

Physics 161 General Physics: Mechanics and Particle Dynamics Fall, 2007

Instructor: Professor Wolfgang Losert

Course Webpage: www.ireap.umd.edu/~wlosert/phys161_2007

First semester of a three-semester calculus-based general physics course. Laws of motion, force, and energy; principles of mechanics, collisions, linear momentum, rotation, and gravitation.

The course includes three weekly lectures and one discussion.

Pre- or corequisite: MATH141.

Lecture Notes in pdf form (available the day before lecture): [Wed 8/29](#)

Professor: Wolfgang Losert, wlosert@umd.edu www.ireap.umd.edu/~wlosert/, 3359 AV Williams Bldg, 301-405-0629

Office hours: - 10am-11am Tuesday
- 11am - 1pm Wednesday [exception: Sept 5—4pm-6pm]
- email / call to make an appointment at other times.

Syllabus

This course covers basic physical principles in the fields of mechanics. "Understanding" physical principles will require a combination of knowledge of equations (e.g. Newton's Laws), and experience (through lots of practice in homeworks and discussion sections) in how to apply them to real world problems.

Homework ONLINE: Mastering Physics <http://www.masteringphysics.com/>

** I am teaching TWO lectures —please check which section you are in ***

Lecture M,W,F, Sections 0301-0304 **10:00am-10:50am** (PHY 1410), Physics Building

Mastering Physics Course ID: **MPLOSERT161F3** —use your university ID as your identification # when you register

Lecture M,W,F, Sections 0101-0104 **3:00pm-3:50pm** (PHY 1410), Physics Building

Mastering Physics Course ID: **MPLOSERT161F1** —use your university ID as your identification # when you register

Discussion with Teaching Assistants (TA) (starting 9/4):

0101: Tu..... 3:00pm- 3:50pm ([PHY 1402](#)) TA: Brian Hamilton

TA Contact: BRIAN HAMILTON bkham@umd.edu Physics 4219 Ph: 301-405-6073 Office hours: *Mon 2pm-3pm*

0103: F.....10:00am-10:50am ([PHY 4208](#)) TA: Yung-Ruey Yen

0104 : F.....11:00am-11:50am ([PHY 4208](#)) TA: Yung-Ruey Yen

TA Contact: YUNG-RUEY, YEN yryen@umd.edu Physics 3109 Ph: 301-405-6190 Office hours: *Wed 3-4.30pm*

0301: Tu..... 1:00pm- 1:50pm ([PHY 1219](#)) TA: Anita Roychowdhury

0302: Tu..... 4:00pm- 4:50pm ([PHY 1402](#)) TA: Anita Roychowdhury

0303: Th..... 9:00am- 9:50am ([PHY 3301](#)) TA: Anita Roychowdhury

0304: Th.....10:00am-10:50am ([PHY 0405](#)) TA: Anita Roychowdhury

ANITA, ROYCHOWDHURY aroychow@umd.edu Physics 3103 B Ph: 301-405-6189; Office hours: *Wed 1:15 - 2:15, and Thu 2-3*

Required course materials:

1) KNIGHT: Physics for Scientists and Engineers with Mastering Physics and Student workbook Volume 1 (Ch 1-15)

ISBN: 0805389636 - if you buy a used book you need to separately purchase access to "Mastering Physics" the online homework webservice.

2) RESPONSE CARD RADIO FREQUENCY KEYPADS - see clickers.umd.edu

Grading

Homework	32%
3 Midterm Exams:	33%
Quizzes	10%
Final Exam	25%

Homework

Weekly web based homework assignments using Mastering Physics. Homework due Friday morning 9.30am (for ALL sections). You have to submit the homework on Mastering Physics, AND in addition submit a hardcopy of solution to TWO of the problems at the beginning of class (you need to submit the answer on Mastering Physics, and write out the solution in steps as you would in an exam including all mathematical steps and explanations for the steps).

Solving things on paper best prepares you for the course exams and future physics exams you may take. Homework is extremely important as it will help you understand how to apply the equations and concepts covered in class. It is extremely difficult to do well in this course without carefully doing the homework. Giving explanations for your steps is also extremely important. In exams, I will give partial credit for correct explanations, even if the math is incorrect. Obviously I will give no credit for incorrect math without any explanations.

