Imperial Valley College Course Syllabus – Physics 204 Spring 2018

Basic Course Information

Semester	**Spring 2018**	Instructor Name	**Dr. Alejandro Cozzani**
Course Title & #	**Physics 204**	Email	**alex.cozzani@imperial.edu**
CRN #	**20796**	Webpage (optional)	**Refer to Canvas**
Room	**2731**	Office	**2767**
Class Dates	**February 12-June 08, 2018** **Deadline to drop class with W: May 12, 2018**	Office Hours	**Monday through Thursday 7:00 to 7:30 AM.** **Online office hours: Tuesday and Thursday 1:00-2:00 PM.**
Class Days	**Tuesday and Thursday**	Office Phone #	**760-355-5720**
Class Times Units	**7:30-8:45 and 8:55 to 11:10 AM** **4.0**	Office contact if student will be out or emergency	**Silvia Murray 760-355-6201 or Ofelia Duarte 760-355-6155**

Course Description

This course is designed to give an understanding of the fundamental principles of physics in the area of optics, thermodynamics, and modern physics.

Course Prerequisite(s) and/or Corequisite(s)

Physics 200 with a grade of "C" or better and concurrent enrollment in Math 194.

Student Learning Outcomes

1. Solve problems involving mirrors, lenses, polarization, reflection, refraction, interference, and diffraction. (ILO 1, ILO 2).
2. Solve temperature, heat, and First Law of Thermodynamics problems. (ILO 1, ILO 2).
3. Solve problems involving the Kinetic Theory of Gases, entropy, and the Second Law of Thermodynamics. (ILO 1, ILO 2).

Course Objectives

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, superposition 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 wave 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.

Textbooks & Other Resources or Links

1. **Textbooks (either one)**:
   a. Fundamental of Physics, 10th edition, Chapters 1-15, ISBN: 978-1-118-23072-5 (Wiley).
      i. Halliday/Resnick/Walker.
   b. Physics for Scientists and Engineers, 4th edition, Chapters 1-14, ISBN: 978-13-149508-1 (Pearson).
      i. Giancoli, Douglas C.
   c. University Physics, Volumes II and III (Openstax.org).
      i. William Moebs, Samuel J. Ling, and Jeff Sanny.

Course Requirements and Instructional Methods

1. **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. Homework is done online at www.masteringphysics.com.
   Course ID: MPCOZZANI59445. Please refer to webpage for deadline.
   You need to complete at least an overall 80% to get full credit, otherwise your earned percentage will be converted to points (i.e. 80%=100 points, 72%=72 points).
   It is extremely important that you use the same first and last name as in the IVC roster otherwise you may not get credit for HW. You cannot use other's person account to do the HW. No exceptions!

   - As part of the HW section, we will have review questions/problems at the beginning/end of the class that need to be turned in for a grade (it counts as class participation) as well as volunteering to answer problems on the whiteboard. If you are absent or late, you will miss the points, no makeups.

2. **Out of Class Assignments**: The Department of Education policy states that one (1) credit hour is the amount of student work that reasonably approximates not less than one hour of class time and two (2) hours of out-of-class time per week over the span of a semester. WASC has adopted a similar requirement.

3. **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). Reports are due a week after the experiments have been performed (If the experiment was done on September 03, it is due on September 10). Corrections will be allowed on the first two labs only. No exceptions and no late submissions!
   a. **You are required to answer only the questions and graphs for each lab; however -if you are absent- you must submit a full report (no exceptions).**
4. **Lecture**: It is highly recommended that students read the chapters in advance.
5. **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!
6. **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. No makeup exams!
7. 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.
   a. In order to work in a laboratory in the Science Department at Imperial Valley College, the student must understand and agree to abide by the laboratory safety rules set forth. Please log into Webstar with your credentials and find Sports Survey and Safety Policy.
   b. Read the guidelines and answer *yes* to all the questions and click "*submit*." Failure to comply will result in no lab participation with the corresponding zeros in experiments until the form is submitted.

8. **Mid-term:** It may include questions from the tests (recycled questions) and new questions (you have not seen them before but with similar difficulty). No makeup!
9. **Final Exam:** It may include questions from the tests (recycled questions) and new questions (you have not seen them before but with similar difficulty). The MC section will include ALL chapters. No makeup!
    a. Students will not be allowed to make up any exam unless they have a powerful reason to miss a test (e.g. hospitalization, jury duty, etc. and bring the corresponding paperwork as evidence). It is students 'responsibility to notify the instructor via e-mail or by phone to make arrangements.
10. **Notes/formulas**: During exams, students can only use the table of equations provided in Canvas (No other notes).
11. **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; 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*	*presenter conveys a good*	*presenter lacks a complete*	*presenter has a poor*		

	understanding of the material	*understanding of the material*	*understanding of the material*	*understanding of the material*		

Oral presentation: 30 points

a. Follow Rubric for point distribution.
b. Topics: Any chapters not addressed in class.

Review questions: 10 points

c. Between 3 and 5.
d. 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 three with increasing level of difficulty).

e. You have to be able to explain them to your classmates in an understandable way.

