING	BREAK	!!!
03/26/06	Review Midterm Light and Refraction HW 8	T8 Magnets and Fields	Lab Practical
04/02/06	Light and Refraction HW 9	T9 Light	L7 Light Refraction, Part One
04/09/06	Light and Images HW 10	T10 How to Tell Where Things Are	L8 Light Refraction, Part Two
04/16/06	Light and Interference HW 11	T11 Can an Image Float?	L9 Double-Slit Interference, Part One
04/23/06	MIDTERM 2 (04/20) HW 12	T12 Two-Source Interference	L10 Double-Slit Interference, Part Two
04/30/06	Structure of Matter Photons	T13 Wave Properties of Light	Lab Practical
05/07/06	Last Day of Class (05/11/06)		

FINAL EXAM: Thursday, May 18, 1:30 pm – 3:30 pm

Excuses: If you have a valid excuse for missing an exam or homework, see your TA or the instructor to arrange what to do about it, beforehand if at all possible. *Ex post facto* (after the fact) excuses will require validation and may not be acceptable

Special Needs: If you have any special needs relevant to this course, please contact the instructor.

Finally, the following important statement is presented on behalf of the Student Honor Council:

“The University of Maryland, College Park has a nationally recognized Code of Academic Integrity, administered by the Student Honor Council. This Code sets standards for academic integrity at Maryland for all undergraduate and graduate students. As a student you are responsible for upholding these standards for this course. It is very important for you to be aware of the consequences of cheating, fabrication, facilitation, and plagiarism. For more information on the Code of Academic Integrity or the Student Honor Council, please visit <http://www.studenthonorcouncil.umd.edu/whatis.html>.”