

Course Information

**Instructor:** Krishna Chowdary, **Office:** Olin 174  
**e-mail:** kchowdar@bucknell.edu **Phone:** x7-3767

Come and see me often! I've got neat books and cool toys in my office, like to tell and hear funny jokes and stories, and as you'll see during our interactions this semester, enjoy meeting and chatting with students.

**Course Web-Site:** <http://www.bb.bucknell.edu/>

The course web-site is the central clearinghouse for information in our class. All the handouts will be available there electronically. You'll take Reading Quizzes online. Blackboard is password protected, so your grades will be available there and periodically updated. We'll use the discussion forum on Blackboard extensively.

**Class Meetings:** MWF, 10:00 – 10:52 am, Olin 275  
Th, 10:00 – 10:52 am, various locations (default Olin 351)  
Weekly 3 hour lab (check your schedule), Olin 260

Our MWF class meetings will be a mixture of lecture, discussion, demonstrations, group activities, and problem solving. Attendance is mandatory, and preparation is vital. Our Thursday class meeting will be a mixture of longer group problem solving activities, computer exercises, and guest speakers – attendance at the Thursday meeting is also mandatory. We will also use the Thursday fourth hour for testing. You have a lab that lasts for three hours and meets weekly; attendance at lab is also mandatory.

**Books:** *Physics for Scientists and Engineers*, 4th Edition, Tipler  
*212 Supplementary Reading*  
*212 Laboratory Manual*

**Overview:**

Welcome to Physics 212E, the second semester of Classical and Modern Physics! This is the single section version of Physics 212, with an emphasis on more advanced math and computer applications. The main topics this spring are electricity and magnetism, light and waves, quantum mechanics and its applications, and particle physics and cosmology. Many of you with a physics background from high school might have found much of the material from Physics 211/211E to be familiar, especially the mechanics and the thermodynamics. This semester should be different – except for some of the material in electricity and magnetism and perhaps light and waves, much of the material should be new to most of you. I think that you'll find it intriguing and stimulating – I find this material fascinating!

**Course structure:**

The day to day structure of this class will be quite demanding but also quite structured: it consists of daily **Reading Assignments** of varying length and conceptual difficulty; **Reading Quizzes** due the morning of each class based on the reading for that day; **Assigned Problems** for each class, based on material from the previous class, and **Hand-In Problems** due each week, on Tuesdays by 4:30 pm. Each class will be a mixture of lecture, discussion, demonstrations, group activities, and problem solving.

**Grading:**

Your course grade in Physics 212E is based on a possible total of 900 points, allotted among various activities as follows:

<b>Reading Quizzes</b>	70
<b>Participation:</b>	110
<b>Hand-In Problems</b>	100
<b>Group Projects</b>	60
<b>Lab Work:</b>	80
<b>Unit Exams</b>	300
<b>Final Exam - Comprehensive</b>	120
<b>Final Exam – Lab</b>	60

**Reading Quizzes:** It is absolutely essential that you come to each class prepared, having read and wrestled with the material for that day. The Reading Quizzes help you with that preparation, and are key to our interactions for that day. My coverage of material will be based on your responses to the Reading Quizzes. The reading quizzes are on-line, and accessible through the course web-site. The Reading Quizzes are due by 9 am of the day the covered material is assigned for, and are each worth 2 points.

**Participation:** Your Participation grade includes many things, among which are Attendance at the regular class meetings and demonstrated effort on the Assigned Problems. The Assigned Problems for any given day cover material from the previous class. We will often have an opportunity to begin our class by working through Assigned Problems which gave you difficulty (I'll solicit feedback through the Reading Quiz). Your Participation grade also reflect your efforts and engagement with the various In-Class and Computer Exercises that we'll do. Your attendance at and interaction with our various guest speakers will also contribute towards this part of your grade. We'll explore many interesting questions and tangents at the Discussion Boards at the web-site. Finally, as part of your preparation for exams, you'll create and share Practice Exam Questions with your class-mates.

**Hand-In Problems:** The Hand-In Problems will be due every Tuesday by 4:30, and should be turned in to the box outside Olin 260. The Hand-In Problems are usually worth 10 points – 2 points are reserved for completion of the lab, and two problems chosen at random are checked in more depth at 4 points each. There are 3 half-sets, due the week after the unit exams. Usually, completion of the Assigned Problems is adequate preparation for the Hand-In Problems, but not always. You are greatly encouraged to collaborate on the Hand-Ins. However, you should turn in your own work, and absolutely must list any collaborators. You should think about using problem sets as practice for exams and try to start all the problems by yourself. Of course, in addition to your classmates, you are always welcome to consult me. Because of the pace of the course, late homework will not be accepted once solutions are available.

**Group Projects:** There will be several group projects during the semester. We'll set up and discuss the projects during class time, but much of the work will be independent and pursued outside of class. Outlines for the group projects will be handed out during each unit.

**Lab Work:** There are 12 labs during the semester, and you can receive up to 5 points for each lab upon its completion, depending on the policies of your individual lab instructor. In addition to this, this semester you will be asked to critique certain experiments in the manual, as well devising check-out questions for other experiments; this will account for the other 20 points.

**Unit Exams** There are three hour exams, one for each units 1, 2, and 3. The last unit on Particle Physics and Cosmology will be covered on the final exam. The unit exams will be administered during our Thursday class, and will be on the following dates: Thursday, February 19; Thursday, March 25; and Thursday, April 22.

**Final Exam:**

The final exam will be cumulative, with a comprehensive part based on material covered during regular class meetings, and a lab portion, covering material from the twelve weekly experiments. The time and date will be determined by the Registrar.

**Academic Policies:**

You are expected to be familiar with the Bucknell policy on academic integrity, which is widely available and posted on the web. Here are a few specific issues:

**Unavoidable absences:** It is your responsibility to inform me as soon as possible if you will miss class. Opportunities to make up missed work are available, but only up to a point. Emergencies will be routed through the Dean's office.

**Plagiarism:** Simply put, do not take credit for ideas which are not your own. When you are inspired by something you have seen or read, you must credit the author. When you work with other people, you must acknowledge your collaborators.