



Nanchang University

CHEM 10: Principles of General Chemistry

Credit: 4

Contact Hours

This course is composed of 24 lecture sessions, 3 tutorial sessions and 9 office contact hours. Each lecture session takes 2 contact hours in length; each tutorial session takes 3 contact hours in length; There will be a Q-A review session(3 contact hours) and Final Exam (3 contact hours)at the end of this term. This course has 72 contact hours in total.

Course Description

This course introduces students to the world of chemistry, covering the fundamental knowledge of microscopic particles: atoms and molecules, chemical reactions, oxidation and reduction process, chemistry of water, thermo chemistry and energy flows, bonding and intermolecular forces, state of mater, acid-base equilibrium, and solubility and precipitation. If time permits, there will be a short introduction to organic chemistry. We will study the basic idea and techniques in chemistry lab experiment, and spend much time on practicing knowledge learned in class.

Required Textbook

Chemistry: Human Activity, Chemical Reactivity 2nd edition (International Edition) by Mahaff et al., ISBN 9781305284203

Grading

- Class Attendance 10%
- Quizzes 10%
- Mid-term Exam 40%
- Final Exam 40%

A+ 96-100	A 90-95	A- 85-89
B+ 82-84	B 78-81	B- 75-77
C+ 71-74	C 66-70	C- 62-65
D 60-61	F < 60	

Course Schedule



The course has 24 class sessions in total. All sessions are 2 contact hours in length. At the end of this term, there will be a Q-A review session(3 contact hours) and Final Exam (3 contact hours).

Note: the course outline and required readings are subject to change.

Class 1:Introduction to Relation between Human Activity and Chemical Reactivity

Class 2:Building Blocks of Materials

Class 3:Structure of Microscopic Particals

Class 4:Chemical Reaction and Chemical Equations

Class 5:Carbon Compounds and Oxidation State

Class 6:Oxidation and Reduction Process

Class 7:Chmistry of Water

Class 8:Aqueous Solution and Reaction in Water

Class 9:Chemical Reaction: Thermochemistry

Class 10:Energy Flows

Class 11:Hess's Law

Class 12:Mid-term Exam

Class 13:Atom and Electron Modeling

Class 14:Valence Electrons

Class 15:Intermolecular Forces: Bonding between Molecules

Class 16:State of Matter

Class 17:Solutions

Class 18:Solutions' Behavior in Chemistry Reactions

Class 19:Dynmaic Chemical Equilibrium

Class 20:Acid-Base Equilibrium in Aqueous Solution

Class 21:Solubility and Precipitation

Class 22:Electron Transfer

Class 23:Organic Chemistry: Basics

Class 24:Final Review

Laboratory Schedule

Room: 105

Hour: 17:30 – 19:30

The lab reports have three parts, the pre-lab (to be completed on-line before the lab commences), the data and calculations and the post-lab. The pre-Lab Assignment due when you enter the lab. You and your partner will work collaboratively on the data and post-lab sections and hand in one report for the two of you.

In order to do a good job in the experiments, it is essential that you come well prepared. Reading the experiment for the first time in lab will put you and your partner at a disadvantage and make it very difficult to complete the experiment on time.



If you have any technical questions on the pre-lab, data section or post-lab assignments, you are encouraged to ask the instructor.

Safety Guidelines

All laboratory safety protocols in CHEM 11 will be strictly enforced. Violation of any safety protocol may result in point deduction on the Procedures, Techniques and Safety section of your individual Evaluation Sheet, and/or dismissal from the laboratory. Safety has two aspects: prevention of accident and response to emergency. The golden rule is to use your common sense. Treat your classmates and chemicals in the laboratory with respect. Do not work in the laboratory alone or perform unauthorized experiments. Ask your instructor whenever you do not know how to perform a procedure. Notify your instructor immediately when there is an accident (including broken glassware, major chemical spill, and bodily injury).

Laboratory topics

Experiment 1: Basic laboratory techniques

Objective: To learn the use of common, simple laboratory equipment.

Experiment 2: Identification of substances by physical properties

Objective: To become acquainted with procedures used in evaluating physical properties and the use of these properties in identifying substances.

Experiment 3: Separation of the components of a mixture

Objective: To become familiar with the methods of separating substances from one another using decantation, extraction, and sublimation techniques.

Experiment 4: Chemical reactions

Objective: To observe some typical chemical reactions, identify some of the products, and summarize the chemical changes in terms of balanced chemical equations.

Experiment 5: Reactions in Aqueous Solutions

Objective: To become familiar with writing equations for metathesis reactions, including net Ionic equations.

Attending Policy

Regular and prompt attendance is required. Under ordinary circumstances, you may miss two times without penalty. Each absence over this number will lower your course grade by a third of a letter and missing more than five classes may lead to a failing grade in the course. Arriving late and/or leaving before the end of the class period are equivalent to absences.

Policy on "Late Withdrawals"



In accordance with university policy, appeals for late withdrawal will be approved **ONLY** in case of medical emergency and similar crises.

Academic Honesty

Nanchang University expects all students to do their own work. Instructors will fail assignments that show evidence of plagiarism or other forms of cheating, and will also report the student's name to the University administration. A student reported to the University for cheating is placed on disciplinary probation; a student reported twice is suspended or expelled.

General Expectations:

Students are expected to:

- Attend all classes and be responsible for all materials covered in class and otherwise assigned;
- Complete the day's required reading and assignments before class;
- Review the previous day's notes before class and make notes about questions you have about the previous class or the day's reading;
- Participate in class discussions and complete required written work on time;
- Refrain from texting, phoning or engaging in computer activities unrelated to class during the class period;
- While class participation is welcome, even required, you are expected to refrain from private conversations during the class period.

Special Needs or Assistance

Please contact the Administrative Office immediately if you have a learning disability, a medical issue, or any other type of problem that prevents professors from seeing you have learned the course material. Our goal is to help you learn, not to penalize you for issues which mask your learning.