# General Chemistry I

**Chemistry 1110 - 001**  
**Dr. Harris**  
**Spring 2014 Course Syllabus**  
10:30 – 11:20 a.m., MWF  
3 – 3:50 p.m., T  
Widtsoe 007  
4 credits

### Dates

<table>
<thead>
<tr>
<th>Dates</th>
<th>MON</th>
<th>TUES</th>
<th>WED</th>
<th>FRI</th>
</tr>
</thead>
<tbody>
<tr>
<td>January 6th – 10th</td>
<td>Introduction</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>January 13th – 17th</td>
<td>1</td>
<td>2</td>
<td>2</td>
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<tr>
<td>January 20th – 24th</td>
<td>Holiday</td>
<td>3</td>
<td>3</td>
<td>3</td>
</tr>
</tbody>
</table>
| January 27th – 31st | 3 | 3 | 3 | Exam 1  
10:30 a.m.  
Widtsoe 007 |
| February 3rd – 7th | 4 | 4 | 4 | 5 |
| February 10th – 14th | 5 | 5 | 5 | 5 |
| February 17th – 21st | Holiday | 5 and Extra  
Credit Information  
Attend Monday Schedule | 6 | 6 |
| February 24th – 28th | 6 | 6 | 6 | 6 |
| March 3rd – 7th | Exam 2  
10:30 a.m.  
Widtsoe 007 | 7 | 7 | 7 |
| March 10th – 14th | Spring Break | Spring Break | Spring Break | Spring Break |
| March 17th – 21st | 7 | 8 | 8 | 8 |
| March 24th – 28th | 8 | 9 | 9 | 9 |
| March 31st | April 1st – 4th | Exam 3  
10:30 a.m.  
Widtsoe 007 | 10 | 10 | 10 |
| April 7th – 11th | 10 | 10 | 11 | 11 |
| April 14th – 18th | 11 | 11 | 12 | Make Up Quiz by Appointment Only |
| April 21st – 25th | 12 | 12 | 12 | Make Up Exam by Appointment Only |
| April 28th | Final Exam  
9:30 a.m.  
Widtsoe 007 | 12 | 12 | 12 |

### Exam Number

<table>
<thead>
<tr>
<th>Exam Number</th>
<th>Date</th>
<th>Chapters Included</th>
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<tbody>
<tr>
<td>1</td>
<td>Friday, 31st of January</td>
<td>1 – 3</td>
</tr>
<tr>
<td>2</td>
<td>Monday, 3rd of March</td>
<td>4 – 6</td>
</tr>
<tr>
<td>3</td>
<td>Monday, 31st of March</td>
<td>7 – 9</td>
</tr>
</tbody>
</table>
| Final       | Monday, 28th of April  | 10 through 12 – 25 questions  
1 through 9 – 25 questions |

Dr. Doug Harris  
Office: Widtsoe 335, (435) 797–1609  
E-mail: doug.harris@usu.edu  
Office Hours: 3:30 – 4:30 p.m. MW or by appointment

**Materials**  
Scientific Calculator (no cell phone calculators)  
Course web site: [http://ion.chem.usu.edu/~harrisd/](http://ion.chem.usu.edu/~harrisd/)
Coursework
Quizzes, 4 @ 25…………………………………………... 100
Examinations, 3 @ 100…………………………………… 300
Final Exam, mandatory @ 200……………………….. 200
TOTAL…………………….…………………………. 600

Grades
<table>
<thead>
<tr>
<th>%</th>
<th>Grade</th>
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<tbody>
<tr>
<td>100% - 92%</td>
<td>A</td>
</tr>
<tr>
<td>91% - 88%</td>
<td>A–</td>
</tr>
<tr>
<td>87% - 85%</td>
<td>B+</td>
</tr>
<tr>
<td>84% - 81%</td>
<td>B</td>
</tr>
<tr>
<td>80% - 77%</td>
<td>B–</td>
</tr>
<tr>
<td>76% - 73%</td>
<td>C+</td>
</tr>
<tr>
<td>72% - 64%</td>
<td>C</td>
</tr>
<tr>
<td>63% - 60%</td>
<td>C–</td>
</tr>
<tr>
<td>59% - 57%</td>
<td>D+</td>
</tr>
<tr>
<td>56% - 50%</td>
<td>D</td>
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Note: Scores rounded to nearest one’s place (91.4% = 91% and 91.5% = 92%).
The instructor reserves the right to lower these cutoff scores.

