



## Basic Course Information

Semester:	<b>Spring 2022</b>	Instructor Name:	<b>Dr. Djemoui (DJ) Bouzidi</b>
Course Title & #:	<b>Physical Science 110</b>	Email:	<b>Dj.bouzidi@imperial.edu</b>
CRN #:	<b>20044</b>	Webpage (optional):	
Classroom:	<b>2731</b>	Office #:	2775
Class Dates:	<b>Feb 14 to Jun 10</b>	Office Hours:	<b>Mon.: 10:00—11:00 AM Tue.: 1:00—2:00 PM (ONLINE) Wed.: 10:00—11:00 AM Thu.: 1:00—2:00 PM (ONLINE)</b>
Class Days:	<b>Weekly Schedule</b>	Office Phone #:	
Class Times:	MW 11:20AM—12:45 PM	Emergency Contact:	
Units:	3	Class Format:	Face to Face—On Campus

## 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 the liberal studies students. (UC credit limited. See a Counselor.) (CSU/UC)

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

There are no prerequisites for this course.

## 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. (ILO2)
2. comprehend and apply the principle of Conservation of Energy to simple machines, e.g. levers. (ILO2)
3. distinguish between series and parallel circuits, identifying their advantages and disadvantages. (ILO2)

## 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.
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**

Hewitt, P.G., J. Suchocki, & L.A. Hewitt (2017). *Conceptual Physical Science* (6<sup>th</sup> ed). San Francisco Pearson-Addison Wesley. ISBN-13: 978-0-13-406049-1

Canvas Course Link: <https://imperial.instructure.com/courses/17392>

### **Course Requirements and Instructional Methods**

Instructional Methodology: Audio Visual, Demonstration, Discussion, Group Activity, Lecture, Individual Assistance, Computer Assisted Instruction.

### **Reading and Writing:**

1. Demonstrating knowledge of fundamental definitions (i.e. mass, velocity, thermal energy, electric potential) and physical laws (Newton's Laws of Motion, Laws of Thermodynamics) on exams.
2. One written short essay (1-2 pages in length).
3. In-class peer learning activities (1-2 pages in length) completed by the students working together with only modest instructor involvement.
4. Conceptual questions from the assigned problems sets require answers to be in complete sentences.

### Out-of-class:

1. Assigned reading in textbook (10 to 30 pages per week) along with additional supplemental handouts.
2. Problem sets (weekly or bi-weekly) involving relevant mathematical relations and conceptual explanations of material covered in the reading and in class meetings.

*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.*

### What if I need to borrow technology or access to WIFI?

1. To request a loaner laptop, MYFI device, or other electronic device, please contact the Student Equity & Achievement Program at 760-355-5733
2. If you'd like access the WIFI at the IVC campus, you can park in parking lots "I & J". Students must log into the IVC student WIFI by using their IVC email and password. The parking lots will be open Monday through Friday from 8:00 a.m. to 7:00 p.m.

Note: there maybe restrictions due to COVID19 pertaining to the above hours.

Guidelines for using parking WIFI:

- Please consult with the "IVC Campus Safety & Parking Control Department" or directly [gina.madrid@imperial.edu](mailto:gina.madrid@imperial.edu) for your parking permit needs.
- If you have any questions about using parking WIFI, please visit <https://www.imperial.edu/student-support/student-affairs/>.
- Emergency and safety on campus (760) 483-7411

### Course Grading Based on Course Objectives

<i>Course Grading:</i>	<i>5 Exams (lowest graded dropped)</i>	<i>60%</i>
	<i>Homework</i>	<i>20%</i>
	<i>Quizzes</i>	<i>10%</i>
	<i>Participation</i>	<i>10%</i>

### Course Policies

*A community is a group of individuals who work together to support a common goal or interest. In this online physics class, we work together to support the successful achievement of our learning outcomes. In an effort to ensure our physics class community develops, thrives and sustains throughout our time together, the following ground rules will be in effect at all times.*

1. *Treat contributions made by other members of the class with respect.*
2. *Reach out and help when you see the need. And ask for help when you need it.*
3. *Science is a collaborative endeavor, and you will be graded on your participation in class among other things by reaching out towards your classmates.*
4. *Have patience and a sense of humor with technology. There will be hiccups, expect them.*

