



Academic Inquiries: Jinan University

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# JINAN UNIVERSITY

## General Chemistry I (With Lab)

**Lecturer:** TBA

**Time:** Monday through Friday (July 1, 2019-August 2, 2019)

**Office hours:** 2 hours (according to the teaching schedule)

**Contact hours:** 60 (50 minutes each)

**Credits:** 4

**Location:** School of Tourism

**Office:** School of Tourism 210

**E-mail:** TBA

### Course Description

This course constitutes an introduction to inorganic and physical chemistry and is appropriate for science and non-science students. It emphasizes the fundamental principles and theories of chemistry. We explore chemistry as a foundation of energy and matter. We start how the first elements were created after the Big Bang; students will investigate chemical compounds, chemical reactions, chemical nomenclature, and reaction stoichiometry. We discuss chemical periodicity, bonding, and states of matter including gases. The course includes an introduction to kinetics, equilibrium, theory of acids and bases, and oxidation-reduction reactions.

The underlying unity of chemistry is a basic theme. Lab activities and exercises will provide opportunities for students to experience the concepts learned in this course in our nature. These activities are selected in order to provide illustration and reinforcement of course topics: the fundamental laws, principles and theories of atomic and molecular structure, chemical reactions, states of matter, and energy and heat.

### Required Textbook

*Chemistry, The Molecular Nature of Matter and Change*, edition 7e, by Martin S. Silberberg. Publisher: McGraw-Hill, ISBN-13: 978-9814646451.

### Course Hours

The course has 20 lecture sessions and 5 lab sessions in total. Each session is 120 minutes in length. Lecture session meets from Monday to Thursday. Lab session meets on each Friday.

### Assessment

Your final grade is based on the following components:

Lab Activities	25%
Quizzes/Homework	20%
Midterm Exam	25%
Final Exam	30%
Total	100%

### Grading Scale

The instructor will use the grading system as applied by JNU:

Definition	Letter Grade	Score
Excellent	A	90-100
Good	B	80-89
Satisfactory	C	70-79
Poor	D	60-69
Failed	E	Below 60

### Policies

I want you to succeed in this course and at Jinan University. Here are some tips how to be successful in class: attend all lessons on time, prepare yourself by reading the textbook and not only rely on my slides, prepare your own study plan, stay awake during class. I encourage you to come see me during office hours or to schedule an appointment with questions or concerns about the course, and the universe. Any use

of an electronic computational/communication device is strictly prohibited. Using such a device will result in a 5 point penalty on your final grade. Audio and/or video recording during, before, and after the course is strictly forbidden. There will be no makeup exams. Missed or late homework assignments and/or quizzes and reports will receive zero points.

## **Class Schedule**

### **Week 1**

Lecture 1 - Keys to the Study of Chemistry  
Lecture 2 - Matter and Energy  
Lecture 3 – Atoms and Isotopes  
Lecture 4 – Periodic Table  
Lab 1 – Elements in Nature

### **Week 2**

Lecture 5 – Formulas and Equations  
Lecture 6 – Balance of Equations  
Lecture 7 – Major Chemical Reactions I  
Lecture 8 - Major Chemical Reactions II  
Lab 2 - Chemical Reactions

### **Week 3**

Lecture 9 – Gas Laws and Gas Properties  
Lecture 10 – The Kinetic-Molecular Theory  
Lecture 11 – Atmospheres  
Mid-Term Exam  
Lab 3 – States of Matter and Equation of State

### **Week 4**

Lecture 12 – Thermochemistry  
Lecture 13 – Calorimetry  
Lecture 14 – Quantum Theory  
Lecture 15 – Atomic Structures  
Lab 4 – Heat and Calorimetry

### **Week 5**

Lecture 16 – Chemical Bonding  
Lecture 17 – The Shapes of Molecules  
Lecture 18 – Chemistry in Research and Industry

Lecture 19 – Chemistry of Nature Recap  
Cumulative Final Exam

### **Lab Experiments:**

The experiments facilitate the understanding of chemical reactions and phenomena in our nature and industrial laboratories.

#### **Lab 1**

The first labs will allow students to explore the chemistry of materials and elements around them. Students will explore the properties of elements that surround them. This lab also includes a walk on campus and outside experiments.

#### **Lab 2**

This lab consists of two part and considers the properties of bases and acids. In the first part, students will quantify and measure a neutralization reaction. The second part consists of an experiment where students determine the ph value of several materials from our daily lives.

#### **Lab 3**

In this lab students will learn the properties of liquids and their solutions. Students will measure the densities of several liquids, and then repeat their measurements with solutions of different concentrations to explore solubility and saturation of several salts and other chemicals in different solutions.

#### **Lab 4**

In this experiment students will observe quantum mechanics in action. The quantum model of atoms considers energy states, which are occupied by electrons. When electrons change their state, they release or absorb energy. This can be made visible in this experiment in the classroom.

### **Academic Honesty**

Jinan University defines academic misconduct as any act by a student that misrepresents the students' own academic work or that compromises the academic work of another scholastic misconduct includes (but is not limited to) cheating on assignments or examinations; plagiarizing, i.e. misrepresenting as one's own work any work done by another; submitting the same paper, or substantially similar papers, to meet the requirements of more than one course without the approval and consent of the instructors concerned; sabotaging another's work within these general definitions, however, instructors determine what constitutes academic misconduct in the courses they teach. Students found guilty of academic misconduct in any portion of the academic work face penalties ranging from lowering of their course grade to awarding a grade of E for the entire course.