Basic Course Information

Semester	**Spring 2017**	Instructor's Name	**Russell J. Lavery**
Course Title & #	**Physical Science 110**	Instructor's Email	**Russell.Lavery@imperial.edu**
CRN #	**20063**	Webpage	**http://spaces.imperial.edu/russell.lavery/PS110/front110.html**
Room	**2731**	Office	**2777**
Class Dates	**Feb. 13 to June 10**	Office Hours	**Monday: 12:50 to 1:50 PM** **Tuesday: 11:30 AM to 12:30 PM** **Wednesday: 12:50 to 1:50 PM** **Thursday: 11:30 AM to 12:30 PM**
Class Days	**Monday-Wednesday**	Office Phone #	**760-355-6202**
Class Times Units	**2:00 to 3:25 PM** **3**	Who students should contact if emergency or other absence	Ofelia Duarte : (760) 355-6155 Silvia Murray: (760) 355-6201

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.)

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, covelant, 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 (2012). *Conceptual Physical Science* (5th/e). San Francisco Pearson-Addison Wesley. ISBN: 978-0321753342

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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. 3. 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.
- Regular attendance is REQUIRED. You will be dropped from this course if you miss THREE (3) consecutive class meetings! A pattern of missed classes, such as missing Mondays, will also result in being dropped

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.
- 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, no one who is not enrolled in the class may attend, including children.
- Boyfriend-girlfriend (Any couples):: Hands to yourself. No squeezing or other public displays of affection during class. Expect not to sit next to each other during exams and quizzes.
- Politeness is important!! If you yawn, cover your mouth and keep quiet!

Academic Honesty

Required Language

- Plagiarism is to take and present 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 correctly 'cite a source', 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, or assisting others in using materials, which are prohibited or inappropriate in the context of the academic assignment in question.

- Cheating and/or Copying: In cases of cheating during exams or copied homework, the zero grade given for that exam or assignment will be included in the student's overall grade. Such zero grades will not be dropped or excluded in the determination of the final course grade.

  Anyone caught cheating or 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 School 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) use of a commercial term paper service

Additional Help – Discretionary Section and Language

- Blackboard support center: http://bbcrm.edusupportcenter.com/ics/support/default.asp?deptID=8543
- Learning Labs: There are several 'labs' on campus to assist you through the use of computers, tutors, or a combination. Please consult your college map for the Math Lab, Reading & Writing Lab, and Learning Services (library). Please speak to the instructor about labs unique to your specific program
- Library Services: There is more to our library than just books. You have access to tutors in the learning center, study rooms for small groups, and online access to a wealth of resources.

Disabled Student Programs and Services (DSPS)

Required Language: 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. If you feel you need to be evaluated for educational accommodations, the DSP&S office is located in Building 2100, telephone 760-355-6313.

Student Counseling and Health Services

Required Language: Students have counseling and health services available, provided by the pre-paid Student Health Fee. We now also have a fulltime mental health counselor. For information see http://www.imperial.edu/students/student-health-center/. The IVC Student Health Center is located in the Health Science building in Room 2109, telephone 760-355-6310.

Student Rights and Responsibilities

Required Language: Students have the right to experience a positive learning environment and due process. For further information regarding student rights and responsibilities please refer to the IVC General Catalog available online at http://www.imperial.edu/index.php?option=com_docman&task=doc_download&gid=4516&Itemid=762

Information Literacy

Required Language: Imperial Valley College is dedicated to help students skillfully discover, evaluate, and use information from all sources. Students can access tutorials at http://www.imperial.edu/courses-and-programs/divisions/arts-and-letters/library-department/info-lit-tutorials/

Anticipated Class Schedule / Calendar

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