

CHEM 1010 – Introductory Chemistry

Syllabus

Instructor: Dr. Shawn M. Miller

Fall Term, 2017

Email: shawn.miller@usu.edu

Office Hours: Monday/Wednesday

10:00 AM – 11:00 AM Widtsoe 339

Course Lecture Times & Locations:

| Section (CRN) | Time | Day | Location |
|---------------------|----------------------|-------|----------------------------|
| Lecture 002 (43103) | 11:30 AM to 12:20 AM | M/W/F | Taggart Student Center 227 |

Prerequisites:

No prerequisites

Required Materials:

Text: Suchocki, J. *Conceptual Chemistry*, 5th ed.; Pearson Education, Inc. (ISBN: 978-1-269-21341-7)

Calculator: A non-programmable scientific calculator is recommended for use in Lecture and on Exams. Programmable calculators (TI-80 and above or similar) are permitted in Exams only if the Testing Center clears the calculator memory. Other electronic devices, including phones, are not permitted during Exams.

SI Information: Ryden Crowther (contact: rdncwr20@gmail.com or Canvas)

Session Times: Monday 6:00 – 6:50 PM WIDT 007

Thursday 7:30 – 8:30 PM EDUC 131

UTF Information: Katelyn Heap (contact: katelyn.rasmussen@aggiemail.usu.edu or Canvas)

Session Times: Tuesday 12:30 – 1:30 PM Room TBA

Thursday 9:30 – 10:30 AM Room TBA

Course Overview

Chem 1010 is a Lecture course targeted towards students seeking to meet their breadth requirements for the physical sciences, students preparing for future chemistry courses, and students that are curious about chemistry that meets three times a week. Content will cover a wide-variety of fundamental chemistry concepts and will present them in practical contexts. There will be Reading Pre-Chapter Quizzes on Canvas associated with each textbook chapter that are due on the day the chapters are discussed in Lecture. Additionally, there will be an online Post-Week Quiz on Canvas at the end of each week designed to help prepare students for the Exams. There will be three 60-minute Exams in addition to a 120-minute Final Exam all of which will be proctored on Canvas via the Testing Center.

Course Learning Objectives

CHEM 1010 is a service course designed to reintroduce you to fundamental scientific concepts you first encountered in your prior education, such as energy, introduce you to new fundamental chemistry concepts, such as atomic structure and molecular structure, and demonstrate how these concepts apply towards real-life problems, such as environmental issues. By reading the textbook prior to the Lecture period and completing Pre-Chapter Quizzes, you will obtain a basic understanding of the upcoming Lectures' topics. By attending, taking notes during, and asking questions during Lecture periods, you will expand and refine your understanding of the course material. You will demonstrate proficiency of the course material through weekly online Post-Week Quizzes and you will demonstrate mastery of the course material through Midterm Exams and a Final Exam.

By the end of this course, you will be able to...

- ...list key fundamental chemistry theories and principles and recall their meaning. For example, students will list the Gas Laws and distinguish between them by recalling their definitions, list the different ways we can measure compounds and recall when certain units are useful and how to convert between units, and list different acids and bases and recall their respective chemical reactivity.
- ...explain the significance of fundamental chemistry theories and principles for everyday life. For example, how gases affect the global climate, why using the correct units are crucial to chemical reactions, and how acid-base chemistry is involved in acid rain.
- ...use fundamental chemistry theories and principles, such as the periodic table, to explain or predict a result. For example, students will use the Gas Laws to predict how the volume of a gas will be affected by changing the pressure, use dimensional analysis to predict the mass of product produced from a chemical reaction using a certain amount of starting material, and explain why elements in the same column on the periodic table have similar chemical properties.
- ...solve quantitative chemistry problems using basic arithmetic skills.

You will prepare for and practice achieving these objectives by...

- ...reading the textbook and completing Pre-Chapter Quizzes on Canvas.
- ...attending and taking notes during Lecture periods.
- ...taking weekly graded online Post-Week Quizzes on Canvas.
- ...asking for help via Office Hours, Piazza, and/or e-mail.
- ...optionally attending UTF or SI sessions for problem solving practice and further assistance.

You will be assessed on how you have achieved these objectives using...

