

COURSE # CHEM 1015

Introduction to Chemistry Lab

*2018-2019*

**Instructor**

**Instructor:**

**Phone:**

**Email:**

**Office Hours:**

**Course**

## Course Description

***This is a Concurrent Enrollment Course, offering both high school credit through \_\_\_\_\_\_\_\_\_\_\_\_\_\_ High School and college credit through Utah Valley University. Credit from this course is transferable to all colleges and universities. Contact the receiving institution for how the credits will be applied.***

**Catalog Description**

A lab designed to accompany CHEM 1010. Provides practical experience to support chemistry foundational learning. Emphasizes chemical measurements, atomic structure, formulas, chemical reactions and equations, chemical nomenclature, stoichiometry, molecules and chemical bonding, gas laws, liquids, solids, solutions, acids and bases.

**Course Prerequisites**

This class is available to all high school students in good academic standing. High school prerequisites apply.

## Course Objectives or Learning Outcomes

|  |
| --- |
| Perform basic chemistry measurements.    |
| Present data clearly and effectively.    |
| Describe chemical reactions.    |
| Design simple chemistry experiments.    |
| Use measurements and experimentation to describe chemical principles.    |

**Required Text and Materials**

Lab Book: Descriptions and instructions for each experiment will be found on the class website on Canvas (log in through http://uvlink.uvu.edu).

Lab Notebook: Bound, quad ruled, numbered pages with carbonless copies—found in UVU Bookstore (see Sample). The copied pages need to be legible.

Calculator: No specific model recommended: however, it should have memory and scientific notation capability.

Pen: All work must be done in dark ink (no red or red-like colors).

Safety Glasses: Must meet OSHA requirements for chemical splash protection (goggles with polycarbonate lenses w/no direct air venting)

TICE Course: Online exercises through the TICE website. No Text Required.

**Department Policies**

**Assessment**

| Laboratory Rubric |
| --- |
| Element | Criteria | Pts |
| Laboratory Participation | Are you actively engaged in the experiment (You’re not just letting your partner do all the work)? Are you being safe? Are you using correct laboratory technique? Did you clean up after yourself? | 15 pts |
| Laboratory Notebook: Carbon copies of your notebook will be signed by both the student and the instructor and will be handed in as you leave the lab. |
| Pre-write up | Write up the procedure such that you shouldn't need the print out. Create Blank Tables to record data you will be collecting. (You may want additional columns than just the ones provided in the print outs.) | 10 pts |
| Post-write up | Write down any variations in the procedure written in the pre-write up; weights and volumes of chemicals used; observations as the experiment it taking place i.e. temperature change, color change, effervescence, pH change, etc. Record data in tables. | 10 pts |
| Report | Every laboratory as a Data Analysis section. Provide the answers or the information requested in a one page report. The report is due at 8:00 before the next laboratory. | 15 pts |
| Total | 50 pts |

| Final Rubric |
| --- |
| Element | Criteria | Pts |
| Laboratory Reports:  |
| Grammar and Spelling | You are expected to use correct spelling and grammar. | 10 pts |
| Introduction | A short introduction covering what the experiment should show, and what you were intending to accomplish. | 10 pts |
| Experimental | This section should describe all experimental procedures in enough detail so that someone else could repeat the experiment. Some guidelines to follow: * Explain the general type of scientific procedure you used to study the problem.
* Describe what materials, subjects, and equipment you used.
* Explain the actual steps you took in your experiment and how did you proceed.
 | 20 pts |
| Results/Calculations/ Data Presentation | The results section should present data that you collected from your experiment and summarize the data with text, tables, graphs and/or figures. Effective results sections include:* All results should be presented, including those that do not support the hypothesis.
* Statements made in the text must be supported by the results contained in figures and tables.
* Table and charts must be labeled properly and referenced.
* Mathematical equations and statistical tests should be described.
* Data in tables should match laboratory notebook.
 | 20 pts |
| Discussion | The discussion section should explain to the reader the significance of the results and give a detailed account of what happened in the experiment. Evaluate what happened, based on the hypothesis and purpose of the experiment. If the results contained errors, analyze the reasons for the errors. The discussion should contain:* Summarize the important findings of your observations.
* For each result, describe the patterns, principles, relationships your results show.
* Explain how your results relate to expectations and to references cited.
* Explain any agreements, contradictions, or exceptions.
 | 20 pts |
| Conclusion | The conclusion is concise, yet detailed summary of the report. It should contain these three elements:* What the objectives of the study were
* Brief statement of what was done.
* Brief statement of what was found. (Answer to the unknown)
* If you are unable to answer the unknown discuss why.
 | 20 pts |
| Total | 100 pts |

**Grading Scale**

 A = 100-93 B - = 82-80 D+ = 69-67

 A - = 92-90 C+ = 79-77 D = 66-63

 B+ = 89-87 C = 76-73 D - = 62-60

 B = 86-83 C - = 72-70 F = 59-0

**Grades and Credit**

Your grade for this class will become part of your permanent college transcript and will affect your GPA. A low grade in this course can affect college acceptance and scholarship eligibility.

