Chemistry 1450
College Chemistry I
Fall 2018

Instructor: Dr. Faith Yarberry
Office: Laney-Manion Annex – Rm 129
Phone: 501-852-2530
Email: fyarberry@uca.edu
Office Hours: T 10:00 am-Noon, W 2:00-3:00 pm

Course Information:

Lecture: Laney-Manion 102 - TR 8:00-9:15
Text: *Chemistry A Molecular Approach* (4th Ed.) by Tro

Lab: Laney-Manion 206 R – 10:50-1:30 CRN: 14234 (TA – Jacie Cooper)
Laney-Manion 206 R – 2:40-5:20 CRN: 10259 (TA – Macie Cain)
Laney-Manion 206 F – 8:00-10:50 CRN: 10319 (TA – Sam Hodges)
Text: Labs found Blackboard, Data Sheet and Post-Lab Completed on Chem21Labs

Course Item	# Given	# Dropped	# Toward Grade	Points per Item	Total Points
Lab	11	1	10	20	200
Class Quizzes	?	?	35	5	175
ACS Exam	1	0	1	20	20
Exams	4	1	3	135	405
Final Exam	1	0	1	200	200
Total					**1000**

Grades: A: 900 - 1000 points B: 800-890 C: 700-790 D: 600-690 F: < 600

The University of Central Arkansas adheres to the requirements of the Americans with Disabilities Act. If you need an accommodation under this Act due to a disability, please contact the UCA Office of Disability Services, 450-3613.

Course Description Principles of general chemistry with emphasis on their theoretical and quantitative aspects and applications.

Prerequisites It is recommended that students have taken and passed high school chemistry with a C or better and made a 60 or better on the Assessment Exam given in the Advising Center or have completed CHEM 1301 with a B or better. It is also recommended that a student have made a 25 on the MATH ACT or a B or better in College Algebra. Prerequisite: ACT mathematics score of at least 21 or corequisite/prerequisite of MATH 1390.

Materials Required

Graphing Calculator
Goggles
Textbook
Printed Laboratories (On Blackboard)
Signed Safety Agreement
EdPuzzle Account
QR Code App for I-phone or Android Preferred

Course Objectives

Upon completion of this course, the student should have gained:

- The ability to use Scientific Notation and Significant Figures in Calculations.
- The ability to correctly name and give the formulas of simple ionic and covalent molecules.
- The confidence to perform Stoichiometric calculations involving molar mass, mole-to-mole ratios, Avogadro's number, and molarity.
- The ability to predict the products of precipitation and acid-base neutralization reactions and understand what is occurring in solution during the reaction.
- The knowledge necessary to work with redox reactions.
- An understanding of how to calculate the heat of and enthalpies of reaction and their meanings.
- An understanding of the structure of an atom of an element and its impact on the elements reactivity.
- The ability to draw simple molecules and predict their shape, hybridization, and polarity.

Attendance

Each class meeting is important to the course development. Class begins at 8:00 am and ends at 9:15 am. Roll will be taken. 4 unexcused absences may result in a W grade at the instructor's discretion. It is the responsibility of the student to obtain any information covered during their absence.

Attendance in the laboratory is mandatory. More the two absences **WILL** result in the student being dropped from the course with a D, F, or W at the discretion of the instructor.

Homework

Students will be assigned video lectures to watch prior to each class. The instructor will do a short recap of the lecture in class.

In class problems will be found on Blackboard. You must print the problems before attending class.

Class Quizzes

Quizzes will be administered periodically throughout the semester at the start of a class, on Blackboard, or on EdPuzzle (VSEPR, Quantum Numbers, and Math Tutorials). Students will be given a limited time to complete each quiz. The quiz will cover material discussed in the previous lecture or the concept presented in the video assignment.

ACS Exam The American Chemical Society College Chemistry I exam will be administered during the last lab meeting of the semester. The result of the exam WILL constitute up to 20 points of your course grade. If you score a C or better on the ACS exam, the instructor will determine what your course grade would be if the ACS exam counted for itself and the Final Exam grade. If the student is satisfied with this grade, they can email the instructor asking that the ACS exam be used as the Final exam thereby eliminating the need for the student to take the official Final exam.

Exams 4-75 min exams will be administered on the dates listed in the syllabus beginning at 8:00 am. The final exam will be held December 13th from 8:00-10:00 am. Plan your schedule accordingly because make-up exams will NOT be offered. Missed exams will be dropped up to the allotted number. The Final Exam WILL ONLY be offered according to the universities Final Exam Schedule.