Policies and Procedures
1. The administration of Chemistry 1110 will adhere strictly to the policies (including the issuing of incompletes) outlined in the USU 2013 – 2014 General Catalog.
2. Qualified students with disabilities may be eligible for reasonable accommodations. All accommodations are coordinated through the Disability Resource Center (DRC) in Room 101 of the University Inn, 797-2444 voice, 797-0740 TTY, or toll free at 1-800-259-2966. Please contact the DRC as early in the semester as possible. Alternate format materials (Braille, large print or digital) are available with advance notice.
3. There will be four 15-minute quizzes, three 50-minute exams, and one 110-minute mandatory final exam. Students will be permitted to use a calculator (no cell phone calculators) for each quiz and exam. Exams will not be rescheduled to an earlier date and time.
4. Missed Quiz and Exam Policy: Missed quizzes and exams which have documented and acceptable excuses will be made up with a make-up quiz and make-up exam. Excusable absences include: (1) illness when verified by a note from your doctor; (2) a family emergency which will require a note from your academic advisor and (3) any regularly scheduled university activities (e.g., sports teams) only with prior approval and a note from the person in charge of the activity stating explicitly the reasons for the absence. Students should notify the instructor in advance, if possible, prior to missing any exam. Students missing a quiz or exam (excluding the mandatory final exam) will have one week to notify the instructor that they have a valid excuse and to produce the necessary documentation. Missed quizzes and exams that are not made up will be scored as zero. Only one missed quiz and one missed exam can be made up. The make-up quiz and make-up exam are by appointment only and will be held on the dates published in the class schedule at the beginning of this syllabus.
5. Keep in mind that the practice exam serves as an assessment of your understanding of concepts presented in lecture. Hopefully you will be diligent about following the suggested study plan outlined at the beginning of the course. Exam questions may be the same or similar to the practice exam problems but may also be completely different.
6. Scantrons will be provided by the instructor.
7. When taking the quizzes and exams, be sure to answer the problem and immediately fill out the corresponding scantron bubble. Avoid waiting to fill out your scantron sheet when finished with your quiz or exam. Keep in mind that the quizzes and exams are multiple-choice and each marked answer is either correct or incorrect. Credit will not be granted for problems that are accidentally marked incorrectly (no answer indicated, two answers provided for one problem, indicated scantron answer does not match personal exam copy answer, etc.).
8. Double check your scantron sheet before turning it in. Make sure that all of your answers have been entered the way you want them to appear on your scantron. Once a scantron is submitted, it may not be retrieved in order to make additions and/or changes.
9. Please arrive early to take each exam. Exams 1 - 3 and scantron sheets will not be handed out after the first completed exam scantron sheet has been submitted. All requests for an exam 1, 2 or 3 and scantron sheet after the first completed exam scantron sheet has been submitted will be directly referred to this policy without further discussion.
10. Please set up your preferred e-mail account with IT services so that you will be able to receive your e-mailed quiz and exam results. Make a print out of each quiz and exam results so that you may track your progress in the course.

11. Although class attendance will not be officially taken, it will be absolutely essential that every effort is made in attending each lecture. All students will be held responsible for lecture material, worked problems, and/or course announcements that are presented in lecture.

12. If you choose to complete an optional extra-credit molecular modeling exercise, one percentage point (1%) will be added to your final grade percentage. This is helpful to those students who end up with a final borderline grade percentage. The extra-credit submission deadline will be at 10:30 a.m. Monday, March 31st when we meet to take the third exam. Further information will be given in class on Tuesday (University Monday Schedule), February 18th regarding the specific details in producing the extra-credit assignment.

Main Course Objectives and Assessment

1. Prepare students for careers in health-related professions, environmental and agricultural science.
2. “To make the study of chemistry an engaging and positive experience by relating the structure and behavior of matter to its role in health and the environment” (see text preface).
3. Lecture learning checks will be used as a means of assessing student comprehension. These student-centered learning strategies have previously proven successful in this chemistry course.

Some Learning Objectives:

- Review math and learn to do calculations while working everyday examples of problems in health and medicine using metric units.
- Understand the relationship of isotopes to the atomic mass of an element on the periodic table.
- Understand the relationship between electron arrangement, group number, and periodic law.
- Understand different types of radiation, radiation protection, balancing of nuclear equations, and the fusion and fission processes.
- Learn the relationship between group numbers, valence electrons, and the formation of ionic and covalent compounds.
- Write ionic formulas and names of compounds with polyatomic ions.
- Use VSEPR theory to determine the shape, bond angles, and polarity of a molecule.
- Classify an equation as a combination, decomposition, replacement, combustion, and/or oxidation-reduction.
- For a given mass of a substance in a reaction, use the appropriate mole factors and molar masses to calculate the mass of a reactant, product/percent yield.
- Determine the energy lost or gained during a change of state/temperature.
- Use the ideal gas law to calculate an unknown pressure, volume, moles, and/or temperature of a gas.
- Understand solubility and determine whether a salt will dissolve in water.
- Calculate the percent concentrations and molarity of a solution.
- Describe the behavior of a red blood cell in hypotonic, isotonic, and hypertonic solutions.
- Understand and write the equilibrium constant for an equation.
- Describe the characteristics of acids and bases.
- Classify bases/acids as strong or weak.
- Predict whether a salt will form an acidic, basic, or neutral solution.
- Describe the function of a buffer.
- Describe the properties and functional groups found in organic compounds.
- Describe the physical properties and write the IUPAC names of alkanes and cycloalkanes.
- Describe the properties, reactions, and IUPAC names of alkenes and alkynes.