

THE UNIVERSITY OF TEXAS AT EL PASO
COLLEGE OF SCIENCE
DEPARTMENT OF PHYSICS

Course #: PSCI 3304 **Course title:** Physical Science II **CRN:** 13949
Credit hours: 3 **Term:** Fall 2023
Course and Meeting Location: Lab room 220, MW 12:30- 2:20 Physical Sciences Building
Instructor: Dr. Maria Dolores Gonzalez
Office Location: 121 D Physical Sciences Building
Contact Info: (915) 262 2225 **Email:** mdgonzalez7@utep.edu

Office Hours: By appointment

Text required: -Conceptual Integrated Science 3 edition
e-text course ID: gonzalez01571

Scientific calculator is required.

Manual Labs

Electricity Labs 1-7:
Light and color

Course Overview:

Did you ever wonder why a turned on flashlight didn't light up until you banged it on something or twisted it? Did you ever wonder why some strings of Christmas tree lights work when one bulb burns out and some strings don't work at all with just one bad bulb? In Physical Science II, you will be learning some important ideas related to electricity. A basic, yet correct, understanding of the concepts of charge and current will allow you to better understand a multitude of electrical devices and phenomena that you encounter every day. Electricity will be the focus of roughly the first half of the course.

Learning Objectives:

A working understanding of

1. the concept of charge (positive and negative).
2. simple electrical circuits containing:
 - a. batteries, wires and light bulbs
 - b. batteries, wires and motors
 - c. batteries wires and capacitors
3. the concept of magnetism
 - a. permanent magnets
 - b. polarity
 - c. electromagnets
4. the concepts of waves, electromagnetic waves, and their behavior
5. the concepts the nucleus, and its particles
6. the concept of the atom, quantum theories

Textbook chapters:

Chapter 7: Electricity and Magnetism

Chapter 8: Waves

Chapter 9: Atoms

Chapter 10: The atomic nucleus

Understanding of concepts is to be demonstrated by:

- accurately communicating them in written and verbal formats
- correctly answering both short and long answer questions
- completing hands-on activities

Assessment and Grading:

Mode	Percentage of grade %
Lab reports (completed in class)	30
Partial exams	45 (15 each)
Final presentation	15
Exercises and PhET sim	20

Tentative Timeline:

Week	
1	Lecture Chapter 7 Electrical force and charge Coulomb's law and polarization Exercise 1 PhET simulation
2	Lecture Chapter 7 Electric field, electric potential Exercise 2
3	Lecture Chapter 7 Electric current, Ohm's law Exercise 3 PhET simulation
4	Lecture Chapter 7 Electric circuits, electric power Exercise 4
5	Lecture Chapter 7 Magnetic forces, magnetic fields, electromagnetic induction PhET simulation Exercise 5
6	Review Exam 1
7	Lecture Chapter 7 Vibration and waves, wave motion, transversal and longitudinal waves Exercise 6
8	Lecture Chapter 7 The nature of sound, resonance Exercise 7
9	Lecture Chapter 7 The nature of light, reflections, opaque and transparent materials PhET simulation Exercise 8
10	Lecture Chapter 7 Color, refraction, diffraction PhET simulation Exercise 9
11	Review Exam 2
12	Lecture Chapter 8 The atom and the periodic table

		PhET simulation
	Exercise 10	
13	Nov 17 Lecture Chapter 8 The quantum hypothesis, electron waves	PhET simulation
	Exercise 11	
14	Lecture Chapter 9 The nucleus and radioactivity	PhET simulation
	Exercise 12	
15	Review	
	Exam 3	
16	Presentations	

Course Policies:

- Punctual attendance is critical.
- We will have breaks and you may eat and drink (if you're careful).
- Cell phones and pagers should be turned off (or set to vibrate) during class time.
- When absences occur, it is your responsibility to obtain handouts and notes from your peers. When possible you will complete the activities you have missed.

These policies will be strictly enforced for two reasons: 1) you are going to be professionals and these policies are typical of professional behavior; and 2) I take your learning very seriously and simply do not want to waste one minute of my time with you.

UTEP Policies on Academic Dishonesty

If an instructor suspects a student of cheating, he/she is to collect evidence that he/she believes indicates this (e.g. exams, student work, etc). This evidence is then turned over to the Assistant Vice President for Student Affairs (VPSA). The student will receive an incomplete on whatever piece of work is under consideration. No other actions will be taken by the instructor until the case is closed: no discussion, no accusation, and no different treatment. The student is encouraged to continue participating in the class. The VPSA will consider the evidence provided her and then contact the accused student (and possibly peers) and investigate the allegations. She will then make a decision as to whether cheating occurred and determine what the consequences will be. The instructor will be consulted by the VPSA as to whether the results of the investigation are acceptable to him/her. If acceptable, the instructor will simply carry out the consequences sent to both the student in question and the instructor in a formal letter from Student Affairs. While the seriousness of the identified dishonest actions determines the nature of the consequences, possible consequences include: a counted "zero" on the piece of work, a letter grade reduction, or being placed on academic probation. Students have the right to appeal a decision and participate in a formal public hearing.