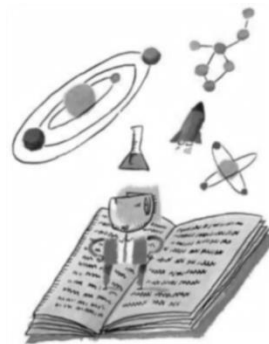




**General Science for the Elementary Teacher
Abilene Christian University
Spring 2014**



Chem 203
Lecture: MWF 9:00-9:50 AM

SC 175
Lab: W 1:00-2:50 PM
Or W 3:00 – 4:50

Dr. Autumn Sutherlin, Associate Professor of Biochemistry
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Office Hours: MWF 10:00 – 11:00, TR 1:00-3:00

ACU Mission: "To educate students for Christian service and leadership throughout the world."

Department Mission: "To prepare students for careers in chemistry, biochemistry, chemical education, and health professions by displaying high professional standards and by modeling Christian values, leadership, and service."

Course Description: Presents the fundamental principles of chemistry, physics, geology, astronomy, meteorology, and biology on a practical basis for elementary teachers. The course includes experiments and demonstrations that are pertinent to the teaching of science at the elementary level.

Course Objectives:

1. The student will acquire fundamental knowledge in subject matter areas covered in elementary school science.
2. The student will participate in "hands-on" science activities that can be used in the elementary school classroom.
3. The student will learn how to use small groups in science activities to develop science processing skills.
4. The student will be able to locate and use a variety of resources to teach science in the elementary school.
5. The students will be able to apply the scientific process in discovering the solution to certain scientific problems.
6. The student will gain experience in teaching science through "guided discovery" techniques.
7. The student will gain a greater appreciation of God's creation – the physical world.

Class Format: There are two major portions to this course. The “lecture” portion which meets MWF at 9:00 AM and the laboratory portion which meets on Wednesday afternoon for 2 hours. The lecture portion of the course will be divided among lecture, demonstrations and group activities. iPads will be used during class to aid in participation and to access course materials. Students are encouraged to participate in class discussions and to ask questions.

During the laboratory sessions, students will conduct experiments related to the content covered during lecture. This time may also be used to give more time to topics from lecture or to review for exams. An assigned laboratory report form will be submitted at the conclusion of each lab session. The lab and lecture will be graded as a single course.

Students are encouraged and welcomed to visit the instructor during office hours.

Audience: Education majors only.

Required materials:

Text: *Physical Science for Elementary School Educators* by. M. Cynthia. B. Powell. This text is a free electronic text that you will need to upload to your iPad from Chem 203 FILES.

Electronic device: All students will be required to use an iPad. If students do not have their own iPad, they will be issued an ACU iPad to use for the semester. We will use multiple electronic resources that students will access on an iPad. Separate documents describe the terms and conditions for your use of an ACU Chemistry and Biochemistry Department iPad. All needed documents with appropriate links will be uploaded to your Chem 203 FILES Class Info folder that you will be able to access through any device connected to the Internet. Students are expected to bring either their personal iPad or ACU issued iPad to class every day. The iPad should be charged and ready to use for the 50-minute lecture class period and the 2-hour laboratory period.

The following purchased items are required:

(1) A stylus for use with an iPad

(2) An iTunes account and initial purchase of the note-taking APP “Notability” by Ginger Labs (\$2.99), “The Elements” by Touch Press (\$13.99), “Building the Atoms, Ions, and Isotopes HD” by Carolina Biological Supply (\$2.99), Lewis Dots by Carlo Yuvienco (Free), “Balancing Equations” by Joe Scrivens (\$0.99).

(3) Purchase of other iPad APPs may be required during the semester, with a total expenditure on APPs not to exceed \$40. Most APPs used during class will be free downloads. All APPs will be student property for you to keep by syncing with your computer regardless of whether you are using your own iPad or a loaner. You are therefore encouraged to sync your iPad with your computer and you are also free to use loaner iPads for other courses throughout the semester.

Attendance Policy: Lecture: Attendance in lecture and lab is VERY IMPORTANT. Attendance will be taken during each class meeting. To encourage regular attendance, your FINAL GRADE will be adjusted for absences accordingly:

0-2 absences

+1 %

more than 9 absences

Automatic drop from the class with a WF.

