

Physics 171 – Introductory Physics: Mechanics and Relativity

Syllabus for Spring 2013

Course description First semester of a three-semester sequence for physics majors and those desiring a rigorous preparation in the physics science. Topics include kinematics, Newton's laws, energy and work, special relativity, rotational kinematics, angular momentum, gravity, fluids, and gases.

Pre-requisite Math 140 (Calculus I) and a high school physics class, or permission of the department.

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Website <http://elms.umd.edu>

The syllabus and schedule can be also found at:
<http://www.physics.umd.edu/courses/Phys171/index.html>

Books

- Giancoli, *Physics for Scientists and Engineers with Modern Physics*, 4th edition.

Lectures **Physics 1204, MTuThF 10:00 am – 10:50 am**

Students are required to attend lectures, where the course material will be presented and homework assignments, quizzes, and exams will be announced, given and collected. Lectures will consist of introduction/summary presentation slides, chalkboard calculations, live demonstrations and student participation. Note that not all material will be directly covered in lectures. Students are responsible for reading and understanding all material in assigned chapters, whether or not this material is explicitly treated in the lectures.

Homework MasteringPhysics homework assignments will be given and posted on ELMS.

MasteringPhysics: MasteringPhysics is an online tutorial and homework which accompanies the textbook. To access Mastering Physics you need an access code. If you get the textbook from the Bookstore, it should come bundled with a "Student Access Kit". If you bought a version of the textbook that didn't come with an Access Kit, you can purchase an access code directly

from the web site at www.masteringphysics.com. If you expect to purchase the textbook from the bookstore, you should not purchase an access code from the web site because then you will end up paying twice for MasteringPhysics.

Course ID: PHYS171SPRING2013KIM

Late homework policy: Don't wait until the last day to get started! Late homework is accepted only in exceptional circumstances (i.e. illness, a religious observance, or some other compelling reason). If you do not have a valid excuse, you can still turn in late homework with penalty. Once the solutions are posted, no late homework will be accepted.

Quizzes There will be a 10 minute quiz weekly, usually given at the end of Friday's class, on the material covered in the homework turned in. The quiz may be a traditional problem or a conceptual one. For grading, your two lowest quiz scores will be dropped. Makeup quizzes are not allowed. If you miss a quiz due to illness, that will be one of the quizzes to be dropped.

Exams There will be three 50-minute mid-term exams and a single 2 hour final exam (scheduled to be determined by the University). All exams are closed book. You will need a regular calculator with standard trigonometry functions. The exam sheets will contain formulas and numerical constants that you will need. Exams must be taken on the scheduled days unless you have a valid excuse. Make-up exams will be given only under extraordinary circumstances if arrangements are made with the instructor ahead of time.

Grade The final grade will be based on the components below.

Homework	40%
Quizzes (two lowest dropped)	10%
Mid-term exams* (best 2 out of 3)	30%
Final exam	20%

* The best two out of three mid-term exams will be used for the final grade *if and only if* all three are completed.

The final grade will be set at the end of the semester after all work is completed. The final grade will be determined by the University of Maryland grading policy, quoted below:

- A** excellent mastery of the subject and outstanding scholarship.
- B** good mastery of the subject and good scholarship.
- C** acceptable mastery of the subject and the usual achievement expected.
- D** borderline understanding of the subject. It denotes marginal

performance, and it does not represent satisfactory progress toward a degree.

F failure to understand the subject and unsatisfactory performance.

**Tutoring
and Help**

Your instructor has office hours, both scheduled and by appointment, and is happy to help you outside of class.

In addition, there is a new tutoring service available to undergraduate physics majors in the introductory courses, provided by physics majors who have already completed the introductory series. This **undergraduate peer tutoring** service is available Monday through Friday, from 4pm - 6pm in PHYS 1304 (the room next to the undergraduate student lounge). The tutors are happy to provide homework help and discuss course topics in general with students at no cost.

**Course
Evaluation**

Your participation in the evaluation of courses through CourseEvalUM is a responsibility you hold as a student member of our academic community. Your feedback is confidential and important to the improvement of teaching and learning at the University as well as to the tenure and promotion process. You can go directly to the website (www.courseevalum.umd.edu) to complete your evaluations. By completing all of your evaluations each semester, you will have the privilege of accessing the summary reports for thousands of courses online at Testudo.

**University
Closure**

In the event of a University Closure the department will do its best to accommodate students by scheduling make-up sessions.

**Students
with
disabilities**

Students with disabilities should meet with the instructor at the beginning of the semester so that appropriate arrangements can be made to accommodate the student's needs.

**Academic
Integrity**

You must work by yourself on exams and quizzes. You are allowed to work with other students and your instructor on your homework. However, you should not just directly copy from them. Doing so is not only dishonest, but will hurt your ability to do the problems on the quizzes and exams.

Lecture/Exam Schedule: Rm 1204, MTuThF 10:00 am – 10:50 am

(subject to change as the semester progresses)

Week	Dates	Topic	Chapter in Text
1	Jan 24, 25	Course intro, Measurement and units	Chapter 1
2	Jan 28, 29, 31, Feb 1	Motion in one dimension, Vectors	Chapter 2
3	Feb 4, 5, 7, 8	Motion in two and three dimensions	Chapter 3
4	Feb 11, 12, 14, 15	The laws of motion	Chapter 4
5	Feb 18, 19, 21, 22	Friction; Universal gravitation	Chapter 5, 6
6	Feb 25, 26, 28, Mar 1	Work and energy	Chapter 7
	Feb 26, Tue	Exam 1	Chs. 1-5
7	Mar 4, 5, 7, 8	Conservation of energy	Chapter 7, 8
8	Mar 11, 12, 14, 15	Linear momentum	Chapter 9
9	Mar 18, 19, 21, 22	<i>Spring Break</i>	No Lecture
10	Mar 25, 26, 28, 29	Rotational motion	Chapter 10
11	Apr 1, 2, 4, 5	Angular momentum	Chapter 11
	Apr 2, Tue	Exam 2	Chs. 6-9
12	Apr 8, 9, 11, 12	Static equilibrium and elasticity	Chapter 12
13	Apr 15, 16, 18, 19	Fluids	Chapter 13
14	Apr 22, 23, 25, 26	Special theory of relativity	Chapter 36
15	Apr 29, 30, May 2, 3	Temperature, Kinetic theory of gases	Chapter 17, 18
	Apr 30, Tue	Exam 3	Chs. 10-13
16	May 6, 7, 9	Heat and thermodynamics	Chapter 19, 20
	May 11~17 (TBD)	Final Exam	Chs. 1-13, 36