

CORNELL UNIVERSITY
AEP 3550
Intermediate Electromagnetism
Spring 2024

Course instructor

Valla Fatemi 211 Clark Hall vf82@cornell.edu
Office hours: Thursday 1:00 PM

Teaching Assistant

Amelia Schaeffer 218 Clark Hall afs97@cornell.edu
Office hours: Friday 1:30 PM

Course secretary/registrar

Cynthia Reynolds 261 Clark Hall crr8@cornell.edu

Lectures M/W/F 9:05-9:55 AM 247 Clark Hall
No lectures: February 27 (February Break)
Week of April 3 (Spring Break)

Discussion M 1:25-2:40 PM 247 Clark Hall
No discussion: February 27 (February Break)
Week of April 3 (Spring Break)

Course web site Go to the AEP 3550 site at <https://canvas.cornell.edu/>
Homework assignments and solutions will be posted.

Content Intermediate-level electromagnetic theory with a focus on statics. Vector calculus, electrostatics, conductors, dielectric materials, boundary conditions, solutions to Laplace's equation, magnetostatics, quasistatic conditions, Maxwell equations, Poynting theorem, Maxwell Stress tensor, EM wave, polarization, energy, momentum. Emphasis is on developing proficiency with analytical techniques and intuitive understanding of fundamental electromagnetism.

Topics covered:

- Electrostatics
- Special Techniques for Finding E
- Electric Fields in Matter
- Magnetostatics
- Magnetic Fields in Matter
- Electrodynamics
- Conservation Laws
- Beginning of Waves

Prerequisites: PHYS 2213 or PHYS 2217.

Corequisite: AEP 4200 or permission of instructor.

Textbook Required: "Introduction to electrodynamics" by David J. Griffiths, 4th edition.

Lectures Lectures are an important component of this course and students will be responsible for the material presented in lectures. Questions during lecture are *strongly encouraged*.

Homework Problem sets will be assigned approximately weekly and **due on Tuesday at 9am.**
Submit problem sets on Canvas.
A 24-hour grace period will be allowed for homework submission, i.e. submission by Wednesday at 9am, with a 15% penalty.
I will drop your lowest homework score for the semester. In other words, you get one, but only one, “freebie”. Please use it wisely.
If you want to request a regrade, you must bring it up with the TA within 1 week of the grades being posted.

Exams There will be three exams: two preliminary exams and a final exam. These exams will cover material from lectures, labs, and assigned readings. Homework and discussion section problems may appear on the exams.

Preliminary exam 1:	Monday, March 11, during discussion section
Preliminary exam 2:	Monday, April 15, during discussion section
Final:	TBD by registrar later in the semester

Grading	Problem sets:	20%
	Prelim exam 1:	22.5%
	Prelim exam 2:	22.5%
	Final exam:	35%

Communication

All communication will be by email or through Canvas. If you email, in the subject line include both “AEP 3550” and a short description of your question or issue. Keep your message short and to the point. We will respond as promptly as feasible.

Academic Integrity

Students expected to abide by the Cornell University *Code of Academic Integrity* with work submitted for credit representing the student’s own work. **Discussion of homework assignments is permitted and encouraged, however, any work submitted for academic credit should be the student’s own work.** Course materials posted on Canvas are intellectual property belonging to the author. Students are not permitted to buy or sell any course materials without the express permission of the instructor. Such unauthorized behavior will constitute academic misconduct. Students agree that by taking this course all required papers may be subject to submission for textual similarity review to Turnitin.com (or a similar page) for the detection of plagiarism. All submitted papers will be included as source documents in the Turnitin.com reference database solely for the purpose of detecting plagiarism of such papers. Use of Turnitin.com service is subject to the Usage Policy posted on the Turnitin.com site.

Covid/illness policy

Our classroom will comply with all university policies on COVID-19. Recordings of lectures are not available for absences, including absences due to illness. For any illness, you are expected to keep up with course material by working with a peer in the course or accessing our shared notes page of Canvas.

If you have symptoms of COVID-19 or any other communicable disease, I encourage you to take a COVID test. If it comes back positive, inform the instructor and TA, and then shelter until recovered. If it is negative or if you do not take a COVID test, please wear a mask in class until you are recovered, to protect your peers from illness.

Exam conflicts and accommodations

If you have an SDS accommodation (for that process, start [here](#)) or there is a conflict under Cornell policy (more than 3 exams in 48 hours or direct conflict) then it might be necessary to take an exam at a different time than the rest of the class. You are responsible for telling me more than a week before the exam that an accommodation is required.