Quizzes/class participation

You will need to complete a short quiz at the start of *some* lectures and discussions. Class participation will be judged based on the number of clicker questions you answer during lecture (you will not be judged on whether you answer the questions correctly). You are NOT allowed to use two clickers to "fill in" for another student.

Midterm Exams

There will be three 50 minute in class mid term exams: **Wednesday, September 26, Friday October 26, and Friday, November 30.** These exams will have questions similar to the homework and quizzes. Each counts 11% toward your course grade.

Final Exams

There will be a 2 hour final exam. The final exam is cumulative.

Section 0101-0104 (3pm): **Saturday, Dec 15 1:30pm-3:30pm**

Section 0301-0304 (10am): **Wednesday, Dec 19, from 8:00am to 10:00am**

Discussion

You must attend the discussion section to which you are assigned. Your TA will cover material (homework and exams) that may not be covered elsewhere. There may be quizzes during the discussion sections. Please come prepared and ask lots of questions, i.e. read the chapters, review your lecture notes, and try the homework problems. Remember, the TA is there to help you when you are stuck, not to dole out answers. You should also remember that your TA is also a student, in this case a graduate student, and also has to take classes, do homework and teach other sections.

Tutoring

It is very important not to fall behind in this class, since each chapter builds on all previous chapters! If you fall behind—or better if you want to avoid falling behind, please come to the office hours of your TA or to my office hours. You can also use a free tutoring service in the Physics Department: the Slawsky Clinic. It is run by a group of retired senior physicists. It is located in Room 1214 in the Physics building. The time reserved for PHYS161 is Mon-Fri 11-12, and 2-3. . However, you can usually get help at any time they are open, from 10 AM until 3 PM. See <http://www.physics.umd.edu/academics/ugrad/slawsky.html>

Honor Code

The University of Maryland, College Park has a nationally recognized Code of Academic Integrity, administered by the Student Honor Council. This Code sets standards for academic integrity at Maryland for all undergraduate and graduate students. As a student you are responsible for upholding these standards for this course. It is very important for you to be aware of the consequences of cheating, fabrication, facilitation, and plagiarism. For more information on the Code of Academic Integrity or the Student Honor Council, please visit <http://www.shc.umd.edu>.

To further exhibit your commitment to academic integrity, remember to sign the Honor Pledge on all examinations and assignments: "I pledge on my honor that I have not given or received any unauthorized assistance on this examination (assignment)."

Tentative Schedule as of 8/25/2007

Week	Lecture #	Dates	Main Topics	Chapter in Knight
1	1	Wednesday August 29	First day of class - introduction	Chapter 1
1	2	Friday August 31	Concepts of Motion, Units, and Dimensions	Chapter 1
2		Monday September 3	Labor Day vacation	
2	3, 4	September 5, 7	1-D Motion and Vectors	Chapters 2, 3
3	5, 6, 7	September 10, 12, 14	Force and Motion: Newton's 1st and 2nd laws	Chapter 4
4	8, 9, 10	September 17, 19, 21	1-D Dynamics	Chapter 5
5	11	September 24		
5		Wednesday Sept. 26	Exam I	
5	11, 12	September 28	2-D Kinematics and Dynamics	Chapter 6
6	13, 14, 15	October 1, 3, 5	Circular Motion	Chapter 7
7	16, 17, 18	October 8, 10, 12	Newton's 3rd law	Chapter 8
8	19, 20, 21	October 15, 17, 19	Analyzing Physical Systems Using Newton's 3	Chapter 8
9	22, 23	October 24, 26	Impulse and Momentum	Chapter 9
9		Friday, Oct. 26	Exam II	
10	24, 25, 26	Oct. 29, 31 and Nov 2	Momentum and Inelastic Collisions	Chapter 9
11	27, 28, 29	November 5, 7, 9	Conservation of Energy	Chapter 10
12	30, 31, 32	November 12, 14, 16	Work	Chapter 11
13	33, 34	November 19, 21	Rotational Motion	Chapter 13
13		November 22-23	Thanksgiving Holiday	
14	35, 36	Monday, Nov 26, 28	Rotational Motion	Chapter 13
14		Friday, Nov 30	Exam III	
15	37, 38, 39	December 3, 5, 7	Angular Momentum and Gravity	Chapter 13, 12
16	40	Monday December 10	Gravity	Chapter 12
		Wednesday December 12	Exam study day	