

General Chemistry II

Year Course Offered: 2015
Semester Course Offered: Spring
Department: NS
Course Number: Chem1312
Name of Course: General Chemistry II
Name of Instructor: Chemistry faculty

The information contained in this class syllabus is subject to change without notice. Students are expected to be aware of any additional course policies presented by the instructor during the course.

Learning Objectives (LO)

Upon successful completion of this course, students will be able to

1. State the characteristics of liquids and solids, including phase diagrams and spectrometry.
2. Articulate the importance of intermolecular interactions and predict trends in physical properties.
3. Identify the characteristics of acids, bases, and salts, and solve problems based on their quantitative relationships.
4. Identify and balance oxidation-reduction equations, and solve redox titration problems.
5. Determine the rate of a reaction and its dependence on concentration, time, and temperature.
6. Apply the principles of equilibrium to aqueous systems using LeChatelier's Principle to predict the effects of concentration, pressure, and temperature changes on equilibrium mixtures.
7. Analyze and perform calculations with the thermodynamic functions, enthalpy, entropy, and free energy.
8. Work with peers to apply content knowledge in problem solving.

Core Objectives (CO)

General Chemistry addresses the following core objectives to ensure students develop the essential knowledge and skills they need to be successful in college, in a career, in their communities, and in their lives. The core objectives meet the Texas Core Curriculum objectives for the Social and Behavioral Sciences Foundational Component Area.

- Critical Thinking Skills - to include creative thinking, innovation, inquiry, and analysis, evaluation and synthesis of information

- Communication Skills - to include effective development, interpretation and expression of ideas through written, oral and visual communication
- Empirical and Quantitative Skills - to include the manipulation and analysis of numerical data or observable facts resulting in informed conclusions
- Social Responsibility - to include intercultural competence, knowledge of civic responsibility, and the ability to engage effectively in regional, national, and global communities.
- Team Work - to include the ability to consider different points of view and to work effectively with others to support a shared purpose or goal.

Learning Outcomes	CO	Assessment Methods	Criteria/Targets
1. State the characteristics of liquids and solids, including phase diagrams and spectrometry. Articulate the importance of intermolecular interactions and predict trends in physical properties. Identify the characteristics of acids, bases, and salts, and solve problems based on their quantitative relationships.	CT, EQS	Exams	Students will be able to demonstrate the understanding of fundamental properties of the characteristics of liquids and solids, including phase diagrams and spectrometry, and articulate the importance of intermolecular interactions and predict trends in physical properties, and identify the characteristics of acids, bases, and salts, and solve problems based on their quantitative relationships.
2. Identify and balance oxidation-reduction equations, and solve redox titration problems. Determine the rate of a reaction and its dependence on concentration, time, and temperature.	CT, EQS	Assignment and tests.	Students will be able to balance oxidation-reduction equations, and solve redox titration problems. Determine the rate of a reaction and its dependence on concentration, time, and temperature.

<p>3. Apply the principles of equilibrium to aqueous systems using LeChatelier's Principle to predict the effects of concentration, pressure, and temperature changes on equilibrium mixtures.</p> <p>4. Analyze and perform calculations with the thermodynamic functions, enthalpy, entropy, and free energy.</p>	<p>SR, COM</p>	<p>Students will be evaluated based on quiz, lecture questions and answers.</p>	<p>Students will be able to apply the principles of equilibrium to aqueous systems using LeChatelier's Principle to predict the effects of concentration, pressure, and temperature changes on equilibrium mixtures.</p> <p>1. Analyze and perform calculations with the thermodynamic and Analyze and perform calculations with the thermodynamic functions, enthalpy, entropy, and free energy.</p> <p>1.</p>
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General Chemistry II - Spring 2015

Tentative schedule

ESTIMATED Schedule of Topics: Week

one
two
three

four
five
six
seven
eight
nine
ten
eleven
twelve
thirteen

fourteen

fifteen
sixteen
seventeen

Topics to be covered

Chapters 11
Chapter 12,
Chapter 13
Exam 1 –
Chapter 14
Chapter 14, Chapter 15
Chapter 15 **Exam 2** –
Chapter 16
Chapter 16, Chapter 17
Chapter 17 **Exam 3** –
Chapter 18
Chapter 18, Chapter 9
Chapter 19
Chapter 19
Exam 4 – Friday
Chapter 20

Chapter 20,
Chapter 21
Final Exam