

# CHEM 1110 General Chemistry I

**Instructor:** Douglas Harris

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**Office Hours:** MW 10:30 – 11:15 AM or by appointment

**Course Duration:** 9<sup>th</sup> of January through the 5<sup>th</sup> of May, 2006.

**Course Description:** Chemistry 1110 is a course designed for students preparing for careers in health-related professions. The main course objective is “to relate the structure and behavior of matter to its functions in health and life” (see text preface).

Prerequisite course for Chemistry 1110 is Math 1050.

**Course Grading Policies:** Your grade will be based on your performance with the following: four regular exams and the final exam (100 points each/drop the lowest exam score) - 400 total possible points. Exam policies presented on Monday, January 30<sup>th</sup>, will be strictly followed for all four regular exams and the final exam. Except for school-excused absences, exams will not be rescheduled. 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 11:30 AM Wednesday, March 29<sup>th</sup> when we meet to take the third exam. Further information will be given in class on Friday, February 10<sup>th</sup> regarding the specific details in producing the extra-credit assignment.

## Grade Percentage:

100% - 92%	A
91% - 88%	A-
87% - 85%	B+
84% - 81%	B
80% - 77%	B-
76% - 73%	C+
72% - 64%	C
63% - 60%	C-
59% - 57%	D+
56% - 50%	D

Percentages rounded to the one's place (91.4% = 91% and 91.5% = 92%).

**Course Management:** All supplemental materials for the class, suggested problems, sample exams, and related material will be available through the course web site at <http://www.chem.usu.edu/~harrisd/>.

The administration of Chemistry 1110 will adhere strictly to the policies outlined in the Spring 2006 Semester Schedule of Classes.

**Class Meeting Time:** MWF 11:30 AM – 12:20 PM, T 3:30 – 4:20 PM, Widtsoe 007.

**Required Text:** “*General, Organic, and Biological Chemistry: Structures of Life*” by Timberlake, Platinum edition. (Pearson Education)

**Required Supplies:** Scientific Calculator (no cell phone calculators)

**Course Credit Hours:** 4.0

## 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.
- Determine the energy lost or gained during a change of state/temperature.
- 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.
- Understand and write the equilibrium constant for an equation.
- 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.
- 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.
- Write equations for the combustion, dehydration, and oxidation of alcohols.

**Chemistry 1110 Class Schedule**

Day	Date	Lecture	Sections
M	Jan. 9	1	1.1-1.2
Tu	Jan. 10	2	1.3-1.4
W	Jan.11	3	1.5-1.6
F	Jan. 13	4	1.7-1.8
<b>M</b>	<b>Jan. 16</b>	<b>Holiday</b>	<b>No Class</b>
Tu	Jan. 17	5	1.9-2.1
W	Jan. 18	6	2.2-2.3
F	Jan. 20	7	2.4-2.5
M	Jan. 23	8	2.6-2.7
Tu	Jan. 24	9	2.8-3.1
W	Jan. 25	10	3.2-3.3
F	Jan. 27	11	3.4-3.5
<b>M</b>	<b>Jan. 30</b>	<b>12</b>	<b>3.6-3.7 and Exam Policies</b>
Tu	Jan. 31	13	4.1-4.2
<b>W</b>	<b>Feb. 1</b>	<b>Exam 1</b>	<b>Chapters 1, 2, and 3</b>
F	Feb. 3	14	4.3-4.4
M	Feb. 6	15	4.5-4.6
Tu	Feb. 7	16	4.7-4.8
W	Feb. 8	17	4.9-4.10
<b>F</b>	<b>Feb. 10</b>	<b>18</b>	<b>Extra Credit Information</b>
M	Feb. 13	19	5.1-5.3
Tu	Feb. 14	20	5.4-5.5
W	Feb. 15	21	5.6-5.8
F	Feb. 17	22	6.1-6.2
<b>M</b>	<b>Feb. 20</b>	<b>Holiday</b>	<b>No Class</b>
<b>Tu (11:30 AM)</b>	<b>Feb. 21</b>	<b>23</b>	<b>6.3-6.5</b>
W	Feb. 22	24	6.6-6.7
F	Feb. 24	25	6.8
<b>M</b>	<b>Feb. 27</b>	<b>Exam 2</b>	<b>Chapters 4, 5, and 6</b>
Tu	Feb. 28	26	7.1-7.2
W	Mar. 1	27	7.3-7.4
F	Mar. 3	28	7.5-7.6
M	Mar. 6	29	7.7-7.8
Tu	Mar. 7	30	8.1-8.3
W	Mar. 8	31	8.4-8.5
F	Mar. 10	32	8.6-8.8
<b>M - F</b>	<b>Mar. 13-17</b>	<b>Spring Break</b>	<b>No Class</b>
M	Mar. 20	33	8.9-9.1
Tu	Mar. 21	34	9.2-9.3
W	Mar. 22	35	9.4-9.5
F	Mar. 24	36	9.6-9.7
M	Mar. 27	37	9.8-9.9
Tu	Mar. 28	38	10.1-10.2
<b>W</b>	<b>Mar. 29</b>	<b>Exam 3 (Extra Credit is due at 11:30 AM)</b>	<b>Chapters 7, 8, and 9</b>
F	Mar. 31	39	10.3-10.4
M	Apr. 3	40	10.5-10.6
Tu	Apr. 4	41	10.7-10.8
W	Apr. 5	42	10.9-10.10
F	Apr. 7	43	10.11-11.1
M	Apr. 10	44	11.2-11.4
Tu	Apr. 11	45	11.5-11.6
W	Apr. 12	46	12.1-12.2
F	Apr. 14	47	12.3-12.4
M	Apr. 17	48	12.5-12.6
Tu	Apr. 18	49	12.7
<b>W</b>	<b>Apr. 19</b>	<b>Exam 4</b>	<b>Chapters 10, 11, and 12</b>
F	Apr. 21	50	13.1-13.3
M	Apr. 24	51	13.4-13.5
Tu	Apr. 25	52	13.6-13.7
W	Apr. 26	53	14.1-14.3
F	Apr. 28	54	14.4-14.6
<b>F</b>	<b>May 5</b>	<b>Final Exam</b>	<b>13 questions – Chapters 13 and 14 12 questions -Comprehensive</b>