- ...one Getting Started Quiz on Canvas.
- ...the aforementioned Quizzes on Canvas.
- ...three Midterm Exams.
- ...one Final Exam.

Course Communication

Piazza is a free online system designed for students to have access to rapid and efficient help from classmates, TAs, and the instructor simultaneously. **Piazza is not to be used to convey personal information.** Email the instructor directly if you need to discuss personal information.

For academic questions, rather than emailing questions about course material to the instructor and hoping for a quick response, you are strongly encouraged to post your questions on Piazza. The instructor, UTF, SI, and your fellow students can answer the question on Piazza, making it more likely that someone can answer your question quickly. Maybe you'll even get lucky and someone will have already asked the question you were going to ask and got it answered! Students are not to provide complete answers or explanations, but are encouraged to guide their fellow students to complete answers or explanations. You have the option of posting anonymously to each other, but the instructor will always be able to see your identity. Enroll in the course by creating a Piazza account by going to <https://piazza.com/signup> or by clicking on the "Piazza" link in the sidebar on Canvas, searching for "Chem 1010", and enrolling as a student.

You are always welcome to e-mail the instructor, UTF, and/or SI with questions. Please include your full name and A-Number in your email. We will attempt to respond to your e-mails in a timely manner, but I have responsibilities outside of the course that may prevent us from doing so, and we ask you to exercise patience after sending e-mail. When contacting the instructor by email, it is recommended that you send the message through Canvas.

The instructor will hold regular office hours as listed in this syllabus as well as by request.

Course announcements will be made using Canvas and Piazza. You can set Canvas to send you an email when a course announcement is made, but the instructor will not send regular mass reminder emails. **You are expected to check Canvas and/or Piazza at least once a day and are responsible for any information in the announcements.** "But I did not know" will not be an acceptable excuse for being unaware of information in course announcements.

Getting started in the course

Read the course syllabus. Once that is done, your first assessment is a "Getting Started" online quiz located on Canvas that will cover course policy as discussed in the syllabus. This Quiz opens at the start of the semester and remains open until 11:00 AM on Friday, September 8. The Getting Started quiz will be graded immediately upon completion and may be attempted an

unlimited number of times. Correct answers will not be shown upon completion of the Getting Started Quiz, but you will be able to view your responses. If multiple attempts are made, the **latest** score will be accepted. **If you see no score in your Grades, no attempt was submitted.** The Getting Started Quiz score cannot be dropped.

USU welcomes students with disabilities. If you have, or suspect you may have, a physical, mental health, or learning disability that may require accommodations in this course, please contact the Disability Resource Center (DRC) as early in the semester as possible (University Inn #101, 435-797-2444, drc@usu.edu). All disability related accommodations must be approved by the DRC. Once approved, the DRC will coordinate with faculty to provide accommodations.

Lectures and Quizzes

It is assumed that you read textbook chapters prior to discussing them in Lecture. You are strongly encouraged to take notes while reading the textbook and then supplement those notes with Lecture. You are not expected to understand the material simply by reading the textbook, but reading the chapter will build a foundation that we can expand and refine through our discussions in Lecture. PDF copies of blank Lecture PowerPoint slides will be available on Canvas that can be printed ahead of each Lecture if you wish. Each Lecture will be recorded and available on Canvas for viewing at your pleasure.

Prior to the beginning of every chapter will be a Pre-Chapter Quiz. The Quiz will open when the previous chapter is first discussed in Lecture and will close at 11:00 AM the day the chapter is first discussed in Lecture. These Quizzes contain 10 questions each worth 0.5 points. The questions are designed to ensure you recognize key ideas in the chapter, even if you do not yet fully understand them. You will have an hour to complete the Pre-Chapter Quiz and you may use your textbook and notes, but you must work alone. The Quizzes are designed to require much less than an hour to complete if you properly prepare by reading the chapter ahead of time. You may take each Pre-Chapter Quiz twice to account for any technical difficulties you encounter, such as losing power or logging out accidentally. The correct answers for the Quiz will not be shown until after the due date. After successfully completing the Quiz, you may choose to retake the Quiz to try and maximize your score, but note that only the **last** attempt will be accepted. Therefore, if your second attempt at the Quiz has a lower score than the first attempt, the second attempt's score is still what will be counted as your score for the Quiz. The lowest Pre-Chapter Quiz score will be dropped at the end of the course.

