

INTRODUCTION TO ELECTRICITY AND MAGNETISM

PHYS 1308 (SPRING 2020) SYLLABUS

<http://www.physics.smu.edu/~kehoe/1308/S20.html>

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Texts: *"Fundamentals of Physics"*, 11th edition,

Authors: Halliday & Resnick, Walker

Prerequisite: facility with algebra and trigonometry, use of calculus

Class Time: Tues. & Thurs. 9:30a.m – 10:50a.m.

Classroom: Rm 158 Fondren Science

Office hours: 12pm-1pm Thursday or 4pm-5pm Wednesday

Course Objectives: To provide an overview of electromagnetism. Students will familiarize themselves with electrical, magnetic and optical phenomena, and important electronics concepts. We will discuss modern applications. Problem solving skill development will also be an emphasis of the class.

Method of Instruction: Class time will consist primarily of lectures and problem-solving sessions. This course requires that you perform prior reading assignments to engage in class-time effectively. Homework is the foundation of your effort to acquire skill in using the material in the course. It will be due on the next class days after the material is finished being covered (see included Schedule) and will be worth 25% of the course grade. Most homework will be performed using WileyPLUS, although typically 1-2 additional problems will be given per class to take home, due when the WileyPLUS assignment is due. No late homework is accepted. The lowest homework grade is discarded.

Quizzes and Tests: There will be 3 exams, each comprising 20% of the class grade. The final exam is cumulative over the whole course. There will be 15 minute reading quiz at the start of each non-exam class time. These will provide a total of 15% of your grade. The lowest quiz grade will be dropped. Each quiz covers material from the class-time reading assignment. Exams and quizzes are closed book. You may bring your notes for the reading quizzes, and a single 8.5"x11" sheet with important formulas and constants relevant for the material covered by each exam.

Grading and Attendance Policy: In general, it is **crucial** to show your work to get credit for solutions to homework, quiz or test problems. Exam and quiz regrading requests must be well-justified in writing. Anticipated absences resulting from religious observance are discussed below. Officially sanctioned extracurricular activity must be brought to the instructor's attention at least 2

weeks in advance. Affected quizzes or tests will be given prior to the rest of the class. No other make-up quizzes or tests will be granted.

Student Learning Outcomes: This is a calculus based course which will include some basic integration, differentiation, and discussion of the use of differential equations. Students will learn about the following topics: the concept of an electromagnetic (EM) field; understand the concepts of charge and current; know the concept of electrostatic potential and why it is useful; build an electric circuit and predict its behavior; understand the duality of light.

Relevant SMU Policies:

Disability Accommodations: Students needing academic accommodations for a disability must first register with Disability Accommodations & Success Strategies (DASS). Students can call 214-768-1470 or visit <http://www.smu.edu/Provost/ALEC/DASS> to begin the process. Once registered, students should then schedule an appointment with the professor as early in the semester as possible, present a DASS Accommodation Letter, and make appropriate arrangements. Please note that accommodations are not retroactive and require advance notice to implement.

Religious Observance: Religiously observant students wishing to be absent on holidays that require missing class should notify their professors in writing at the beginning of the semester, and should discuss with them, in advance, acceptable ways of making up any work missed because of the absence. (See University Policy No. 1.9.)

Excused Absences for University Extracurricular Activities: Students participating in an officially sanctioned, scheduled University extracurricular activity should be given the opportunity to make up class assignments or other graded assignments missed as a result of their participation. It is the responsibility of the student to make arrangements with the instructor prior to any missed scheduled examination or other missed assignment for making up the work. (University Undergraduate Catalogue)

Final Exams: Final course examinations shall be given in all courses where they are appropriate, and some form of final assessment is essential. Final exams or final assessments must be administered as specified in the official examination schedule, and shall not be administered during the last week of classes or during the Reading Period. Please state clearly in the syllabus the date/time and form of the final exam or assessment.

PHYSICS 1308 SCHEDULE, SPRING 2020

Date	Reading, Exams	Topic:
Jan 21 T	Ch 21.1-21.3	Electric Force and Charge
Jan 28 T	Ch 22.1-22.7, HW Ch 21 due	Electric Fields
Feb 4 T	Ch 23.1-23.5, HW Ch 22 due	Gauss's Law
Feb 11 T	Ch 24.1-24.4, 24.7, HW Ch 23 due	Electric Potential
Feb 18 T	Ch 25.1-25.4, HW Ch 24 due	Capacitance
Feb 25 T	Exam 1, HW Ch 25 due	
Feb 27 Th	Ch 26.1-26.3	Current and Resistance
Mar 3 T	Ch 26.4-26.5	""
Mar 5 Th	Ch 27.1, HW Ch 26 due	Circuits
Mar 10 T	Ch 27.2,27.4	""
Mar 16-22	Spring break	
Mar 24 T	Ch 28.1-28.8, HW Ch 27 due	Magnetic Fields
Mar 31 T	Ch 29.1-29.5, HW Ch 28 due	Magnetic Fields due to Current
Apr 7 T	Exam 2, HW Ch 29 due	
Apr 9 Th	Ch 30.4-30.5	Induction
Apr 14 T	Ch 30.7-30.9	""
Apr 16 Th	Ch 32.1-32.4, HW Ch 30 due	Maxwell's Equations
Apr 21 T	Ch 33.1-33.6, HW Ch 32 due	Electromagnetic Waves
Apr 28 T	Ch 34.1-34.5, HW Ch 33 due	Images
May 4 M	last day of classes, HW Ch 34 due	
May 7 Th	Final Exam	8:00am-11:00am

Addendum to Syllabus for *Electricity and Magnetism*:
(drafted by Physics Dept.)

The WileyPLUS learning system is the primary automated way in which you will access the course textbook and provide answers to homework problems. It is your responsibility to become familiar with this system. Failure to do so will create artificial roadblocks to your learning process.

The reason we utilize the WileyPLUS system is that it is backed by a large team of people who can help you in the system when problems arise. If you have properly purchased the WileyPLUS bundle that includes the full electronic textbook and the course learning system, you have the following at your fingertips:

1. The complete textbook for all semesters, including video demonstrations of concepts and examples of how to solve physics problems. In addition, you can print (either to paper or to a format like PDF) whole sections and chapters from the book and carry them around with you (eg. in a folder or binder, or on a mobile device)
2. An extensive catalog of study problems to augment those assigned for homework.
3. A built-in student help system for when you have any technical problems, allowing you to speak to a Wiley system expert if there are issues with account access, problems with written or video material, etc.

Please note that if your problems are not easily resolved by the Wiley staff via their system help options, you should then report the problem to the instructor and they will help contact the SMU institutional Wiley representative. They have supervisory authority and can solve even the most difficult problems with the system. Their whole job is to make our learning experience easier, but we must use them wisely and you must always seek help through the normal WileyPLUS student help system first beforehand.