Grades are determined by instructors, based upon measures determined by the instructor and department and may include: evaluation of responses, written exercises and examinations, performance exercises and examinations, classroom/laboratory contributions, mastery of pertinent skills, etc. The letter grade “A” is an exceptional grade indicating superior achievement; “B” is a grade indicating commendable mastery; “C” indicates satisfactory mastery and is considered an average grade; “D” indicates substandard progress and insufficient evidence of ability to succeed in sequential courses; “E” (failing) indicates inadequate mastery of pertinent skills or repeated absences from class; “UW” indicates unofficial withdrawal from class.

**University Policies**

**Academic Integrity**

Utah Valley University expects all students to maintain integrity and high standards of individual honesty in academic work, to obey the law, and to show respect for others. Students of this class are expected to support an environment of academic integrity, have the right to such an environment, and should avoid all aspects of academic dishonesty. Examples of academic dishonesty include plagiarizing, faking of data, sharing information during an exam, discussing an exam with another student who has not taken the exam, consulting reference material during an exam, submitting a written assignment which was authored by someone other than you, and/or cheating in any form.

In keeping with UVU policy, evidence of academic dishonesty may result in a failing grade in the course and disciplinary review by the college.  Any student caught cheating will receive, at minimum, zero points on that particular assignment for the first offense.  A second offense can result in failing the course and will entail being reported to Student Advising.  Academic dishonesty includes, in part, using materials obtained from another student, published literature, and the Internet without proper acknowledgment of the source.   Additional information on this topic is published in the student handbook and is available on the UVU website.

### **Student Code of Conduct**

All UVU students are expected to conduct themselves in an appropriate manner acceptable at an institution of higher learning. All students are expected to **obey the law**, to **perform contracted obligations**, to **maintain absolute integrity and high standards** of individual honesty in academic work, and to observe a **high standard of conduct for the academic environment**.

The Student Rights and Responsibilities Code, or Code of Conduct, outlines for students what they can expect from the University and what the University expects of them.

Students should review their Rights and Responsibilities. The Code of Conduct also outlines the process for academic appeals, and appeals related to misconduct and sanctions. It can be found at <http://www.uvu.edu/studentconduct/students/>

**Student Responsibilities**

You are expected to take an active role in the learning process by meeting course requirements as specified in written syllabi. Faculty members have the right to establish classroom standards of behavior and attendance requirements. You are expected to meet these requirements and make contact with faculty members when unable to do so.

**Withdrawal Policy**

If you do not wish to take this course or find that you are unable to continue, you should officially withdraw by the deadline stated in the current semester UVU Student Timetable.

You can officially withdraw from a course by dropping it through the online registration system or the campus One Stop desk (BA 106) by the listed date. If you officially withdraw from a course by the "Last Day to Drop and Not Show on Transcript," the course will not appear on your academic transcripts. If you officially withdraw from a course by the "Last Day to Withdraw," a "W" will appear on your transcripts. Although your GPA will not be affected — a "W" will indicate that you chose to withdraw. If you fail to complete the course and do not drop it before the "Last Day to Withdraw," a "UW" or "E" (a failing grade) will appear on your transcripts.

Withdrawing from a course may impact your financial aid status. For more information, see: UVU Financial Aid.

**Cheating and Plagiarism Policy Procedures**

This document was taken from the Utah Valley University Policy 541, The Student Rights and Responsibilities Code

5.4.4 Each student is expected to maintain academic ethics and honesty in all its forms, including, but not limited to, cheating and plagiarism as defined hereafter:

1) Cheating is the act of using or attempting to use or providing others with unauthorized information, materials, or study aids in academic work. Cheating includes, but is not limited to, passing examination answers to or taking examinations for someone else, or preparing or copying another's academic work.

2) Plagiarism is the act of appropriating another person's or group's ideas or work (written, computerized, artistic, etc.) or portions thereof and passing them off as the product of one's own work in any academic exercise or activity.

3) Fabrication is the use of invented information or the falsification of research or other findings. Examples include but are not limited to:

a) Citation of information not taken from the source indicated. This may include the incorrect documentation of secondary source materials.

b) Listing sources in a bibliography not used in the academic exercise.

c) Submission in a paper, thesis, lab report, or other academic exercise of falsified, invented, or fictitious data or evidence, or deliberate and knowing concealment or distortion of the true nature, origin, or function of such data or evidence.

 d) Submitting as your own any academic exercise (written work, printing, sculpture, etc.) prepared totally or in part by another.

