



# Department of Physics

Summer Session II 2008

## Physics 122, Fundamentals of Physics

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0281 Laurenzi, M.

Meets 07/13/08-08/22/08

MTuWThF... 5:30pm- 6:50pm ([PHY](#) 1201)

TuTh..... 7:00pm- 9:00pm ([PHY](#) 3312) Lab

MW..... 7:00pm- 8:00pm ([PHY](#) 1201) Dis

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### T.A. contact information:

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### Prerequisites

*MATH112 or MATH115 and Physics 121 are Pre-requisites for this course. Therefore, a reasonable mastery of algebra and trigonometry is required. I will fill in the blanks in your mathematical history wherever appropriate. I may also introduce some new concepts. If you find that you are algebraically challenged please seek help early in the semester.*

### Text

- I. *Required Book: College Physics, 7<sup>th</sup> edition, [volume 1 and 2](#), Serway and Faughn (Thomson, 2005) ISBN# 0-534-99918-2 and ISBN# 0-534-99928-X.*
- II. *Required Lab Book: Physics 122 Laboratory Manual.*



#### Attendance:

I will expect everybody to be here each day. I am aware that life gets in the way of coming to class sometimes and when it does know that you are responsible for getting the notes from the lecture that you missed. It is extremely important for you to attend the lectures because I do not follow the text book's outline verbatim. I will often do problems that are similar or not found in your book as examples in class. You will also find that the exams that I write are based on the lectures. If you come to class and take good, clear notes. You should have no problem doing very well on the exams. Often, I will announce, during lecture, important problems to study and important dates of up coming events.

#### The Lecture:

During lecture, we may deviate from the outline in order to make a point or to make a physical principle clear. In general, my lectures will not follow the book. My lectures are designed to give you another angle from which to approach the interpretation of physical principles that are in the text. I recommend that you read the appropriate chapter in the text before coming to class. And after the lecture read the chapter a second time. This technique will help solidify the import physical principles which will be tied together by reason in physics problem solving. I will make use of the university's stockpile of demonstrations whenever I feel that such a visual aid will enhance the lecture. If you have a question during the lecture you are permitted to interrupt me politely. Since there is a large group of students please limit your questions to those that are about the material at hand. It is in your best interest to keep questions to a minimum during the lecture because the exam will come when it is scheduled. For questions that do not pertain to the subject of the lecture please see me during office hours or send me an email. I will reply to emails as promptly as I can.

#### Discussion:

Your job, during discussion, will be to ask your T.A. about homework and lab questions. The T.A.'s job during this time is to discuss and help you solve HW and Lab problems only.

#### Homework:

### **Make a copy of everything that you will turn in to me or your TA.**

The assigned homework problems will be due as indicated on the homework schedule. The rate at which we cover material in the course will slow down and speed up during the summer session. However, homework due dates are fixed. There have been instances where I extend homework due dates and things of this nature however, extensions will not be granted for any situations other than those considered extraordinary circumstances.



## Exams:

There will be at least two in class exams and a final exam that will be cumulative. Please rearrange your schedule so that you can take the exams on the dates given in the course schedule. There will be no make-up exams unless absences are caused by illness, death, religious observances or participation in University activities at the request of University authorities. Any excuses must be formally documented. If a valid excuse for missing an exam is presented to me, a make-up exam will be scheduled that is completely different from the exam given in class that you missed in most cases slightly more difficult. If class is canceled because of snow or any other reason, the exam will be given the next day of class. The spirit of the exam will reflect the physical principles that we discuss in class. The exams will not be cookie cutter, homework problems. Problems that are covered in lecture are more likely to become exam problems. During the exam I will not answer any questions that have anything to do with the calculation of the problem. All exams will be copied by the physics department for your convenience in the event that an exam is lost. I will keep the original and the copy will be returned to you. All instances of suspected or direct cheating will be reported to the honor council. Cheating is an extremely serious matter and will not be taken lightly.

