

Physics 2B Syllabus

Spring 2019

Instructor: Megan Ulbricht

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Lecture: Tuesday and Thursday 5:30 - 7:20pm Room: S17

Lab: Thursday 7:30 - 10:20pm Room: S17

Final Exam: June 25, 2019 6:15 - 8:15pm Room: S17

Office hours: Tuesday 4:00 - 5:15pm Room: S13

Thursday 4:45 - 5:10pm Room: S13

Course Description: This course serves as an introduction to the basic laws and theories of electricity and magnetism utilizing primarily algebra based mathematical methods and limited calculus. The topics covered in this course include electric charge, properties and sources of electric fields and electric potential, current, resistance, capacitance, DC and AC circuits, Kirchhoff's laws, properties and sources of magnetic fields, induction, Maxwell's equations, and electromagnetic waves.

Prerequisite: Physics 2A or 4A

Text: *Fundamentals of Physics*, Volume 2 (chapters 21 - 44) by Halliday, Resnick, and Walker. Any edition will suffice as homework will be assigned through WebAssign rather than the textbook. A digital copy of the required chapters of the text will be provided with the WebAssign subscription so **a physical copy of the book is optional**. The WebAssign subscription costs \$90/quarter and access codes can be purchased online or in the De Anza bookstore.

Course Grade Distribution:

Lab	15%
Homework:	20%
Participation	5%
Midterm Exam I:	17.5%
Midterm Exam II:	17.5%
Final Exam:	25%

Letter Grade Distribution:

≥ 97%	A+
93% - 96.9%	A
90% - 92.9%	A-
87% - 89.9%	B+
83% - 86.9%	B
80% - 82.9%	B-
77% - 79.9%	C+
70% - 76.9%	C
67% - 69.9%	D+
63% - 66.9%	D
60% - 62.9%	D-
< 60%	F

Important Dates: 4/21/19 Last day to drop a class

5/31/19 Last day to drop with a W

Homework: There will be 1-2 homework assignments per week. Homework will be submitted online at webassign.net. You may request an extension on homework assignments by emailing me at ulbrichtmegan@fhda.edu or messaging me through Canvas. I do not read messages or extension requests submitted via WebAssign. Extensions will be granted at my discretion and late homework will be docked 20% for each day that it is late. Homework problems done 48 hours or more before the due date will be granted 5% extra credit. This will be the only opportunity for extra credit so take advantage!

Web Assign

Navigate to the WebAssign module in Canvas. Click the "GettingStartedWithWebAssign.pdf" link for instructions on how to sign up and create an account.

Participation: At some point during each lecture I will give a short quiz relating to current material or pass around a sign-in sheet. The participation portion of your grade is based on whether or not you take part in these quizzes/sign in. The quizzes are not graded. You may miss up to two classes and still get full credit on the participation portion of your grade.

Exams: There will be two midterm exams and one cumulative final. A 3" x 5" notecard and a calculator (any kind with the exception of a cell phone calculator) will be allowed on the exams. **There are no make-up exams.**

Tentative Course Outline

Week	Dates	Content
1	4/8 - 4/12	<ul style="list-style-type: none">◆ Chapter 21: Coulomb's Law◆ Chapter 22: Electric Fields
2	4/15 - 4/19	<ul style="list-style-type: none">◆ Chapter 23: Gauss' Law
3	4/22 - 4/26	<ul style="list-style-type: none">◆ Chapter 24: Electric Potential
4	4/29 - 5/3	<ul style="list-style-type: none">◆ Midterm I◆ Chapter 25: Capacitance
5	5/6 - 5/10	<ul style="list-style-type: none">◆ Chapter 26: Current and Resistance
6	5/13 - 5/17	<ul style="list-style-type: none">◆ Chapter 27: Circuits
7	5/20 - 5/24	<ul style="list-style-type: none">◆ Chapter 28: Magnetic Fields
8	5/27 - 5/31	<ul style="list-style-type: none">◆ Midterm II◆ Chapter 29: Magnetic Fields due to Currents
9	6/3 - 6/7	<ul style="list-style-type: none">◆ Chapter 30: Induction and Inductance
10	6/10 - 6/14	<ul style="list-style-type: none">◆ Chapter 31: Electromagnetic Oscillations and Alternating Current

11	6/17 - 6/21	<ul style="list-style-type: none"> ◆ Chapter 32: Maxwell's Equations and Magnetism of Matter ◆ Chapter 33: Electromagnetic Waves
12	6/24 - 6/28	◆ Final exam

Lab

Attendance: Attendance in the lab section is mandatory. **Missing more than one lab, for any reason, during the course of the quarter will result in either an F or a W in the class.**

Lab Policy

- ◆ Lab assignments can be found on Canvas in the Lab module. They must be printed out prior to lab on Thursdays.
- ◆ Lab assignments will be turned in at the end of each lab session
- ◆ There are no make-up lab sessions
- ◆ No food or drinks are allowed in the lab

Lab Grade Distribution: The score achieved in the lab section of this course will account for 15% of the overall Physics 2B grade. The lab score is broken down as follows:

Lab Assignments	75%
Lab Final	25%

Exam: The lab final will be held on Thursday 6/20/19 during the regular lab time. There will be a written portion and a practical portion so use the lab sessions during the quarter to ask questions and get comfortable with the lab equipment.

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.

*In order to test lab skills students are expected to 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.