

LIFE AND PHYSICAL SCIENCES
Student Learning Outcome Alignment Form

Course Prefix/Number: CHEM 1312

Course Title: General Chemistry II

Core Objective	Course SLO	General Learning Activities	Assessment
Critical Thinking Skills	SLO #7) Analyze and perform calculations with the thermodynamic functions, enthalpy, entropy, and free energy.	Students are broken into groups of three to four. The group is told they are testing a method of capturing solar energy to be used in a reservoir to be utilized later. They are to develop a procedure to find the specific heat of the metal samples and determine the mass of the metals necessary to capture 50.0 kJ of energy with only a one degree temperature increase (1°C). Each group must develop a detailed plan before they can start the process. The plan must be in writing and available to the teacher and the class. After the plan is developed the group may put it into practice using only the equipment provided. If the plan works, the group produces a report and prepares a presentation. If the plan fails, adjustments are necessary to produce a workable plan. See attached activity.	Grade. See attached rubric
Communication Skills	(SLO #7) Analyze and perform calculations with the thermodynamic functions, enthalpy, entropy, and free energy.	Students are broken into groups of three to four. The group is told they are testing a method of capturing solar energy to be used in a reservoir to be utilized later. They are to develop a procedure to find the specific heat of the metal samples and determine the mass of the metals necessary to capture 50.0 kJ of energy with only a one degree temperature increase (1°C). Each group must develop a detailed plan before they can start the process. The plan must be in writing and available to the teacher and the class. After the plan is developed the group	Grade. See attached rubric

		may put it into practice using only the equipment provided. If the plan works, the group produces a report and prepares a presentation. If the plan fails, adjustments are necessary to produce a workable plan. See attached activity.	
Empirical & Quantitative Skills	(SLO #7) Analyze and perform calculations with the thermodynamic functions, enthalpy, entropy, and free energy.	Students are broken into groups of three to four. The group is told they are testing a method of capturing solar energy to be used in a reservoir to be utilized later. They are to develop a procedure to find the specific heat of the metal samples and determine the mass of the metals necessary to capture 50.0 kJ of energy with only a one degree temperature increase (1°C). Each group must develop a detailed plan before they can start the process. The plan must be in writing and available to the teacher and the class. After the plan is developed the group may put it into practice using only the equipment provided. If the plan works, the group produces a report and prepares a presentation. If the plan fails, adjustments are necessary to produce a workable plan. See attached activity.	Grade. See attached rubric
Teamwork	(SLO #7) Analyze and perform calculations with the thermodynamic functions, enthalpy, entropy, and free energy.	Students are broken into groups of three to four. The group is told they are testing a method of capturing solar energy to be used in a reservoir to be utilized later. They are to develop a procedure to find the specific heat of the metal samples and determine the mass of the metals necessary to capture 50.0 kJ of energy with only a one degree temperature increase (1°C). Each group must develop a detailed plan before they can start the process. The plan must be in writing and available to the teacher and the class. After the plan is developed the group may put it into practice using only the equipment provided. If the plan works, the group produces a report and prepares a presentation. If the plan fails, adjustments are necessary to produce a workable plan. See attached activity.	Grade. See attached rubric

CRITICAL THINKING VALUE RUBRIC

Adapted for Texarkana College from the AAC&U Critical Thinking VALUE Rubric

Definition

Critical thinking is a habit of mind characterized by the comprehensive exploration of issues, ideas, artifacts, and events before accepting or formulating an opinion or conclusion.