Presentation dates: according to sign-up list. Once dates have been established, they cannot be changed 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.
Minimum time is 30 minutes and up to an hour long (to be determined depending how many groups will present per day).

- If you are absent the day of your presentation, your grade is ZERO (no exceptions!) so plan ahead.
- You may use your own computer (check connections first) or the one available in the classroom.

Course Grading Based on Course Objectives

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

Homework /Class Participation	15%
Tests – Presentation	20%
Lab Reports - Lab Tests	20%
Mid-term	20%
Final Exam	25%
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

Grades will be displayed in Canvas and you need to earn at least a "C."

Attendance

- A student who fails to attend the first meeting of a class or does not complete the first mandatory activity of an online class will be dropped by the instructor as of the first official meeting of that class. Should readmission be desired, the student's status will be the same as that of any other student who desires to add a class. It is the student's responsibility to drop or officially withdraw from the class. See General Catalog for details.
- Regular attendance in all classes is expected of all students. A student whose continuous, unexcused absences exceed the number of hours the class is scheduled to meet per week may be dropped. For online courses, students who fail to complete required activities for two consecutive weeks may be considered to have excessive absences and may be dropped.

- Absences attributed to the representation of the college at officially approved events (conferences, contests, and field trips) will be counted as 'excused' absences.

Classroom Etiquette

- Electronic Devices: Cell phones and electronic devices must be turned off and put away during class, unless otherwise directed by the instructor.
- Food and Drink are prohibited in all classrooms. Water bottles with lids/caps are the only exception. Additional restrictions will apply in labs. Please comply as directed by the instructor.
- Disruptive Students: Students who disrupt or interfere with a class may be sent out of the room and told to meet with the Campus Disciplinary Officer before returning to continue with coursework. Disciplinary procedures will be followed as outlined in the General Catalog.
- Children in the classroom: Due to college rules and state laws, no one who is not enrolled in the class may attend, including children.

Online Netiquette

- What is netiquette? Netiquette is internet manners, online etiquette, and digital etiquette all rolled into one word. Basically, netiquette is a set of rules for behaving properly online.
- Students are to comply with the following rules of netiquette: (1) identify yourself, (2) include a subject line, (3) avoid sarcasm, (4) respect others' opinions and privacy, (5) acknowledge and return messages promptly, (6) copy with caution, (7) do not spam or junk mail, (8) be concise, (9) use appropriate language, (10) use appropriate emoticons (emotional icons) to help convey meaning, and (11) use appropriate intensifiers to help convey meaning [do not use ALL CAPS or multiple exclamation marks (!!!!)].

Academic Honesty

Academic honesty in the advancement of knowledge requires that all students and instructors respect the integrity of one another's work and recognize the important of acknowledging and safeguarding intellectual property.

There are many different forms of academic dishonesty. The following kinds of honesty violations and their definitions are not meant to be exhaustive. Rather, they are intended to serve as examples of unacceptable academic conduct.

- Plagiarism is taking and presenting as one's own the writings or ideas of others, without citing the source. You should understand the concept of plagiarism and keep it in mind when taking exams and preparing written materials. If you do not understand how to "cite a source" correctly, you must ask for help.
- Cheating is defined as fraud, deceit, or dishonesty in an academic assignment, or using or attempting to use materials, or assisting others in using materials that are prohibited or inappropriate in the context of the academic assignment in question.

Anyone caught cheating or plagiarizing will receive a zero (0) on the exam or assignment, and the instructor may report the incident to the Campus Disciplinary Officer, who may place related documentation in a file. Repeated acts of cheating may result in an F in the course and/or disciplinary action. Please refer to the General Catalog for more information on academic dishonesty or other misconduct. Acts of cheating include, but are not limited to, the following: (a) plagiarism; (b) copying or attempting to copy from others during an examination or on an assignment; (c) communicating test information with another person during an examination; (d) allowing others to do an assignment or portion of an assignment; (e) using a commercial term paper service.

Additional Student Services

Imperial Valley College offers various services in support of student success. The following are some of the services available for students. Please speak to your instructor about additional services which may be available.

- CANVAS LMS. Canvas is Imperial Valley College's main Learning Management System. To log onto Canvas, use this link: Canvas Student Login. The Canvas Student Guides Site provides a variety of support available to students 24 hours per day. Additionally, a 24/7 Canvas Support Hotline is available for students to use: 877-893-9853.

- Learning Services. There are several learning labs on campus to assist students through the use of computers and tutors. Please consult your Campus Map for the Math Lab; Reading, Writing & Language Labs; and the Study Skills Center.
- Library Services. There is more to our library than just books. You have access to tutors in the Study Skills Center, study rooms for small groups, and online access to a wealth of resources.

Disabled Student Programs and Services (DSPS)

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. The DSP&S office is located in Building 2100, telephone 760-355-6313. Please contact them if you feel you need to be evaluated for educational accommodations.

Student Counseling and Health Services

Students have counseling and health services available, provided by the pre-paid Student Health Fee.

