

PSCI 3304: Physical Science II

CRN: 23445

Term: Spring 2015

Time: Monday 8:30 am -12:00 pm

Where: PSCI 220

Instructor: Dr. Huiyan Yang
Office: PSCI 215B
Phone: 747-7510
Email: hyang4@utep.edu
Office Hours: MW 11:00 - 11:50 am, or by appointment

Required Materials:

Text: *Conceptual Physics* 11th edition by Paul G. Hewitt.

Lab Manuals: 1. *Electricity Labs 1-7* and 2. *Nature of Matter* (Available for ~\$10 each at the Printing Center in the Library.)

Course Overview:

Electricity will be the focus of roughly the first half of the course. Matter (the solids, liquids, and gases around you every day) will be the focus of the second half. Most importantly you'll better learn the physical science (physics and chemistry) that your future students deserve to understand.

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 atomic and molecular nature of matter
5. a sense of scale (size)
6. the concepts of mass, volume, density and their relationship

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

Textbook Chapters:

Chapter 22: Electrostatics	Chapter 11: Atoms
Chapter 23: Electric current	Chapter 12: Solids
Chapter 24: Magnetism	Chapter 13: Liquids Chapter 14: Gases

Assessment and Grading:

Lab reports (completed in class)	20%
Homework (course outline and assigned in class)	20%
Quizzes	12%
Midterm exams (2)	28%
Final exam	20%

Homework Standards:

- Must write the question before the answer for completeness.
- May be typed or hand-written.
- Due at start of each class. You are responsible to hand in all assignments. Late assignments accepted, but penalized. Remember, completing tasks on time makes a good impression!

Exams:

- Make up exams will be given only in extraordinary cases of illness or emergencies. In all cases documentation will be required.
- Bring a calculator; cell phones will not be allowed.

Additional Course Policies:

- Punctual attendance is critical. Class begins promptly at 8:30 am. Quizzes given at start of class.
- We will have breaks and you may eat and drink (if you're careful).
- Cell phones should be turned off during class.
- If you miss 2 classes you will be dropped from the course. Three lates (10 minutes or more) will count as an absence.
- When absences occur, it is your responsibility to obtain handouts and notes from your peers. You are responsible to 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 the time that I have with you.

Military: Students being called for military duties need to contact the instructor as soon as possible.

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.

Tentative Timeline:

Week	Date	Topic	In-Class	Homework
1	Jan 19	Martin Luther King Day		
2	Jan 26	Electric Charge Atoms and Electrons	Electricity Labs 1 - Charge	All homework is due at the start of class on the date in the "Date" column to the left. Write both questions and answers clearly.
3	Feb 2	Conductors Electric Current Units	Quiz 1 Electricity Lab 2 Electricity Lab 5 - Current & Resistivity	Read Ch 11 p. 196-201; Read Ch 22 p. 382-387 HW 1: RQ 9-11 p. 210; RQ 3-6 p. 400
4	Feb 9	Resistance Ohm's Law DC/AC Current	Quiz 2 Electricity Lab 3 - Circuits & Ohm's Law	Read Ch 22 p. 387-392; Read Ch 23 p. 404-407 HW 2: RQ 12-13, 17-19, 22, Rank 1 p. 400; RQ 3 p. 418
5	Feb 16	Circuits (Series and Parallel)	Quiz 3 Electricity Lab 4 - Circuits Practice	Read Ch 23 p. 407-413 HW 3: RQ 4, 7-8, 10-15 p. 418-419, P&C 2 , p. 420
6	Feb 23	Capacitors	Quiz 4 Electricity Labs 6 & 7 - Capacitance	Read Ch 23 p. 413-418 HW 4: RQ 25-26, 28-32 p. 419, Ex 54, 57 p. 422
7	Mar 2	Magnetism	Quiz 5 Magnetism Lab Review for Exam 1	Read Ch 22 p. 397-399 HW 5: RQ 29 p. 400, Ex 55, 57, 60 p. 402
8	Mar 9	Spring Break		
9	Mar 16	Elements Isotopes	Investigation M6.3 Exam 1: Electricity, Magnetism, and Atoms	Read Ch 24 p. 424-436 HW 6: RQ 2-6, 8, 10, 24-26 p. 437
10	Mar 23	Molecule Solids	Quiz 6 Review Exam 1 Volume Measurement	Read Ch 11 p. 201-208 HW 7: RQ 13, 17-19, 22, Rank 1 p. 210, Ex 22-23 p. 211
11	Mar 30	Volume Density	Investigation M1.1, 1.2, 1.3 Density Measurements	Read Ch 12 p. 212-215 Read Nom M1.1-1.2 p. 95-97 HW 8: RQ 3-4, Ex 8-9, 12 p. 224-225 Prob 2 p. 227
12	Apr 6	Density	Quiz 7 Investigation M1.6	Read Ch 13 p. 228-234 HW 9: RQ 2-5, 9, 10, 12 p. 242
13	Apr 13	Liquids Buoyancy	Quiz 8 Archimedes Lab	Read Ch 13 p. 235-237 HW 10: RQ 13, 14, 16, 17 p. 242 Ex 31 p. 245, Prob 5 p. 246
14	Apr 20	Floatation	Course Evaluation Quiz 9 Flotation Lab Review for Exam 2	TBA
15	Apr 27	Physical Changes	Exam 2: Elements, Solids, Liquids, Density Investigation M4.1-4	Study for the exam!
16	May 4		Course Review	Read NoM M4.1 p.101-103 HW 11: NoM M4.1 p. 112-113
17	May 11	Final Exam 10:00 am – 12:45 pm		

Notes:

RQ = Review Questions; **P&C** = Plug and Chug; **Rank** = Ranking; **Ex** = Exercises; **Prob** = Problems in *Conceptual Physics, 11th Edition*; **NoM** = Nature of Matter (pink book)