

Physics 215: Electromagnetic Universe

Gustavus Adolphus College

Fall 2016

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Textbook: *Physics For Scientists and Engineers*, Serway and Jewett, Ninth Edition (2014)

Office Hours.: My scheduled office hours are 2nd hour (M-F) and 6th hour (M, Tu). I will make every effort to be available during these times for individual assistance and advising. I am also available at most other times when my door is open. In general, if you see me in the office, feel free to ask for help. If I can't help you right then, we will schedule an appointment.

Do not be afraid to ask for help!

Course Policies and Evaluation

Pre-Requisite Expectations: Students in PHY215 are expected to have a solid background and have passed Calculus II, and also be currently enrolled in PHY250 or Multivariate Calculus. Material from these courses and your previous physics courses (PHY195 and PHY205) will **be used frequently** in PHY215 including in homework **and exam** problems. The instructor realizes that not all topics will be discussed in the math course before they will be needed in this class and will tailor the discussions and problems appropriately.

Co-Requisite: All students are required to be concurrently enrolled in **PH216, Classical Physics III Laboratory**. A separate syllabus will be handed out for that lab.

1. Class Meetings: The class will meet, M-F 10:30-11:20. Students are expected to have read the text and any other assigned materials **before** coming to class.

2. Homework: Problems sets will be assigned approximately twice every week. Written homework sets should be neat and organized, including a staple and your name, and lacking fringes. **Legibility and thorough explanations of answers are required of all problems.** You are encouraged to discuss and work problems with each other, and with the instructor, but **all help must be cited clearly.** Direct copying of another student's answer is a violation of the honor code.

3. Late Homework: Late homework will be accepted at the discretion of the instructor with loss of points. No homework will be accepted after the problems have been returned to the class or the solutions posted.

4. Attendance: Students are expected to attend all classes during the scheduled hours. Students are responsible for informing themselves of material and assignments covered during absences. Students must advise the instructor in writing during the first week of class of any scheduled athletic, music, or other college activities that will require their absence during the semester. Such written notice does not imply a waiver of course requirements or an agreement to reschedule exams. Excessive absenteeism will result in a reduction of the final grade.

5. Exams and quizzes: There will be four one-hour exams, and a two-hour written final exam. Quizzes will be given at the discretion of the professor. There is no separate mid-term exam.

6. Missed Exams: Students are expected to arrange in writing with the instructor well in advance to take an exam at other than the announced time. Requests to reschedule exams for non-emergency personal reasons will be declined. Permission to make up a missed exam after the fact will be at the discretion of the instructor and should not be assumed.

7. Academic Honesty: You will abide by the academic honesty policy printed in the Academic Bulletin, and abide by decisions of the joint student/faculty Honor Board. The honor code reads:

“On my honor, I pledge that I have not given, received, or tolerated others’ use of unauthorized aid in completing this work.”

Several components of this course, including homework and group problems, encourage collaboration between students or the use of tutors and the instructor for assistance. The instructor will attempt to make clear which assignments the students is allowed to seek outside help, but it is the student’s duty to clarify if there is an ambiguity. **In all cases: the use of the internet (or any other place where the solution is simply given) for any homework, unless specifically stated otherwise, is not allowed, and will result in a zero for the assignment as a minimum penalty.** The instructor is bound to abide by the College’s Honesty Policy and therefore must report all incidents of academic dishonesty (cheating, copying, etc.) to the Dean’s Office.

8. Incompletes: A grade of incomplete will only be given for work not completed due to circumstances beyond the control of the student (college policy).

9. Disability: Gustavus Adolphus College is committed to ensuring the full participation of all students in its programs. If you have a documented disability (or you think you may have a disability of any nature) and, as a result, need reasonable academic accommodation to participate in class, take tests or benefit from the College’s services, then you should speak with the Disability Services Coordinator, for a confidential discussion of your needs and appropriate plans. Course requirements cannot be waived, but reasonable accommodations may be provided based on disability documentation and course outcomes. Accommodations cannot be made retroactively; therefore, to maximize your academic success at Gustavus, please contact Disability Services as early as possible. Disability Services (<https://gustavus.edu/advising/disability/>) is located in the Advising and Counseling Center.

10. Evaluation: Hour exams 40%, Homework 25%, Final Exam 20%, On line and in class participation and group problems 15%. Final course grades will be assigned using the following scale as a guide:

94-100 A	82-86 B	70-74 C	58-62 D
90-94 A-	78-82 B-	66-70 C-	0-58 F
86-90 B+	74-78 C+	62-66 D+	

Assignment of the final letter grades will also take into account other factors including the instructor's subjective evaluation of the student's attendance, initiative, evidence of improvement, and the quality of independent work.

Chapter Coverage:

Chapter 23 - Electric Fields

Chapter 24 - Gauss's Law

Chapter 25 - Electric Potential

FIRST HOUR EXAM Chapters 23-25

Chapter 26 - Capacitance and Dielectrics

Chapter 27 - Current and Resistance

Chapter 28 - Direct Current Circuits

SECOND HOUR EXAM Chapters 23-25

Chapter 29 - Magnetic Fields

Chapter 30 - Sources of the Magnetic Field

Chapter 31 - Faraday's Law

THIRD HOUR EXAM Chapters 23-25

Chapter 32 - Inductance

Chapter 33 - Alternating Current Circuits

Chapter 34 - Electromagnetic Waves

FOURTH HOUR EXAM Chapters 32-34

COMPREHENSIVE FINAL EXAM