	Does Not Meet Any Expectations 1	Meets Few Expectations 2	Meets Expectations 3	Exceeds Some Expectations 4	Exceeds All Expectations 5
Explanation of Issues	Did not state issue.	Issue is stated without clarification or description.	Issue is stated but description leaves some terms undefined, ambiguities unexplored, boundaries undetermined and/or backgrounds unknown.	Issue is stated, described, and clarified so that understanding is not seriously impeded by omissions.	Issue is stated clearly and described comprehensively, delivering all relevant information necessary for full understanding.
Evidence	Does not identify the basic components of an issue	Information is taken from sources without any interpretation. Viewpoints of experts are taken as fact, without question	Information is taken from sources with some interpretation but not enough to develop a coherent analysis or synthesis.	Information is taken from sources with enough interpretation to develop a coherent analysis or synthesis.	Information is taken from sources with enough interpretation to develop a comprehensive analysis or synthesis.
Influence of Context and Assumptions	Did not show awareness of the issue.	Show an emerging awareness of present assumptions.	Questions some assumptions. Identifies relevant information when presenting a position.	Identifies own and others' assumptions and several relevant contexts when presenting a position.	Thoroughly analyzes own and others' assumptions and carefully evaluates the relevance of contexts when presenting a position.
Student's Position	Takes no position on issue	Specific position is stated but is simplistic and obvious.	Specific position acknowledges different sides of an issue.	Specific position takes into account the complexities of an issue. Others' points of view are acknowledged within position.	Specific position is imaginative. Limits of position acknowledged. Other points of view are synthesized.

Conclusions and Related Outcomes	Does not use previously learned information in new situations.	Conclusion is inconsistently tied to some of the information discussed; related outcomes are oversimplified.	Conclusion is logically tied to information; some related outcomes are identified.	Conclusion is logically tied to a range of information, including opposing viewpoints; related outcomes are identified clearly	Conclusions and related outcomes are logical and reflect student's informed evaluation and ability to place evidence and perspectives discussed in priority order
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Communication RUBRIC

Adapted for Texarkana College from the AAC&U Critical Thinking VALUE Rubric and Making Learning Real

Definition

Written communication is the development and expression of ideas in writing.

Oral Communication is a prepared, purposeful presentation designed to increase knowledge, to foster understanding, or to promote change in the listeners' attitudes, values, beliefs, or behaviors.

Visual Communication is the use of images to persuade, entertain, inform, and enlighten an observing audience of products, ideas, and messages.

	Does Not Meet Any Expectations 1	Meets Few Expectations 2	Meets Expectations 3	Exceeds Some Expectations 4	Exceeds All Expectations 5
Quality of Information and Organization	Presentation lacks main points and related details. Information lacks connection to the presentation topic. Information is not organized.	Main points are not clear and lack significant detail. Some information is linked to the presentation topic. Information is loosely organized.	Main points are somewhat clear but could use more detail. Most information is linked to the presentation topic. Information is organized.	Main points are clear and detailed. Information is linked to presentation topic. Information is well organized.	Main points are very clear and very detailed. Information is directly linked to presentation topic. Information is very organized.
Nonverbal Communication	Speaker appears very uneasy and insecure. Speaker faces away from the audience or makes no eye contact. Speaker appears disengaged from the audience. Speaker uses few body motions or gestures or has gestures or movements that distract the audience.	Speaker appears uneasy and somewhat insecure. Speaker rarely faces the audience or makes eye contact. Speaker rarely appears to be engaging with the audience. Speaker uses few body motions or has gestures or movements that distract the audience..	Speaker appears generally at ease and confident. Speaker sometimes faces the audience and maintains eye contact. Speaker sometimes appears to be engaging with the audience. Speaker's body motions and gestures neither support nor detract from presentation.	Speaker appears fairly comfortable and confident. Speaker generally faces the audience and maintains good eye contact. Speaker generally appears to be engaging with the audience. Speaker uses body motions and gestures well.	Speaker appears very comfortable and confident. Speaker consistently faces the audience and maintains good eye contact. Speaker consistently appears to be engaging with the audience. Speaker uses body motions and gestures very effectively.
Quality of Verbal Communication	Speaker's voice is consistently too weak or too strong. Speaker fails to use inflections to emphasize key points and create interest or often uses inflections	Speaker's voice is frequently too weak or too strong. Speaker rarely uses inflections to emphasize key points and create interest or speaker sometimes uses	Speaker's voice is generally steady strong and clear. Speaker sometimes uses inflections to emphasize key points and create	Speaker's voice is steady, strong, and clear. Speaker often uses inflections to emphasize key points and create interest. Speaker's talking pace is mostly appropriate.	Speaker's voice is very confident, steady, strong, and clear. Speaker consistently uses inflections to emphasize key points or to create interest. Speaker's talking

