

PHYSICS 4B

Winter 2023

Instructor: Stephanie Dickson

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Office hours: Mondays and Wednesdays in S13 12:30 PM – 1:20 PM

Final exam date: Tuesday, March 28, 1:45 to 3:45 PM

Text: *Physics for Scientists and Engineers*, 9th edition, by Serway and Jewett or equivalent

Prerequisites: Successful completion of Math 1B, Physics 4A and concurrent enrollment in Math 1C.

The goals of this course are to understand the four Maxwell equations of classical electrodynamics in integral form and the Lorentz force equation and to solve problems using them.

The class will meet face-to-face Monday through Thursday and remotely on Friday. The Friday class will be synchronous, and the Zoom link is available through the Canvas platform. Masks are optional for in-person meetings and strongly recommended. I will wear a mask during office hours and after the lab lecture. This may be obvious, but please do not come to class when you are sick.

Homework: Working problems is the best way to learn this challenging subject. Each chapter has a homework problem set available in Canvas. Working additional problems from the text is recommended. The homework will not be collected, but one question will be similar to an in-class quiz on the due date.

Quizzes based on the homework will be held weekly. There will be a second in-class quiz each week based on lecture material. Your lowest two quiz scores will be dropped: you may take two (and only two) make-up quizzes. This means, if you do get Covid, you can miss two full weeks of class without affecting your grade.

Midterm Exams: There are two midterm exams consisting of four questions each. The first midterm covers electricity, the second focuses on magnetism. Make-ups for midterms will be available only with prior consent. The make-up should be completed within three days of the exam date.

Labs meet once a week, Tuesday or Thursday, according to the section you are enrolled in. Lab attendance is required. You may miss one unexcused lab only. You may attend the alternate lab day with prior consent. A quadrille-ruled bound notebook, pen, scientific calculator, and ruler are required. Grading for lab is based on weekly quizzes, lab notebook and the lab final.

The final exam is a comprehensive exam with seven or eight questions similar to the midterm exams. It is an in-class exam.

To pass the class you *must* take the final exam (in both lab and lecture) and both midterm exams.

An "incomplete" can only be assigned if the student has completed 90% of the class work. The compelling reason would be a serious illness or equivalent.

There is no extra credit.

Photo ID is required by all students at every exam.

A student caught cheating will receive a zero score for the assignment in question. Subsequent incidents will be referred to the division dean.

Your grade will be based on:

Quizzes: 15%

Lab: 15%

Midterms: 40%

Final: 30%

According to the following percentages:

A: 92 %

A-: 90 %

B+: 88 %

B: 82 %

B-: 80 %

C+: 78 %

C: 60 %

D: 50 %

F: 49% and below

Student Learning Outcome(s):

*Critically examine new, previously un-encountered problems, analyzing and evaluating their constituent parts, to construct and explain a logical solution utilizing, and based upon, the fundamental laws of electricity and magnetism.

*Gain confidence in taking precise and accurate scientific measurements, with their uncertainties, and then with calculations from them, analyze their meaning as relative, in an experimental context, to the verification and support of physics theories.

Office Hours:

M,W 12:30 PM 01:20 PM In-Person S13