

Physics 2217 Spring 2023
Electricity and Magnetism

<u>Instructor:</u>	Lawrence Gibbons 391 Physical Sciences 255-9931	Office Hours: Wed, 2:00 - 4:00 or by appt. lkg5@cornell.edu (please include "2217" in subject)
<u>TA:</u>	Dnyanesh Kulkarni 425E PSB	Office Hours: Tue, 3:30 - 4:30 PM dpk52@cornell.edu
<u>Course structure:</u>	Lectures Recitation Study Hall	MWF, R230, 10:10 - 11:00 AM MTW, 110 Roc, 2:40 - 3:30, 3:35 - 4:25 θ, 301 PSB, 4:00-10:00 PM

Course goals:

- Understand the origins of Maxwell Equations and their relationship to experimental observations
- Begin understanding applications of Maxwell's equations in electrostatics, magnetostatics, and in a variety of time-varying situations
- Gain familiarity with the use of symmetries in conjunction with physical laws to solve problems
- Gain exposure to a physical basis for the Divergence and Stokes' theorems, and their use in revealing the behavior of a physical system
- Gain exposure to four vectors in special relativity, and to the relativistic relationship between electric and magnetic fields
- Gain familiarity with identifying and using small parameters to gain understanding of the behavior of a physical system

Homework: One set each week, released each Wednesday, due the *Friday* following by 10 AM via upload to Gradescope. Working together on the homework is encouraged, but the submitted work must comply with the [Cornell Code of Academic Integrity](#). The homework assignments teach you the material – I am your guide. As such, though, you should find the sets challenging. I encourage you to start the problem sets early, so that you can take full advantage of the Study Halls.

Late homework: You may request two no-questions-asked 48 hour HW extensions over the course of the semester, with no penalty. Don't use these up early! Additional late extension requests will be penalized 2 points for each additional 48 hour extension granted. *In all cases you must request a Gradescope upload extension from Prof. Gibbons.*

Required Text: Purcell and Morin: "Electricity and Magnetism" 3rd edition.

Helpful References:

- Young and Freedman: "University Physics", Vol. 2
- Griffiths, David, "Introduction to Electrodynamics, 3rd Ed.", Prentice-Hall, Inc., New Jersey, 1999
- Feynman, Leighton & Sands, "The Feynman Lectures, Vol. 2"

Exams: All exams are take-home.

- Tentative Prelim Due dates: Wed, Mar 8, and Mon, Apr 17 (lab period)
- Final exam: TBA once announced

Grades: Prelims 2@20%, Final 23%, HW = 30% (Lowest HW score dropped), Poll Everywhere Participation 5%, pre- and post-course survey completion 2%.

Poll Everywhere: We will use Poll Everywhere (pollev.com/phys2217s23) almost every lecture. Please register ASAP. For texting responses, please note the instructions on canvas to register your cell phone number. The use of polling is to engage you in the material, not track your attendance. If you can't make to a lecture, just inform me and I will exclude that day's polls from your participation tally.

Ed Discussion: Course material and HW discussions will occur over *Ed Discussion*, linked from our canvas site. The primary use is for all of you to discuss the material. Our TA, Jeevan,, will primarily monitor the site for questions. If you have a direct question about the course material that you would like me to answer, please [email me](#).

Conflicts: I recognize that you can have conflicts or unexpected situations (illnesses, etc.) that can make attendance, or HW deadlines, or exam dates occasionally problematic. *When you contact me in advance of the relevant deadline, you will find me very accommodating.* After the fact notifications will be considered in the context of whether advanced notification was possible.

Conduct: Please abide by:

- [Cornell Code of Academic Integrity](#): As a scientist, you will find that scientific integrity is valued highly. Abuse can destroy one's career. The principles overlap strongly with those laid out in the Cornell Code.