PHYS 326: Electricity and Magnetism
September 2019 - December 2019

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Office Hours: Will be posted on the PHYS 326 CourseSpaces site.

Lectures: 08:30 - 09:20, Tuesdays, Wednesdays and Fridays in Elliott 062
First lecture: Wednesday 4 September 2019

Tutorial: 12:30 - 13:30 Wednesdays in DSB C118 (starts 11 September)

Required courses

Prerequisites: PHYS 216 and Math 204
Pre- or Co-requisites: one of PHYS 301, MATH 342, MATH 346
This course will be mathematically demanding; all students are assumed to have a strong basis in calculus and vector algebra.

Required text

Introduction to Electrodynamics, 4th edition, David J. Griffiths.
Older editions also acceptable, but there are a few differences between the texts.

Calendar description

Properties of electromagnetic fields using vector calculus, displacement current, Maxwell's equations, plane electromagnetic waves with applications, transmission lines, and transients in LRC circuits.

Course content

Griffiths chapters 1 to 7 and topics selected from chapters 8 and 9

1. *Vector analysis*, including vector calculus
2. *Electrostatics*, including the electric field, potential, and applications to conductors
3. *Potentials*, including boundary value problems, multipoles
4. *Electric fields in matter*, including polarization and dielectrics
5. *Magnetostatics*, including Biot-Savart law, Ampere's law, vector potential, displacement current
6. *Magnetic fields in matter*, including magnetization, linear and non-linear media
7. *Electrodynamics*, including Maxwell's equations
8. Other topics, if time permits; may include conservation laws, wave propagation, energy transport

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Midterm Exam
There will be an in-class midterm exam on **Friday 18 October**. **The midterm exam will be held in BWC B150 — Note this is NOT the normal classroom.**

Final Exam
There will a final exam during the December exam period. The date is centrally scheduled, and normally finalized in late October. Do not plan December travel before you know the exam schedule. **You must write the final exam to obtain credit for this course. You must exhibit adequate performance in the final exam to get credit for this course.**

Note on Exams
For the Midterm and Final exams you will be allowed to bring one page of notes, handwritten on both sides, and a calculator. The only acceptable calculator is the sharp EL-510R, which can be bought in the bookstore for about $10. DO NOT bring any other calculator to the examinations.

Labs
All lab sections are normally held in Elliott 131. Labs start the week of 9 September.
You must complete and pass all labs to obtain credit for the course. No student will be granted exemption from the labs.
You will be given scheduling information at the first lab. The due date for any experiment report is normally in the lab period one week after the experiment has been completed. You may not undertake an experiment if you have not handed the experiment report for a previous exercise.
No reports will be accepted after 4 December.

Assignments
Assignments will be assigned and due approximately weekly. Late assignments are not accepted.

Course material
Course material will be distributed via the CourseSpaces site for PHYS 326, and will include assignments, assignment solutions, and all slides shown in class.

Accommodation
Arrangement for reasonable accommodations for customarily accommodated issues will be considered, however this is contingent on your active participation: If you miss a course requirement, you are expected to contact the instructor as soon as reasonably possible, and you are expected to give the instructor advance warning of issues that you could have reasonably foreseen.

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Conduct

Attendance in class not required, but strongly recommended.
It is strictly prohibited to use cell phones or laptops to perform texting or social networking during class.
Cheating, plagiarism, and other form of academic fraud are taken very seriously by the University and by the instructor. Please familiarize yourself with the University Policy on Academic Integrity.

Marking and Grades

Your final grade is obtained from the following marking scheme:

Midterm exam	10%
Labs	20%
Assignments	30%
Final exam	40%

If the application of this scheme would result in grades that are judged by the instructor to be inconsistent with the University's grading descriptions, then the instructor will assign percentages consistent with them.

Notwithstanding the weighting and procedure explained above:
- If you do not write the final exam you will be assigned an "N".
- If you have not submitted all lab reports you will be assign an "N".
- If you exhibit inadequate performance on the final exam you will be assign an "F".
- If you exhibit inadequate performance on the labs you will be assign an "F".