

General Physics: Electricity and Magnetism, Modern Physics (PHYS 11C)

Dr. William DeGraffenreid

Office: Sequoia 434 Phone: (916) 278-5938

E-mail: degraff@csus.edu

WWW: <http://www.csus.edu/indiv/D/DegraffenreidW>

Tutoring Center (SQU 142): Fri 9:00 – 10:00

Office Hours: Tues/Thurs 9:00 – 10:00

And by Appointment

Lecture (Both Sections)

Tue, Thu 8:00 AM – 8:50 AM (Mendocino 1015)

Discussions

Fri 8:00 – 8:50 (Mendocino 1015)

Course Summary

Physics 11C is the third semester of the calculus based general physics sequence. It covers the subjects of electricity, circuits, and magnetism. If time permits, we will also have an introduction to modern physics.

Subject Matter

Electricity and Magnetism: Electric forces/fields, potential, current and circuits, induction, AC circuits. We will also have a brief survey of modern physics, including quantum theory and relativity.

Texts / Materials

- Halliday, Resnick, and Walker. Fundamentals of Physics, 8th Edition.

I will be basing my lectures on the organization and notation used in this textbook. If you opt to use a different text, it is your responsibility to identify the appropriate material for readings, homework assignments, and tests. We will be covering Chapters 21 – 33; versions of the text that contain the appropriate chapters are: Regular Complete (978-0-470-04472-8), Extended Complete (978-0-471-75801-3), Volume 2 (978-0-470-04474-2), or Part 3 (978-0-470-044773). I believe that Part 3 is the only option in the bookstore.

- Wiley Plus

Online homework system is absolutely required. Reading quizzes and weekly homework sets will be submitted and graded via Wiley Plus. The URL for this course (11C - Section 5) is: <http://edugen.wiley.com/edugen/domain/dmn22508/>.

- Physics 11C Laboratory Manual

Sold by Society of Physics Students (\$15) during first two lab meetings. Cash only.

- Scientific Calculator

You need to have a scientific calculator, but it need not be fancy. If it has trigonometric functions, you're good to go. The Texas Instruments, TI-30 is a fine one that only runs about \$10.

Modus Operandi

Physics 11C is divided into three components: lecture, discussion, and laboratory. You will have lecture and discussion with me and a separate lab instructor. Unlike previous semesters, the discussion sections will be merged into a large group as a cost-savings measure. How does this impact you? Well, it means that we will always meet together in the lecture hall and there really won't be any difference between lecture days and discussion days. Only in labs will you be in smaller groups.

Your lab instructor will provide me your laboratory grade that I will use in determining your overall course grade (Note: I have the right to re-normalize or scale the lab grades – see the grading section below).

We will typically cover one chapter per week. Generally, we'll cover the basic material in two lectures, leaving the third hour to get into more depth and go over specific problems. Research has shown that if you have reviewed the information prior to lecture, you will absorb much more. Therefore, you will be required to read the chapter prior to the first lecture. You will be given a "reading quiz" in Wiley Plus to help motivate you to do the reading before class. Details on the reading quizzes and weekly homework assignments are below.

Add/Drop Policy

I have the following rules regarding adds and drops. These rules should allow me to maximize the number of students in this course. Missing two meetings in the first two weeks, without prior approval from me, will result in an administrative drop. I will use the pre-semester waiting list generated by MySacState to fill the seats. If you are on the waiting list, you will only be added if you've been attending classes AND can fit into a lab section that also has an opening. Labs will NOT be filled beyond the capacity listed in the schedule due to safety concerns. If I have the opportunity to go beyond the MySacState waiting list, highest priority will be given to seniors with a graduation evaluation showing PHYS11C as a required course. Students attempting to repeat the course have the lowest priority. Everyone signing

up at one time have the same probability to add, I will use random numbers to pick people. When I contact you to add (via email) you have 24 hours to get your add paperwork in order; otherwise, I move down the list. You may drop during the first two weeks for any reason. After two weeks instructor permission is required and you must have a compelling reason. Not doing well is not a compelling reason because you have prevented someone else from taking that seat. I'm sorry, but this will be strictly enforced.

Grading

Homework

20%

There are three components to your homework grade: Reading Quizzes, Homework Sets, and Scratch Pads. They are grouped by chapter. I expect there to be twelve assignments in the semester (Chapters 21 – 32 and “modern physics”). The deadlines for each assignment will be listed clearly on Wiley Plus (except Scratch Pad as described below). I will drop your lowest score in each of the categories in determining your final grade.

