Phys 242 — Electricity & Magnetism — Fall 2020

***** This course outline is preliminary and is subject to change *****

1 Contact information

Lecturer:
Prof. H. Cynthia Chiang
Email: hsin.chiang@mcgill.ca

Teaching assistant details TBA

Course materials will be available at: `https://mycourses2.mcgill.ca/`

2 Lecture, tutorial, and office hour schedule

Lectures (Chiang):	Monday & Wednesday	11:35 – 12:25
Tutorial (TA):	Friday	11:35 – 12:25

Lectures and tutorials will be delivered live and online at the scheduled times. Lectures and tutorials will be recorded and made available for later viewing. The lecturer and the TAs will also have regularly scheduled office hours each week. During these times, the instructor will be online using a web conferencing tool (e.g. Zoom) and will be available to answer questions from anyone who chooses to call in.

3 Evaluation policies

- **Homework (30%):** there will be about seven assignments in total, all of which will be submitted electronically. Late assignments will not be accepted without an urgent excuse.
- **Midterm (30% | 20%):** to be held on Friday, October 16 (tentative). The midterm will be conducted electronically and will be one hour in length.
- **Final exam (40% | 50%):** date TBD by the university. The exam will be administered electronically and will likely be a 48-hour take-home exam, but this format is tentative and subject to change.
- There will be no extra work available for improving marks, and no make-up midterm test.

4 Course material and textbook

The textbook for this course is *Introduction to Electrodynamics* (4th edition) by David J. Griffiths. Other suggested references include Purcell, Duffin, etc. We will cover the following selected topics from chapters 1–9 of Griffiths.

1. Review of vector analysis
2. Electrostatics: Coulomb's law, Gauss's law, electric potentials, conductors, capacitors
3. Multipole expansion of potential, with a focus on point charges and dipoles
4. Electric fields and potentials in matter
5. Magnetostatics: Lorentz force, Biot-Savart law, Ampere's law
6. Magnetic fields in matter: magnetic dipoles, ferromagnetism, paramagnetism, diamagnetism
7. Electrodynamics: Ohm's law, electromotive force, magnetic flux, Faraday's law, displacement current, Lenz's law
9. Electromagnetic waves

5 Language of submission

In accord with McGill University's Charter of Students' Rights, students in this course have the right to submit in English or in French any written work that is to be graded. This does not apply to courses in which acquiring proficiency in a language is one of the objectives.

6 Academic integrity

McGill University values academic integrity. Therefore, all students must understand the meaning and consequences of cheating, plagiarism and other academic offences under the Code of Student Conduct and Disciplinary Procedures" (see `www.mcgill.ca/students/srr/honest/` for more information).

In the event of extraordinary circumstances beyond the University's control, the content and/or evaluation scheme in this course is subject to change.