

CSUSB

**SYLLABUS - PHYSICS 314
ELECTRODYNAMICS
TR 2:00 - 3:50**

Winter 2008

Contact Information:

Instructor: Dr. Laura Woodney Office: Chemical Sciences, 107
E-mail: woodney@csusb.edu
Phone: *e-mail will get a more prompt reply than voicemail*
Office Hours: W: 3:00 – 4pm, or by appointment

Course Objective: Physics 314 is the second course in a two quarter sequence (313, 414) covering electrodynamics at the intermediate level. This course is meant primarily for those students majoring in physics, applied physics, electrical engineering, and mathematics. The topics covered are electrostatics in matter, magnetostatics in matter, and electrodynamics.

Prerequisites: Physics 313.

Math Background: To succeed in this class, you will need a good working knowledge of multivariable calculus and vector analysis at the level of Physics 373. Physics 473 is strongly recommended.

Reading the Text: You will be held responsible for all of the material covered in the reading assignments and in the lecture. It is recommended that you read ahead of the lectures - it makes the material a great deal easier to understand. A reminder - you can't read a physics text like a history text. If you get confused in a section, go back and reread it until it makes sense. This field is linear; new concepts builds on earlier concepts. If you blow off a chapter, you may get lost for good.

Required Books:

(1) *Introduction to Electrodynamics, Third Edition* by David J Griffiths. Prentice Hall. ISBN 0-13-805326-X.

Recommended Books:

(1) *CRC Standard Mathematical Tables and Formulae, any edition*. You will need a good table of integrals to do well in this class (unless you are a math prodigy perhaps). There are other options, but I've had this one since I was a sophomore in college and it has always served me well. If you are worried about the cost, think of it as an investment in your future - you'll find it handy for all physics classes you take from here on out.

(2) *Electromagnetic Fields, Second Edition* by Roald K. Wangsness. Publisher: John Wiley and Sons. ISBN 0-471-81186-6. This was my book for intermediate E&M when I was a student. It is almost identical to Griffiths in content, but it is somewhat more formal and rigorous.

(3) *Classical Electrodynamics* by H. C. Ohanian. Publisher: Allyn and Bacon. This used to be the text for this course. It has a very different approach which some of you may find more appealing.

(4) *Applied Vector Analysis* by Hwei P. Hsu. Publisher: Harcourt Brace Jovanovich. This College Outline Series book does a nice job of laying down the principles of practical vector analysis with lots of examples. A book like this is useful for the advanced student in physics or engineering.

Tentative Course Coverage: Chapters 7 – 12.

Exams: There will be one midterm exam and a final exam. The final will be cumulative. All exams will be take-home exams. Makeup exams will be allowed only in the most extraordinary of circumstances and with written documentation. **Any instance of cheating will result in a failing grade in the class at the minimum.**

Homework: Physics is not a spectator sport! You will not learn to solve problems without regular practice, so homework is an essential part of this course. Homework will be collected approximately once a week. However, DO NOT wait until the last day to start it as you will not have enough time and have no where to go for help. You can expect to spend as many as 10 hours per week on homework. You are encouraged to work with your classmates on homework sets. However, you must write up the solutions alone (two sets should not be identical). As in “real life”, you should give credit to any sources (including the textbook) or people (including your classmates) you find helpful. Also, by citing specific sections or equations from the text, your homework sets will be more useful to you in the future. To receive full credit, homework must be legible and your logic must be easy to follow (this goes double for exams). Obtaining the correct answer does not guarantee full credit. **A solution with no written explanation is never sufficient.** The meanings of equations, and their symbols, should be provided. See the end of the syllabus for homework grading policy.

Grading:	Homework	30 %	
	Midterm Exam	30 %	Handed out Thurs, Feb 7
	Final Exam	40 %	Handed out on Thurs, Mar 13

Grading Scale:

I may scale grades up at my discretion, however, I guarantee at least the below grades:

90 – 92% **A-**, 93 – 100% **A**
80% – 82% **B-**, 83 – 86% **B**, 87 – 89% **B+**
70% – 72% **C-**, 73 – 76% **C**, 77 – 79% **C+**
60% – 62% **D-**, 63 – 66% **D**, 67 – 69% **D+**
< 60% **F**

Homework Grading Policy

Problems will generally be assigned Thursday and the problems are due the following Thursday. There will be a folder at the front of the classroom marked "Homework to be graded (first attempt)". Place your homework in there before or after class, not during class!

You will receive one of the following marks on each problem with the indicated meanings.

"check" = problem was solved satisfactorily (1 credit)

"OK" = solution was barely adequate, strongly recommend reviewing solution (1 credit)

"X" = solution was not clear or unsatisfactory (1/2 credit)

"XX" = no clear attempt was made to solve problem (0 credit)

If you receive an X you should rework the problem with whatever aid (short of copying) you wish to use including posted solutions, solution manuals, fellow students, etc. After you have reworked the solution you may resubmit the problem in the folder marked "Homework to be graded (Second attempt)." If the second attempt is satisfactory, you will receive 1 credit. Working the problem on your own the first time can't hurt you but it can help you on test day! If you receive XX you may work the problem and turn it in to the (Second attempt) folder. If the solution is satisfactory you will receive half credit. If the solution is not satisfactory you receive no credit and you have run out of chances to turn in the homework! This system automatically allows for late homework, but deducts half a point per homework problem no matter what the excuse is. Turning in late homework once or twice should not hurt your grade much, but habitually late or no homework could hurt a lot!

This system of homework can get confusing, Please adhere to the following requests. If these criterion are not met, the problem may be marked X or even XX.

1) Neatness

- a) Staple pages in upper left corner
- b) **Work on one side only**
- c) No pages torn out of notebooks
- d) Problems in order
- e) Your name and chapter number, and whether it is a first or second attempt. (if it is late it is a second attempt)

2) Conciseness--The problem must be solved clearly in an easy to read form. Show all key steps, basic relations used and explanations where needed. Underlining or boxing the answer will help. In short, I should be able to look at your solution and be able to tell what you did within a few seconds.

3) If it is a second attempt, include your graded first attempt (unless it is simply being turned in as late homework of course).