



IMPERIAL VALLEY COLLEGE

PHYSICS 200 – GENERAL PHYSICS I

Course Syllabus – Fall 2013

Instructor: Dr. Alejandro Cozzani
Phone: 760-355-5720
E-mail: Alex.Cozzani@imperial.edu
Office: 2767
Office Hours: Mondays and Wednesdays 7:00-7:30 AM and 1:00-1:30 PM
Tuesdays and Thursdays 7:00-7:30 AM and 1:10-1:40 PM.

Code: CRN 10756

Credit Units: 5.0

Class Meetings:

Lecture: Tuesday and Thursday 1:40 PM to 3:45 PM, Room 2731.

Lab: Tuesday and Thursday 3:55 PM to 5:20 PM, Room 2731.

Textbook: Fundamental of Physics, 9th edition, Chapters 1-15, ISBN: 978-0-470-46908-8.

Author: Halliday, Resnick, and Walker.

Prerequisite: Math 192 with a grade of "C" or better.

Course Philosophy: This course is designed to give an understanding of the fundamental principles of physics in the area of mechanics.

Measurable Course Objectives and Minimum Standards for Grade of "C"

1. The student will solve problems involving SI units, scientific notation, dimensional analysis, and calculations to the proper number of significant digits.
2. The student will solve problems involving vectors, scalars, frames of reference, components of a vector, and unit vectors.
3. The student will solve one-dimensional motion problems involving position, velocity, and acceleration.
4. The student will solve problems involving two-dimensional motion with vector applications.
5. The student will solve problems involving Newton's Laws and their applications including friction.
6. The student will solve problems involving circular motion, accelerated frames of reference, and motion in the presence of resistive forces.
7. The student will solve problems involving work, energy, and power.
8. The student will solve problems involving potential and kinetic energies and conservation of energy.
9. The student will solve problems involving impulse, momentum, and center of mass.
10. The student will solve problems involving rotation about a fixed axis of a rigid body.
11. The student will solve problems involving angular momentum and torque as vector quantities.
12. The student will solve problems involving static equilibrium of a rigid body.
13. The student will solve problems involving simple harmonic motion, damped, and forced oscillations.
14. The student will solve problems involving the law of universal gravitation, Kepler's Laws of planetary motion, and gravitational potential energy.

15. The student will solve problems involving the mechanics of solids and fluids.

INSTITUTIONAL LEARNING OUTCOMES (ISLOs):

1. Communication Skills
2. Critical Thinking Skills
3. Personal Responsibility
4. Information Literacy
5. Global Awareness

STUDENT LEARNING OUTCOMES (SLOs)

1. Solve one-dimensional and two-dimensional motion problems involving position, velocity, and acceleration.
2. Solve problems (using algebra, calculus, and trigonometry as tools) involving Newton’s Laws and their applications including friction.
3. Solve problems involving potential and kinetic energies and conservation of energy.
4. Solve problems involving impulse, momentum, and conservation of momentum.
5. Solve problems involving work, energy, and power.

Grading Criteria

Course must be taken on a “letter-grade” (LG) basis only.

Grading Policy

The student’s grade will depend on the following areas (not on total points):

Homework and Reading Questions	100 points	20%
Tests - Presentation	200 points	20%
Lab Reports - Lab Tests	260 points	20%
Mid-term	150 points	20%
Final Exam	150 points	20%
TOTAL		100%

All grades are calculated by using the standard scale of:

A = 100-90% **B = 89-80%** **C = 79-70%** D = 69-60% F = 59% and below

Class Rules and Expectations

1. Students are expected to be actively involved in the learning process so failure is not a good choice; apply yourself, study, do not give up on the first try, attend class regularly, ask for help when needed, and always do your best!
2. Students are expected to attend class meetings regularly. After the second absence, if the student does not drop the class via Webstar, he/she will receive an “F” as final grade; so it is the student’s responsibility to drop before the deadline.