There are 13 graded Post-Week Quizzes in the course. Each week, the Quiz will open at 1:00 PM every Friday and will be due the following Monday at 11:00 AM. These Quizzes contain 15 questions each worth 1 point about material covered in the previous week. You will have 30 minutes to complete the Post-week Quiz and you may use your textbook and notes, but you must work alone. You should treat Post-Week Quizzes as practice for the Exam in terms of both format and content. You may take each Post-Week Quiz twice to account for any technical difficulties you encounter, such as losing power or logging out accidentally. After successfully completing the Quiz, you may choose to retake the Quiz to try and maximize your score, but note that only the **last** attempt will be accepted. Therefore, if your second attempt at the Quiz has a lower score than the first attempt, the second attempt's score is still what will be counted

as your score for the Quiz. The lowest two Post-Week Quiz scores will be dropped at the end of the course.

Examinations

There will be three 60-minute Exams, worth 100 points each, that will be administered on Canvas in the Testing Center according to the following schedule:

| | |
|--------------|--|
| First Exam: | Monday, September 25 – Wednesday, September 27 |
| Second Exam: | Monday, October 23 – Wednesday, October 25 |
| Third Exam: | Thursday, November 17 – Saturday, November 19 |

These Exams will consist of 33 multiple choice questions worth 3 points each plus one “question” with only one response for the remaining point.

Make-up Exams for missed Exams may be granted upon petitioning the instructor only in the following situations: 1) documented and acceptable excuses for illness when verified by a doctor’s note; 2) a family emergency when verified by a note from your academic advisor; 3) a regularly scheduled university-sanctioned conflict, such as a sports competition the student is participating in, but only when the instructor is notified well in advance of the conflict and verified with a note from the person in charge of the activity containing the specific reasons for the absence. Absences due to reasons not considered by the university to be excused absences, such as weddings, are not eligible for make-up Exams.

The only materials permitted in the Testing Center will be writing utensils and calculators (scientific preferred, graphing only if the Testing Center clears the memory). The Testing Center will provide laptops and scratch paper. Appoints for the Testing Center are made through their website at <http://testing.usu.edu/>. Ensure you bring a form of ID with you in order to Check-in for your Testing Center appointment.

A Final Examination will be held in the Testing Center from Monday, December 11 to Tuesday, December 12.

Academic integrity

All Utah State University academic integrity policies are strictly enforced. All students at Utah State University agree to be bound by the following Honor Pledge “I pledge, on my honor, to conduct myself with the foremost level of academic integrity.” See the following for further information: <https://studentconduct.usu.edu/studentcode/article5>. Students found guilty of academic misconduct on any assignment will, **at minimum, be given a zero for the assignment and have the full value of that assignment deducted from their final course grade**. Actions up to and including a failing grade for the course are options available to the instructor.

Course Assessment

Approximately halfway through the course, the instructor will solicit feedback through an anonymous survey on Canvas. The purpose of the survey will be to determine student opinions of the course up to that point and ask for suggestions on what could be done to improve the course for the rest of the semester and in subsequent semesters. The instructor will know who completed the survey, but will be unable to match survey responses to students. Each student who responds to the survey will be granted 3 extra credit points.

A Pre-test/Post-test approach will be used to measure comprehension and teaching of important concepts. The Pre-test will be administered online through Canvas. The Pre-test will be comprised of 20 questions with duration of 30 minutes. The multiple choice questions of the Pre-test will reappear in the Final Exam, in altered form, to assess teaching and learning progress during the semester. If weaknesses are observed in specific subject areas, teaching methods will be reevaluated. An all-or-nothing 15 point reward will be given for completing the Pre-test. The Pre-test opens at the beginning of the course and is due at 11:00 AM on Monday, September 4.