### **Students with Disabilities**

**Students who need accommodations because of a disability** may contact the UVU Office of Accessibility Services (OAS), located on the Orem Campus in LC 312. To schedule an appointment or to speak with a counselor, call the OAS office at 801-863-8747. Deaf/Hard of Hearing individuals, email [nicole.hemmingsen@uvu.edu](https://owa.uvu.edu/owa/redir.aspx?C=r3xUa4y2bkalWljgIj1VXM3KzYlusNIIESMqIpkF5USfG-H3cUMstYl8DNScKc_quB49PvOQ-l0.&URL=mailto%3anicole.hemmingsen%40uvu.edu) or text 385-208-2677.

**Religious Accommodations**

At the beginning of each semester, you shall promptly review the course syllabus and class schedule and notify faculty to request an accommodation for sincerely held religious beliefs and practices using the *Religious Accommodation Request Form*.

**Dangerous Behavior**

The faculty member has the right to demand and secure the immediate removal of any person from the classroom whenever the faculty member determines, to the best of his or her knowledge or belief, that the person's actions are threatening or dangerous to students or themselves. If the faculty member cannot resolve a disruptive situation, the faculty member may request that the disruptive person(s) leave the classroom. If the disruptive person(s) will not leave voluntarily, the faculty member may call University Police for assistance. The incident shall be reported to the Dean of Students and to the Director of Judicial Affairs in accordance with Policy 541 *Student Rights and Responsibilities Code*.

**Discriminatory, Exclusionary, or Disruptive Behavior**

Faculty members observing discriminatory, exclusionary, or disruptive behavior follow procedures described in UVU Policy 541 *Student Rights and Responsibilities Code.* 5.6

**Attendance**

Attendance in this class is not mandatory due to the different learning preferences with each student. However, class will be held according to the schedule on the top of this syllabus. Chapters will be covered in class as listed in the semester schedule below. Class will consist of chapter reviews, discussion and group activities.

**Policies/References**

1. Policy 541: Student Rights and Responsibilities Code <https://www.uvu.edu/catalog/current/policies-requirements/student-rights-and-responsibilities.html>
2. Policy 601: Classroom Instruction and Management. <https://policy.uvu.edu/getDisplayFile/5750ed2697e4c89872d95664>
3. Policy 635: Faculty Rights and Professional Responsibilities. <https://policy.uvu.edu/getDisplayFile/563a40bc65db23201153c27d>

**Definitions**

* 1. Syllabus: An agreement between faculty and students that communicates course structure, schedule, student expectations, expected course outcomes, and methods of assessment to students.

### **Dropping the Class**

### \_\_\_\_\_\_\_\_\_ is the last day to drop the course without it showing on your transcript.

\_\_\_\_\_\_\_\_\_ is the last day to withdraw from the class.
If you drop the high school class, you must also withdraw from the UVU class to avoid receiving a failing grade.

Due dates and this syllabus may change at the instructor’s discretion due to the needs of the class members.

Schedule

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| WK | Topic | Teaching Methods | Evaluation Methods | Objectives |
| 1   | Safety Lab   | Laboratory Exercises    | Quiz   | 2   |
| 2   | Models of the Atom    | Guided simulations of the Atom   | Lab Reports    | 2,3   |
| 3   | Measurements using density as an example    | Laboratory Exercises   | Lab Reports   | 1,2,5   |
| 4   | Radioactivity Simulations    | Computer Simulation Activities   | Lab Reports   | 1,3   |
| 5   | Ionic Compounds    | Laboratory Exercises   | Lab Reports   | 3   |
| 6   | Covalent Compounds    | Laboratory Exercises   | Lab Reports   | 3   |
| 7   | Measuring Physical Changes    | Laboratory Exercises   | Lab Reports   | 1,2,5   |
| 8   | Using Physical Changes to Characterize Materials    | Laboratory Exercises    | Lab Reports   | 1,2,5   |
| 9   | Gas Laws    | Laboratory Exercises   | Lab Reports   | 4   |
| 10   | Making Solutions    | Laboratory Exercises   | Lab Reports   | 1,4   |
| 11   | Characterizing Solutions    | Laboratory Exercises   | Lab Reports   | 5   |
| 12   | Chemical Changes    | Laboratory Exercises   | Lab Reports   | 3   |
| 13   | Acids and Bases    | Laboratory Exercises   | Lab Reports   | 3   |
| 14   | Optional Guided Inquiry Lab    | Laboratory Exercises   | Open Inquiry   | 4   |
| 15   | Final and Check in   | Final and Check in   | Final and Check in   | 1,2,3,4,5   |