



IMPERIAL VALLEY COLLEGE

### Basic Course Information

Semester:	<b>FALL 2024</b>	Instructor Name:	<b>Cristopher Luna</b>
Course Title & #:	<b>PHSC 110: Physical Science</b>	Email:	<b>cristopher.luna@imperial.edu</b>
CRN #:	<b>10039</b>	Webpage (optional):	
Classroom:	<b>2731</b>	Office #:	<b>2767</b>
Class Dates:	<b>08/12/24 – 12/07/24</b>	Office Hours:	<b>Monday: 10 AM – 11:15AM Wednesday: 10AM – 11:15AM Tuesday: 12:45PM – 1:45PM Thursday: 12:45PM – 1:15PM</b>
Class Days:	<b>Tuesday &amp; Thursday</b>	Office Phone #:	<b>(760) 355 - 5720</b>
Class Times:	11:20 AM – 12:45 AM	Emergency Contact:	<b>Silvia Murray: 760-355-6201</b>
Units:	3	Class Format/Modality:	Face-to-Face

### Course Description

This course is designed to give an understanding of the fundamental principles of physics and chemistry as they relate to the structure and properties of matter and the principles of motion and energy, for liberal studies students. (CSU, UC credit limited. See a counselor.)

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

None

### 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. Conceptualize the fundamental differences between mass and weight and between speed and velocity, using illustrative examples.
2. Comprehend and apply the principle of Conservation of Energy to simple machines, e.g. levers.
3. Distinguish between series and parallel circuits, identifying their advantages and disadvantages.

### Course Objectives

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

1. Describe the motion of objects based on position, displacement, velocity, speed and acceleration.
2. Recognize that forces (pushes and pulls) such as gravity, magnetism and, friction act on objects and may change their motion if these forces are not in balance.
3. Recognize the differences between kinetic energy, potential energy, work, power, and their application to machines.
4. Know the difference between weights and masses and weights of objects using the Universal Law of Gravitation.
5. Know the difference between temperature and heat and know the law of thermodynamics.
6. Describe the methods of heat transfer and know the phases of matter and how one phase is converted to another.
7. Recognize the differences between electrical forces, voltages, currents, resistance, series circuits, and parallel circuits.
8. Understand the origin of magnetic forces and their application in meters, motors, and generators.
9. Describe wave motion including longitudinal and transverse waves and applications to sound waves.
10. Understand the origin of light waves and the application of frequency to the electromagnetic spectrum and color.
11. Know the difference between reflection and refraction of light.
12. Understand the composition of the atom and the classification of atoms by the periodic table.

Updated 08/2024

13. Understand atomic structure and identification of atoms using a spectroscope.
14. Understand properties of the nucleus including fission, fusion, and radioactive decay.
15. Recognize physical and chemical properties of elements and compounds.
16. Understand mixtures and determining means of classifying and separating them.
17. Understand Ionic, polar, covalent, and metallic bonds.
18. Describe chemical reactions.
19. Understand the chemical properties of acids and bases.

### Textbooks & Other Resources or Links

**Textbook:** Conceptual Physical Science (6<sup>th</sup> Edition) **without Mastering Physics**. Pearson. Hewitt, Paul G., John Suchocki, and Leslie A. Hewitt. ISBN: 9780134857107

We are using Hewitt's "Conceptual Physical Science, 6th Edition" textbook for our course. You do not need to buy access to the online homework component. You can buy access to the eText from Pearson's website for a low monthly fee, **do not purchase access to Mastering Physics as it's not required for your class!**

**Alternate texts:** Conceptual Physics (13<sup>th</sup> edition). Pearson. Hewitt, Paul G. ISBN: 978-0135746264

### 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 weekly homework assignments on canvas. Homework assignments will be worth 20% of the total grade.

**Chapter Review:** There will be several take-home chapter review assignments that will serve as extra practice and aim to bring all the topics within a chapter together. These reviews will be free-response and will be worth 10% of the total grade. Collaboration is highly encouraged as these are challenging problems that are best solved with classmates.

**Quizzes:** There will be a quiz at the end of every chapter which may include questions that are multiple choice, true/false, matching, fill in the blank, or free response. Quizzes will be completed at the beginning of class and will be worth 15% of the total grade.

**Midterm Exams:** There will be two exams worth 15% each during the semester. Exams will be mostly multiple choice but may include other formats such as T/F, free response, and fill in the blank questions. Each exam will cover specific chapters and will not be cumulative.

Exams are open-book and notes. No formulas will be provided during exams, make sure to bring your own notes!

You will have the entire class period to complete your exam, please bring a pencil and a Scantron 882-E. Make sure it's an official "Scantron Brand" scantron, other brands may not work on our grader.

**Final Exam:** You will have a comprehensive final exam covering material from every chapter we studied worth 20%. The final exam will be mostly multiple-choice questions but may also include other question formats such as true/false, matching, free response, or fill in the blank. You will have the entire class period to complete your exam, please bring a pencil and a Scantron 882-E. Make sure it's an official "Scantron Brand" scantron, other brands may not work on our grader.

The final exam is open-book and notes. No formulas will be provided during exams, make sure to bring your own notes!

**\*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
Participation	5%
Homework	20%
Quizzes	15%
Chapter Review	10%
Exam 1	15%
Exam 2	15%
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:**



IMPERIAL VALLEY COLLEGE

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.

### **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! The slides will be made available but if you're not actively taking notes, it's harder to retain information.
- 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.



IMPERIAL VALLEY COLLEGE

### Anticipated Class Schedule/Calendar

Date or Week	Lecture Topic (Tuesday)	Lecture Topic (Thursday)	Read Chapters
Week 1 08/12 – 08/16	What's physics; why do we care?	Motion: inertia, momentum, force	1
Week 2 08/19 – 08/23	Motion: inertia, momentum, force	Motion: inertia, momentum, force	2 & 3.3
Week 3 08/26 – 08/30	Motion: inertia, momentum, force	Motion: inertia, momentum, force	2 & 3.3
Week 4 09/02 – 09/06	Energy: work, potential, kinetic	Energy: work, potential, kinetic	3.4 - 4
Week 5 09/09 - 09/13	Energy: work, potential, kinetic	Energy: work, potential, kinetic	3.4 - 4
Week 6 09/16 - 09/20	<b>Exam 1: Ch 1 - 4</b>	Matter: atomic and subatomic	12
Week 7 09/23 - 09/27	Matter: atomic and subatomic	Matter: The Atomic Nucleus and Radioactivity	12 & 13
Week 8 09/30 – 10/04	Temperature and Heat Flow	Temperature and Heat Flow	6
Week 9 10/7 - 10/11	Temperature and Heat Flow	Thermodynamics	6 & 7
Week 10 10/14 - 10/18	Thermodynamics	<b>Exam 2: Ch 12, 13, 6, 7</b>	6 & 7
Week 11 10/21 - 10/25	Static Electricity	Static Electricity	8
Week 12 10/28 – 11/01	Static Electricity	Static Electricity	8
Week 13 11/04 - 11/08	Electromagnetism	Electromagnetism	9
Week 14 11/11 - 11/15	Electromagnetism	Waves: sound, light, radiation	9 & 10
Week 15 11/18 - 11/22	Waves: sound, light, radiation	Waves: sound, light, radiation	10 & 11
Week 16 11/25 - 11/29	<b>Thanksgiving – No Class!</b>	<b>Thanksgiving – No Class!</b>	
Week 17 12/02 - 12/06	Final Exam Review	<b>Final Exam</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\*\*\***