3. ABSENCES. What constitutes an absence? Not showing up to class during a regular class meeting, or arriving more than 20 minutes after the beginning of the class, or leaving more than 20 before the end of the class.
 - a. Example: Class starts at 10:00 AM and ends at 12:00 PM. If you arrive after 10:20 AM you are absent. If you leave before 11:40 AM you are marked absent. If you leave the room for more than 20 minutes for whatever reason, you are absent.
4. TARDIES. What constitutes a tardy? Arriving within the first 20 minutes after the beginning of the class or leaving within the last 20 minutes before the end of the class (3T = 1A).
 - a. Example: Class starts at 10:00 AM and ends at 12:00 PM. If you arrive between 10:01 AM and 10:20 AM you are marked tardy. If you leave between 11:41 AM and 12:00 PM you are marked tardy as well as if you "disappear" from the room for no more than 20 minutes (i.e. having lunch). If you need to use the restroom, you are expected to return within a reasonable time period.
 - b. If you are late to class, please enter the room quietly, do not distract your classmates, and avoid talking to them to find out what is going on in class (it is your responsibility to arrive on time). On the second offense you will be dropped from class.
5. If a student reaches the third absence after the deadline, his/her grade will be reduced one letter grade for each subsequent absence.
 - a. Example: your current grade is an "A." On the 3rd absence you will get a final grade of "B." On the 4th one, your grade is "C," and on the 5th one, a "D." Beyond that, your final grade is "F." Exceptions include-for example- hospitalization for several days and with appropriate documentation.
6. Deadline to drop the class with a "W" is November 09, 2013. Late drops on graded classes will require that the student receive an F.
7. Class materials such as a notebook or binder with lined or quad ruled paper, pen, pencil, scientific or graphing calculator (no phone), and the textbook will be brought to every class meeting.
8. It is up most important that students review the material to do well on exams. Students are encouraged to form study groups to meet regularly to keep up with assignments and to study for tests/mid-term/final exam.
9. Late assignments will not be accepted. It is student's responsibility to turn assignments in when they are due (no excuses!).
10. Students will not be allowed to make up exams or the mid-term/final exam.
11. The work is individual which means that you are responsible for what you turn in regardless whether you were part of a team or group. It is understandable that you may need to share data with partners but you are expected to write up your own assignments. Identical assignments will not be accepted; failure to comply will result in a "zero" for that specific assignment.
12. No photocopied textbooks are allowed. No cell phones and music players (IPODs, MP3, etc.) allowed during class time. You will be dropped on your second offense for disturbing the class in this manner.
13. No food or drinks are allowed in the classroom other than bottled water (no substitutes please!).
14. No children are allowed in the classroom.

15. Absences attributed to the representation of the college at officially approved conferences and contests and attendance upon field trips will not be counted as absences (this includes sports). However, the student is responsible for notifying the instructor and for the work done in class. If your absence coincides with an exam, it is student's responsibility to contact the instructor via e-mail or by phone before the following class meeting to make it up. Failure to do so will result in a "zero" for that particular exam.
16. Classroom Etiquette-In class, it is expected that you will treat your instructor and each other with respect. Do not talk when the instructor is lecturing except to ask a question to the instructor or answer a question posed to the class. Feel free to ask questions as needed and listen when someone else is asking a question because you may have the same one.
17. Discipline: you need to understand that this is a college class so appropriate behavior is expected at all times (i.e. not speaking out of turn, raise your hand to talk and wait until acknowledged, paying attention, avoid side comments, not answering your cell phone in class, working in assignments for another class, etc.). For this reason, no discipline problem will be tolerated.
 - a. First offense: warning.
 - b. Second offense: student will immediately be dropped from the class.
18. Academic Integrity- If a student is found cheating in a test or assignment, he/she will receive a grade of zero for the test. If cheating is repeated, he/she will receive a grade of F for the course and will be immediately dropped from the class.
19. Any student with a documented disability who may need educational accommodations should notify the instructor or the Disabled Student Programs and Services (DSP & S) office as soon as possible. DSP&S, Room 2117, Health Sciences Building, (760) 355-6312.

20. **Calendar:**

WEEK # START DAY	CORE CONTENT	READING DUE	ASSIGNMENT DUE
1-August 19	Day 1: Syllabus / Introduction Day 2: Measurement	--- Chapter 1	
2-August 26	Day 1: Vectors Day 2: Vectors	Chapter 3	
3-September 02	Day 1: on in One Dimension Day 2: Motion in One Dimension	Chapter 2	
4- September 09	Day 1: Motion in Two Dimensions Day 2: Motion in Two Dimensions	Chapter 4	
5- September 16	Day 1: Force and Motion-I Day 2: Force and Motion-I	Chapter 5	Test # 1 (Chapters 2-3-4)
6- September 23	Day 1: Force and Motion-II Day 2: Force and Motion-II	Chapter 6	
7- September 30	Day 1: Kinetic Energy and Work Day 2: Kinetic Energy and Work	Chapter 7	
8-October 07	Day 1: Potential Energy and Conservation of Energy Day 2: Potential Energy and	Chapter 8	
9- October 14	Day 1: Center of Mass and Linear Momentum Day 2: Center of Mass and Linear	Chapter 9	Mid-term (Chapters 1-7)