## How to study for exams:

Study the problems that I use as examples in class. When you study the problems that I present during lecture I suggest that you begin by rewriting the problem and solution neatly, then re-solve the problem two more times with the additional twist of substituting different constant values into the equations. And more importantly reason through your result. For instance: Newtonian mechanics will allow for infinite energies and velocities. Einstein was able to bound velocities by the speed of light. If you were to obtain a velocity for an object that was greater than the speed of light using Newtonian mechanics. Immediately you should stop and check your calculation. This is an example of reasoning through your result. You may also extend your solutions criticism by asking the questions: Is the answer in the correct units? Does this make sense physically? Is the answer a vector or a scalar quantity? The chapter examples in the book are good for practice and grasping the mechanics of solving problems. Same goes for homework problems. However, they are not the driving force or particularly inspiring to me when I write exams. I will sometimes say "this is a good problem to study". Listen to me in class I will give you all kinds of hints as to what I am considering to put on the exam. Reference other physics text books and look up specific subjects online.

## Integrity:

We are all adults here and I expect the same from you as from myself. We will do our best to keep our language and comments to that of a cordial nature. Please try to turn off your cell phones and I will do the same. If your cell phone does go off during the lecture try to hit the mute button as soon as you can without dropping your books and making a big scene. As far as cheating goes, you are only stealing your own orchard. I will be more than happy to do what I can to help you do the



best that you can in this class. I only ask that before you come to me please seek out the help of your T.A. If for any reason you have a problem with your T.A. feel free to let me know in private. All disciplinary actions will be taken in accordance with the universities policies regarding that specific matter.

Directions to CUA from UMD:

From UMD Campus:

1. Go south on Rt.1
2. Make a right on East-West Highway
3. Make your first left onto Queens Chapel Rd.
4. Queens Chapel Rd. turns into Michigan Ave.
5. After passing over a bridge Catholic University is located on the right side of the road. Turn in and go to: The Physics Department, Hannan Hall Room 433. (its best to just ask a student walking around where to go)

Grading: Average sum of HW grades =15%, average of the sum of the regular exams =45%, average sum of Lab grades=20%, final exam=20%.



## General Exam and Homework and exam schedule

The homework is due before the exam and will not be accepted afterwards. For your convenience, please copy everything that you give to your T.A. in case of accidental loss.

Chapter	9	15,18,24,25,34,45,67,69,70
Chapter	13	3,6,12,26,33,34,35,55,58,67
Chapter	14	21,22,23,36,37,38,61,66,67

HW Due:	07-24-08	(Th)
Exam I:	07-25-08	(F)

Chapter	15	2,6,10,32,44,48,58
Chapter	16	7,10,16,19,23,35
Chapter	17	5,9,19,23,35
Chapter	18	5,8,9,13
Chapter	19	1,10,30,35,40,57,65
Chapter	20	11,17,18,23,25,37,60,6

HW Due:	08-07-08	(Th)
Exam II:	08-08-08	(F)

Chapter	22-25	TBA
Chapter	26	11,15,19,27,43,47,55,56,57

HW Due:	08-20-08	(W)
Final	08-21-08	(Th)



All the experiments must be completed in order for you to pass the course. If you should not complete one lab experiment you will fail the course!!!

## Physics 122 Labs, Summer II, 2008

Date	Wk	Experiment Title
Mon, Tue; July 14, 15	1	no lab
Wed, Thu; July 16, 17	1	functions and graphs: the oscilloscope
Mon, Tue; July 21, 22	2	electrostatics
Wed, Thu; July 23, 24	2	electrical resistance
Mon, Tue; Jul 28, 29	3	dc circuits I
Wed, Thu; Jul 30, 31	3	<i>dc circuits II</i>
Mon, Tue; Aug 4, 5	4	e/m of the electron
Wed, Thu; Aug 6, 7	4	electromagnetic induction
Mon, Tue; Aug 11, 12	5	determination of the speed of light
Wed, Thu; Aug 13, 14	5	ray optics
Mon, Tue; Aug 18, 19	6	cumulative lab final
Wed, Thu; Aug 20, 21	6	cumulative lab final

\*The material contained within this syllabus is subject to change and/or modification at any time during the course.

