

PHYS 2220, Physics for Scientists and Engineers II  
Spring 2014 MTWF, 1:30-2:20 SCNCE 326

Instructor: Dr. Larry Smith SCNCE 111 283-7520 [Larry.Smith@snow.edu](mailto:Larry.Smith@snow.edu) <http://www.snow.edu/larrys>

Goals/Outcomes: I invite you to come with me as fellow learners on an exciting journey. We will use physics as a vehicle to learn to apply scientific reasoning and computational skills in a variety of contexts. Students will learn to think deeply about the physical universe and how reason analytically and critically. Students will have a fundamental knowledge of scientific laws and principles and will learn that science is a process to gain knowledge.

Text: *Physics for Scientists and Engineers: A Strategic Approach*, 3<sup>rd</sup> edition by Randall D. Knight (ISBN-10: 0321844351, ISBN-13: 9780321844354). Make sure you get a bundled version with the student workbook and MasteringPhysics. You also need a nice scientific calculator, some colored pencils, and a 6" (15 cm) ruler.

Prerequisites: PHYS 2210, PHYS 2215, Calculus, facility with spreadsheets Corequisites: PHYS 2225

Course Content: Second semester in the calculus-based majors/engineering physics sequence. Topics include wave interference, optics, electricity, magnetism, electromagnetic induction and radiation, and a small intro to relativity and quantum mechanics. Chapters (un)covered are: 22–23, 25–39. This is fun and exciting material!

Homework: Homework will be assigned every chapter, both on paper and on the MasteringPhysics web site (<http://www.masteringphysics.com>; the class ID to register is MPSMITH40503). You are strongly encouraged to study in groups to achieve understanding, but what you turn in must be your own work—don't turn homework in without understanding it. Use lots of paper. Write neatly. Communicate well and use the problem-solving strategy outlined in the textbook. Each chapter's assignment will be due a day or so after we finish discussing the chapter in class. Paper homework that is late for any reason other than a pre-approved legitimate excuse will be worth 50% up to one week late; thereafter no credit will be given. See late passes. No late work will be accepted after April 18.

Participation: Ask questions in class, come to office hours, and help other students. For serious students such as yourself the majority of your learning will take place outside of class time. A large part of the participation grade will come from your answering/discussing one of the questions from each chapter in front of the class, and from submitting a written question for me to answer concerning something you didn't understand from reading the chapter. Both asking and answering questions should prove you've delved deeply into the chapter material. You also need to subscribe to the class e-mail list (LS-Yellow) and participate in the discussion there. You are responsible for information given over e-mail. Please try to learn as much as you can in this class. Mutual respect, participation, and effort are keys to making our journey as a community of learners succeed.

Help: You are encouraged to see me during my regular office hours (MWF 10:30–11:20, TR 11:30–12:20), and at other times by appointment. Please also frequent the math/science lab and use your classmates and the class e-mail list as other resources. I will do all I can to help you learn physics; please avail yourself of all the resources at your disposal. Stay caught up, and don't stay lost for more than a few hours at a time. See the ADA policy on my web site.

Policies: My policies regarding attendance and academic dishonesty are on my website.

Quizzes: Frequent quizzes will keep you apprised of your progress. You may raise a quiz score by up to 50% by watching two episodes of the approved videos (see the class web site). Video reports are due April 21 at 5:00.

Tests: Tests are another great opportunity to learn. There will be five multiple-choice tests in the testing center before the final exam. Testing Center hours are M-R 9-10:30, F 9-7, Sa 12-4, Su 5-9.

Final Exam: Wednesday, April 30, 5:00 p.m.–7:00 p.m. in the classroom. It will be comprehensive and fun.

<u>Grading:</u>	Homework	20%	Quizzes	20%		
	Tests	25%	Participation	10%	Final Exam	25%