Cornell University

Department of Physics

Physics 214 August 23, 2006

Physics III: Optics, Waves, and Particles, Fall 2006
http://people.ccmr.cornell.edu/~muchomas/P214/

Course Information

Lecturer:
Tomás A. Arias, 522 Clark Hall, x5-0450 (muchomas@ccmr.cornell.edu);
Lectures: TR 9:05-9:55, 11:15-12:05; Office hours: Tue 9:55-11:15am.
TA and administrator:
Doug Fitchen, 327 Clark Hall, x5-1064 (dbf2@cornell.edu); Secs. 7, 14.
Party and Collections TA:
Ethan Geil, 11 Rockefeller Hall, x4-4521 (ecg33@cornell.edu); Secs. 5, 15.
Lab TA: To be determined; Labs. 3, 13, 16.
Other TAs:
Alan Giambattista, 130 Clark Hall, x5-6035 (agg1@cornell.edu); Labs. 2, 10, 11.
Johannes Lischner, 604 Clark Hall, x5-6311 (jl597@cornell.edu); Secs. 3, 9; Lab 1.
Jiajun Xu, Newman 420, x5-5725 (jx33@cornell.edu); Secs. 10, 11; Lab. 7.

Online information:
All course materials will be distributed online. Lecture notes, information and links will be provided at the web site above. In addition, problem sets and announcements will be available on `Blackboard`. Finally, a Google calendar of major class events can be found as a Google public calendar listed under "Physics 214".
Textbooks:
Lecture notes on the web (http://people.ccmr.cornell.edu/~muchomas/P214/).
Physics 214 Laboratory Manual.
Optional: Young and Freedman, *University Physics*, 11th edition. A.P. French, *Vibrations and Waves.*

Getting the most from the lectures:
Students generally get more out of a lecture if they have a sense of the material to be covered and some questions already formed in their minds. Selected short readings will be assigned at the top of each new problem set. It is highly recommended that this reading be done, even if cursorily, *before* attending the corresponding lecture.

Problem Sets:
Beyond the readings and the lectures, the third element of the learning process is working the weekly problem sets. Students should feel free and are encouraged to discuss and ask conceptual and practical advice on the problem sets from the teaching staff and from each other. The problem sets are meant to encourage discussion but also make up a part of the grade. Therefore, after the discussion process, **students are to sit down and write up the solutions by themselves**. If you and your study partner end up using the same sentences and variable names in your solutions, this is a sign that you are collaborating too closely. To help you find study partners, we will be having problem set "parties" **from 7-9pm in 701 Clark Hall** on the nights before due dates.

There will be approximately twelve (12) problem sets. The problem sets will be available on the web Thu of the week prior to their due date. The problem sets *must* be returned to the collections TA outside of the classroom between 4:45pm and 5:00pm **sharp** on the due date. **Late problem sets absolutely will not be accepted and will receive a grade of zero.** To mitigate unfortunate circumstances, *the lowest two of your problem set scores will be dropped in forming your problem set average.*

Quizzes:
To encourage keeping up with the class, there will be three class-wide quizzes scheduled in section during the weeks of September 4–8, September 18–22, October 16–20. Each section TA has the prerogative of giving additional quizzes as necessary and to be included in the participation grade. (See below.) To mitigate unfortunate circumstances, *the lowest quiz score will be dropped in forming your quiz average.*

Participation:
A small portion of the total grade (5%) is alloted to participation in *section and labs*.

Prelims and Final:
There will be two (2) one and one-half hour prelims (7:30-9:00pm October 3 *and* November 2, both in RF Swartz and RF 230) and one (1) two and one-half hour final exam (2:00-4:30pm Tue. December 12, location to be announced) The final will focus on the last third of the course and is not meant to be cumulative except in so far as concepts from earlier in the course are reused in later parts. Only Professor Fitchen can excuse you from prelims and exams for extremely extenuating circumstances. He must be notified **at least twenty-four hours prior** to the prelim/exam.
Conflicts must be given to Prof. Fitchen at least two weeks prior to the corresponding prelim or final.

Labs:
The course includes four labs, each of which is graded as pass-fail. Attendance at all labs is required and makes up an important part of your grade. (See section on Grades below.) The labs are described in the Lab Manual. We will be doing...

- Unit 1: "Standing Waves" (Sep 20 - Sep 26)
- Unit 4: "Microwave Phenomena" (Oct 23 - Oct 26)
- Unit 5: "Diffraction and Interference" (Nov 13 - Nov 16)
- Unit 6: "Quantization of Energy and Atomic Spectra" (Nov 27 - Nov 30)

The lab schedule is posted at http://people.ccmr.cornell.edu/~muchomas/P214/Handouts/labs.html .

Conflicts are your responsibility. You must check at least one week in advance with the other Lab TAs (listed above) to find a section for which there is room. You must also notify your TA to ensure you receive proper credit.

Grades:
The relative weighting of exams and problem sets will be

Section (Problem sets 10%; quizzes 10%; participation 5%)	25%
Prelim I (October 3, 7:30-9:00pm)	25%
Prelim II (November 2, 7:30-9:00pm)	25%
Final exam (December 12, 2:00-4:30pm)	25%

Labs (**Important:** each missed lab will lower your grade by one mark; i.e., B- becomes C+ then C, etc.)

The class's overall performance throughout the semester will determine the final distribution of grades.

Partial Credit:
Partial credit, particularly on exams, will be awarded generously only in those cases involving minor algebraic errors. Incomplete physical reasoning or simply writing down formulas without physical justification will not result in credit for the problem in question.

Great pains will be taken to implement a system with uniform grading; therefore, **awards of partial credit will not be adjusted on an individual basis** as it would be grossly unfair to the rest of the class to adjust the credit of one student with out adjusting that of the entire class. Granting partial credit to the entire class uniformly assures that the system is fair.

Grading Corrections:
You are strongly encouraged to bring to our attention cases where graders have mis-graded, including simple mistakes, not noticing information which you provided in your solution, and not giving credit for valid alternate solutions. To resolve these matters, please write a brief explanation of the grading error and **submit this written explanation along with the paper to be corrected directly to your TA**. This must be done at the end of section in which your paper is returned. **Grades become final immediately after the period in which your paper is returned.**

Written explanations such as "The grader didn't see the rest of the solution on the top of the next page," or "I believe my alternate solution to 3(b) wasn't graded properly because ..." will suffice, but more information may be provided if you feel it helps your case. If it is a case of an alternate solution please be sure to write "alternate solution" explicitly.

Good luck!!!
This semester we will study what happens when not one or two, but many millions of particles interact. We will also develop skills and tools for analysis which are important in many disciplines of engineering. It is a pleasure for us to teach this course. Also, you will understand the intellectual underpinnings of three Nobel prizes (two of which are Cornell associated) if you follow the course closely to its conclusion! We wish you all a productive, enjoyable and stimulating semester.