



IMPERIAL VALLEY COLLEGE

Basic Course Information

Semester:	SPRING 2024	Instructor Name:	Cristopher Luna
Course Title & #:	PHSC 110: Physical Science	Email:	cristopher.luna@imperial.edu
CRN #:	20044	Webpage (optional):	
Classroom:	2731	Office #:	2767
Class Dates:	02/12/24 – 06/07/24	Office Hours:	M/W 12:45 PM – 1:30 PM Tuesday 11:15 AM – 1:15 PM Thursday 11:15 AM – 12 PM
Class Days:	Monday & Wednesday	Office Phone #:	TBA
Class Times:	11:20 AM – 12:45 AM	Emergency Contact:	Silvia Murray: 760-355-6201
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.
13. Understand atomic structure and identification of atoms using a spectroscope.

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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 (6th 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 (13th 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 15% of the total grade.

Discussions: There will be several in-class activities that you'll need to complete in groups for this class. In-class assignments may be written summaries, short calculations, discussions, etc., which will be due at the end of class. This will also include your participation in the activities and engagement during lectures.

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 20% of the total grade.

Midterm Exams: There will be **3 Midterm Exams** worth 15% each during the semester. Midterms will be mostly multiple choice but may include other formats such as T/F, free response, and fill in the blank questions. Each Midterm will cover specific chapters and will not be cumulative.

Exams are closed book and notes, but every student can bring a standard 3 x 5 inch double-sided notecard as a formula sheet. No formulas will be provided during exams, make sure to make your notecards! **Formula sheets cannot include solved problems or examples.**

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 do 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 do not work on our grader.

The final exam is closed book and notes, but every student can bring a standard 3 x 5 inch double-sided notecard as a formula sheet. No formulas will be provided during exams, make sure to make your notecards! **Formula sheets cannot include solved problems or examples.**



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****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	15%
Quizzes	20%
Midterms x 3	45%
Final Exam	20%

Description of Grading Scale	Distribution
A modified grade distribution will be followed.	A: 85% - 100%
	B: 75% - 84.9%
	C: 65% - 74.9%
	D: 55% - 64.9%
	F: 0% - 54.9%

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.

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.



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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.

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.



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Anticipated Class Schedule/Calendar

Date or Week	Lecture Topic (Monday)	Lecture Topic (Wednesday)	Chapters
Week 1 02/12 - 02/16	What's physics; why do we care?	What's physics; why do we care?	1
Week 2 02/19 - 02/23	Motion: inertia, momentum, force	Motion: inertia, momentum, force	2 & 3.3
Week 3 02/26 - 03/01	Motion: inertia, momentum, force	Motion: inertia, momentum, force	2 & 3.3
Week 4 03/04 - 03/08	Exam 1 (Ch 1, 2, & 3.3)	Motion: gravity, work, energy	3.4 - 4
Week 5 03/11 - 03/15	Motion: gravity, work, energy	Motion: gravity, work, energy	3.4 - 4
Week 6 03/18 - 03/22	Energy: potential, kinetic, heat	Energy: potential, kinetic, heat	3.4 - 4
Week 7 03/25 - 03/29	Energy: potential, kinetic, heat	Energy: potential, kinetic, heat	4, 6, 7
Week 8 04/01 - 04/05	Spring Break! No Class!	Spring Break! No Class!	
Week 9 04/08 - 04/12	Energy: potential, kinetic, heat	Exam 2 (Ch 3.4, 4, 6, & 7)	4, 6, 7
Week 10 04/15 - 04/19	Static Electricity	Electromagnetism	8, 9
Week 11 04/22 - 04/26	Electromagnetism	Electromagnetism	8, 9
Week 12 04/29 - 05/03	Waves: sound, light, radiation	Waves: sound, light, radiation	10 & 11
Week 13 05/06 - 05/10	Waves: sound, light, radiation	Exam 3 (Ch 8, 9, 10, & 11)	10 & 11
Week 14 05/13 - 05/17	Matter: atomic and subatomic	Matter: atomic and subatomic	12
Week 15 05/20 - 05/24	The Atomic Nucleus and Radioactivity	Elements of Chemistry & How Chemicals React	13, 14, & 17
Week 16 05/27 - 05/31	How Atoms bond and Molecules Attract	How Atoms bond and Molecules Attract	13, 14, & 17
Week 17 06/03 - 06/07	Final Exam Review	Final Exam	

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*****