5. *Keep an open mind. If you're feeling reluctant, that's OK. Take it one step at a time and look at this as an opportunity to learn something new.*
6. *Contribute regularly to collaborative activities to ensure other members of the community have ample opportunity to read/listen, reflect, and respond to your ideas.*
7. *Respect the diverse opinions and viewpoints of each member of our community. Differences allow us to learn and grow together.*
8. *Understand that communications shared through text have a higher likelihood of being misinterpreted than the spoken word. Therefore, when you type a thought or a comment, read it carefully before you submit it. If you question the way it is worded, read it out loud to yourself. If you still question the way it's phrased, rewrite it.*
9. *Contribute regularly to group dialogue, including discussion posts and replies. The contributions of everyone play a role in the collective strength and diversity of our community. As noted above, your participation will be included in your overall grade.*
10. *Members of our community are restricted to enrolled members of our class, to maintain a safe, trustworthy discussion environment.*
11. *All image and video content shared within this community will reflect acceptable academic standards. You are expected to use discretion and, if asked, you will be expected to demonstrate how your content supports the theme of our physics class community.*
12. *Any community member can create a new discussion forum in our course. However, the individual who creates the forum immediately takes on the responsibility of moderating it. This means you have committed to regularly responding to new comments and greeting new members of the forum.*
13. *If, at any time, you feel that any of these ground rules have been violated by a member of our community, you are encouraged to bring your concern directly and immediately at [dj.bouzidi@imperial.edu](mailto:dj.bouzidi@imperial.edu), the instructor, and the physics class community leader. Clearly identify which ground rule has been violated and include specific evidence of the violation in your email. Your concerns will be addressed promptly with careful consideration in an individualized manner.*
14. *Every community member is required to follow the rules established by the Imperial Valley College Standards of Student Conduct: [Standards of Student Conduct - Student Affairs - Student Support - Imperial Valley College](#).*

## Other Course Information

*[Optionally, include other necessary information.]*

## 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

*[Provide a tentative overview of the readings, assignments, tests, and/or other activities for the duration of the course. A table format as in the example below may be used for this purpose.]*



<b>Week of 1st Day</b>	<b>SUBJECT</b>	<b>READINGS (5<sup>th</sup> Ed.)</b>
Week 1	Introduction	
Feb 14	Properties of Motion & Equilibrium I	Sec. 1.1 through 1.5
	Properties of Motion & Equilibrium II	Sec. 1.6 through 1.10
Week 2	Newton's Laws of Motion	Sec. 2.1 through 2.5
Feb 21	Vectors	Class Notes
	Work, Energy, Conservation of Energy	Sec. 3.4 through 3.7
Week 3	Machines	Sec. 3.8
Feb 28	Newton's Law of Gravity	Sec. 4.1 through 4.4
Week 4		
Mar 7	<b>First Mid-Term Exam</b>	
Week 5	Basics of Thermodynamics	Chap. 6
Mar 14	Methods of Heat Transfer	Sec. 7.1 through 7.4
Week 6	Energy and Changes of Phase	Sec. 7.6 through 7.9
Mar 21	Static Electricity	Sec. 8.1 through 8.5
Week 7	Current Electricity	Sec. 8.6 through 8.10
Mar 28	<b>Second Mid-Term Exam</b>	
Week 8	Waves and Sound I	Sec. 10.1 through 10.4
Apr 4	Waves and Sound II	Sec. 10.5, 10.6, 10.8, 10.9
Week 9	Light Waves	Sec. 11.1, 11.5, 11.6, 10.7
Apr 11	Properties of Light	Sec. 11.3, 11.4, 11.6, 11.7
Week 10		
Apr 18	Spring Break	
Week 11	Introduction to Atoms	Sec. 12.1 through 12.3
Apr 25	The Periodic Table	Sec. 12.4
Week 12	<b>Third Mid-Term Exam</b>	
May 2	Atomic Models	Sec. 12.5
Week 13	The Nucleus of the Atom	Chap. 13
May 9	Elements of Chemistry	Chap. 14
Week 14	Atomic Bonds I	Chap. 15
May 16	Mixtures	Chap. 16
Week 15	Chemical Reactions and their Kinds	Chap. 17–18
May 23	Organic Compounds	Chap. 19
Week 16		
May 30 ( )	<b>Fourth Mid-Term Exam (Jun 1)</b>	
Jun 6	<b>Final Exam</b>	

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