University of Wisconsin-Green Bay
Principles of Chemistry I (Chemistry 211) and Principles of Chemistry I laboratory (Chemistry 213)
2014-2015

Instructor: Seth M. Reuter
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Location: Seymour High School 10 Circle Drive Seymour, WI 54165
Credits: Chemistry 211 (4 credits) / Chemistry 213 (1 credit)

Course Description: Principles of Chemistry I is designed to give the student a broad introduction to some of the central concepts of chemistry, such as bonding, atomic structure, chemical reactions, and the periodic table. The student will start by learning the ideas of the scientific method and the role it played in the development of modern chemistry. Since chemistry is a quantitative field, we must understand the concept of significant figures and uncertainty in measurements. Next, chemical nomenclature, how to write various chemical reactions, stoichiometry, and theoretical and percent yields will be discussed. Gas laws will be examined, leading to the ideal gas equation of state. Thermochemistry will highlight the role heat, work, and energy play in chemical reactions and the importance of state functions. The atomic structure will be detailed and related to the arrangement of the periodic table. Bonding will be discussed in terms of molecular orbital and valence bond theory. Molecular interactions will be discussed and related to various physical properties.

Chemistry Programmatic Outcomes

1. Have knowledge of inorganic chemistry.
2. Have knowledge of chemical analysis and instrumental analysis.
3. Have knowledge of organic chemistry.
4. Have knowledge of atomic and molecular structure, thermodynamics, kinetics, quantum mechanics and spectroscopy.
5. Have knowledge of applications of Chemistry to environmental, industrial and health issues.
6. Have the ability to synthesize and characterize, by chemical or physical means, both organic and inorganic compounds.
7. Have the ability to perform both qualitative and quantitative analysis by chemical and instrumental methods.
8. Have the ability to perform experiments to obtain fundamental thermodynamic and kinetic data on chemical systems.
9. Have the ability to operate scientific instruments that provide basic spectroscopic and electrochemical information and to interpret the data obtained.
10. Have the ability to perform separations of materials, including chromatographic techniques, with both manual and instrumental methods.
11. Have the ability to collect and analyze data using computerized methods.
12. Have the ability to write and present formal laboratory reports on the results of chemical experiments. This includes computation, error analysis, and graphic data displays. This should include skills with computer based simulations and computational models.
13. Have the ability to design experiments to collect information on a specific chemical problem or process.
14. Have the ability to access the primary and secondary chemical literature as well as other chemical data sources by both written copy and computer database methods.

15. Have the ability to work safely and with confidence in a chemical laboratory.

Materials:
Calculator: Calculator must have the capabilities for scientific notation and logarithmic functions.

Information and Recommendations:

Lecture:
-Lecture notes will be discussed at the start of each chapter. Lectures will cover major topics or those with difficult concepts or mathematics. Students will be expected to read the textbook in order to learn all chemistry concepts.

Assignments:
- Problems sets will be assigned at the beginning of each chapter and will be discussed throughout the chapter. Problems sets will be collected at the end of the chapter and will account for 15% of your overall quarter grade.

Quizzes:
-A quiz will be given at the end of each chapter. The quizzes will include conceptual and calculation based problems. Students will be allowed only one class period to complete a quiz. Quizzes will make up 25% of your overall quarter grade.

Tests:
-Tests will be given at the end of each quarter. Material will be derived from the chapters covered in that particular quarter. The quarter tests will make up 60% of your overall quarter grade. Due to their difficulty and length, students will have two class periods to complete a Quarter test. A cumulative written final will be given upon completion of the course and will be 20% of your overall UWGB final grade.

Laboratory:
-Lab experiments will coordinate with chapter content. Typical labs will extend several days in length due to the limited class length. Lab reports will be formal in nature and must be submitted within 1 week of lab completion. Laboratory will make up 100% of your Chemistry 213 quarter grade. Unsafe laboratory behavior will be a factor in successful completion of chemistry. Lab rule violations may result in dismissal from chemistry. A laboratory final will be given upon completion of the course and will be 20% of your UWGB final lab grade.

Attendance:
-Due to the nature of this course, attendance is extremely important. Students are responsible for making up any missed work due to absences in a timely manner.
Grading Scale:
- The grading scale for this course is based off of UWGB’s scale. Slight variations may exist because of the +/- grading scale used in the high school.

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<th>Percentage</th>
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<tbody>
<tr>
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<tr>
<td>D++</td>
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Use of electronics:
- The use of electronics is occasionally necessary during chemistry class to determine lab conditions or identify necessary laboratory values. Absolutely no electronic devise may be used during assessments for any reason.