# IMPERIAL VALLEY COLLEGE
# PHYSICS 202 – GENERAL PHYSICS II
# Course Syllabus – Fall 2013

**Instructor**: Dr. Alejandro Cozzani
**Phone**: 355-5720
**E-mail**: Alex.Cozzani@imperial.edu
**Webpage:** *www.imperial.edu/alex.cozzani*
**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 10757
**Credit Units:** 5.0
**Class Meetings**:
Lecture: Monday and Wednesday 7:30 to 9:35 AM, Room 2731.
Lab: Monday and Wednesday 9:45 to 11:10 AM, Room 2731.

**Textbook**: Fundamental of Physics, 9th edition, Chapters 21-32.
**Author**: Halliday, Resnick, and Walker.

**Prerequisite**: PHYS 200 with a grade of "C" or better and MATH 194 with a grade of "C" or better or concurrent enrollment in MATH 194.

**Course Philosophy**: This course is designed to give an understanding of the fundamental principles of physics in the areas of electricity, magnetism, atomic, and nuclear physics.

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

1. The student will solve problems involving electric charges, electric field lines and the motion of a charged particle in a uniform electric field.
2. The student will solve problems involving Gauss' Law.
3. The student will solve problems involving electrical potential, potential energy due to point charges and continuous charge distributions.
4. The student will solve problems involving capacitors.
5. The student will solve problems involving current, resistance, electrical energy and power.
6. The student will solve problems involving EMF, resistor combinations, Kirchoff's Law, and RC circuits.
7. The student will solve problems involving magnetic fields in and near conductors, and the motion of charged particles in a magnetic field.
8. The student will solve problems involving the magnetic field of various sources.
9. Student will solve problems involving Faraday's and Lenz's Laws, and induced EMFs.
10. The student will solve problems involving inductance for RL, LC, and RLC circuits.
11. The student will solve problems involving resistors, inductors, and capacitors in an AC circuit.

12. The student will solve problems involving electromagnetic waves.
13. The student will solve problems involving molecular bonds, the energy spectra of molecules, and semiconductors.
14. The student will solve problems involving nuclear binding energy, radioactivity, and the decay process.
15. The student will solve problems involving collisions between nuclear particles, fission, fusion, and elementary particles.

**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 problems involving Gauss' Law.
2. Solve problems involving capacitors.
3. Solve problems involving magnetic fields in and near conductors, and the motion of charged particles in a magnetic field.
4. Solve problems involving EMF, resistor combinations, Kirchoff's Law.
5. Solve problems involving Faraday's and Lenz's Laws, and induced EMFs.

**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:

| | |
|---|---|
| Homework | 20% |
| Tests - Presentation | 20% |
| Labs Reports – Lab Tests | 20% |
| Mid-term | 20% |
| Final Exam | 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 $4^{th}$ absence you will get a final grade of "B." On the $5^{th}$ one, your grade is "C," and on the $6^{th}$ 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 regardless he/she is absent (no excuses!).

10. Students will not be allowed to make up a test or exam or 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 audible 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.

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 of 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 or may 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** | **ASSIGMENT DUE** |
|---|---|---|---|
| 1<br>August 19 | Day 1: Syllabus / Introduction-Chapter 21-part 1<br>Day 2: Chapter 21-part 2 | Chapter 21 | |
| 2<br>August 26 | Day 1: Chapter 22-part 1<br>Day 2: Chapter 22-part 2 | Chapter 22 | |
| 3<br>September 02 | Day 1: No classes<br>Day 2: Chapter 23-part 1 | Chapter 23 | |
| 4<br>September 09 | Day 1: Chapter 23-part 2<br>Day 2: Chapter 24-part 1 | Chapter 24 | |
| 5<br>September 16 | Day 1: Chapter 24-part 2<br>Day 2: Test # 1 | | **Test # 1 (Chapters 21-22-23)** |
| 6<br>September 23 | Day 1: Chapter 25-part 1<br>Day 2: Chapter 25-part 2 | Chapter 25 | |
| 7<br>September 30 | Day 1: Chapter 26-part 1<br>Day 2: Chapter 26-part 2 | Chapter 26 | |
| 8<br>October 07 | Day 1: Chapter 27-part 1<br>Day 2: Chapter 27-part 2 | Chapter 27 | |
| 9<br>October 14 | **Review for Mid-term**<br>**Mid-term (Chapters 21-26)** | Chapters 21-26 | |
| 10 | Day 1: Chapter 28-part 1 | Chapter 28 | |

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|---|---|---|---|
| October 21 | Day 2: Chapter 28-part 2 | | |
| 11<br>October 28 | Day 1: Chapter 29-part 1<br>Day 2: Chapter 29-part 2 | Chapter 29 | |
| 12<br>November 04 | Day 1: Chapter 30-part 1<br>Day 2: Test # 2 | Chapter 30 | **Test # 2**<br>**(Chapters 27-28-29)** |
| 13<br>November 11 | Day 1: Chapter 30-part 2<br>Day 2: Chapter 31-part 1 | Chapter 31 | |
| 14<br>November 18 | Day 1: Chapter 31-part 2<br>Day 2: Chapter 32-part 1 | Chapter32 | |
| 15<br>November 25 | Day 1: Chapter 32-part 2<br>Day 2: Review Chapters 27-32 | Chapter27-32 | |
| 16<br>December 02 | **Day 1: Final Exam**<br>**Day 2: Final Grades/Questions** | | ***Final Exam***<br>**(Chapters 27-32)** |

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. **Other Assignments:** It may include review questions, quizzes, special projects, etc.

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

**Rubric**

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

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| | *smooth transitions between sections* | *only a few rough points* | *sequence but some organization present; transitions are abrupt* | *speaker appears to move randomly from one idea to the next* | | |
| **Understanding of the Topic** | *presenter conveys an outstanding understanding of the material* | *presenter conveys a good understanding of the material* | *presenter lacks a complete understanding of the material* | *presenter has a poor understanding of the material* | | |

**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.