

### Basic Course Information

Semester:	<b>Fall 2025</b>	Instructor Name:	<b>Cristopher Luna</b>
Course Title & #:	<b>PHYS 105– College Physics 1</b>	Email:	<b>cristopher.luna@imperial.edu</b>
CRN #:	<b>20958</b>	Webpage (optional):	
Classroom:	<b>2731</b>	Office #:	<b>2767</b>
Class Dates:	<b>08/11/2025 – 12/06/2025</b>	Office Hours:	<b>Monday: 4:05PM – 4:35PM Tuesday: 1:00PM – 2:40PM Wednesday: 2:25PM – 2:55PM Thursday: 1:20PM – 2:40PM</b>
Class Days:	<b>Monday and Wednesday</b>	Office Phone #:	<b>(760) 355 - 5720</b>
Class Times:	<b>8:00 AM – 11:10 AM</b>	Emergency Contact:	<b>Silvia Murray: 760-355-6201</b>
Units:	<b>4</b>	Class Format/Modality:	<b>Face-to-Face</b>

### Course Description

The course is part of a two-semester sequence whose contents may be offered in other sequences or combinations. Core topics include: kinematics, dynamics, work and energy, momentum, fluids, and simple harmonic motion. (CSU)

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

RECOMMENDED PREPARATION: Intermediate Algebra or appropriate placement as determined by multiple measures is highly recommended.

### Student Learning Outcomes

Upon course completion, the successful student will have acquired new skills, knowledge, and or attitudes as demonstrated by being able to:

1. Demonstrate an understanding of the basics of the fields of mechanics, fluids, oscillatory motion, thermodynamics, and their corresponding physical laws by correctly describing and identifying the concepts relevant to these fields
2. Given new situations, by using various trigonometric and algebraic techniques (with some discussion of relevant calculus concepts) students will correctly solve a variety of physical situations by a proper application of the principles, laws, and concepts of physics.
3. Given a particular laboratory physical objective in mechanics, fluids, oscillatory motion, or thermodynamics, students will correctly construct physical systems, learn to use and manipulate laboratory apparatus, and correctly make and analyze measurements of these physical systems.

### Course Objectives

Upon satisfactory completion of the course, students will be able to:

1. Read and critically evaluate scientific literature involving basic concepts.
2. Apply basic scientific principles to analyze new situations.
3. Outline and use the fundamental concepts of kinematics.
4. Recognize and use Newton's Laws of Motion and Gravitation.
5. Categorize and explain the connections between dynamics, energy, and momentum Synthesize and apply the basic laws of conservation of energy and momentum.
6. Use the concepts of kinematic, dynamics, and energy to understand and characterize simple harmonic motion (SHM).
7. Identify, examine, and characterize the fundamental properties of fluids.



8. Describe, investigate, and solve basic problems involving wave motion.
9. Explore and investigate the realm of temperature, heat, thermal energy, and thermodynamics.
10. Support, practice, and synthesize the above learning objectives through directed laboratory work.
11. Apply fundamental physical concepts to understand life-science phenomena and to solve physical problems involving living systems.
12. **LABORATORY COURSE OBJECTIVES:** At the conclusion of the laboratory component of this course, the student should be able to: 1. Analyze real-world experimental data, including appropriate use of units and significant figures. 2. Relate the results of experimental data to the physical concepts discussed in the lecture portion of the class.

### Textbooks & Other Resources or Links

**Textbook:** Textbooks (choose one):

- **\*FREE OER\*** College Physics 2e (OpenStax). OpenStax, Paul Peter Urone, Roger Hinrichs, et al.
  - <https://openstax.org/details/books/college-physics-2e>

### Course Requirements and Instructional Methods

**This course will be taught entirely in-person, make sure you're on time every session!**

**Homework:** Homework serves as a valuable tool to reinforce your understanding of the topics covered in class and to prepare for upcoming tests. To facilitate this, you will be assigned problem sets on canvas for each chapter. Homework assignments will be worth 10% of the total grade.

