

## Basic Course Information

Semester:	Spring 2023	Instructor Name:	Dr. Alejandro Cozzani
Course Title & #:	Physics 204	Email:	alex.cozzani@imperial.edu
CRN #:	20958	Webpage (optional):	Refer to Canvas
Classroom:	Online	Office #:	2767
Class Dates:	February 13 - June 09, 2023 Last Day to Add: 02/25/23 Drop Deadline with W: 05/13/23	Office Hours:	Monday-Wednesday 10:45-11:15 AM in office 2767 Tuesday-Thursday 10:00-11:30 AM (online) or by appointment
Class Days:	Asynchronous Class (no Zoom meetings)	Office Phone #:	760-355-5720
Class Times:	N/A	Emergency Contact:	Silvia Murray 760-355-6201
Units:	4.0 (3.0 Lecture/1.0 Lab)	Class Format:	Online Asynchronous Class (no Zoom meetings)

## Course Description

This course is designed to give an understanding of the fundamental principles of physics in 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, 10<sup>th</sup> edition, ISBN: 978-1-118-23072-5 (Wiley).
  - i. Halliday/Resnick/Walker.
- b. Physics for Scientists and Engineers, 4<sup>th</sup> edition, ISBN: 978-13-149508-1 (Pearson).
  - i. Giancoli, Douglas C.
- c. University Physics, Volumes II and III (Openstax.org). FREE OER
  - 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: <https://www.pearsonmylabandmastering.com/northamerica/>

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- Enrollment dates: 2/13/23-05/30/23. You will not be able to sign up for HW after this date!
- All assignments close on 06/03/23 at 8:59 PM. After this date, the course will be expired, and it cannot be open.
- The dynamic study modules are part of the HW so you are expected to answer them.

You need to satisfactorily 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 share/use other's person's account to do the HW. No exceptions!**

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 Experiments and Reports:** they have been replaced by computer simulations and labs by Labster done via Canvas (pay attention to deadlines).
4. **Lecture:** You need to read the modules because there are assignments aligned to your readings (you can use any textbook of your choice).
5. **Online Discussions:** As part of the course requirements, you need to answer the online discussions found in Canvas, under the "Discussions" tab.
6. **Online Quizzes:** At the end of each chapter, you will take a quiz to check your knowledge. Please refer to specific instructions under the "Quizzes" tab in Canvas.
7. **Tests or Exams:** They may be T/F, multiple choice, open-ended, and free response questions (also, done in Canvas).

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8. **Questions:** will be submitted via Canvas under "Assignments." Please pay attention to deadlines.
9. **Problems:** will be submitted via Canvas under "Assignments." Please pay attention to deadlines.
10. **Mid-term:** It may include questions from the tests (recycled questions) and new questions (you have not seen them before but with similar level of difficulty). No makeup! (Done in Canvas).
11. **Final Exam:** It may include questions from the tests (recycled questions) and new questions (you have not seen them before but with similar level of difficulty). The MC section will include ALL chapters. No makeup! (Done in Canvas).
12. Students will not be allowed to make up any exam or assignment unless they have a powerful reason (e.g., hospitalization) and send the corresponding paperwork as evidence; it is students' responsibility to notify the instructor via e-mail to make arrangements.

### Course Grading Based on Course Objectives

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

➤ Online Homework (Mastering Physics)	15%
➤ Discussions / Quizzes	15%
➤ Problems / Questions	10%
➤ Exams (2)	20%
➤ Labs / Simulations / Quizzes	15%
➤ Mid-term / Final Exam	25%
<b>TOTAL</b>	<b>100%</b>

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 are displayed in Canvas, and you need to earn at least a "C."*

### Course Policies

#### 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 absence 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

- 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.

## Other Course Information

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.
- **CANVAS LMS.** Canvas is Imperial Valley College's 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.



## Course Syllabus - Physics 204 - Spring 2023

- 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.

