

## PSCI 3304: Physical Science II

**CRN:** 21842

**Term:** Spring 2015

**Time:** Monday Wednesday 2:30 pm - 4:20 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 1:00 pm. 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	
	Jan 21	Electric Charge	Electricity Lab 1	All homework is due at the start of class on Wednesday in the "Date" column to the left. Write both questions and answers clearly.
2	Jan 26	Atoms and Electrons	- Charge	
	Jan 28	Conductors	<b>Quiz 1</b>	Read Ch 11 p. 196-201; Read Ch 22 p. 382-387 <b>HW 1: RQ 9-11</b> p. 210; <b>RQ 3-6</b> p. 400
3	Feb 2	Electric Current Units	Electricity Lab 2 Electricity Lab 5 - Current & Resistivity	
	Feb 4	Resistance	<b>Quiz 2</b>	Read Ch 22 p. 387-392; Read Ch 23 p. 404-407 <b>HW 2: RQ 12-13, 17-19, 22, Rank 1</b> p. 400; <b>RQ 3</b> p. 418
4	Feb 9	Ohm's Law DC/AC Current	Electricity Lab 3 - Circuits & Ohm's Law	
	Feb 11	Circuits (Series and Parallel)	<b>Quiz 3</b> Electricity Lab 4 - Circuits Practice	Read Ch 23 p. 407-413 <b>HW 3: RQ 4, 7-8, 10-15</b> p. 418-419, <b>P&amp;C 2</b> , p. 420
5	Feb 16	Capacitors	<b>Quiz 4</b>	Read Ch 23 p. 413-418 <b>HW 4: RQ 25-26, 28-32</b> p. 419, <b>Ex 54, 57</b> p. 422
	Feb 18		Electricity Labs 6 & 7 - Capacitance	
6	Feb 23	Magnetism	<b>Quiz 5</b>	Read Ch 22 p. 397-399 <b>HW 5: RQ 29</b> p. 400, <b>Ex 55, 57, 60</b> p. 402
	Feb 25		Magnetism Lab Review for Exam 1	
7	Mar 2	Elements	<b>Exam 1:</b> Electricity, Magnetism, and Atoms Investigation M6.3	Read Ch 24 p. 424-436 <b>HW 6: RQ 2-6, 8, 10, 24-26</b> p. 437
	Mar 4	Isotopes		
8	Mar 9		Spring Break	
9	Mar 16	Molecule	<b>Quiz 6</b> Review Exam 1 Volume Measurement	Read Ch 11 p. 201-208 <b>HW 7: RQ 13, 17-19, 22, Rank 1</b> p. 210, <b>Ex 22-23</b> p. 211
	Mar 18	Solids		
10	Mar 23	Volume	Investigation M1.1-3	Read Ch 12 p.212-215 Read Nom M1.1-1.2 p. 95-97 <b>HW 8: RQ 3-4, Ex 8-9, 12</b> p. 224-225 <b>Prob 2</b> p. 227
	Mar 25	Density		
11	Mar 30	Density	<b>Quiz 7</b>	TBA
	Apr 1		Investigation M1.4-6	
12	Apr 6	Liquids	<b>Quiz 8</b> Archimedes Lab	Read Ch 13 p. 228-234 <b>HW 9: RQ 2-5, 9, 10, 12</b> p. 242
	Apr 8	Buoyancy		
13	Apr 13	Floataction	Course Evaluation	Read Ch 13 p. 235-237 <b>HW 10: RQ 13, 14, 16, 17</b> p. 242 <b>Ex 31</b> p. 245, <b>Prob 5</b> p. 246
	Apr 15		<b>Quiz 9</b> Review for Exam 2 Flotation Lab	
14	Apr 20	Physical Changes	<b>Exam 2:</b> Elements, Solids, Liquids, Density Investigation M4.1-4	Study for the exam!
	Apr 22			
15	Apr 27	Chemical Changes	Review Exam 1	Read NoM M4.1 p.101-103 <b>HW 11: NoM M4.1</b> p. 112-113
	Apr 29		Investigations M5	
16	May 4		Course Review	Read NoM M5.1 p.104 <b>HW 12: NoM M5.1</b> p. 114-115
	May 6			
17	May 11	<b>Final Exam 1:00 pm – 3:45 pm</b>		

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