

# Physics 171 – Introductory Physics Mechanics and Relativity

## Syllabus for Spring 2012

<b>Course description</b>	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.
<b>Pre-requisite</b>	Math 140 (Calculus I) and a high school physics class, or permission of the department.
<b>Instructor</b>	Prof. Ki-Yong Kim Department of Physics Institute for Research in Electronics and Applied Physics Energy Research Facility (223), Rm 1202J Email: kykim at umd.edu, Phone: (301)-405-4993  <b>Office hours :</b> Wed & Thu 2-3 pm also w/ appointment
<b>Teaching Assistant</b>	TBD
<b>Website</b>	<a href="http://elms.umd.edu">http://elms.umd.edu</a>  The syllabus and schedule can be also found at: <a href="http://www.physics.umd.edu/courses/Phys171/index.html">http://www.physics.umd.edu/courses/Phys171/index.html</a>
<b>Books</b>	<ul style="list-style-type: none"><li>• Giancoli, <i>Physics for Scientists and Engineers</i>, 4th edition.</li></ul>
<b>Lectures</b>	<b>Physics 1204, MTuThF 10:00 am – 10:50 am</b>  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.
<b>Homework</b>	Homework assignments will be given each week in class and posted on ELMS, usually on Fridays, and will have to be turned in one week later at the beginning Friday's lectures unless otherwise specified. The homework questions will be a combination of Mastering Physics and problems in the textbook. Mastering physics questions are graded automatically, and problems

from the textbook will be graded by your TA.

### **Mastering Physics**

Mastering Physics 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](http://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 Mastering Physics.

### **Guidelines for homework assignments:**

- Write down your name clearly at the top of front page and staple all pages together.
- To get full credit, you must show all your work.
- When answering the “questions”, please use complete sentences. If the question is a true/false, a multiple choice, yes/no, or other similar question, explain why the answer you chose is the correct one.
- 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 for half credit. 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 Monday’s class, on the material covered in the homework turned in the previous Friday. 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 any 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	10%
3 mid-term exams	10% each
Final exam	20%

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.

**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. CourseEvalUM will be open for you to complete your evaluations for spring semester courses between Tuesday, April 24 and Friday, May 11 (it closes before final exams begin). You can go directly to the website ([www.courseevalum.umd.edu](http://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 or revision of the lab schedule.

**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**

Along with certain rights, students also have the responsibility to behave honorably in an academic environment. Academic dishonesty, including cheating, fabrication, facilitating academic dishonesty, and plagiarism will not be tolerated. Any abridgement of academic integrity standards will be referred directly to the Assistant Dean and forwarded to the University's Office of Judicial Affairs. Confirmation of such incidents can result in expulsion from the University. Students who are uncertain as to what constitutes academic dishonesty should consult the University publication entitled Academic Dishonesty.

Of course, you must work by yourself on exams and quizzes. You are allowed to work with other students, the physics clinic, your TA 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 the exams.

**Lecture/Exam Schedule: Rm 1204, MTuThF 10:00 am – 10:50 am**  
**(subject to change as the semester progresses)**

<b>Week of</b>	<b>Topic</b>	<b>Chapter in Text</b>
Jan 25	Course intro, Measurement and units	Chapter 1
Jan 30	Motion in one dimension, Vectors	Chapter 2, 3
Feb 6	Motion in two and three dimensions	Chapter 3, 4
Feb 13	The laws of motion	Chapter 4, 5
Feb 20	Universal gravitation	Chapter 6
Feb 23, Thu	<b>Exam 1</b>	cumulative
Feb 27	Work and energy	Chapter 7
Mar 5	Conservation of energy	Chapter 8
Mar 12	Linear momentum	Chapter 9
Mar 19	<i>Spring Break</i>	No Lecture
Mar 26	Rotational motion	Chapter 10
Mar 29, Thu	<b>Exam 2</b>	cumulative
Apr 2	Angular momentum	Chapter 11
Apr 9	Static equilibrium and elasticity	Chapter 12
Apr 16	Special theory of relativity	Chapter 36
Apr 23	Fluids	Chapter 13
Apr 26, Thu	<b>Exam 3</b>	cumulative
Apr 30	Temperature, Kinetic theory of gases	Chapter 17, 18
May 7	Heat and thermodynamics	Chapter 19, 20
May 14	<b>Final Exam</b>	cumulative