Physics 253-01: General Physics I

Summer 2009  |  Department of Physics, Loyola Marymount University

Instructor: J. R. Mureika
Class meetings: MTWR 9:00 - 12:00, May 18 – June 17, 2009 (Seaver 101)
Office (hours): By appointment
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Website: http://myweb.lmu.edu/jmureika/PHY253/

Outline: This course will introduce you to fundamentals of physics, focusing on Newton’s Laws of Motion in one, two, and three dimensions. We will cover Chapters 1-13, but may dip into Chapter 14 from time to time. The course will follow an integrated laboratory/lecture format with approximately 10 labs throughout the five weeks. In class, peer-assisted problem solving sessions will complement the lectures. Major topics to be discussed include:

- Vectors and vector algebra
- Kinematics and motion
- Linear forces and Newton’s Laws of Motion
- Conservation of momentum and mechanical energy
- Rotational kinematics and mechanics
- Equilibrium problems

This course is a pre-requisite for PHYS 254.

Learning Outcomes: By the end of this course, you will:

- Understand how to describe motion from a mathematical and graphical perspective
- Be able to solve problems using vectors, linear, and rotational motion
- Be able to draw and analyze free body diagrams
- Understand the relationship between force and acceleration
- Understand conservation laws as applied to energy and momentum
- Know the relationship between force and energy

Math background: There is a differential calculus co-requisite (MATH122 /131 or equivalent).

Textbook and resources:
- Hyperphysics website: http://hyperphysics.phy-astr.gsu.edu/hbase/HFrame.html Great on-line reference!
Grading scheme:

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<thead>
<tr>
<th>Component</th>
<th>Weight</th>
<th>Grade</th>
<th>Percentage</th>
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<tbody>
<tr>
<td>Assignments</td>
<td>20%</td>
<td>A</td>
<td>92-100%</td>
</tr>
<tr>
<td>Tests</td>
<td>30%</td>
<td>A-</td>
<td>88-91%</td>
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<tr>
<td>Laboratory</td>
<td>20%</td>
<td>B+</td>
<td>84-87%</td>
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<tr>
<td>Final Exam</td>
<td>30%</td>
<td>B</td>
<td>80-83%</td>
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<tr>
<td>Total Grade</td>
<td>100%</td>
<td>B-</td>
<td>76-79%</td>
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Assignments: Assignments will be given at regular intervals throughout the course (roughly one every class, except preceding tests). These will generally consist of four questions that relate to the material we've studied that day.

Tests: There will be three 1-hour tests administered in class, scheduled for Tuesday, May 26th; Wednesday, June 3rd; Thursday, June 11th.

Laboratory: The laboratory component of the course will consist of approximately 9-10 experiments, to be performed in groups of no larger than 3. Since the laboratory is integrated with the class, material covered in the labs will be included on tests and the final exam.

Final Exam: The final exam (cumulative) will be given at 9:00-11:00am, Thursday, June 18th.

Attendance: Class attendance is strongly encouraged in order for you to master the material. One unexcused absence will result in a full letter grade reduction, as will each subsequent unexcused absence. A maximum of four unexcused absences will result in failure of the course.

Class conduct advisory: The use of cellular phones, PDAs, MP3 players and other electronic equipment is not allowed during class time. Cell phones must be set to vibrate before entering the classroom and must be kept inside a backpack, purse or pocket. Bluetooth earpieces must be removed and music players must be put away before entering the classroom. Emergency communications are exempted.

Statement of Academic Honesty: Academic dishonesty will be treated as an extremely serious matter, with serious consequences that can range from receiving no credit for assignments/tests to expulsion. It is never permissible to turn in any work that has been copied from another student or copied from a source without properly acknowledging the source. It is your responsibility to make sure that your work meets the standard of academic honesty set forth in the “LMU Honor Code and Process” in the Undergraduate Bulletin 2008-2010 pages 61 – 64.

THIS SYLLABUS AND ITS CONTENTS ARE SUBJECT TO REVISION; STUDENTS ARE RESPONSIBLE FOR ANY CHANGES OR MODIFICATIONSANNOUNCED IN CLASS.