

PHY301: Electromagnetic Theory I

Instructor: Professor V. J. Goldman

office: B-137 (Physics) ; telephone 2-9001

office hours: Mon, Fri 2:30-3:30, and Tue, Thu 12:30-1 :30, and drop by, and by appointment

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Text: D. J. Griffiths, *Introduction to Electrodynamics*, 4th edition, Prentice Hall, 2013

Additional: M.R.Spiegel and J.Liu, *Mathematical Handbook of Formulas and Tables*, 2nd ed., McGraw-Hill, 1999 (Schaum's Outline Series) or equivalent

Course organization and grading:

- Two 1.5 hour lectures per week (ESS-131, MonFri 1:00 - 2:20 pm)
- **Homeworks** will be posted on Fridays, due next week Friday in class
- Late HW: in B-137 only (slide under the door, if closed), **not** in mailbox, **not** to TA
- Late HW penalty: 20% per day, so that model solutions can be posted promptly
- Exams: one Midterm (October 21, in class) and Final (Wednesday, Dec 21, 2:15 - 4:15 pm)
- Exams are closed book, except can bring **1 handwritten page**
- Course grade = 25% HW + 30% Midterm + 45% Final
- There is no provision for doing extra or outside work to improve your grade. The Final exam is comprehensive.

Course outline:

1. Brief review of vector calculus
2. Electrostatics: charge, field and potential
3. Special techniques in electrostatics
4. Eclectic field in dielectrics: polarization
5. Magnetostatics: current, field and vector-potential
6. Atoms and solids in magnetic field:magnetization
7. Electrodynamics and Maxwell equations

Material will be presented primarily in lectures, readings assignments from the text, and homework problems.

Lecture will cover the material to be learned, some important examples, and will direct your study from the text,

however some material will be presented in class that is not in the text.

Thus, you should attend class, pay attention while there, and take notes over the material.

You should plan on 2-3 hours of study and doing problems outside of class for every

lecture.

The material in the latter part of the course will be based upon material presented in the first part of the course, therefore you will have to commit the material to long-term memory. The Final exam is comprehensive.

Working together: Students are encouraged to study in small groups, discuss the material and HW problems.

It should be perfectly clear that each person is responsible for completing and submitting the work.

It is NOT acceptable to divide the problems, when one solves problem 1 and the other problem 2.

Exchange of any information between the students during an exam is unacceptable.

Note: If you have a disability that may affect your ability to carry out the assigned course work,

you are urged to contact the staff of the Disabled Student Services, Room 128, ECC building.

DSS will determine with you what accommodations are necessary and appropriate.

All information and documentation of disability is confidential.

[Minimal Undergraduate Student Responsibilities](#)