Laboratory Grade - Laboratory experiments will constitute 200 points of your grade. Each lab will be graded out of 20 points. (Lab Lectures count as a single lab grade of 20 points)

Laboratory Grade	Points	When Due
EdPuzzle and In-Lab Quiz	5	Students will be required to watch the EdPuzzle Videos prior to entering the laboratory. The associated questions will constitute 2 points of the quiz grade. A pre-lab quiz worth 3 points will be given at the start of lab. The quiz will cover the background and procedure found in the laboratory videos.
Data / Results / Post-Laboratory Questions	10	At the end of lab (one per group)
Participation and Safety	5	Throughout lab the First safety violation receives a warning, the second safety violation you will lose 2 points. A third violation and you will be told to leave the lab. Each student is expected to participate in a lab role. Failure to do so will constitute a loss of up to 3 points as determined by the instructor and TA.
Total	**20**	

Laboratory Role

Chemistry is an experimental science. Lab time is your chance to master some of the experimental aspects of the subject. You will work in groups in the lab, but you will still be expected to actively participate in the experiments. Passive observation in lab while your partners do the work is unacceptable and will cost you up to 3 points. The TA and your instructor will determine participation points.

Each group will consist of 2-3 people. Each person will be assigned a role at the start of each lab. The roles are:

Team Leader and Tech – The team leader role means that you keep the group on track and the lab tech role means that you are making sure that everyone helps perform the lab in the group and that the procedure is followed precisely or according to the instructors' edits.

Scribe and Mathematician – Records all data, results, and post laboratory answers on Chem21Labs. Ensures that everyone with in the group helps perform the calculations to the correct number of significant digits and answer the questions.

Your participation will be graded on the efficiency by which you carry out your role, whether you participated in completing the experiment and whether you helped in the completion of the calculations on the data/results sheet.

Data/Results

Your data must be recorded to the **correct number of significant digits**. Your results will be graded for correctness in calculations, the correct number of significant digits, and for accuracy.

Post Lab

Your post-laboratory will be graded for thoughtful answers based on your data/results and for correctness.

Safety

Safety is Mandatory. You will not be allowed to enter the lab without closed toe shoes, long pants, and goggles. You will be warned upon your first safety violation. A second violation will result in the loss of 2 points. The third violation will result in you being required to leave the lab for that day and receiving a zero for that lab. Two days of being told to leave the lab will result in you receiving a D, F, or W for the course as deemed appropriate by the instructor.

Safety Agreement

Before being permitted into the first lab, you must complete the safety agreement at uca.edu/web/forms/view.php?id=353

General Information:

Office Hours

This time is specifically set aside for you to ask me questions and receive help on course material. Use this time! **If you cannot make the scheduled times, make other arrangements with me. I am usually in my office by 8:00 am and am here unless in class or in a meeting.**

Academic Integrity

The University of Central Arkansas affirms its commitment to academic integrity and expects all members of the university community to accept shared responsibility for maintaining academic integrity. Students in this course are subject to the provisions of the university's Academic Integrity Policy, approved by the Board of Trustees as Board Policy No. 709 on February 10, 2010, and published in the Student Handbook. Penalties for academic misconduct in this course may include a failing grade on an assignment, a failing grade in the course, or any other course-related sanction the instructor determines to be appropriate. Continued enrollment in this course affirms a student's acceptance of this university policy.

The penalty for academic dishonesty on an exam is this course is that the student will receive a zero for that exam and the exam grade will be counted into their final average. Plagiarism on any paper and the student will receive a zero for that grade.

Emergency Procedures Summary

An Emergency Procedures Summary (EPS) for the building in which this class is held will be discussed during the first week of this course. EPS documents for most buildings on campus are available at http://uca.edu/mysafety/bep/. Every student should be familiar with emergency procedures for any campus building in which he/she spends time for classes or other purposes.

Title IX Disclosure

If a student discloses an act of sexual harassment, discrimination, assault, or other sexual misconduct to a faculty member (as it relates to "student-on-student" or "employee-on-student"), the faculty member cannot maintain complete confidentiality and is required to report the act and may be required to reveal the names of the parties involved. Any allegations made by a student may or may not trigger an investigation. Each situation differs and the obligation to conduct an investigation will depend on those specific set of circumstances. The determination to conduct an investigation will be made by the Title IX Coordinator. For further information, please visit: https://uca.edu/titleix. **Disclosure of sexual misconduct by a third party who is not a student and/or employee is also required if the misconduct occurs when the third party is a participant in a university-sponsored program, event, or activity.*

Other Policies

Information concerning University Academic Policies (such as the Sexual Harassment Policy and Academic Policies) can be found in the Student Handbook. Students should familiarize themselves with all policies listed in the Student Handbook at http://uca.edu/ubulletin2015/general-policies-information .

