

Physics 2260 - Honors Physics III – Electricity and Magnetism

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Course Description

A calculus based introduction to electricity and magnetism. Topics include Electric charges, Coulomb's law, electric fields, Gauss's law, electric potential, capacitance, circuits and Kirchoff's laws, resistance, magnetic fields, Ampere's law, electromagnetic induction, Faraday's law, electromagnetic waves.

Course Objectives

The principal objectives for this course are for you to learn the fundamental concepts, principles, and theories of electricity and magnetism and to develop the ability to solve problems. Lectures are structured to help you understand the conceptual basis of electricity and magnetism and examples and demonstrations are designed to re-enforce those concepts. This honors course is intended for highly motivated students seeking a challenging and invigorating introduction to physics.

Textbooks

R. D. Knight, Physics for scientist and engineers with Modern Physics, 5th edition (Part VI, Chapters 25-35)

Effort and Course Grade

Your grade for the course will be based on your performance on graded homework, surprise quizzes, on the midterm exam, and on the final exam. The weight attributed to each segment of the course follows:

Graded Homework	25%
Quiz	20%
Midterm exam	25%
Final Exam	30%

For each of the four components of the course you will be given a numerical score. The guidelines for interpreting these scores are as follows:

A	85-100	C	60-64
AB	80-84	CD	55-59
B	70-79	D	50-54
BC	65-69	F	0-49

Letter grades for the course will be based on the above scheme.

Graded Homework

The **due dates for submitting the homework assignments are one week from the date of assignment. No late submission will be accepted.**

Your problem solutions must **include the detailed steps (not just the final answer):**

- (a) a diagram, where appropriate,
- (b) symbolic identification of the given and unknown quantities,
- (c) identification of the definition, concept, or law used to solve the problem,
- (d) algebraic solution of the problem
- (e) numerical solution of the problem, where appropriate.

Important- correct final answer without the required steps will not be awarded full marks.

Your work must be neat and well organized.

Some organizational tips:

- Write your name in capital letters, so that you will be credited for your homework
- If you use lined paper, use alternate lines. Otherwise, the work is too cramped and difficult to read.
- Write on one side of the paper only.
- Start each problem on a new sheet of paper. This allows you to easily amend your work and to not get stuck with the need to squeeze lots of material into a small space. Allow for margins at the top, bottom and sides of the page. This allows the grader to make comments without writing over your work.
- Number your pages and staple your work together prior to submission. Ask the department secretaries to use a stapler if needed. Your work must be stapled and not dog-eared, taped, paper-clipped.
- Many students find engineering paper ideally suited to the task; you may wish to give this a try.

Working in groups is a valuable way to learn physics, but the work you submit for grading must be your own.

Hour Exams and Final Exam

Exams are scheduled as follows:

- Surprise quiz - (will be announced in the day it will be given)
- Midterm Exam - Monday, October 20, 10:00 - 11.00 a.m.
- Final Exam - (Exam Week)

Several surprise quizzes (15 minutes each) will be given in the whole term. You are advised to attend all the lectures. The midterm examination. will be fifty-five minutes long. An unexcused absence from any exam., quiz, will result in a grade of zero for that examination. Examinations will consist of both conceptual questions and problems. **Partial credit will be awarded on all exams, so you should strive to solve problems in a neat and organized fashion with all the steps.** The formula sheet appended to this document along with the table of physical constants found in the front of the textbook will be provided - no other formula sheet or table is allowed. There will be no scaling, redemption, or any other manipulation of exam scores.

Help from the TA

If you have question about your homework grading, please meet the GTA (Archana Pandey; e-mail: arpandey@mtu.edu) for clarification. Don't expect her to do your homework assignment for you as she is instructed not to help you with the home work problems. She is the grader for this course. If you want, you can take extra help

from Physics Learning Center, but please understand that some of the coaches may be unfamiliar with the topics covered in the course.

Excused Absences

Events beyond your control may cause you to miss a class, homework due date, or an exam. Examples of such events include a documented illness and a family crisis. In such cases, it's best to inform the Dean of Students of your problem. The Dean will then inform all your instructors that you face a situation that requires you to miss class, and you are granted an excused absence. It's then your responsibility to contact each of your instructors after you recover from your illness or return to campus.

If a homework due date is missed as a result of an excused absence, the due date will be extended. If the final exam is missed as a result of an excused absence, you will be awarded the letter grade of I (incomplete) and must take the PH2260 final exam at the end of any one of the next three semesters that you're in residence.

Drop Dates

Drop date with full refund: September 10, 2008

Drop date with no grade: September 19, 2008

Drop date with *W* grade: October 24, 2008

Late drop: If after the drop date circumstances beyond your control prevent you from completing the course, you may be a candidate for a late drop. The process does not begin with a course instructor but rather with the Dean of Students, to whom you confide the details of your situation.

MTU ADA Statement

MTU complies with all federal and state laws and regulations regarding discrimination, including the Americans with Disability Act of 1990 (ADA). If you have a disability and need a reasonable accommodation for equal access to education or services at MTU, please call Dr. Gloria Melton, Associate Dean of Students, at 2212. For other concerns about discrimination, you may contact your advisor, department head, or the Affirmative Action Office at 3310.