	inappropriately. Speaker's talking paces is consistently too slow or too fast.	inflections inappropriately. Speaker's talking pace is often too slow or too fast.	interest. Speaker's talking pace is appropriate.		pace is consistently appropriate.
Visual Tools	Visual aids demonstrate no creativity or clarity and are often difficult to read. Presentation is weakened by the visual tools.	Visual aids have limited creativity or clarity or are sometimes difficult to read. Presentation is not enhanced by the visual tools.	Visual aids are reasonably creative, clear, and easy to read. Presentation is sometimes enhanced by the visual tools.	Visual aids are usually creative, clear, and easy to read. Presentation is often enhanced by the visual tools.	Visual aids are very creative, clear, and easy to read. Presentation is consistently enhanced by the visual tools.
Appropriate Use of Vocabulary	Few or no terms are included in the presentation. May or may not be used appropriately. Lacks context.	Several terms are included in the presentation. May or may not be used appropriately. May lack context.	Most terms are included in the presentation. Generally used appropriately. Generally used in appropriate context.	All terms are included in the presentation. Used effectively. Used in context.	All terms are included in the presentation. Used in unique and creative ways. Used in context
Precision and Detail in Documents Produced	Written documents have numerous errors and lack detail. Little care taken in the production.	Documents may have some errors and show some detail. Some care has been taken in production.	Evident that written documents are correct and show a general attention to detail and accuracy. General care has been taken in production.	Clearly evident that written documents are correct, detailed and accurate. Care has been taken in production.	Documents are clear, well-constructed, accurate, and show attention to detail. Extra care has been taken in the production of written documents.
Overall Presentational Effectiveness	The presentation was weak and not effective.	The presentation was average and somewhat effective.	The presentation was good and effective.	The presentation was very good and effective.	The presentation was exceptional and extremely effective.

Empirical and Quantitative Skills RUBRIC

Adapted for Texarkana College from the AAC&U Critical Thinking VALUE Rubric

Definition

The ability to formulate an inquiry that is scientific or mathematical in nature, and then manipulate and analyze numerical data and/or follow an investigative process using empirical and/or quantitative reasoning to satisfy the inquiry and create informed conclusions.

	Does Not Meet Any Expectations 1	Meets Few Expectations 2	Meets Expectations 3	Exceeds Some Expectations 4	Exceeds All Expectations 5
Identification	The purpose, components, and variables of the investigation/project are not identified.	The purpose, components, and variables of the investigation/project are somewhat identified.	The purpose, components, and variables of the investigation/project are mostly identified	The purpose, components, and variables of the investigation/project are clearly identified..	The purpose, components, and variables of the investigation/project are clearly identified.
Assimilation	The information that is required for an analysis of all investigative components is not evident. If applicable, values are incorrectly translated into variables and no necessary formulas are present.	The information that is required for an analysis of all investigative components is somewhat evident. If applicable, values are incorrectly translated into variables and some necessary formulas are present.	The information that is required for an analysis of all investigative components is mostly evident. If applicable, some values are correctly translated into variables and most necessary formulas are present.	The information that is required for an analysis of all investigative components is evident. If applicable, most values are correctly translated into variables and all necessary formulas are present.	The information that is required for an analysis of all investigative components is clearly evident. If applicable, values are correctly translated into variables and all necessary formulas are present.
Analysis	Most investigative or quantitative components are not scrutinized. The steps followed are illogical and/or irrelevant to the desired result. The proper tools/ technology were not used and/or integrated into the final product. Any notation is not consistent and not defined.	Some investigative or quantitative components are scrutinized. Some steps followed are somewhat logical and relevant to the desired result. The proper tools/ technology were somewhat used and not integrated into the final product. Any notation is somewhat consistent but not defined.	All investigative or quantitative components are somewhat scrutinized. The steps followed are mostly logical and relevant to the desired result. The proper tools/ technology were mostly used and somewhat integrated into the final product. Any notation is mostly consistent and defined.	All investigative or quantitative components are scrutinized. The steps followed are logical and relevant to the desired result. The proper tools/ technology were used and mostly integrated into the final product. Any notation is consistent and well defined.	All investigative or quantitative components are methodically scrutinized. The steps followed are logical and relevant to the desired result. The proper tools/ technology were used and well integrated into the final product. Any notation is consistent and well defined.

