IMPERIAL VALLEY COLLEGE
PHYSICS 204 – GENERAL PHYSICS III

Course Syllabus – Spring 2013

Instructor: Dr. Alejandro Cozzani
Phone: 760-355-5720
E-mail: Alex.Cozzani@imperial.edu
Office: 2767

Office Hours: Mondays and Wednesdays from 7:00 to 7:30 AM.
Tuesdays and Thursdays from 9:45 to 10:15 AM and 11:40 AM to 12:40 PM.

Code: CRN # 20410

Class Meetings:
Lecture: Tuesday and Thursday 12:40 PM to 2:45 PM, Room 2731.
Lab: Tuesday and Thursday 2:55 PM to 4:20 PM, Room 2731.

Textbook: Fundamental of Physics, 9th edition, ISBN: 978-0-470-46908-8.
Author: Halliday, Resnick, and Walker.

Prerequisite: Physics 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 area of optics, thermodynamics, and modern physics.

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

1. The student will solve problems involving interference, reflection, and transmission of transverse waves.
2. The student will solve problems involving velocity, frequency, energy, intensity, and the Doppler effect of sound waves.
3. The student will solve problems involving resonance, super-position and interference of standing waves in air, strings, rods and plates.
4. The student will solve problems involving temperature, thermometric properties, and temperature scales.
5. The student will solve problems involving thermal energy, heat capacity, latent heat, heat transfer, and the first law of thermodynamics.
6. The student will solve problems involving the kinetic theory of gases and the concepts of ideal gases.
7. The student will solve problems involving heat engines, refrigeration, entropy, and the second law of thermodynamics.
8. The student will solve problems involving Huygens' Principle, reflection, and refraction.

9. The student will solve problems involving images formed by plane mirrors, spherical mirrors, and thin lenses.
10. The student will solve problems involving interference of light waves, Young's Double Slit Experiment, and interference in thin films.
11. The student will solve problems involving single slit diffraction, resolution, diffraction gratings, and polarization.
12. The student will solve problems involving Einstein's Theory of special relativity.
13. The student will solve problems involving the hypothesis of Planck, Einstein's photoelectric effect, atomic spectra, and the Bohr Theory of the atom.
14. The student will solve problems involving the waved properties of particles, the uncertainty principle, and the Schrodinger wave equation.
15. The student will solve problems involving the hydrogen atom, quantum numbers, electron spin, and the exclusion principle.

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 plane mirrors, thin lenses, and spherical mirrors.
2. Solve polarization, reflection, refraction, and diffraction problems.
3. Solve single and double slit interference problems.
4. Solve temperature, heat, and First Law of Thermodynamics problems.
5. Solve problems involving the Kinetic Theory of Gases, entropy, and the Second Law of Thermodynamics.

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 (12)	10 points each = 120 points	20%
Reading Questions (12)	10 points each = 120 points	
Tests (1-2)	50 points each = 100 points	20%
Lab Reports (15)	225 points	20%
Mid-term	150 points	20%
Final Exam	150 points	20%
Total	**865 points**	

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 *April 13, 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 calculator, 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, mid-term, or 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 pagers, 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	ASSIGMENT DUE
1-January 14	Day 1: Syllabus / Introduction Day 2: Waves-I	Chapter 16	
2-January 21	Day 1: Waves-I Day 2: Waves-II	Chapter 16 Chapter 17	
3-January 28	Day 1: Waves-II Day 2: Waves-II	Chapter 17	
4-February 04	Day 1: Electromagnetic Waves Day 2: Electromagnetic Waves	Chapter 33	

5- February 11	Day 1: Review Day 2: Test		**Test # 1 (Chapters 16-17-33)**
6- February 18	Day 1:Images Day 2:Images	Chapter 34	
7- February 25	Day 1: Interference Day 2: Interference	Chapter 35	
8-March 04	Day 1: Diffraction Day 2: Diffraction	Chapter 36	
9-March 11	Day 1: Temperature, Heat, and the First Law of Thermodynamics Day 2: Temperature, Heat, and the First Law of Thermodynamics	Chapter 18	
10-March 18	Day 1: Review for Mid-term Day 2: Mid-term		**Mid-term (Chapters 16-17-33-34-35-36)**
11-March 25	Day 1: The Kinetic Theory of Gases Day 2: The Kinetic Theory of Gases	Chapter 19	
12-April 01	Day 1: Entropy and the Second Law of Thermodynamics Day 2: Entropy and the Second Law of Thermodynamics	Chapter 20	
April 01	**SPRING BREAK**		
13-April 08	Day 1: Relativity Day 2: Test	Chapter 37	**Test # 2 (Chapters 18-19-20)**
14-April 22	Day 1: Photons and Matter Waves Day 2: More about Matter Waves	Chapter 38 Chapter 39	
15-April 29	Day 1: More about Matter Waves Day 2: Review for Final Exam	Chapter 40	
16-May 06	**Day 1: Final Exam** **Day 2: Review final exam and answer questions**		***Final Exam*** **(Chapters 18-19-20-37-38-39-40)**

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 (No exceptions!)

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. **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!

26. **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*	*fails to capture and maintain interest of all students*	*fails to capture student interest at any time*		

		presentation				
Organization	*presentation follows a logical pattern; smooth transitions between sections*	*presentation follows a logical pattern; only a few rough points*	*presentation not given in a logical sequence but some organization present; transitions are abrupt*	*presentation lacks organization; 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.

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.