Physics 212 – Physics for Science and Engineering II (Section 3)

Course Summary

Physics 212 is an introduction to the basic concepts of physics with an emphasis on electricity and magnetism. Major topics covered will include Gauss's Law, the electric potential, the magnetic field, Faraday's Law, and electromagnetic waves. Additional topics include an introduction to fundamentals of circuits, optics, and modern physics. A knowledge of calculus is required as well as a strong grasp of algebra and trigonometry. A pre-requisite for the course is successful completion of Physics 211 and Math 262. Physics 222 (lab) is a co-requisite.

Textbook

Physics for Scientists and Engineers, 9th Ed., Serway and Jewett
We will cover selected material from Chapters 23-46.

Class Meetings

109 Lewis Hall, MWF 11:00 – 11:50 AM (some Friday classes may be in 101 Lewis Hall)

It is necessary for you to read and study the assigned sections *before* attending class, because the ideas and the definitions in the text will be used freely. The classes may not necessarily cover all of the material for which you are responsible. Instead, class meetings are for addressing the difficult points in the text as well as for helping place the readings in the "big picture." The more actively you participate in class, the more you will learn and so the better you will do in the course!

Instructor

Katherine Dooley
Office: 105 Lewis Hall
Email: kldooley@olemiss.edu
Phone: 662-915-2869

Dooley's regular office hours are tentatively scheduled as follows:
Mon. 2pm – 3 pm; Wed. 12pm – 1pm; Thu. 4pm – 6 pm

Goals

The central goal is for you to learn how to think about and apply physical concepts. This class will primarily focus on the laws of electricity and magnetism. The main challenge you may face is in developing problem solving skills. Physics problems often involve several steps and usually they require more than just a simple application of formulas in the book. **It may take some time for you develop your skills.** I want you to do well and I am available to help you. Come to my office hours, and/or use the Physics Tutoring Room in Lewis Hall 104.

Grading

The final grade will be assigned using a plus/minus scale and will be computed as follows:

25 %   Final Exam

20 % each   2 Midterm Exams

20 % total   Quizzes (Fridays, except exam weeks)

15 % total   Homework Assignments

The two lowest homework scores and two lowest quiz scores are not counted.

Note that the total quiz score is the same as a midterm exam. I expect each student to stay on top of the material throughout the course of the semester. ***Think of the quizzes like a midterm exam given in small installments.*** There may also be pop quizzes on occasion.

Homework

Homework will be key to doing well in the course. You can expect to spend many hours per week on homework. You are encouraged. To work with your classmates on homework sets. For your own benefit, you should always attempt the problems by yourself first, and the final work you submit must be your own.

The majority of the homework will be assigned through Web Assign. Web Assign is a web-based homework tool. A major advantage of this system is that you will be able to get immediate help and feedback. When you miss a problem, you will be able to work it again and resubmit. To receive full credit for the homework assignments, *you are required to turn in a neat, hand-written copy of your solutions.* Problems selected at random from the hand-written version of your homework solutions may be graded in detail and points assigned for thoroughness, effort, and correctness.

You will need to register for WebAssign. Please look out for email instructions containing the name and key for the course.

Concept Questions

For class time to be effective, you need to read before coming to class. To encourage you to keep up with your reading assignments, you will be asked to answer a short conceptual question before the class meeting time. The concept question will be assigned on WebAssign and will be worth 1 bonus point, awarded for effort, not correctness. The bonus points can help improve your final exam score (F.E.S.):

$$Recorded\ F.E.S. \equiv (Raw\ F.E.S.) + (Bonus\ points) \times \left(1 - \frac{Raw\ F.E.S.}{100}\right).$$

For example, if you earn 30 bonus points and obtain a raw score of 60 (out of 100) on the final exam, then the final exam score recorded in the gradebook is $60 + 30 \times (1 - 60/100) = 60 + 12 = 72$. Note that it is impossible for your recorded final exam grade to be lower than your raw final exam score. Doing well on the concept questions will put less pressure on you at the end of the semester to do well on the final.

Exams

There will be two 50 minute, in-class exams, as well as a comprehensive final exam on **Monday, May. 9 from 12 pm – 3pm.** Exams will contain both quantitative and conceptual problems. All exams will be closed book and closed notes. The only electronic devices allowed during the exams are calculators (no cell phones, etc.). You are on your honor not to use a calculator for advanced functions (such as graphing, integration, differentiation, solving equations, and unit conversions) or to store formulas or notes of any type in its memory.

Attendance

Attendance is expected. Only three absences are allowed without penalty. Upon the fourth absence, the student will no longer be allowed to drop their lowest two quiz grades. Each additional absence will result in the loss of points on their overall grade. The Honors College policy on absences is below.

> *Honors courses are small classes, usually taught in seminar style with no more than fifteen students. They are reading, writing and discussion intensive. Student participation is therefore essential. In addition, the university commits extensive resources, especially in terms of faculty time, to these small classes. For these reasons, the Honors College has an attendance policy for all honors courses, both required and departmental. Students are entitled to two absences in Tuesday/Thursday classes and to three absences in Monday/Wednesday/Friday classes. Consequences of additional absences will be determined by the individual faculty member, but additional absences will lower your grade.*

The Honor Code

The Sally McDonnell Barksdale Honors College employs an Honor Code centered on honesty, sincerity, and justice. The purpose of this Honor Code is to strengthen the sense of community in which the Honors College takes great pride. Its strength depends on the personal honor and integrity of each Honors College member. Honors students are required to write the statement below on any assignment submitted for grading in Honors classes, thereby reinforcing the atmosphere of trust within the Honors College community.

"On my honor, I pledge that I have neither given, received, nor witnessed any unauthorized help on this _____." Signed _____

In addition, the Honors College instituted the following policy in 1999, which is in effect in all honors classes:

> *Academic integrity is essential to all the values upon which the university is founded. Honors students must therefore embody academic honesty in all aspects of their work. A student with a documented case of plagiarism or academic cheating in an honors course will face the possibility of receiving the grade of F for the course and being dismissed from the Honors College. Specific consequences of such behavior will be determined by the administration and individual faculty member.*

Disabilities:

If you have provided documentation of a disability of any kind to the Student Disability Services and will need academic accommodations such as note-taking assistance or extended time on tests, please provide me with an Instructor Notification Form so appropriate arrangements can be made.

Schedule, subject to change

Week 1	Jan. 25-29	Ch. 23	
Week 2	Feb. 1-5	Ch. 24	
Week 3	Feb. 8-12	Ch. 25	
Week 4	Feb. 15-19	Ch. 26	
Week 5	Feb. 22-26	Ch. 27-28	
Week 6	**Feb. 29-Mar. 4**	Ch. 28-29	**Exam 1**
Week 7	Mar. 7-11	Ch. 29-30	
Spring Break	Mar. 14-18		
Week 8	Mar. 21-25 (Fri. is Good Friday)	Ch. 31	
Week 9	Mar. 28-Apr. 1	Ch. 32	
Week 10	Apr. 4-8	Ch. 33	
Week 11	**Apr. 11-15**	Ch. 34	**Exam 2**
Week 12	Apr. 18-22	Ch. 35	
Week 13	Apr. 25-29	Ch. 36-37	
Week 14	May 2-6	Ch. 37-38	

The final exam is comprehensive and is on Monday, May 9th, at 12:00 pm.