Presentation	<p>A summary of the analysis is either inadequately presented or not presented at all.</p> <p>The presented information is mostly incorrect, and/or of poor quality, and/or the terminology/figures are inaccurate and/or hard to understand. Few or no visual representations of evidence are acceptably scaled/ represent the analysis findings.</p>	<p>A partial summary of the analysis is presented.</p> <p>The presented information is somewhat correct, of adequate quality, and the terminology/figures are somewhat accurate and relatively easy to understand. Some visual representations of evidence are acceptably scaled and represent the analysis findings.</p>	<p>A summary of the analysis is presented.</p> <p>The presented information is mostly correct, of good quality, and the terminology/figures are mostly accurate and easy to understand.</p> <p>Most visual representations of evidence are acceptably scaled and represent the analysis findings.</p>	<p>A good summary of the analysis is presented.</p> <p>The presented information is correct, of good quality, and the terminology/figures are accurate and easy to understand. Most visual representations of evidence are well-scaled and/or well represent the analysis findings..</p>	<p>A concise summary of the analysis is presented. The presented information is correct, of high quality, and the terminology/figures are accurate and easy to understand. All visual representations of evidence are well-scaled and well represent the analysis findings.</p>
Application	<p>The integration does not include all steps of the investigation and does not lead to an accurate, nor complete conclusion that relates to the initial investigative argument.</p>	<p>The integration of most steps of the investigation lead to a somewhat accurate, partially complete conclusion that is relative to the initial investigative statement.</p>	<p>The coherent integration of most steps of the investigation lead to an accurate, mostly complete, acceptable conclusion that is relative to the initial investigative statement.</p>	<p>The coherent integration of all steps of the investigation lead to an accurate, mostly complete, relevant conclusion that is relative to the initial investigative statement.</p>	<p>The coherent integration of all steps of the investigation lead to an accurate, complete, relevant conclusion that is relative to the initial investigative statement.</p>

Teamwork Skills RUBRIC

Adapted for Texarkana College from the AAC&U Critical Thinking VALUE Rubric

Definition

Teamwork is behaviors under the control of individual team members, their manner of interacting with others on team, and the quantity and quality of contributions they make to team discussions.

	Does Not Meet Any Expectations 1	Meets Few Expectations 2	Meets Expectations 3	Exceeds Some Expectations 4	Exceeds All Expectations 5
Contributes to Team Meetings	Does not collect any relevant information; no useful suggestions to address team's needs;	Shares ideas but does not advance the work of the group.	Offers new suggestions to advance the work of the group	Offers alternative solutions or courses of action that build on the ideas of others.	Helps the group move forward by articulating the merits of alternative ideas or proposals
Facilitates the Contributions of Team Members	Often argues with team mates; doesn't let anyone else talk; occasional personal attacks and "put-downs"; wants to have things done his way and does not listen to alternate approaches;	Engages group by taking turns and listening to others without interrupting.	Engages group by restating the views of other members and/or asking questions for clarification.	Engages group by constructively building upon or synthesizing the contributions of others..	Engages group by both constructively building upon and synthesizing the contributions of others as well as noticing when someone is not participating and inviting him/her to engage.
Individual Contributions Outside of Team Meetings	Completes no assigned tasks outside of team meetings.	Completes some assigned tasks by deadline.	Completes all assigned tasks by deadline; work accomplished advances the project.	Completes all assigned tasks by deadline; work accomplished and is thorough, comprehensive, and advances the project.	Completes all assigned tasks by deadline; work accomplished is thorough, comprehensive, and advances the project. Proactively helps other team members complete their assigned tasks to a similar level of excellence.
Fosters Constructive Team Climate	Is argumentative and does not work with the team.	Supports a constructive group climate by treating other members respectfully.	Supports a constructive group climate by treating other	Supports a constructive group climate by treating other	Supports a constructive group climate by treating other

			members respectfully and conveying a positive attitude about the group and its work.	members respectfully, conveying a positive attitude about the group and its work, and motivating other group members.	members respectfully, conveying a positive attitude about the group and its work, motivating other group members, and providing assistance to group members.
Responds to Conflict	Is not present enough to engage in conflict.	Passively accepts alternate viewpoints/ideas/opinions.	Redirects focus toward common ground, toward task at hand (away from conflict)..	Identifies and acknowledges conflict and stays engaged with it.	Addresses conflict directly and helps to manage/resolve it in a way that strengthens overall group cohesiveness.