Schedule

Test and Lab Dates are Set

Date	In Class Discussion	Assigned Videos to Watch Before Next Class	Practice Problem to Print Before Next Class
Aug 23	Syllabus Introduction Matter and Changes	Matter and Changes Measurements Significant Figures (Chapter 1)	Measurements Significant Figures
23-24	**No Lab**		
28	Measurements Significant Figures	Units of Measurements Scientific Notation and Calculator Energy, Heat, and Temperature (Chapter 1)	Calculations and Conversions
30	Units of Measurement Sci Notation and Calculator Energy, Heat, Temp	Conversions (Chapter 1)	
30-31	Measurements Lab		
Sep 4	Conversions	History Behind the Atomic Structure Protons, Neutrons, Electrons – Neutral Atoms Average Atomic Mass(Chapter 2)	Law of Mass Conservation Proton, Neutrons, Electrons – Neutral Atoms Average Atomic Mass
6	History Behind the Atomic Structure Protons, Neutrons, Electrons in a Neutral Atom Average Atomic Mass	History Behind the Atomic Structure, Atomic Spectra, Rydberg Balmer Eqn (Chapter 7)	Energy and Rydberg Equation
6-7	**Density Lab**		
11	History Behind the Atomic Structure, Atomic Spectra, Rydberg Balmer Eqn	Quantum Mechanics (Chapter 7)	Quantum Numbers Introducation
13	Quantum Numbers		
13-14	**Separations Lab**		
18	**Exam 1**	Electron Configuration (Chapter 8)	Electron Configurations and Quantum Numbers
20	Electron Configurations and Quantum Numbers	Protons, Neutrons, Electrons – Ions (Chapter 2) Ions (Chapter 3)	Protons, Neutrons Electrons – Ions Bring Note Cards
20-21	**Atomic Emissions Lab**		
25	Protons, Neutrons, Electrons – Ions Ions	Electron Configurations of Ions Atomic and Ion Trends (Chapter 8)	Electron Configuration of Ions Atomic Trends
27	Electron Configuration of Ions Atomic Trends	Formulas of Ionic Compounds Naming Ionic Compounds Ionic Hydrates (Chapter 3)	Ionic Compounds Practice
27-28	**Lab Lecture**		

Oct 2	Formulas of Ionic Compounds, Naming Ionic Compounds, Ionic Hydrates	Covalent Molecules Acids Formula Mass, Molar Mass(Chapter 3)	Covalent Molecule Practice Formula Mass, Molar Mass Problems
4	Covalent Molecules Acids Formula Mass, Molar Mass	Introduction to Lewis Structures Lewis Structures of Ionic Compounds (Chapter 9)	Introduction to Lewis Structures Lewis Structures of Ionic Compounds
4-5	**Hydrate Lab**		
9	Introduction to Lewis Structures Lewis Structures of Ionic Compounds		
11-12	*Fall Break*		
16	**Exam 2**	Lewis Structures of Covalent Molecules Bond Polarity (Chapter 9)	Lewis Structures of Covalent Molecules Bond Polarity
18	Lewis Structures of Covalent Molecules Bond Polarity	VSEPR, VB (Chapter 10)	VSEPR Lab
18-19	**VSEPR Lab**		
23	VSEPR, VB	Balancing Chemical Equations (Chapter 3) Reaction Calculations (Chapter 4)	Balancing Reactions Practice Reaction Calculations
25	Balancing Chemical Equations Reaction Calculations	Solution Calculations	Solutions Calculations
25-26	**Reactions Lab**		
30	Solution Calculations	Electrolytes Reaction Equations Precipitation Reactions (Chapter 4)	Electrolytes Precipitation Reactions
Nov 1	Electrolytes Reaction Equations Precipitation Reacctions	Acid Base Neutralization Reactions Titrations Gas Evolution Reactions (Chapter 4)	Acid Base Neutralization Reactions
1-2	**Titration Lab**		
6	Acid Base Neutralization Reactions Titrations Gas Evolution Reactions		
8	**Exam 3**	Redox Reactions (Chapter 4)	Redox Reactions
8-9	**Thermochemistry Lab**		
13	Redox Reactions	Energy Heat Capacity Work, Energy, Calorimetry (Chapter 6)	Energy Specific Heat Calorimetry
15	Energy Heat Capacity Work, Energy, Calorimetry	Enthalpy Hess's Law (Chapter 6)	Hess's Law
15-16	**Gas Law Lab**		
20	Enthalpy		

	Hess's Law		
22-23	*Thanksgiving Break*		
27	**Exam 4**	Enthalpies of Formation (Chapter 6)	Enthalpies of Formation
29	Enthalpies of Formation	Gas Laws (Chapter 5)	Gas Laws
29	**No Lab**		
30	**ACS Exam**		
Dec 4	Gas Laws		
6	Review		
6	**ACS Exam**		
7	*Study Day*		
13	**Final Exam (8:00-10:00)**		

Technology Instructions

Laboratory Safety Agreement – required for admittance to first lab

Go to https://uca.edu/web/forms/view.php?id=353
Complete the Form

Blackboard – contains PowerPoints, Optional Homework, Syllabus, Quizzes, etc.