**Laboratory:** You will complete **up to 9 lab experiments** throughout the semester, working in randomly assigned groups of three. Each group will submit one lab report per experiment via the Assignments tab in Canvas.

Effective communication with your lab partners is important. It is your responsibility to coordinate with your group and schedule any additional meetings needed to complete lab reports. Claiming credit for work you did not contribute to is considered academic dishonesty and will be penalized.

**Lab Reports:** Lab reports should be typed with all relevant figures labeled and properly referenced. Please generate your graphs in excel or in Matplotlib, do not include hand-drawn graphs or tables. Please see the lab report format document on canvas.

**Exams:** There will be **2 exams** during the semester, collectively worth **40% of your final grade**. Exams will primarily consist of free-response questions, with some multiple-choice questions when appropriate. Each exam will cover specific chapters and will not be cumulative, see attached schedule for chapter breakdown.

**Final Exam:** There will be a final exam that is worth 20% of your final grade. Exam will consist of free-response questions, with some multiple-choice questions when appropriate. This exam can include material from the previous 2 exams.

Partial credit will be awarded for relevant work shown on free-response questions. If your final exam score is higher than either of the two midterm exams, then I will replace that score with the final exam score.

### **\*IMPORTANT\***

There will be no make-up assignments or exams unless you have a verifiable compelling reason. If you have documentation demonstrating unforeseen and extreme circumstances for yourself or other family members, please contact me as soon as possible. It is your responsibility to notify me and provide me with those documents so we can arrange an



assignment make-up. Forgetting to turn in assignments, not checking e-mail, planned events, etc. are not valid excuses. **No Exceptions.**

### Course Grading Based on Course Objectives

Component	Weight
Homework	10%
Lab Reports	30%
Midterm Exams	40%
Final Exam	20%

Description of Grading Scale	Distribution
A standard grade distribution will be followed.	<b>A:</b> 90% - 100%
	<b>B:</b> 80% - 89.9%
	<b>C:</b> 70% - 79.9%
	<b>D:</b> 60% - 69.9%
	<b>F:</b> 0% - 59.9%

### Academic Honesty (Artificial Intelligence -AI)

IVC values critical thinking and communication skills and considers academic integrity essential to learning. Using AI tools as a replacement for your own thinking, writing, or quantitative reasoning goes against both our mission and academic honesty policy and will be considered academic dishonesty, or plagiarism unless you have been instructed to do so by your instructor. In case of any uncertainty regarding the ethical use of AI tools, students are encouraged to reach out to their instructors for clarification. **Any work that is found to be AI assisted will result in an automatic score of zero without the opportunity to resubmit the assignment.**

### Course Policies

#### **Initial Class Attendance:**

Students are required to attend the first session of the course or complete the first mandatory activity for online classes. Failure to do so will result in automatic removal from the class roster. Students seeking readmission will follow standard procedures outlined in the General Catalog for adding classes.

#### **Regular Attendance:**

Attending classes is crucial for grasping the content and concepts covered. Students are expected to attend all class sessions, actively participate in discussions, and engage in class activities. I will keep a record of attendance during each class. Continuous, unexcused absences that exceed the equivalent of 3 class hours per week may result in the student being dropped from the course.

#### **Excused Absences:**

Students are allowed a reasonable number of excused absences due to illness, emergencies, or officially approved events (conferences, contests, field trips). **Proper documentation is required.** In cases of excused absences, you are responsible for obtaining missed class materials, notes, and assignments from classmates. It's advised to communicate with your peers to stay up to date on class content.

Updated 02/2025



IMPERIAL VALLEY COLLEGE

---

### **Classroom Conduct:**

Our class thrives on a respectful and collaborative classroom atmosphere. Your engagement and behavior significantly impact the learning experience. Please approach each session with respect for me (your instructor), peers, and the content. Actively participate in discussions, foster inclusivity, and avoid distractions from personal devices. Disruptive behavior, offensive language, and personal attacks have no place in our environment. Maintain focus during lectures, raise questions appropriately, and embrace a supportive attitude.

