

Syllabus For Physics 161, Spring 2008; Prof. Rabi Mohapatra

Lecture hours: MWF 12 pm-12:50 pm

Office hours: WF: 1-2 pm, Rm 4124; X56022; e-mail:rmohapat@umd.edu

Physics 161 is the first of a three semester introductory course on physics. The text book for the course is: “Physics for Scientists and Engineers: A strategic approach” by Randall B. Knight; second edition (Addison-Wesley). 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. The final grade for the course will be based on homeworks, class quizzes, 2 out of three midterms and a final. Below is a detailed description of the organization of the course.

Prerequisite: Math 141; you are expected to know simple differentiation, integration as well as elementary algebraic manipulations and trigonometric rules.

Discussion session: In addition to regular classes MWF 12-12:50, there will be a one hour discussion session every week. Please check the schedule of discussion classes for your section. Purpose of the discussion 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. Please attend these classes regularly and make good use of them.

Teaching Assistants: Your teaching assistant will take the discussion classes, grade homeworks, the weekly quizzes and all the exams. He will not have any office hours. If you have any questions on the grades, homeworks etc, you should talk to me.

Important dates for Phys. 161 students

First day of classes	Jan. 28
Midterm I	wednesday March 5
Midterm II	wednesday, April 16
Midterm III	wednesday, May 7
Final Exam.	May,

Homeworks, Quizzes, Midterms and Grading

There will one weekly 10 minute quiz in the class, either on wednesdays or Fridays. The day will be announced in the class the week immediately before. The quiz will be graded and will count towards your final grade.

There will be weekly homework assignments, which will be graded and will count towards your grade. The homework problems will be handed out every Monday and

will be collected the following Monday at the beginning of the class. The homework problems will be written in the board in the Monday class. The solutions will be posted the following week.

There will be three midterms, out of which one will be dropped and the other two will count towards the final grade. There will be no make-ups for the midterms.

The final grade will be decided as follows:

Homeworks	100
Quizzes	100
Midterms; 2×75	150
Final	150
Total	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 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. If the announced hours are not convenient or if for some reason, you cannot come during an office hour, I will also be available at times other than the announced office hours; send me a e-mail the day before (rmohapat@umd.edu) to set up an appointment. If I am free, I will be happy to discuss physics problems with you.

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 Covered

Chapters 1-13 of Knight book will be covered. A tentative schedule is as follows:
 (This is a tentative schedule since it is not easy to judge the detailed pace of a course before it begins. The midterm exam dates are however final.)

	Date	Topics covered	Knight chapter
Wk 1	01/28-01/30	motion, position velocity,units	1.1-1.8
Wk 1+2	02/01-02/08	Position, velocity, acceleration	2.1-2.7
Wk 3	02/11-02/13	Vectors, velocity and acceleration vectors	3.1-3.4
Wk3+4	02/15-02/22	Projectile motion, polar coordinates, relative,circular motion	4.1-4.7
Wk5	02/25, 02/29	Newton's first and second laws	5.1-5.7
Wk 6	03/03	Review of Ch.1-4	
Wk 6	03/05	First Midterm	Ch.1-4
Wk 6+7	03/07-03/10	Motion along a line	6.1-6.6;
Wk 7	03/12-03/14	Newton's third law	7.1-7.5
Wk 8	03/17-03/21	Spring Break	
Wk 9	03/24-03/28	Motion in a Plane	8.1-8.7
Wk 10	03/31-04/04	Impulse, Momentum	9.1-9.6
Wk 11	04/07-04/11	Kinetic and potential energy	10. 1-7
Wk 12	04/14	Review	Ch. 5-8
Wk 12	04/16	Second midterm	Ch. 5,6,7,8
Wk 12+13	04/18-04/25	Work and Energy	11.1-11.9
Wk 14	04/28-05/02	Rigid Body rotation	12.1-12.11
Wk 15	05/05	Gravity	13.3-13.4
Wk 15	05/07	Third Midterm	Ch. 9,10,11,12
Wk 15	05/09	Gravity	13.5-13.6
Wk 16	05/12	Review	