Syllabus: Chemistry 1412-General Chemistry II

Course Number: Chem 1412

Semester & Year: Spring 2013

Instructor Information

Instructors	
Mike Buttram, Professor	Patricia Harman, Professor
Office Number: Chemistry Building Room 221	Office Number: Chemistry Building Room 225
Phone Number: 903-838-4541 Ext 3280	Phone Number: 903-838-4541 Ext 3390
Email Address: mike.buttram@texarkanacollege.edu	Email Address: patricia.harman@texarkanacollege.edu
Web Page: https://campus.texarkanacollege.edu/	Web Page: https://campus.texarkanacollege.edu/
Office Hours: M 02:00-04:00; W 11:00-01:00	Office Hours: TBA

Textbook Information

The Chemistry 1412 textbook is Chemistry, 4th edition by McMurry and Fay. The ISBN is 0-13-140208-0. This book can be acquired at a reasonable price from the Texarkana College Book Store or online. A website with no shipping charges is <http://www.betterworldbooks.com/>. An older or newer version of the text book is acceptable. The Chemistry 1412 Laboratory Manual is available in the Texarkana College Book Store or may be downloaded directly from the Chemistry 1412 Moodle Page. All problem assignments and lecture material may be obtained from the Chemistry 1412 Moodle Page.

Student Learning Outcomes for the Course

Upon successful completion of this course, students will:

1. State the characteristics of liquids and solids, including phase diagrams and spectrometry.
2. Articulate the importance of intermolecular interactions and predict trends in physical properties.
3. Identify the characteristics of acids, bases, and salts, and solve problems based on their quantitative relationships.
4. Identify and balance oxidation-reduction equations, and solve redox titration problems.
5. Determine the rate of a reaction and its dependence on concentration, time, and temperature.

6. Apply the principles of equilibrium to aqueous systems using LeChatelier's Principle to predict the effects of concentration, pressure, and temperature changes on equilibrium mixtures.
7. Analyze and perform calculations with the thermodynamic functions, enthalpy, entropy, and free energy.
8. Discuss the construction and operation of galvanic and electrolytic electrochemical cells, and determine standard and non-standard cell potentials.
9. Define nuclear decay processes.
10. Describe basic principles of organic chemistry and descriptive inorganic chemistry

Learning objectives specific to the laboratory are:

1. Use basic apparatus and apply experimental methodologies used in the chemistry laboratory.
2. Demonstrate safe and proper handling of laboratory equipment and chemicals.
3. Conduct basic laboratory experiments with proper laboratory techniques.
4. Make careful and accurate experimental observations.
5. Relate physical observations and measurements to theoretical principles.
6. Interpret laboratory results and experimental data, and reach logical conclusions.
7. Record experimental work completely and accurately in laboratory notebooks and communicate experimental results clearly in written reports.
8. Design fundamental experiments involving principles of chemistry and chemical instrumentation.
9. Identify appropriate sources of information for conducting laboratory experiments involving principles of chemistry.

Prerequisites: Students should have completed Chemistry 1411 with a minimum grade of "C" or have consent of the professor.

Student Requirements for Completion of the Course including grade calculation

Lecture: Chemistry 1412 lecture is scheduled for one meeting a week for two hours and forty five minutes. The class lasts for fourteen weeks and has an extended period for a final examination during the fifteenth week. The format involves typical lecture presentations supported by electronic displays and numerous live chemical demonstrations that support the topics under discussion. The lecture electronic material is available on the campus Moodle Page along with other activities that support many concepts. The grade for the lecture portion of the course is determined from a combination of scores on weekly written examinations and the final examination. The weekly examinations will be available in the testing center from Tuesday through Friday of each week. The final examination is a standardized multiple choice test written by the American Chemical Society. The lecture component of the course accounts for seventy percent of the overall course grade (60% for the weekly examinations and 10% for the final examination). Old sectional examinations from past years are

available on the course Moodle Page. A “grade minder” detailing the grades to be recorded and the calculation of the final grades is included on the final page of this syllabus.

