

UNIVERSITY OF MARYLAND, College Park

Physics 171 Introductory Physics: Mechanics and Relativity Spring 2014

Description: This course is the first semester of a three semester sequence for physics majors and those desiring a rigorous preparation in the physical sciences. Topics covered are described in the schedule below.
Prerequisites: High school physics course, MATH140, MATH141(can be concurrently enrolled).

Lectures: Mon 10:00am - 10:50am and Tu Th 9:30am - 10:45am in [PHY 1204](#)
Lecturer: Prof. B. L. Hu Office: Z-4209, Phone: 301-405-6029, Email: blhu@umd.edu Dept mailbox #425
Office hours: TuTh 10:50-11:50am or email hubeilok@gmail.com for individual appointments.
TA: Office: , Phone: Email: Dept mailbox #

Textbooks Required: Douglas C. Giancoli, *Physics for Scientists and Engineers 4thed* (Pearson 2009)

Reading: The approximate progression of topics can be found in the Course Schedule for the planned topic(s) for each lecture. The schedule may lag or advance by one lecture if some topics take more or less time than expected. To enhance your comprehension of a particular subject to be covered, you *should try to read the material in the text before coming to the lecture*. This will enable you to ask questions about ideas you may not be able to grasp fully on the first reading and to gain a better overall perspective. Read it again after the lecture, study the examples and do the assigned problems. I encourage questions in class (to the extent time permitting, can follow up outside of classroom) – this could stimulate thoughts and discussions.

Course webpage Check regularly for announcements, homework assignments and due dates in the course website at ELMS/CANVAS system: www.elms.umd.edu/page/student-support where you will also be able to access your exam grades. For questions call the Help Desk at 301.405.1500 or email elms@umd.edu.

Homework: 13 sets of homework problems are planned, counting 30% towards your course grade. They are to be worked out and handed in at the beginning of classes on the due dates -- check the course webpage for last minute changes. Solutions will be posted soon after thus no late homework will be accepted. I encourage group discussions but stress strongly the importance of thinking through and working out the problems on your own. *Don't rely on others' help or just passively read the solutions*. It makes a real difference in your grasp of the subject matter which shows clearly in your examination performance.

Mid-Term Exams: Three 50-minute closed book mid-term exams are scheduled on **Mondays Feb24, March 24 and April 28 during the lecture periods**. Each exam covers the material assigned since the previous one, and is likely to contain one or more problems based on the assigned homework problems. Each exam counts 20% towards your course grade. Your best-scored two out of three mid-term exams are counted. There are no make-up exams.

The Final Exam held on Friday **May 16**, 8-10am, is worth 30% of the course grade. It is comprehensive, with 2/3 materials from Chap 26, 17-20. You must take the final exam to receive a course grade.

Exams are meant to test your understanding and ability to apply concepts covered in the course, not how well you can memorize the materials. You may bring one 4x6" formulas card to each exam, mid-term or final. The values of constants and some integrals will be provided. Only a non-programmable calculator with standard trigonometry function is allowed, no smart phones, I-Pads etc.

Academic dishonesty is a serious violation and will be dealt with strictly, according to University policy.

Course Grade: Your course grade is made up in the composition of 30% homework, 40% total for your best 2 out of 3 mid-term exams, and 30% from your final exam scores. Total course score has 500 points max.

PHYSICS 171 Spring 2014 CONTENTS and SCHEDULE

Prof. B. L. Hu

Lectures: Week/Date	Readings: Chapters in <i>Giancoli, Physics for Sci & Eng 4thed</i> 2009	Topics: <i>schedule</i> [note updates]	Homework # Due Date
1 1/27, 28, 30	Chap 1 (read)	2 Kinematics: One dimensional motion	#1 2/3 (M)
2 2/3,4, 6	Chap 3	Kinematics in 2 & 3 dimensions; Vectors	#2 2/10 (M)
3 2/10,11,13	Chap 4	Dynamics: Newton's Laws of Motion	#3 2/17 (M)
4 2/17,18, 20	Chap 5	Friction. Circular motion	#4 2/27 (θ)
5	Feb 24 (Monday) Exam 1 (Chapters 1-4)		
2/25,27	Chap 6	Gravitation	#5 3/6 (θ)
6 3/3,4,6	Chap 7	Work and Energy	#6 3/13 (θ)
7 3/10,11,13	Chap 8	Conservation of Energy	#7 3/31(M)
8	<i>Spring Break</i>		
9	March 24 (Monday) Exam 2 (Chapters 5-7)		
9-10 3/25,27,31	Chap 9	Linear Momentum	#8 4/7 (M)
10-11 4/1,3,7	Chap 10	Rotational Motion	#9 4/14(M)
11-12 4/8,10,14	Chap 11	Angular Momentum	#10 4/21(M)
12-13 4/15,17,21,22	Chap 36	Theory of Special Relativity	#11 5/1 (θ)
13 4/24	Chap 17	Temperature. Thermal Expansion	
14	April 28 (Monday) Exam 3 (Chapters 8-11)		
4/29	Chap 17	Ideal Gas Law	#12 5/6 (T)
14-15 5/1, 5	Chap 18	Kinetic Theory of Gas	#13 5/12 (M)
15 5/6, 8	Chap 19	Heat and First Law of Thermodynamics	
16 5/12, 13	Chap 20	Second Law of Thermodynamics	#14 (<i>no need to hand in</i>)

May 16, 8-10am Final Exam – *Comprehensive*, with 2/3 from Chapters 36,17-20

*** *Have a Nice Summer!* ***