Grading

The total score for each type of assignment in the below table represent totals after appropriate lowest scores have been dropped.

| | | | |
|----------------------|-----|-----------------------------|-------|
| Getting Started Quiz | 20 | Percentage of Points Earned | Grade |
| Pre-Test | 15 | 92 – 100 | A |
| Pre-Chapter Quizzes | 60 | 88 – 91 | A– |
| Post-Week Quizzes | 165 | 85 – 87 | B+ |
| First Midterm Exam | 100 | 81 – 84 | B |
| Second Midterm Exam | 100 | 77 – 80 | B– |
| Third Midterm Exam | 100 | 73 – 76 | C+ |
| Final Exam | 200 | 64 – 72 | C |
| Total points | 760 | 60 – 63 | C– |
| | | 57 – 59 | D+ |
| | | 50 – 56 | D |

Final course scores will be rounded to the nearest whole number. The administration of Chem 1010, including the issuing of grades of Incomplete, will adhere to the outlines in the USU General Catalog.

Fall 2017 Schedule

Please look carefully at the following schedule for the correct order of Lectures. Note that this schedule is approximate and may adjust slightly depending on course pace.

Red text denotes the days Lecture is cancelled due to Exams. **Blue text** denotes holidays where Lecture will not be held. Note that Lecture will not be held on Friday, October 20, but will be held on Thursday, October 19. Note that the Pre-test and the first Post-Week Quiz (Post-Quiz) will be due on Monday, September 4, which is a holiday. Post-week Quiz 14 is ungraded due to the Exam schedule, but you are strongly encouraged to complete it in order to prepare for the Final Exam.

Pre-Chapter Quizzes are due the day the Chapter is first discussed in Lecture, but the exact date may change depending on course pace.

| Week | Date | Chapter | Assignment Due | Week | Date | Chapter | Assignment Due |
|------|-------|---------------------------------------|-----------------------|------|-------------------|--------------------------------------|-----------------------------|
| 1 | 8/28 | Introduction | | 9 | 10/23 | 7 | Post-Quiz 8 |
| | 8/30 | 1 | Pre-Chapter 1 | | 10/25 | 7 | |
| | 9/1 | 1 | | | 10/27 | 9 | Pre-Chapter 9 |
| 2 | 9/4 | Labor Day (No Class) | Pre-test/Post-Quiz 1 | 10 | 10/30 | 9 | Post-Quiz 9 |
| | 9/6 | 1 | | | 11/1 | 9 | |
| | 9/8 | 2 | GS Quiz/Pre-Chapter 2 | | 11/3 | 10 | Pre-Chapter 10 |
| 3 | 9/11 | 2 | Post-Quiz 2 | 11 | 11/6 | 10 | Post-Quiz 10 |
| | 9/13 | 2 | | | 11/8 | 10 | |
| | 9/15 | 3 | Pre-Chapter 3 | | 11/10 | 10 | |
| 4 | 9/18 | 3 | Post-Quiz 3 | 12 | 11/13 | No Class – Exam 3 | Post-Quiz 11 |
| | 9/20 | 3 | | | 11/15 | 11 | Pre-Chapter 11 |
| | 9/22 | 3 | | | 11/17 | 11 | |
| 5 | 9/25 | No Class – Exam 1 | Post-Quiz 4 | 13 | 11/20 | 11 | Post-Quiz 12 |
| | 9/27 | 4 | Pre-Chapter 4 | | 11/22 | Thanksgiving Break (No Class) | |
| | 9/29 | 4 | | | 11/24 | | |
| 6 | 10/2 | 4 | Post-Quiz 5 | 14 | 11/27 | 12 | Pre-Chapter 12 |
| | 10/4 | 5 | | | 11/29 | 12 | |
| | 10/6 | 5 | Pre-Chapter 5 | | 12/1 | 12 | |
| 7 | 10/9 | 6 | Post-Quiz 6 | 15 | 12/4 | 13 | Pre-Chapter 13/Post-Quiz 13 |
| | 10/11 | 6 | Pre-Chapter 6 | | 12/6 | 13 | |
| | 10/13 | 6 | | | 12/8 | 13 | "Post-Quiz" 14 |
| 8 | 10/6 | 6 | Post-Quiz 7 | 16 | Final Exam | | |
| | 10/18 | No Class – Exam 2 | | | | | |
| | 10/19 | 7 | Pre-Chapter 7 | | | | |
| | 10/20 | Fall Break (Meet Thurs. 10/19) | | | | | |