

PHYSICS 272, 272H – Fall 2019
University of Maryland
Department of Physics

- TITLE: Introductory Physics: Fields
- INSTRUCTOR: R. L. Greene, Room 0365, Center for Nanophysics and Advanced Materials
(entrance is from the plaza between the Math and Physics buildings.)
rickg@umd.edu Office phone: 301-405-6128
Office Hours: Monday 4-7pm and by appointment
- WEB SITE: All course announcements, homework assignments and solutions, exam solutions, etc. will be posted on the ELMS (Canvas) website:
- TEXT: Required: D. C. Giancoli, 4th edition, Vol 2
Recommended: Purcell and Morin, 3rd edition (on reserve in the STEM Library)
- MEETING TIME: PHYS 1204 Tues, Thurs 12:30-1:45pm — Lectures
IRB 1116 Friday 11:00-11:50pm — Discussion
- The Friday class will be devoted to solving problems in groups, with input from me and the TA. There will also be a quiz on the previous week's homework. This is a required part of the course; unexcused absence will reduce your grade.
- DESCRIPTION: This is the second semester of a calculus-based three semester sequence in introductory physics. The main theme is "fields" focusing on electromagnetism
- HOMEWORK: Homework will be due at the beginning of the lecture. Please **staple** the pages together and put your name and the assignment number on the first page. Late homework will not be accepted except in the case of illness verified by a doctor's note. Your lowest homework grade will be dropped.
- PHYS 272H: For those enrolled in 272H, additional homework problems will be assigned. Please hand in this homework separately from the regular assignment. Also, the TA, Nick Poniatowski, will hold an extra discussion hour each week. The time for this will be arranged during the first week of class.
- QUIZZES: Starting the week of September 2, a 10 min quiz will be given at the beginning of Friday's class except during those weeks in which hour exams are scheduled (see the schedule). Each quiz will consist of a problem similar to one of the homework problems due that week or some conceptual short questions. Make-up quizzes will not be given; however, your lowest quiz score will be dropped.
- EXAM DATES: Mid-term exams: Tues Oct 1; Tues Nov 12

Final exam: Monday Dec 16 1:30-3:30pm

You are required to take the final exam to pass the course.

EXTRA HELP: I will be available after each lecture to answer questions. Or come see me during my office hours or make an appointment for another time. Do NOT use the Canvas email system to contact me—I do not use it. Use regular email. **You are encouraged to seek help at the first sign of difficulties.** The SPS offers help Monday-Thursday from 4-6 pm in their room on the 1st floor. The TA will also have office hours.

GRADING: Your semester grade will be based on the following percentages:

2 Hour exams	50%
Quizzes	10%
Homework	10%
Final exam	30%

TIPS: This course will be run primarily using the “flipped” classroom approach. This means that there will be minimal lecturing during the class time. Class time will be spent on solving problems, answering questions, working in groups, and observing demonstrations. Therefore, it is mandatory that you read the material in the textbook before the material is discussed in class. Then read it more carefully after class while doing the homework

The only way to learn anything is by doing it (i.e., practice, practice, practice): just listening to me or reading the text is insufficient. You must do all of the homework problems. **This is how to best learn physics.** You are allowed and encouraged to discuss the homework with anyone you wish. However, in order to learn, you should initially make a serious attempt to solve the problems by yourself.

There is a lot of homework assigned in this course. If you are not willing to put in the significant effort required to do this homework, then you should consider taking PHYS 272 with another instructor.

This course proceeds at a very fast pace. You must keep up (or ahead)!!

Two excellent sets of lectures on the subject matter of this course can be found online, each with a different approach to this subject. See W. Lewin, 802X lectures from MIT and R. Shankar (Yale), Fundamentals of Physics II. These may be useful to look at before and after the related material is discussed in class.

TA: Nick Poniatowski (nrponiatowski@gmail.com) and Dan Fernandez (danfern654@gmail.com)

TENTATIVE SCHEDULE

WEEK	TEXT	TOPIC	HW ASSIGNMENT (due Tuesdays)	QUIZ
Aug 26	Ch 21	Coulomb's Law/Electric Field	#0 (PHYS 171 review)	None
Sept 2	Ch 22	Gauss's Law	#1 (Ch 21)	#1, Ch 21
9	Ch 23	Electric Potential	#2 (Ch 22)	#2, Ch 22
16	Ch 24	Electric Potential, Capacitance/Dielectrics	#3 (Ch 23)	#3, Ch 23
23		Review for Exam 1	#4 (Ch 24)	#4, Ch 24
Sept 30	Exam 1 Ch 25	Tues: Exam 1 (Ch 21-24) Thurs: Ch25 lecture	None	None
Oct 7	Ch 26	DC Circuits	#5 (Ch 25)	#5, Ch 25
14	Ch 27	Magnetism	#6 (Ch 26)	#6, Ch 26
21	Ch 28	Sources of Magnetic Field	#7 (Ch 27)	#7, Ch 27
28	Ch 29	Electromagnetic Induction and Faraday's Law	#8 (Ch 28)	#8, Ch 28
Nov 4		Review for Exam 2	#9 (Ch 29)	#9, Ch 29
11	Exam 2 Ch 31	Tues: Exam 2 (Ch 25-29) Thurs: Ch 31 lecture	None	None
18	Ch 31	Maxwell Equations and EM waves	#10 (Ch 31)—due Thursday	#10, Ch 31
25		Possible Make-up Exam on Tuesday	None-Thanksgiving	
Dec 2	Ch 30	Inductance, LC, RL and RLC circuits	#11 (Ch 30)---due Thursday	#11, Ch 30
9		Final Exam study day		

FINAL EXAM: Monday, 16 December, 1:30-3:30pm (comprehensive)

Academic honesty:

The University of Maryland, College Park has a nationally recognized Code of Academic Integrity, administered by the Student Honor Council. This Code sets standards for academic integrity at Maryland for all undergraduate and graduate students. As a student you are responsible for upholding these standards for this course. It is very important for you to be aware of the consequences of cheating, fabrication, facilitation, and plagiarism. For more information on the Code of Academic Integrity or the Student Honor Council, please visit <http://www.shc.umd.edu>.

The University has adopted an Honor Pledge, which is a statement undergraduate and graduate students are asked to write by hand and sign on examinations, papers, or other academic assignments not specifically exempted by the instructor. The Pledge reads: "I pledge on my honor that I have not given or received any unauthorized assistance on this assignment/examination." In this course it is assumed that all students have entered the University agreeing to the honor principle which would apply in general to all campus activities, so usually no specific statement is required.