

# COURSE: Introduction to Chemistry and Physics, Chem 1710

Fall 2009

SECTION: Chem 1710-13 (CRN 1961)  
CREDIT: 4 hours  
LOCATION: E306 Sundquist  
TIMES: 2:30 – 4:30 MWF  
PREREQUISITE: None

INSTRUCTOR:

Dr. Ron Robertson, Chemistry	Home phone 615-763-2146
Office: C303 Sundquist	E-mail <a href="mailto:robertsonr@apsu.edu">robertsonr@apsu.edu</a>
Office phone 221-6298	Web site <a href="http://www.apsu.edu/robertsonr">www.apsu.edu/robertsonr</a>
Office hours posted but come by anytime	Discussion Board: <a href="http://pauling.apsu.edu/discus/">pauling.apsu.edu/discus/</a>

TEXT

*Conceptual Physical Science*, Hewitt, Suchocki, and Hewitt, Pearson/Addison Wesley, 4th edition, 2008, with practice book. (ISBN 0321569199)

SUPPLEMENTARY MATERIALS

The Practice Book that is bundled with the text is an excellent aid, and I will be giving assignments from it. The associated web site from the company is [www.physicsplace.com](http://www.physicsplace.com).

A scientific calculator that does computations in scientific notation is essential. The use of programmable calculators (like the TI-80 series) is prohibited on all in-class quizzes and exams.

COURSE DESCRIPTION

This is an introductory integrated lab/lecture university core physical science class. As such it relates to the APSU general education core areas of reasoning, literacy, numerical understanding, and scientific knowledge. It gives you an appreciation for what science is and its application to how things work in daily life as well as a knowledge base to be a better consumer and citizen.

Beyond that however, it was designed (with the help of education faculty and elementary and middle school science teachers) to give the preservice teacher the fundamentals in physics, astronomy, and chemistry that they might need if called upon to teach a science unit. Its integrated lab/lecture format and the type of lab activities presented were also chosen to enhance conceptual understanding. Included in the course are hands-on and computer based activities in the scientific method, motion, energy, kinetic theory, waves and sound, atomic structure, electricity and magnetism, astronomy, elements and periodic properties, chemical bonding, electrochemistry, and environmental and energy issues of our day. This course was developed under funding from NASA's Project NOVA.

ATTENDANCE

Your attendance is vital to your progress in this course. Your attendance will be monitored, and I reserve the right to lower your grade for excessive (more than 4) absences from class. Your final average may be lowered 2 percentage points for each day in excess of 4.

Students are expected to conduct themselves appropriately at all times. Academic and classroom misconduct will not be tolerated. Students must read the "Code of Student Conduct" in the new Student Handbook for an understanding of what will be expected of them within the academic setting.

## SAFETY

Much lab work will be done in our classroom with minimal chance of injury. Some will take place in a chemistry lab and will involve Bunsen burners, chemicals, etc. that could cause a greater chance of injury. For these labs you will need splash proof safety goggles and proper clothing. You will view a safety video and safety rules (including the required clothing) will be explained.

According to APSU policy #3:032, minors (defined as those under the age of 18) are not allowed in classrooms. While I recognize that extenuating circumstances occur and make it difficult for some students to attend without bringing children with them on occasion, I must enforce University policy and thus will deny any request for a child in my classroom. You should also be aware that minors are not allowed in academic labs, computer labs, science labs, or the library. Further, children cannot be left in halls outside classrooms. Please be aware that the policy on unattended minors is for the purpose of ensuring that our classrooms are conducive to learning and for the safety and protection of minors. For additional information on minors on campus, contact the Office of Student Affairs in the Morgan University Center.

## EVALUATION PHILOSOPHY

Someone once said: "A grade is an inadequate report of an inaccurate judgment by a biased and variable judge of the extent to which a student has attained an undefined level of mastery of an unknown proportion of an indefinite material". Grades are not perfect or always fair, but I will pledge to be consistent. All of you will probably not be able to make A's but all of you can be successful in this course. The definition of success by John Wooden (former coach of UCLA's great basketball teams) is a good one: "Success is peace of mind that is the direct result of self-satisfaction in knowing you did your best to become the best that you are capable of becoming". My pledge is to help you become the best you can be within your situation and opportunities. I urge you to do all you can in the time you have with what you have in the place you are.

I will attempt to assess conceptual understanding of fundamental scientific ideas. I will also try to evaluate your ability to do the process of science – questioning, investigating, and drawing conclusions. Quizzes, hour exams, lab reports, and oral presentations will all be used to assess your standing in class.