	Momentum		
10- October 21	Day 1: Rotation Day 2: Rotation	Chapter 10	
11- October 28	Day 1: Rolling, Torque, and Angular Momentum Day 2: Rolling, Torque, and Angular Momentum	Chapter 11	Test # 2 (Chapters 8-9-10)
12-November 04	Day 1: Equilibrium and Elasticity Day 2: Equilibrium and Elasticity	Chapter 12	
13- November 11	Day 1: Gravitation Day 2: Gravitation	Chapter 13	
14- November 18	Day1: Fluids Day 2: Fluids	Chapter14	
15- November 25	Day 1: Oscillations Day 2: Review for Final Exam	Chapter15	
15-December 02	Day 1: Final Exam Day 2: Final Grades		Final Exam (Chapters 8-15)

21. **Homework:** The purpose of homework is to provide the student with sufficient practice to master all topics studied in class and to do well on tests. Each homework assignment is due a week after we complete each chapter. For example, if we finish chapter # 1 on February 20th, homework # 1 is due on February 27th. From each chapter you are required to answer any 10 problems not previously solved in class. When turning in homework assignments please include the following information: Your Name, Class Code, Homework #, Page #, and Problem #. Failure to do so may result in inaccurate grade recording.
22. **Lab Reports:** These reports must be typed, double-space, font Times New Roman or similar, size 12, and the graphs must be done with Excel or any graphing program (i.e. TI InterActive). Refer to rubric and sample reports in webpage as a reference. Reports are due a week after the specific experiment has been performed (If the experiment was done on September 03, it is due on September 10). No corrections will be allowed.
23. **Reading Questions:** They are available in the webpage in PowerPoint format. You will read the questions and you will answer them as you read the textbook. Since they are multiple-choice, you will pick the best answer to each statement according to your interpretation along with a brief justification. Correct answers are provided to check your understanding. If your answers do not agree, go back and see if you are able to figure out why that given answer is the right one instead of the one you have chosen. They are due along with HW assignments.
24. **Tests or Exams:** They may be T/F, multiple choice or combination of T/F and/or multiple choice and free response questions. No makeup exams!
25. **Lab Tests:** Students will be tested on laboratory experiments. These will be based on the data collected and the analysis questions on the experiments. You may be asked the exact same questions or similar to those found on the lab manual and some theoretical questions related to those labs.
26. The laboratory environment contains a variety of chemical and physical hazards. It is vital to understand those potential hazards and their safeguards in order to prevent accidents and injuries.

In order to work in a laboratory in the Department of Physics at Imperial Valley College, the student must understand and agree to abide by the laboratory safety rules set forth. Please refer to the following web page: <http://forms.imperial.edu/machform/view.php?id=24> and after reading the guidelines, fill out the web-based form. Use the same name as in Webstar or the system may not recognize you. Failure to comply will result in labs no participation with the corresponding zeros in experiments until the student fills out the form.

27. **Mid-term and Final Exam:** They may include questions from the tests (recycled questions) and new questions (you have not seen them before but with similar difficulty). No makeup exams!

28. **Special Project:** Please see below.

Rubric

<i>Criterion</i>	<i>High (5)</i>	<i>Medium (3)</i>	<i>Medium-Low (2)</i>	<i>Low (1)</i>	<i>Student Evaluation</i>	<i>Instructor Evaluation</i>
<i>Content/ information</i>	<i>accurate and concise; all relevant information is presented completely; clearly describes all principles involved; gives accurate history of application or theory</i>	<i>information is accurate; relevant information is present with some details missing; states all principles involved & describes most; gives brief history</i>	<i>information has some errors; most of the relevant information is present; states some of the principles covered; no history</i>	<i>major errors in information presented; not all relevant information presented; names a few or none of the principles involved; no history</i>		
<i>Presentation</i>	<i>makes eye contact; speaks knowledgeably without referring to notes; involves fellow students; clear well modulated voice</i>	<i>some eye contact; little need to reference notes; some involvement with fellow students; varies voice at times</i>	<i>no eye contact; uses notes frequently; very little involvement with fellow students; rarely varies voice</i>	<i>avoids looking at audience; reads notes; no involvement with fellow students; speaks in a monotone</i>		
<i>Visual Aids (models, diagrams, etc.)</i>	<i>aid used in the presentation is neat and organized; provides excellent support to the presentation making the words more easily understood</i>	<i>aid is used but as such is messy (globs of glue, dirty/cramped, dirty, pieces of tapes, etc); provides good support for the presentation</i>	<i>visual aid is messy and poorly organized; adds little support to the presentation</i>	<i>no visual aids used</i>		
<i>Creativity</i>	<i>keeps other students interested throughout</i>	<i>some students appear distracted at times during the presentation</i>	<i>fails to capture and maintain interest of all students</i>	<i>fails to capture student interest at any time</i>		
<i>Organization</i>	<i>presentation</i>	<i>presentation</i>	<i>presentation</i>	<i>presentation</i>		

