

Cornell University

Department of Physics

Physics 116

January 30, 2005

Spring 2005

Physics I: Mechanics and Special Relativity

Course Information

Lecturer:

Prof. Maxim Perelstein, 334 Newman Hall, x5-4118 (mp325@cornell.edu);
Office hours: Thursday 3:00–4:30 pm, or by appointment.

Teaching Assistant:

Mr. Patrick Meade, 405 Newman Hall, x5-5160 (prm25@cornell.edu);
Office Hours: Monday 2–3 pm; Tuesday 4–5 pm.

Laboratory Assistants:

Lab 1: Mr. Dan Hertz (dhertz@mail.lepp.cornell.edu);
Lab 2: Mr. Racim Allouani (ra242@cornell.edu).

Class Times and Locations:

Lectures: MWF 10:10-11:00 am, Rock 231;
Sec 2, MW 11:15am-12:05pm, Rock 132;
Sec 3, TR 11:15am-12:05pm, Rock 103;
Lab 1, Thu 12:20-2:15 pm, Rock B50;
Lab 2, Fri 2:30-4:30 pm, Rock B50.

Course Web Page:

<http://www.lepp.cornell.edu/~maxim/P116/>

Required Texts: *An Introduction to Mechanics*, by D. Kleppner and R. J. Kolenkow (a.k.a. “KK”);
Physics 112 Laboratory Manual (there is no separate manual for Physics 116!)

Getting the most from the lectures:

Students generally get more out of a lecture if they have a sense of the material to be covered and some questions already formed in their minds. Selected short readings from the textbook will be assigned at the top of each new problem set. It is highly recommended that this reading be done *before* attending the corresponding lecture.

Homework: There will be one problem set each week (with the exception of prelim weeks). The problem sets will be posted on the course web page at least a week before the due date, and have to be turned in before the beginning of lecture on the due date.

Discussion of the homework problems with other students is encouraged. However, remember that the main purpose of the problem sets is to help build your understanding, and develop the skills required to do well on the quizzes and exams. Please limit your collaborations to discussions that further this goal. Students are expected to write up the solutions by themselves: if you and your study partner end up using the same sentences and variable names in your solutions, this is a sign that you are collaborating too closely.

The homeworks will be graded by the TA and returned to students along with solution sets. The lowest 2 homework scores will be dropped when computing the final grade.

Quizzes: There will be 4 quizzes (15-20 min. each). These will be conducted by the TA in recitation sections.

Exams: There will be two evening prelims, tentatively scheduled for 03/03 and 04/07. Exact times and locations will be announced in class and on the web page. The final exam will be held on Thursday, May 12, 12:00–2:30 p.m. Students requiring a make-up exam for any reason must speak to the professor as soon as possible.

Laboratory: The class will include 7 two-hour labs (see tentative schedule on the next page). Pre-lab assignments will be handed out in lecture the week before each lab (except the 1st). They will be due at the start of your lab session and will contribute to your lab grade. Labs are graded S/U.

Course Grades: The section (quizzes, homeworks, attendance) will contribute 30% of your grade. Prelim exams will contribute 20% each, and the final exam will contribute 30%. You have to pass all labs; missing one lab would result in a “one-notch” reduction in your final grade (e.g. B instead of B+, C+ instead of B-, etc.)

Probable Syllabus

Week	Chapter in KK	Topic
1	1	Vectors and Kinematics
2	1	Vectors and Kinematics
3	2	Newton's Laws and Forces
4	2	Newton's Laws and Forces
5	3	Momentum
6	3	Momentum
7	4	Work and Energy
8	4	Work and Energy
9	6	Angular Momentum
10	7	Rigid Body Motion
11	10	Harmonic Oscillator
12	11	Special Relativity
13	12	Special Relativity
14	13	Special Relativity

Tentative Lab Schedule

Week	Lab
1	No Lab
2	1: Basic Motion Experiments
3	No Lab
4	3: Force Laws
5	4: Analyzing 1-D Motion
6	No Lab
7	5: Energy
8	No Lab
9	6: Collisions I
10	No Lab
11	7: Collisions II
12	8: Angular Momentum & Precession
13	No Lab
14	No Lab