### IVC Student Resources

IVC wants you to be successful in all aspects of your education. For help, resources, services, and an explanation of policies, visit <http://www.imperial.edu/studentresources> or click the heart icon in Canvas.

### Anticipated Class Schedule/Calendar

**\*\*\*Subject to change without prior notice\*\*\***

WEEK OF	ACTIVITY, ASSIGNMENT, AND/OR TOPIC	READING	ASSIGNMENT DUE
1-February 13	Syllabus / HW/Canvas Module 0: Meet and Greet  Module 1: Waves I	Read Content Module 0  Read Content Module 1	<i>Refer to Canvas and Mastering Physics for due dates</i>
2- February 20  <b>Holiday: Monday 02/20/23</b>	Module 2: Waves II	Read Content Module 2	<i>Refer to Canvas and Mastering Physics for due dates</i>
3 – February 27	Module 3: EM and Light Waves	Read Content Module 3	<i>Refer to Canvas and Mastering Physics for due dates</i>
4- March 06	<b>Exam # 1 (Modules 1-2-3)</b>  Module 4: Images	Read Content Module 4	<b><i>Done in Canvas</i></b>  <i>Refer to Canvas and Mastering Physics for due dates</i>
5- March 13	Module 5: Interference	Read Content Module 5	<i>Refer to Canvas and Mastering Physics for due dates</i>
6- March 20	Module 6: Diffraction	Read Content Module 6	<i>Refer to Canvas and Mastering Physics for due dates</i>
7- March 27	<b>Midterm Exam (Modules 1 through 6)</b>	Review for Exam	<b><i>Done in Canvas</i></b>
8- April 03	Module 7: First Law of Thermodynamics	Read Content Module 7	<i>Refer to Canvas and Mastering Physics for due dates</i>



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<b>April 10</b>	<b>SPRING BREAK</b>	<b>NO CLASS</b>	<b>-----</b>
9-April 17	Module 8: Kinetic Theory of Gases	Read Content Module 8	<i>Refer to Canvas and Mastering Physics for due dates</i>
10- April 24	Module 9: Second Law of Thermodynamics	Read Content Module 9	<i>Refer to Canvas and Mastering Physics for due dates</i>
11- May 01	<b>Exam # 2 (Modules 7-8-9)</b>  Module 10: Relativity	Read Content Module 10	<b>Done in Canvas</b> <i>Refer to Canvas and Mastering Physics for due dates</i>
12- May 08	Module 11: Photons and Matter Waves	Read Content Module 11	<i>Refer to Canvas and Mastering Physics for due dates</i>
13- May 15	Module 12: Quantum Mechanics	Read Content Module 12	<i>Refer to Canvas and Mastering Physics for due dates</i>
14-May 22	Module 13: Nuclear Physics	Read Content Module 13	<i>Refer to Canvas and Mastering Physics for due dates</i>
15- May 29 <b>Holiday: Monday 05/29/23</b>	Module 14: Particle Physics and Cosmology	Read Content Module 14	<i>Refer to Canvas and Mastering Physics for due dates</i>
16-June 05	<b>Final Exam (All Modules 1-14)</b>		<b>Done in Canvas</b>

### Mastering Physics (Online Homework) - Student Registration Instructions

To register for Physics 204 CRN20958 Spring 2023:

1. Sign in with your Pearson student account or create your account.
2. Select any available access option, if asked.
  - a. Enter a prepaid access code that came with your textbook or from the bookstore.
  - b. Buy instant access using a credit card or PayPal.
  - c. Select **Get temporary access without payment for 14 days.**
3. Select **Go to my course.**
4. Select **Physics 204 CRN 20958 Spring 2023** from My Courses.
5. If you contact Pearson Support, give them the course ID: **cozzani69028**

**To sign in later:**

1. Go to <https://mlm.pearson.com>
2. Sign in with the same Pearson account you used before.
3. Select Physics 204 CRN 20958 Spring 2023 from My Courses.