Laboratory: If the student misses a laboratory because of an official school trip or a verifiable illness, he/she has one week to make up the lab. **The required make up work will be a 4-page paper written on a science topic assigned by the instructor.** A grade of zero will be given for a lab that is not made up within a week of the absence. It is the student's responsibility to ask the professor for a topic.

Course Requirements:

Exams: Examinations will be given at approximately three to four-week intervals. **In general make-up exams are not given.** If you are extremely ill on the scheduled date of an examination, you must contact the instructor on the date of the missed exam to explain your absence and be prepared to submit a written statement from a physician or nurse documenting your illness. If you will miss a scheduled exam for a school-sponsored trip, you must bring the required signed dean's notice one week before the anticipated absence as per ACU policies. If you follow these guidelines, arrangements will be made for you to take the missed exam. If you do not follow these guidelines you will be assigned a grade of "0" for the exam.

Study guides will be given for the exams. However, they are just guidelines and in particular do not cover the lab portion of the course. Students will be responsible for all material from the chapters and labs on the exam.

Homework: Homework assignments will be made periodically and will be due on the assigned date regardless of whether you attend class on the date the assignment is given or the date the assignment is due. They will be accepted late (one class period after the due date) for a maximum of 80% of the points possible. After this point, the student will receive a zero on the assignment.

Laboratory: During the laboratory session students will conduct assigned experiments that support the content being taught in lecture. At the end of the lab session students will turn in an electronic lab report to the Drop Box in FILES. Failure to turn in the lab report may result in a zero for the lab. It is the student's responsibility to submit the assignments in the correct format and in the correct location! See "Attendance Policy" for what should be done in the case of a missed lab.

Quizzes: Quizzes will be given each Friday that cover all materials since the last quiz (including lab materials.) The two lowest quiz scores will be dropped. Because of this **NO make-up quizzes will be given, for any reason.** You should save the drop scores for emergencies or required school activities that may cause you to miss class.

Submitting assignments: Most assignments will be submitted as pdfs to the FILES Drop Box for Chem 203. It is the student's responsibility to submit the assignments in the correct format and in the correct location! Assignments that are not submitted properly may be resubmitted in the correct format and location but will fall under the same rules as a late assignment (see above).

Grading:

Summary of Activities:

5 Major Exams	70%
Laboratory Work	15%
Assignments &	
Quizzes	<u>15%</u>
Total	100%

Grade Distribution:

A	90 – 100 %
B	80 – 89.9%
C	70 – 79.9%
D	60 – 69.9%
F	59.9% and below

Grade Corrections: If there are questions about a grade in the course, the question must be presented to the professor within two weeks of the exam, quiz or assignment being returned to the student.

Academic Integrity: Violations of academic integrity and other forms of cheating, as defined in ACU's Academic Integrity Policy, involve the intention to deceive or mislead or misrepresent, and therefore are a form of lying and represent actions contrary to the behavioral norms that flow from the nature of God. Violations will be addressed as described in the Policy. While the university enforces the Policy, the most powerful motive for integrity and truthfulness comes from one's desire to imitate God's nature in our lives. Every member of the faculty, staff and student body is responsible for protecting the integrity of learning, scholarship and research. The full Policy is available for review at the Provost's office web site (<http://www.acu.edu/campusoffices/provost>) and the following offices: provost, college deans, dean of campus life, director of student judicial affairs, director of residential life education and academic departments.

The first instance of cheating will result in a 0 for the assignment. A second incident will result in an F in the course.

Dress Code: Lecture: Students should conform to the dress code as outlined in the Student Handbook. Students wearing inappropriate attire will be asked to leave class.

Lab: Students should wear long pants or a long skirt to protect their legs and shoes that completely cover their feet. (No sandals.) Many experiments require goggles and/ or other safety equipment. Failure to be dressed properly for lab may result in being dismissed from lab and a zero for the week.

Tentative Dates for the Major Examinations

The following dates are only tentative and may be adjusted by the instructor during the semester.

2/7/2014	Basic Chemistry
3/7/2014	Light Energy and Color, Sound Energy
4/4/2014	Heat Energy
4/30/2014	Magnetic Interactions and Electrical Energy
5/8/2014	Noon – 1:45 PM Comprehensive Final