Laboratory: Chemistry 1412 laboratory consists of fourteen three hour laboratory periods that introduce the student to basic chemistry laboratory concepts, techniques, and calculations. Safety practices are covered during the first laboratory, and the theme is continued throughout the semester. Students are required to wear safety glasses at all times, wear pants that cover the legs, and have closed toed shoes. The completion of a pre-laboratory assignment is required before a student can take part in the laboratory activities for a given session. The pre-laboratory assignments detail the relevant theory and problems solving skills necessary to complete the laboratory assignment.

Extra Credit Work: Extra credit for grade determination can be obtained by completing the computer tutorials in the computer tutorial laboratory (Chemistry Building, Room 218) and by completing the extra credit examinations on the Chemistry 1412 Moodle Page with a grade of 90% or better. Completion of either activity allows a maximum value of 5 points (a total of 10 points for both activities) to be added to the final course grade.

Absentee Policy

Texarkana College’s absentee policy allows instructors to withdraw a student from a course due to excessive absences. If a student leaves and returns during class or leaves the class before the class is over, he/she may be considered absent. Three tardies constitute one absence. It is the student’s responsibility to check the syllabus for each instructor’s tardy policy.

Faculty members are not obligated to provide opportunities for students to make-up missed assignments and tests as a result of a student’s absence from class. The institution is not required to take attendance with the exception of workforce/vocational areas, where certification requirements require taking attendance. However, experience demonstrates that regular attendance enhances academic success. As such, students are expected to attend each meeting of their registered courses. A student should not stop attending a class without formally withdrawing from the course by the institutions published Last Day for Students to Drop. If a student stops attending class after the published Last Day for Students to Drop, the student may receive a grade of “F” in the class. The instructor will submit the last date of attendance for students receiving a grade of “F” or “W”. Withdrawal from a course(s) may affect a student’s current or future financial aid eligibility. Students should consult the Financial Aid Office to learn both short and long term consequences of a withdrawal.

EXCUSED ABSENCES

Student’s absences due to school trips and/or school business will not be counted against a student’s allowable number of absences. Military duty and absences for Holy Days (FBD LEGAL) are covered in a separate section of the catalog and the student handbook. These are the only excused absences that are considered by Texarkana College. Responsibility for work missed for any absence is placed on the student. Instructors are required to allow students to make up work missed if the absence is due to military duty or religious holy days when students follow the correct notification procedures.

Instructors are not required to allow students to make up work for absences due to other reasons. Make-up policies are listed in each individual instructor’s syllabus.

If a student is taking a hybrid course, and it does not meet during the first week of class, the student must also complete an Enrollment Verification activity within the first week of class; otherwise the student may be dropped for not having attended.

MAXIMUM ALLOWABLE ABSENCES

After official registration, the following number of unexcused absences will be the maximum allowable before a student may be dropped from the class. Mandated program certification requirements detailed for certain programs regarding the maximum allowable unexcused absences takes precedence over the following information.

Academic Classes

A COURSE THAT MEETS FOR THE FULL 16 WEEK SEMESTER	
Class or Lab Meets:	An instructor may withdraw a student from a course if absences exceed:
Once a week (Night classes or Friday classes)	2
Twice a week (MW or TR classes)	4
Three times a week (MWF or TRF classes)	6
Four times a week (MTWR classes)	8
	Three tardies count as one absence

Make-up Policy

Examinations and laboratories can be made up in cases where the student can show illness, family distress, or military duty. In general the instructors want the student to complete the required work. Students need to make the instructor aware of problems they are having, and, where possible, make plans before they are going to be absent. Students who do miss work regularly without acceptable reasons or planning will not be allowed to complete the work and receive a grade of zero for the work missed.

Academic Dishonesty Policy

Scholastic dishonesty, involving but not limited to cheating on a test, plagiarism, collusion, or falsification of records will make the student liable for disciplinary action after being investigated by the Dean of Students. Proven violations of this nature will result in the student being dropped from the class with an "F".

