

**PHYSICS 231
FALL 2021
FUNDAMENTALS OF PHYSICS:
Electricity and Magnetism**

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General Information

Lecture Hours	8:00 – 8:50 am Mon/Wed
Location	PH415
Office Hours	1:00 – 2:00 pm Monday or by appointment
Laboratory Hours	as scheduled for your section

General Course Description

This 3 credit-hour course covers the fundamentals of Electricity and Magnetism (E&M). The goal is to make you familiar with the concepts of electromagnetism, and foster problem solving skills.

Prerequisites

Familiarity with calculus and calculus concepts, as well as concepts in vector algebra. A background in mathematics up to the level of Math 141-142, or equivalent, is highly recommended and is probably necessary for success in the course. The course also assumes that you are familiar with concepts in classical mechanics such as force, acceleration, work, kinetic and potential energy, and Newton's laws. If you need a refresher, please review the appropriate chapters in the text.

Course Repetition Policy

If you are repeating the course, please refer to the [Laboratory Policy Regarding Repeating a Course](http://www.phys.utk.edu/labs/Lab%20Repeat.pdf) (<http://www.phys.utk.edu/labs/Lab%20Repeat.pdf>)

Textbooks

You will need two books for the course:

1. **University Physics with Modern Physics** (15th Edition) by Young and Freedman. The course covers chapters from 21 to 32, only. Please ensure that chapters 21-32 are covered before purchasing a version of the textbook. Please be aware that when referring to the text, I will implicitly refer to the content of the 15th edition. It will be your responsibility to keep track of possible changes with respect to previous editions. The inclusive online access includes the homework system access.

2. **Contemporary Introductory Physics Experiments**, 2nd Edition by James E. Parks, Hayden-McNeil Publishing, ISBN 978-0-7380-6168-9

The laboratory manual and textbook are available in the University bookstore or through retailers. You do not need to purchase the current edition of the textbook.

Announcements, Lecture Notes, Course Updates

Aside from in-class discussion, the primary method of communication between you and me will be via Canvas and/or email. This syllabus and other important information and announcements will be posted there, as well as copies of the slides used in lecture. Your grades of in-class exams will be posted in the Canvas Grade-book, and your grades will be available for only you to see.

The homework website is entered from the tools menu on Canvas. At the end of the semester, your homework and laboratory grades will also be posted on Canvas.

The course name is: Physics231_2021_spanier

It will be your responsibility to be aware of the content of any communication taking place in class, be it an announcement or anything related to the course material, in case you missed a class.

Grading Policy

The semester Grade will be based on a Weighted Averages of the homework assignments, in-class participation (clickers), the laboratory, two one-hour tests, and the final examination as follows:

Homework	20%
In-class participation	10%
Laboratory	25%
Two 1-Hour In-Class Tests	30%
Final Examination (2-Hour test)	15%

Homework sets will be assigned On-Line using MasteringPhysics which is included in your book online access. The homework website is accessible via VitalSource-Bookshelf and the Assignment button in the tools menu on Canvas. You will need to sign up. Each problem set will generally be available on-line at 12:00 (noon) each Wednesday and will be due at 8:00 am the next Wednesday. Exceptions (for example at Fall Break) will be noted in class.

Due dates for problem sets are firm. Please note: No extensions or make-up problem sets will be given. In lieu of extensions, the two lowest scores on homework sets will be dropped from the average. I generally encourage students to work together as far as homework is concerned. The goal is to use homework as one of the most effective ways of assimilating the material. Do not take advantage of the work of other people, and do not let anybody take advantage of your own work: efforts should be shared.

In-class Participation: In the class you will be given reading quizzes (in the form of clicker questions) at the beginning of the lecture and additional clicker questions that will contribute to your reading/participation credit. The reading quiz questions are 2 points each. The other clicker questions are 1 point for wrong answer and 2 points for correct answer. Find more information about the clickers in Canvas.

Laboratory attendance is strictly mandatory. Work will be graded by each Lab Instructor independently. An effort will be made to ensure a uniform grading policy between different laboratory sections. Laboratory make-ups are entirely at the Lab instructor's discretion and arrangements for such must be made with the Lab instructor directly. The laboratory exercises are an important and integral part of this course and have to be completed before a final grade will be assigned. You must complete all of the Laboratory assignments. Please note: If you fail the Laboratory part of the course, you automatically fail the entire course. You find the laboratory schedule in the announcement.

The **In-Class Tests** will be closed book 50-min exams, but a list of useful equations and constants will be provided. Questions and Problems on the Short Tests and Final Exam will generally NOT require only a purely numerical answer (like the homework). Short Test and Final questions will generally be similar in character to example problems in the book and example problems given during lectures. For the Short Tests and Final Exam you are required to bring a pencil and a non-programmable pocket calculator. In particular, no laptops, cell phones, or other means of communication are allowed.

The **Final Exam** is mandatory. Missing the final exam is very serious and may well result in failure of the course. It is a 2-hour exam and it covers the whole material of the course.

NO MAKE-UP 1-HOUR TESTS WILL BE GIVEN.

No Short Tests score will be dropped and ordinarily make-up Short Texts will NOT be given. Missing the final exam is very serious and may well result in failure of the course. However, if

there are extremely serious circumstances supported by proper documentation, a make-up for Short Tests and/or Final may be considered at my discretion.

Conversion to Letter Grades

A	90 - 100
A-	85 - 89
B+	80 - 84
B	75 - 79
B-	70 - 74
C+	65 - 69
C	60 - 64
C-	55 - 59
D+	50 - 54
D	45 - 49
D-	40 - 44
F	0 - 39

Course Material

The class covers most of the materials described in Chapters 21 -32 of the textbook. Anyhow, this course consists of several components: lectures, laboratories, homework problems, and reading assignments in the textbook. The material you will be expected to learn and will be tested on during the exams will be taught to you as part of all of these course components. In particular, I stress the importance of problem solving and carefully working (not just reading) your way through all the parts of the textbook. Reading the relevant chapter or sections for each week's lectures (i.e. Reading assignments) is a compulsory and vital part of the course. **The lectures will NOT just repeat the material in the textbook**, but will be rather used to discuss the course material in a variety of ways. Some lectures will follow the textbook, some other will discuss topics not covered in the textbook, and/or discuss them in a different manner.

Questions and Appeals

I encourage you to ask questions during the lecture or/and talk to me during my office hours (Monday or by appointment – just ask after class) about the subject.

You can discuss with me and/or complain to me about the grading of a given assignment, be it homework, Lab grade, Short Tests or Final Exam. Any appeal will be entertained if it is raised no later than one week after the date on which the graded Exam/ Lab/ Tests /HW are made available for return to the class. After this “appeal period” of one week, exam grades will be considered final and will not be altered. Any appeal concerning a grade in the Laboratory should directly be discussed with your Lab. instructor.

For students with disabilities

If you need course adaptations or accommodations because of a documented disability, please contact the Office of Disability Services at 2227 Dunford Hall (telephone/TTY 865-974-6087; e-mail ods@utk.edu) by January 16. This will ensure that you are properly registered for services.

Academic Honesty

All work submitted by a student is expected to represent his/her own work. Students are expected to enter their own homework without assistance from others. Students are expected to perform all work in conformance with the University policies regarding Academic Honesty.