- **Student Health Center**. A Student Health Nurse is available on campus. In addition, Pioneers Memorial Healthcare District provide basic health services for students, such as first aid and care for minor illnesses. Contact the IVC Student Health Center at 760-355-6128 in Room 1536 for more information.
- **Mental Health Counseling Services**. Short-term individual, couples, family and group counseling services are available for currently enrolled students. Services are provided in a confidential, supportive, and culturally sensitive environment. Please contact the IVC Mental Health Counseling Services at 760-355-6310 or in the building 1536 for appointments or more information.

Veteran's Center

The mission of the IVC Military and Veteran Success Center is to provide a holistic approach to serving military/veteran students on three key areas: 1) Academics, 2) Health and Wellness, and 3) Camaraderie; to serve as a central hub that connects military/veteran students, as well as their families, to campus and community resources. Their goal is to ensure a seamless transition from military to civilian life. The Center is located in Building 600 (Office 624), telephone 760-355-6141.

Extended Opportunity Program and Services (EOPS)

The Extended Opportunity Program and Services (EOPS) offers services such as priority registration, personal/academic counseling, tutoring, book vouchers, and community referrals to qualifying low-income students. EOPS is composed of a group of professionals ready to assist you with the resolution of both academic and personal issues. Our staff is set up to understand the problems of our culturally diverse population and strives to meet student needs that are as diverse as our student population.

Also under the umbrella of EOPS our CARE (Cooperative Agency Resources for Education) Program for single parents is specifically designed to provide support services and assist with the resolution of issues that are particular to this population. Students that are single parents receiving TANF/Cash Aid assistance may qualify for our CARE program, for additional information on CARE please contact Lourdes Mercado, 760-355- 6448, lourdes.mercado@imperial.edu.

EOPS provides additional support and services that may identify with one of the following experiences:

- Current and former foster youth students that were in the foster care system at any point in their lives
- Students experiencing homelessness
- Formerly incarcerated students

To apply for EOPS and for additional information on EOPS services, please contact Alexis Ayala, 760-355-5713, alexis.ayala@imperial.edu.

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Student Equity Program

- The Student Equity Program strives to improve Imperial Valley College's success outcomes, particularly for students who have been historically underrepresented and underserved. The college identifies strategies to monitor and address equity issues, making efforts to mitigate any disproportionate impact on student success and achievement. Our institutional data provides insight surrounding student populations who historically, are not fully represented. Student Equity addresses disparities and/or disproportionate impact in student success across disaggregated student equity groups including gender, ethnicity, disability status, financial need, Veterans, foster youth, homelessness, and formerly incarcerated students. The Student Equity Program provides direct supportive services to empower students experiencing insecurities related to food, housing, transportation, textbooks, and shower access. We recognize that students who struggle meeting their basic needs are also at an academic and economic disadvantage, creating barriers to academic success and wellness. We strive to remove barriers that affect IVC students' access to education, degree and certificate completion, successful completion of developmental math and English courses, and the ability to transfer to a university. Contact: 760.355.5736 or 760.355.5733 Building 100.
- The Student Equity Program also houses IVC's Homeless Liaison, who provides direct services, campus, and community referrals to students experiencing homelessness as defined by the McKinney-Vento Act. Contact: 760.355.5736 Building 100.

Student Rights and Responsibilities

Students have the right to experience a positive learning environment and to due process of law. For more information regarding student rights and responsibilities, please refer to the IVC General Catalog.

Information Literacy

Imperial Valley College is dedicated to helping students skillfully discover, evaluate, and use information from all sources. The IVC Library Department provides numerous Information Literacy Tutorials to assist students in this endeavor.

Anticipated Class Schedule / Calendar

Subject to modifications based on students 'needs.

DATE AND WEEK	ACTIVITY AND/OR TOPIC	READING DUE	ASSIGMENT DUE
1-February 12	Syllabus / Introductions Waves-I	_____ Chapter 16	
2- February 19	Waves-I Waves-II	Chapter 16 Chapter 17	
3 - February 26	Waves-II	Chapter 17	
4- March 05	Electromagnetic Waves	Chapter 33	
5- March 12	Electromagnetic Waves Review	Chapter 33	**Test # 1**

	Test		**(Chapters 16- 17-33)**
6- March 19	Images	Chapter 34	
7- March 26	Interference	Chapter 35	
April 02	***Spring Break***	***No Class***	
8- April 09	Diffraction	Chapter 36	
9- April 16	Temperature, Heat, and the First Law of Thermodynamics	Chapter 18	
10- April 23	Review for Mid-term Mid-term		**Mid-term** **(Chapters 16-36)**
11- April 30	The Kinetic Theory of Gases	Chapter 19	
12- May 07	Entropy and the Second Law of Thermodynamics	Chapter 20	
13- May 14	Relativity Review/Test	Chapter 37	**Test # 2** **(Chapters 18-19-20)**
14- May 21	Photons and Matter Waves More about Matter Waves	Chapter 38 Chapter 39	
15- May 28	More about Matter Waves Review for Final Exam	Chapter 40	
16-June 04	**Day 1: Final Exam** **Day 2: Final Grades/Questions**		***Final Exam*** ***(All Chapters)***