- The Reading Quizzes are short qualitative problem sets that you do prior to starting a new chapter. These are to encourage you to read the chapter before lecture – it will help you understand the material better and will provide you with more time to ask questions in class. The quiz will be administered on Wiley Plus. The Reading Quizzes are worth 20% of the homework.
- Homework Sets are weekly problems to test your understanding of the material. They are also done on Wiley Plus. They are designed to be about two to three hours long, but it may take more or less time to do them. There are “tutorial” problems that are unique to WP and end of chapter problems (calculations are the majority, but there are also some multiple choice, ranking, short answer, and maybe even be a few essay questions). Please do the Introduction to Wiley Plus assignment to practice the different types. They are automatically graded (except essay questions) and generally give you five opportunities to get the right answer, with a deduction for each wrong attempt (See Wiley Plus for grading details). They are due several days after we have finished discussing a chapter, the exact due dates are listed in WP. Late homework will be accepted, but with a very significant penalty (described in WP). Solutions to a portion of the problems will be posted in my solutions display case on the second floor of Sequoia Hall. The Homework Set is worth 60% of your weekly assignment.
- The Scratch Pad is worth the remaining 20% of your chapter assignment. It should consist of the notes that you used in doing the Homework Set. This gives me the opportunity to review your problem solving process and to make

suggestions to you if you have problems. I will not look at every single problem, but will rather scan through and check your work. If there is something you very specifically want me to look over, please “flag” it or leave a note on the first sheet. It will be graded on a 0-2 point scale: 0 – very poor work, 1 – okay, but your approach to solving problems could be significantly improved or it is very difficult to follow your work, and 2 – very nice approach to solving problems. If you consistently get 0 or 1, you should come by office hours and/or hit the tutoring center. These need to be turned in to me (in person or via my dropbox) within 24 hours of submitting your Homework Set (unless prior arraignments have been made with me).

Laboratory 10%

Each lab instructor will provide a syllabus describing how they will assess the laboratory portion of the class. They may consult me in designing their grading system, but ultimately it is their system. There are a couple of significant exceptions:

Grades from laboratory instructor may be normalized to adjust for significant differences in the grade distributions among the laboratory instructors. Typically, the section averages for 11C are 80%.

There is a practical exam during the last week of class. This is an individual test. If you fail the practical, you will earn no higher than a 65% in the laboratory. Furthermore you must pass the laboratory with a 55% or higher to pass 11C.

Midterm Exams 15% Each

There will be three exams during the semester. The tentative dates are 10/1, 10/26, and 11/23. Exam 1 will cover chapters 21-24, Exam 2 covers chapters 25-27, and Exam 3 covers chapters 28-30. Laboratory experiments performed by the date of the exam are also fair game for questions on the exam.

The exams will have numeric problems, short answer questions, and multiple-choice questions. A sheet of equations and constants will be provided with the exam package. I will post a copy of it on my website at least one week before the exams so that you know what information you will be given. No other notes are allowed.

You may use any scientific calculator on exams, but I reserve the right to inspect them to make sure that no unauthorized material is stored on it. I also reserve the right to reset the memory of or impound any calculator that I suspect has unauthorized material on it. Smartphones and/or PDAs are forbidden during exams (even as a calculator!). If I see you using one you will fail the exam (if extenuating circumstances exist, you must inform me before the exam begins).

Final Exam

25%

The final exam is comprehensive, including all chapter previously tested plus any new material introduced after Exam 3. You will have the equation and constant sheets provided to you as on the midterm exams. The calculator rules also remain unchanged.

Per the university exam schedule, this final for this course is scheduled for Thursday December 16 @ 8:00 – 10:00. The final will be administered in Mendocino 1015, our usual lecture room (unless otherwise announced at the end of the semester).

Final grades will be given as follows:

- A: 100% – 85%
- B: 85% – 75%
- C: 75% – 65%
- D: 65% – 55%
- F: Below 55%

The distribution of scores at the end of the semester may encourage me to further lower the grade designations, but I guarantee these bands as a minimum.

Academic Dishonesty Statement

The Department of Physics and Astronomy has unanimously approved the following statement:

“The faculty of the Department of Physics and Astronomy will not tolerate academic dishonesty. Falsification of data, copying, unauthorized collaboration, plagiarism, alteration of graded materials, or other actions (as described in, but not necessarily limited to the Sacramento State Policy Manual) will be promptly reported to the Office of Student Affairs. The offending student will be penalized on the assignment in question. Serious infractions will result in course failure and a recommendation for administrative sanctions.”

If you have any questions regarding this statement, please come and speak with me about it.

Odds and Ends

If you have a disability and require accommodations, you need to provide disability documentation to SSWD, Lassen Hall 1008, 916-278-6955. Please discuss your accommodation needs with me after class or during my office hours early in the semester.

I encourage you to work together on homework problems. That said sitting in a study group and copying solutions will not likely enable you to get good results on the exams. Getting 100% on the homework and 40% on the exams will not earn you a good course grade.

I have selected homework problems that I feel are, for the most part, representative of the material that you should know to pass this class. That said, there are generally one or two problems that will be very challenging. They are not meant to be punishment or to embarrass you, many people like to test themselves against hard problems and they are there for this reason.

Please clearly write your name on all things that you hand in to me.

While attendance is not mandatory for lecture and discussion (aside from first two weeks as noted in add/drop policy), keep in mind that I may emphasize material in lecture that the text does not. I also might give hints and tips.

Your laboratory instructor sets the policies in the laboratory portion of the class, with the exception of the grading issues noted above. In that room, he/she's the boss.

Per department policy (effective Fall 2004), no laboratory exemptions will be given. Please don't waste either of our times explaining why you deserve an exception to a policy that explicitly says "no exceptions."

Please respect your classmates and me by turning off your cell phone during class. If you are expecting an emergency call (i.e. pregnant wife), please let me know. Repeat violators will be noted by me and are subject to a grade reduction.

While I have no trouble ignoring your texting in class, your classmates may not. Please don't do it. If something is more important than this class – deal with it, don't distract your classmates.