## NUTS AND BOLTS OF EVALUATION

Your evaluation will consist of hour exams, a research project, lab work, quizzes, homework, and a final exam. The relative importance of each area is outlined in the table below. Your lowest hour exam grade (excluding the Final) will be dropped. The Final Exam must be taken. If you miss an hour exam for any reason other than official university representation, that exam will qualify as the exam to be dropped. If you miss a 2nd exam, a doctor's note or other approved documentation for special circumstances (approved by the instructor on a case by case basis) is necessary for exam makeup. It is best to take every exam possible in order to allow for unforeseen circumstances. If you miss quizzes, lab work, or homework and have a written doctor's note (or if you have other special circumstances which have been approved by the instructor) you will receive your average percentage exam grade for the semester for that quiz, lab or homework. If you do not fulfill the above requirements and are absent, you will receive a zero for that quiz, lab or homework.

4 Hour Exams (drop one)	35%
Research Project	15%
Lab work, Quizzes, and Homework	25%
Final Exam	25%
Total	100%

The grading scale is 85% A, 72 % B, 60.% C, 50.% D. A mark of 84.50% will be rounded to an A, 71.50% to a B, 59.50% to a C, and 49.50% to a D.

A mid-term grade will be awarded for all students in this course. The grade awarded may not necessarily be based on 50% of the course requirements and may or may not differ from the final grade. Your mid-term grade will be posted on AP Web.

On each hour exam as well as the final you will be able to use 3x5 inch index card (front and back) with mathematical equations in symbol and/or written form. No units are allowed on the card or any conversion factors or "toothbrush numbers" (numbers I have asked you to memorize).

Most class notes and activities can be found at our class web site (see <http://www.apsu.edu/robertsonr/nova/activities.htm>). The web site also contains unit objectives and extra references. The Discussion Board is also a source of help and information about the course.

The research project will be explained the first day of class. You will be required to work in a group of no more than 3 to complete a simple science research project, write a research paper, put together a poster display, and present the work orally to the class.

You can confer with others (but not copy their work) on all out of class assignments (homework) unless specifically indicated. Each person will usually submit an individual homework sheet or report. Copied answers will result in a deduction of points or a zero. Cheating on exams and quizzes will not be tolerated. A grade of zero will be assigned for that exam or quiz as a first step, and the matter will be referred to student affairs for further action.

There may be limited opportunities for extra credit. These will be announced.

Any student who has a disability that may affect his/her academic performance is encouraged to make an appointment with me to discuss this matter, or you may contact Disability Services; telephone 221-6230; tty 221-6278; fax 221-7102.

### DROP/ADD DATES

I truly hope that you will not want to or feel the need to drop this course, but if you do . . . the following dates are important.

Last day to drop without a record	September 11
Last day to drop with an automatic "W"	October 9
Last day to drop with a W, F, FA	November 9

## Course Schedule (Tentative)

M	Aug. 31	Introduction - Scientific Method	
W	Sept. 2	Measuring - Significant figures and calculations	
F	4	Measuring – Scientific notation and calculations	

M	7	<i>Labor Day holiday</i>	
W	9	Measuring – SI units and conversions	
F	11	Density and Lab safety	
M	14	Measurement lab	
W	16	Motion	
F	18	Momentum and Work	
M	21	Work and Energy	
W	23	Kinetic theory	Exam 1
F	25	Applications of kinetic theory to heat	
M	28	Heat lab	
W	30	Applications of kinetic theory to properties of matter	
F	Oct. 2	Applications of kinetic theory to properties of matter	
M	5	Waves	
W	7	Sound	
F	9	Light	
M	12	Light	
W	14	Electricity	
F	16	Electricity lab	Exam 2
M	19	<i>Fall Break</i>	
W	21	Electricity / Magnetism	
F	23	Magnetism	
M	26	Energy Usage / Energy Audit	
W	28	Energy Usage	
F	30	Energy Usage / Atomic and Nuclear	
M	Nov. 2	Atomic and Nuclear	
W	4	Atomic and Nuclear	
F	6	Astronomy	
M	9	Astronomy / Planetarium tour	
W	11	<i>Veteran's Day</i>	
F	13	Astronomy	Exam 3
M	16	Elements and the Periodic Table	
W	18	Elements and the Periodic Table	
F	20	Electron configurations and ox #	
M	23	Chemical Bonding	
W	25	Chemical Formulas	
F	27	<i>Thanksgiving Holiday</i>	
M	30	Chemical Formulas	
W	Dec. 2	Chemical Reactions Lab	
F	4	Electrolytes – Acids, Bases, and Salts and Hardness Lab	
M	7	Oxidation/Reduction	Exam 4
W	9	Research Project Presentations	
W	16	Final Exam 10:30 – 12:30	Final

The above schedule and procedures are subject to change in the event of extenuating circumstances or change in speed in delivery of the material. Lab work is integrated into the above schedule. You will be alerted to times when you need to have special clothing requirements for lab work.