Any distractions will be addressed with a warning, and repeated disruptive behavior may lead to temporary removal from the classroom. Let's work together to ensure a positive and enriching learning environment for everyone involved.

### **Academic Integrity:**

Maintaining the highest standards of academic integrity is paramount here at Imperial Valley College. Plagiarism, which includes presenting someone else's work, ideas, or words as your own without proper attribution, will not be tolerated. Any form of academic dishonesty undermines the learning process and diminishes the trust within our community of learners. It is essential that all assignments and contributions reflect your genuine efforts and understanding. Upholding academic honesty not only preserves the integrity of your work but also respects the intellectual property of others. Any instances of plagiarism will result in appropriate actions, following the college's established guidelines. **Any work that is found to be plagiarized will result in an automatic score of zero without the opportunity to resubmit the assignment.**

### **Tips**

- Make sure to be on time every day!
- Read the lecture notes online after class, it helps you remember what we covered!
- Read the book! There's a ton of figures and links for you to explore the subject and get clarification on difficult concepts. You can go at your own pace and supplement the book with your notes.
- Pay attention during lectures and take notes!
- Come to office hours!

If you're struggling with the class, please let me know, there may be additional resources that I can provide you with to ensure that you can succeed in this class!

### **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

The schedule below follows the chapter numbering and titles from *Physics for Scientists and Engineers, 4th Edition* by Randall Knight. Chapter names and numbering may vary between different textbooks, but topics remain the same.

Date or Week	Lecture Topic	Read Chapters
Week 1 08/11 – 08/15	Chapter 1: Physical Quantities and Vectors	1
Week 2 08/18 – 08/22	Chapter 2: 1D-Kinematics	2
Week 3 08/25 – 08/29	Chapter 3: 2D-Kinematics	3
Week 4 09/01 – 09/05	Chapter 4: Newton's Laws and Forces	4
Week 5 09/08 - 09/12	Chapter 6: Gravitation and Uniform Circular Motion	6
Week 6 09/15 - 09/19	Chapter 8: Linear Momentum and Collisions	8
Week 7 09/22 - 09/26	Chapter 7: Work, Energy, Power	7
Week 8 09/29 – 10/03	Chapter 7: Work, Energy, Power	7
Week 9 10/6 - 10/10	Chapter 10: Angular Momentum & <b>Exam 1 (Ch 1, 2, 4, 6, 7, 8)</b>	10
Week 10 10/13 - 10/17	Chapter 16: Simple Harmonic Motion	16
Week 11 10/20 - 10/24	Chapter 16: Waves	16
Week 12 10/27 – 10/31	Chapter 11: Fluid Statics	11
Week 13 11/03 - 11/07	Chapter 13: Kinetic Theory & <b>Exam 2 (Ch 10, 11, 16)</b>	13
Week 14 11/10 - 11/14	Chapter 14: Heat and Heat Transfer	14
Week 15 11/17 - 11/21	Chapter 15: Thermodynamics	15
No Class!	<b>Thanksgiving Break! No Class!</b>	15
Week 16 12/01 - 12/06	Review	<b>Final Exam</b>

### Anticipated Exam Schedule

<b>EXAM 1</b>	<b>Chapters 1, 2, 4, 6, 7, 8</b>	<b>Wednesday, October 8</b>
<b>EXAM 2</b>	<b>Chapters 10, 11, 16</b>	<b>Wednesday, November 5</b>
<b>FINAL</b>		<b>Wednesday, December 4</b>



---

*Note 1:* The schedule is tentative regarding the chapters covered. We may spend more or less time on specific chapters depending on the needs of my students.

*Note 2:* The content of the course material may be changed based upon other priorities.

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