Log into your MyUCA account
Click on the My Courses tab
Click on College Chemistry I

EdPuzzle

http://www.EdPuzzle.com
Click on I'm a new Student and Complete the Form
User Name (make sure you remember it as I will not have access to this information)
Password ((make sure you remember it as I will not have access to this information)
Click Sign Up
Click Join Class
Type: sivifot
Search
Join

Chem21Labs

http://www.chem21labs.com
click student
fill in your email
your password will be 1234 initially
once logged in, go to bottom of the screen and change your password (remember it, I will not have access)

Bonus Opportunities (Up to 30 points) – Must check in with Bear Card and pay attention.

Item	Date	Time	Location	Points
Science of Cybersecurity	Aug 29	6:30-8:30 pm	Kings Live Music 1020 Front Street Conway, AR	5
Science of Identity	Sept 26	6:30-8:30 pm	Kings Live Music 1020 Front Street Conway, AR	5
Chalk Talk	Sept 27	6:00-6:50 pm	STEM@Arkansas Hall Classroom	5
Panel on Undergraduate Research at UCA	Oct 18	6:00-8:00 pm	LSC 102	5
Voyage to Mars: Red Planet Chemistry	Oct 23	6:00-7:00 pm	Planetarium	5
Chalk Talk	Oct 25	X-Period	MCST 110	5
Science of Fear	Oct 31	6:30-8:30 pm	Kings Live Music 1020 Front Street Conway, AR	5
Chalk Talk	Nov 27	X-period	Laney-Manion 102	5
Science of Senses	Nov 28	6:30-8:30 pm	Kings Live Music 1020 Front Street Conway, AR	5
Pseudoscience Fair	Nov 30	Noon-3:00 pm	CCCS	5/eval up to 10 points

Exams	
Exam 1	_____/135
Exam 2	_____/135
Exam 3	_____/135
Exam 4	_____/135

Laboratory	
Measurements	_____/20
Density	_____/20
Separations	_____/20
Atomic Emission	_____/20
Lecture	_____/20
Hydrate	_____/20
Geometry	_____/20
Reactions	_____/20
Titration	_____/20
Thermodynamics	_____/20
Gas Law	_____/20

ACS Exam	
ACS Exam	_____/20

Bonus	
	_____/5
	_____/5
	_____/5
	_____/5
	_____/5
	_____/5

Quizzes	
Quiz 1	_____/5
Quiz 2	_____/5
Quiz 3	_____/5
Quiz 4	_____/5
Quiz 5	_____/5
Quiz 6	_____/5
Quiz 7	_____/5
Quiz 8	_____/5
Quiz 9	_____/5
Quiz 10	_____/5
Quiz 11	_____/5
Quiz 12	_____/5
Quiz 13	_____/5
Quiz 14	_____/5
Quiz 15	_____/5
Quiz 16	_____/5
Quiz 17	_____/5
Quiz 18	_____/5
Quiz 19	_____/5
Quiz 20	_____/5
Quiz 21	_____/5
Quiz 22	_____/5
Quiz 23	_____/5
Quiz 24	_____/5
Quiz 25	_____/5
Quiz 26	_____/5
Quiz 27	_____/5
Quiz 28	_____/5
Quiz 29	_____/5
Quiz 30	_____/5
Quiz 31	_____/5
Quiz 32	_____/5
Quiz 33	_____/5
Quiz 34	_____/5
Quiz 35	_____/5
Quiz 36	_____/5
Quiz 37	_____/5
Quiz 38	_____/5
Quiz 39	_____/5
Quiz 40	_____/5

Course Item	# Given	# Dropped	# Toward Grade	Points per Item	Total Points
Lab	11	1	10	20	200
Class Quizzes	?	?	35	5	175
ACS Exam	1	0	1	20	20
Exams	4	1	3	135	405
Final Exam	1	0	1	200	200
Total					**1000**

To determine what you need to make on your final exam:

A. Sum of Top 10 Lab Grades _____

B. Sum of Top 3 Exam Grades _____

C. Sum of Top 26 Class Quiz Grades _____

D. ACS Exam Grade _____

E. Bonus _____

F. Total Sum A – E above _____

For an A on your transcript, the following equation indicates the number of points you need on your final exam.

900 – F = _____

For a B on your transcript, the following equation indicates the number of points you need on your final exam.

800 – F = _____

For a C on your transcript, the following equation indicates the number of points you need on your final exam.

700 – F = _____

For a D on your transcript, the following equation indicates the number of points you need on your final exam.

600 – F = _____