	<i>follows a logical pattern; smooth transitions between sections</i>	<i>follows a logical pattern; only a few rough points</i>	<i>not given in a logical sequence but some organization present; transitions are abrupt</i>	<i>lacks organization; speaker appears to move randomly from one idea to the next</i>		
Understanding of the Topic	<i>presenter conveys an outstanding understanding of the material</i>	<i>presenter conveys a good understanding of the material</i>	<i>presenter lacks a complete understanding of the material</i>	<i>presenter has a poor understanding of the material</i>		

Oral presentation: maximum 30 points

- a. Follow Rubric for point distribution.

Topics: Any chapters not addressed in class (1-15) for Mechanics only.

Review questions: 10 points

- b. Between 5 and 10.
- c. They should reflect what you have taught to your classmates. You may use the ones available in BB but make sure you know the answers and the reason for those answers.

Review problems: 10 points (about five with increasing level of difficulty).

- d. You have to be able to explain them to your classmates so they will understand.

Presentation dates: according to sign-up list. Once dates have been established, you cannot change it because presentations have a sequential order. You may pick the topic and your team members (no more than 3 per group) or you may work individually if you prefer to do so.

If you are absent the day of your presentation, your grade is ZERO (no exceptions!) so plan ahead.

HONORS SUPPLEMENTAL SYLLABUS

In addition to the regularly assigned coursework on the syllabus, the student will complete the following:

DESCRIPTION OF HONORS REQUIREMENTS

Honors students will be required to demonstrate the ability to perform the process of the scientific method within the realm of mechanics. The student will be required to develop or build a machine based on mechanical principles to perform any kind of mechanical job. Please refrain from just building a Trebuchet machine or similar, you are expected to be original. Be sure to always observe safety practices!

1. **Office Hours:** The student will arrange to meet with the instructor a minimum of 4 times during the semester in order to obtain guidance. **25 points**
2. **Review of Scientific Literature / Writing Assignment (75 points):** A thorough review of the scientific literature will be conducted in order to gain information about the knowledge of the principles being used and obtain ideas for experimental design of your machine. For example, your machine will be based on the laws of conservation of momentum and conservation of energy, so you are expected a thorough review of these laws and how they apply to your machine. You will be required to read at least five sources related to the topic of your choice. They can be essays, internet sources, periodicals, etc. Make sure your sources are reliable and they are required to be approved by the instructor. The writing requirement is a paper of at least five (5) pages long, double space, size 12, times roman or similar, with appropriate bibliography (at least 5 sources).
3. **Journal (25 points):** Additionally, the student will keep a journal of his/her work with dates and tasks accomplished (10 – 25 pages).
4. **Presentation (50 points):** The student must prepare a power point (or equivalent) presentation for the class (15 – 30 minutes). Include relevant information about the theory behind your machine, data collected during the building of your machine, and pictures showing progress, and any other information you find appropriate. There is not set number of slides but make sure they are easy to read and concentrate on quality rather than quantity (a suggestion would be at least 30 slides).
5. **Machine (125 points):** The student will bring the machine to class to demonstrate how it works.

HONORS SUPPLEMENTAL COURSE REQUIREMENTS

1	Office Hours	25 Points
1	Writing requirement	75 Points
1	Journal of work	25 Points
1	Presentation	50 Points
<u>1</u>	<u>Machine</u>	<u>125 Points</u>
Total Honors Points:		300 Points

Honors Points: $300/860 = 35\%$ extra course work, you must score at least 240 points to earn Honors Credit.

***** NOTE: Please assess your class schedule, workload, and non-school related responsibilities prior to signing the Honors contract. Performing science- is a serious endeavor that will require a considerable time investment. Once you sign the***

Honors Contract you must complete the semester as an Honors Student, you cannot switch back to the Non-Honors course.