

Syllabus For Physics 142, Spring 2013
Prof. Rabi Mohapatra

Lecture hours: MWF 11:00 pm-11:50 pm; Room: Phys. 1201

Office hours: W: 2-3 pm, F:2-3; plus any other time by appointment, if these times do not suit you. I am always available to help you if I am free. Do take advantage of the office hours starting early in the semester. The TAs will not have office hours. Contact and office : Rm 4124, Physics bldg; X56022; e-mail:rmohapat@umd.edu

Physics 142 is the second of a two semester introductory course on physics for BioScience majors, pre-med as well as aspiring scientists. The text book for the course is: **“Physics for Scientists and Engineers” by D. Giancoli; Fourth edition (Addison-Wesley)**. We will cover chapters 21-38.

The course will consist of three regular hourly classes to be conducted by me and one hour-long discussion class for each section to be conducted by the TA plus a two hour lab each week. The final grade for the course will be based on the lab scores, home works, class quizzes, three midterms and a final. Lab is an important part of this course. If you do not pass the lab separately, you will not pass the course and have to retake the whole course again. So please pay special attention to the lab. Below is a detailed description of the organization of the course.

pre-requisite: Phys 141; **Co-requisite** Math 141or Math 221; If you do not follow any of the math steps discussed in the class, I can clear up in the office hours .

Discussion session: In addition to regular classes MWF 11-11:50, there will be a one hour discussion session every week. Please check the schedule of discussion classes for your section. Purpose of this session is to discuss the material that you went over in the class, solve problems (other than the ones assigned as homework) and clear up difficulties with concepts and math steps etc. Please attend these classes regularly and make good use of them.

Teaching Assistants: Your teaching assistant will take the discussion classes, grade midterms as well as conduct the labs and grade them. The TA will not have any office hours. The office hours will be maintained by me. If you have any questions on the grades, home works etc, you should talk to me.

Important dates for Phys. 142 students; midterm dates are tentative.

Midterm I	Monday, Feb. 27
Midterm II	wednesday, April 10
Midterm III	Fri, May 4
Final Exam.	May 14, 1:30-3:30 PM

Homeworks, Quizzes, Midterms and Grading

There will one weekly 15 minute quiz in the class, on one of the three class days. The day of the quiz will be random depending on a suitable breakpoint between chapters and it will cover material covered up to the preceding week. The quiz will be graded and will count towards your final grade.

There will be two sets of weekly homework assignments; (i) Online homework from mastering physics website and (ii) written homework assigned by me every week. Both of them will be graded and will count towards your final grade.

Online home works

The online homework assignments will be from the web site of the book
masteringphysics.com.

You need to register for this. You need the course ID below for registering:

MPMOHAPATRA35905.

Registering in mastering physics should be finished before the first class or at the latest before the end of the first week of classes. Talk to me if you need help during the first week of classes if you are having trouble registering. There are time limits on the assignments and if you miss them once there is no way to correct for this later on.

When solving problems, read the instructions carefully before you start working since there are only few chances to click on the answer button. Any technical problems with masteringphysics website should be resolved by sending a message to **support@masteringphysics.com**.

Midterms

There will be three midterm exams and all of them will count towards the final grade. The final exam will cover material from the whole semester.

The **final grade** will be decided as follows:

Home works	50 (30 online and 20 written)
Quizzes	50
Midterms; 3×50	150
Final	150
Laboratory	100
<hr/> Total	<hr/> 500

Missing an Exam: You must have a valid, written, medical excuse acceptable by the rules of the university to make up if you miss any of the midterms or the final exam. The excuse must be presented to the Professor and not the TA at the first opportunity. How the missed exam will be made up will be decided by the professor at that time, assuming the excuse is acceptable. Under very special circumstance, an incomplete grade may be issued- see the specific University rules for this and how an incomplete grade can be changed to a regular grade.

Responsibility: You are responsible for everything in every covered chapter, regardless of whether the material was specifically mentioned in the class. Your goal should be to be proficient in the subject matter of the course and to acquire the ability to solve problems using the course material. Please attend every class and try to read up the class material before coming to the class. This always makes it easier to understand the material.

HELP AVAILABLE: If you have any difficulty at all understanding the material, please clear it up as soon as possible. If a difficulty is not cleared up right away, it generally leads to more trouble later on till it grinds your physics progress to a complete halt. It may then be too late. So (*let me repeat again*), clear up your difficulties as soon as they arise without any delay. **THIS IS VERY IMPORTANT!!**

Please take advantage of my office hours which are given above. If the announced hours are not convenient for some reason, I will also be available at times other than the announced office hours; send me a e-mail the day before you can come (rmohapat@umd.edu) to set up an appointment. If I am free, I will be happy to have you come in.

Always remember: key to really learning physics is to solve as many problems as possible and not necessarily the ones assigned in the class. Physics involves new ideas and new equations which are not part of your daily thinking. The more problems you solve, the more familiar you feel with the the ideas and equations and easier it becomes to use them for problem solving. So try to solve at least four or five physics problems every evening or early morning in addition to assigned homework problems.

A useful technique is to first form a visual image of the problem before you attempt to solve it. Draw diagrams for every problem. You will learn in the class how to do this in various cases. You can come to my office for help with this also.

Chapters from Giancoli book Covered

A tentative schedule is as follows: This schedule is approximate, and mainly serves to convey an idea about the topics covered, the order they will be taught and the approximate time frame it will take to cover these. The Exam dates are also subject to change:

Week starting	Topic	Chapter in Giancoli
January 23	Coulombs law	Chapter 21
January 28	Electric field	Chapter 21
February 4	Gausss Law, Electric Potential	Chapter 22, 23
February 11	Electric Potential	Chapter 23
February 18	Capacitance	Chapter 24
Feb 25	Review and First midterm on 2/27	Ch. 21-24
March 3	Current and Resistance	Chapter 25
March 10	DC circuits	Chapter 26
March 17	Spring Break	
March 24	Magnetic Field	Chapter 27, 28
April 1	Faradays Law	Chapter 29
April 8	review and midterm 2 on 4/10	Ch. 25-29
April 15	Inductance, Electromagnetism	Chapter 30, 31
April 22	Optics	Chapter 32, 33
April 29	Optics, Relativity	Chapter 34, 36
May 1	Exam 3	Ch. 30-36
May 3, 6,8	Quantum Ideas	Chapter 37, 38