This policy applies campus wide, including TC Testing Center, as well as off-campus classroom or lab sites, including dual credit campuses. This information can be found in the Student Handbook at <https://texarkanacollege.edu/PDFFiles/CurrentStudents/studenthandbook.pdf>.

Disability Act Statement:

Texarkana College complies with all provisions of the Americans with Disabilities Act and makes reasonable accommodations upon request. Please contact Larry Andrews at 903.823.3283, or go by the Recruitment, Advisement, and Retention Department located in the Administration building for personal assistance.

If you have an accommodation letter from their office indicating that you have a disability which requires academic accommodations, please present it to me so we can discuss the accommodations that you might need for this class. *It is best to request these changes at the beginning if not before the start of class* so there is ample time to make the accommodations..

Financial Aid:

Attention! Dropping this class may affect your funding in a negative way! You could owe money to the college and/or federal government. Please check with the Financial Aid office before making a decision.

Grade Minder

<u>Weekly Exams</u>	<u>Laboratory Grades</u>
1. _____	Lab 1. _____
2. _____	Lab 2. _____
3. _____	Lab 3. _____
4. _____	Lab 4. _____
5. _____	Lab 5. _____
6. _____	Lab 6. _____
7. _____	Lab 7. _____
8. _____	Lab 8. _____
9. _____	Lab 9. _____
10. _____	Lab 10. _____
11. _____	Lab 11. _____
12. _____	Lab 12. _____
13. _____	Lab 13. _____
14. _____	Lab 14. _____

If you want to calculate your grade at any time follow this procedure:

Find your chapter examination average x 0.6 _____

Find your laboratory write-up average x 0.3 _____

Estimate your final exam grade x 0.1 _____

Tutorial extra Credit (Maximum 5 points)

Moodle page Examinations extra credit (Maximum 5 points)

Find the sum of previous six to determine your numerical score for
General Chemistry

A numerical score of 90 or above equates with an “A”, 80 or above but less than 90 with a “B”, 70 or above but less than 80 with a “C”, 60 or above but less than 70 with a “D”, and grades below 60 equate with a grade of “F”.

Student Learning Outcomes (SLO)

CHEM 1312

1. State the characteristics of liquids and solids, including phase diagrams and spectrometry.
2. Articulate the importance of intermolecular interactions and predict trends in physical properties.
3. Identify the characteristics of acids, bases, and salts, and solve problems based on their quantitative relationships.
4. Identify and balance oxidation-reduction equations, and solve redox titration problems.
5. Determine the rate of a reaction and its dependence on concentration, time, and temperature.
6. Apply the principles of equilibrium to aqueous systems using LeChatelier's Principle to predict the effects of concentration, pressure, and temperature changes on equilibrium mixtures.
7. Analyze and perform calculations with the thermodynamic functions, enthalpy, entropy, and free energy.
8. Discuss the construction and operation of galvanic and electrolytic electrochemical cells, and determine standard and non-standard cell potentials.
9. Define nuclear decay processes.
10. Describe basic principles of organic chemistry and descriptive inorganic chemistry

Chemistry 1412
Laboratory Problem 2

Materials

25 mL Graduated cylinder (1 mL graduations)
2-25 x 150 Test tubes
Styrofoam coffee cup calorimeter
Thermometer (1°C divisions-1 to 100 °C range)
Access to balance weighting to 1 mg
Access to hot plate with boiling water in 400 mL beaker
Access to deionized water
One set of test tube tongs

Chemicals

10 g of Al shot dispensed in small Ziploc bag
10 g of Cu shot dispensed in small Ziploc bag

Students are broken into groups of three to four. The group is told they are testing a method of capturing solar energy to be used in a reservoir to be utilized later. They are to develop a procedure to find the specific heat of the metal samples and determine the mass of the metals necessary to capture 50.0 kJ of energy with only a one degree temperature increase (1°C). Each group must develop a detailed plan before they can start the process. The plan must be in writing and available to the teacher and the class. After the plan is developed the group may put it into practice using only the equipment provided. If the plan works, the group produces a report and prepares a presentation. If the plan fails, adjustments are necessary to produce a workable plan.