Basic Course Information

Semester:	**Spring 2020**	Instructor Name:	**Dr. Russell Lavery**
Course Title & #:	**Physical Science 110**	Email:	**Russell.Lavery@imperial.edu**
CRN #:	**20063**	Webpage (optional):	**http://spaces.imperial.edu/russell.lavery/PS110/front110.html**
Classroom:	**2731**	Office #:	**2777**
Class Dates:	**Feb. 18 to June 12**	Office Hours:	**Monday: 8:30 AM to 9:30 AM** **Tuesday: 11:30 AM to 12:30 PM** **Wednesday: 2:30 PM to 3:30 PM** **Thursday: 11:30 AM to 12:30 PM**
Class Days:	**Monday-Wednesday**	Office Phone #:	**355-6202**
Class Times:	**11:20 to 12:45**	Emergency Contact:	Ofelia Duarte : (760) 355-6155 Silvia Murray: (760) 355-6201
Units:	**3**		

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. (CSU) (UC credit limited. See a Counselor.)

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* (6th/e). San Francisco Pearson-Addison Wesley. ISBN-13: 978-0-13-406049-1

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.

Course Grading Based on Course Objectives

Course Grading:

5 Exams (4 mid-terms and 1 final exam)	
4 highest scores will be worth 15% each	**60%**
Homework Exercises	**20%**
Quizzes	**10%**
In-Class Exercises	**5%**
1 Written Assignment	**5%**

TOTAL	**100%**

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 absences 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, only students enrolled in the class may attend; children are not allowed.

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 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.

Additional Student Services

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.

Disabled Student Programs and Services (DSPS)

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.

Student Counseling and Health Services

Students have counseling and health services available, provided by the pre-paid Student Health Fee.

- **Student Health Center**. A Student Health Nurse is available on campus. In addition, Pioneers Memorial Healthcare District provide basic health services for students, such as first aid and care for minor illnesses. Contact the IVC Student Health Center at 760-355-6128 in Room 1536 for more information.
- **Mental Health Counseling Services**. Short-term individual, couples, family and group counseling services are available for currently enrolled students. Services are provided in a confidential, supportive, and culturally sensitive environment. Please contact the IVC Mental Health Counseling Services at 760-355-6310 or in the building 1536 for appointments or more information..

Veteran's Center

The mission of the IVC Military and Veteran Success Center is to provide a holistic approach to serving military/veteran students on three key areas: 1) Academics, 2) Health and Wellness, and 3) Camaraderie; to serve as a central hub that connects military/veteran students, as well as their families, to campus and community resources. Their goal is to ensure a seamless transition from military to civilian life. The Center is located in Building 600 (Office 624), telephone 760-355-6141.

Extended Opportunity Program and Services (EOPS)

The Extended Opportunity Program and Services (EOPS) offers services such as priority registration, personal/academic counseling, tutoring, book vouchers, and community referrals to qualifying low-income students. EOPS is composed of a group of professionals ready to assist you with the resolution of both academic and personal issues. Our staff is set up to understand the problems of our culturally diverse population and strives to meet student needs that are as diverse as our student population.

Also under the umbrella of EOPS our CARE (Cooperative Agency Resources for Education) Program for single parents is specifically designed to provide support services and assist with the resolution of issues that are particular to this population. Students that are single parents receiving TANF/Cash Aid assistance may qualify for our CARE program, for additional information on CARE please contact Lourdes Mercado, 760-355- 6448, lourdes.mercado@imperial.edu.

EOPS provides additional support and services that may identify with one of the following experiences:

- Current and former foster youth students that were in the foster care system at any point in their lives
- Students experiencing homelessness
- Formerly incarcerated students

To apply for EOPS and for additional information on EOPS services, please contact Alexis Ayala, 760-355-5713, alexis.ayala@imperial.edu.

Student Equity Program

- The Student Equity Program strives to improve Imperial Valley College's success outcomes, particularly for students who have been historically underrepresented and underserved. The college identifies strategies to monitor and address equity issues, making efforts to mitigate any disproportionate impact on student success and achievement. Our institutional data provides insight surrounding student populations who historically, are not fully represented. Student Equity addresses disparities and/or disproportionate impact in student success across disaggregated student equity groups including gender, ethnicity, disability status, financial need, Veterans, foster youth, homelessness, and formerly incarcerated students. The Student Equity

Program provides direct supportive services to empower students experiencing insecurities related to food, housing, transportation, textbooks, and shower access. We recognize that students who struggle meeting their basic needs are also at an academic and economic disadvantage, creating barriers to academic success and wellness. We strive to remove barriers that affect IVC students' access to education, degree and certificate completion, successful completion of developmental math and English courses, and the ability to transfer to a university. Contact: 760.355.5736 or 760.355.5733 Building 100.

- The Student Equity Program also houses IVC's Homeless Liaison, who provides direct services, campus, and community referrals to students experiencing homelessness as defined by the McKinney-Vento Act. Contact: 760.355.5736 Building 100.

Student Rights and Responsibilities

Students have the right to experience a positive learning environment and to due process of law. For more information regarding student rights and responsibilities, please refer to the IVC General Catalog.

Information Literacy

Imperial Valley College is dedicated to helping students skillfully discover, evaluate, and use information from all sources. The IVC Library Department provides numerous Information Literacy Tutorials to assist students in this endeavor.

Anticipated Class Schedule/Calendar

	SUBJECT	READINGS (5th Ed.)
Feb 17 M	*HOLIDAY*	
19 W	Introduction	
24 M	Properties of Motion & Equilibrium I	Sec. 1.1 through 1.5
26 W	Properties of Motion & Equilibrium II	Sec. 1.6 through 1.10
Mar 2 M	Newton's Laws of Motion	Sec. 2.1 through 2.5
4 W	Vectors	Class Notes
9 M	Work, Energy, Conservation of Energy & Power	Sec. 3.4 through 3.7
11 W	Machines	Sec. 3.8
16 M	**First Mid-Term Exam**	
18 W	Newton's Law of Gravity	Sec. 4.1 through 4.4
23 M	Basics of Thermodynamics	Chap. 6
25 W	Methods of Heat Transfer	Sec. 7.1 through 7.4
30 M	Energy and Changes of Phase	Sec. 7.6 through 7.9
Apr 1 W	Static Electricity	Sec. 8.1 through 8.5
6 M	Current Electricity	Sec. 8.6 through 8.10
8 W	**Second Mid-Term Exam**	
13 M	*Spring Break*	
15 W	*Spring Break*	
20 M	Waves and Sound I	Sec. 10.1 through 10.4
22 W	Waves and Sound II	Sec. 10.5, 10.6, 10.8, 10.9
27 M	Light Waves	Sec. 11.1, 11.5, 11.6, **10.7**
29 W	Properties of Light	Sec. 11.3, 11.4, 11.6, 11.7
May 4 M	Introduction to Atoms	Sec. 12.1 through 12.3
6 W	The Periodic Table	Sec. 12.4
11 M	**Third Mid-Term Exam**	
13 W	Atomic Models	Sec. 12.5
18 M	The Nucleus of the Atom	Chap. 13
20 W	Elements of Chemistry	Chap. 14
25 M	*HOLIDAY*	
27 W	Atomic Bonds I	Chap. 15
June 1 M	Atomic Bonds II	Chap. 15
3 W	**Fourth Mid-Term Exam**	
8 M	Final Exam Preparation	
10 W	**Final Exam**	
	Topics if Time is Available	
	Chemical Reactions	Chap. 17
	Acids & Bases I	Sec. 18.1 through 18.4