

# SUNY Orange      SYLLABUS

## General Chemistry II

3 lect., 3 lab., 4 cr. Instructor:

Instructor: Pak Leung  
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Phone: 845 (341-4576)  
Office Hours: See hours on the office door

### COURSE DESCRIPTION:

This is the second of two-semester course of fundamental chemistry. Topics include: Chemical equilibrium, acid base theories, solubility, equilibrium, thermochemistry and thermodynamics, chemical kinetics, nuclear reactions, electrochemistry, an introduction to organic chemistry and some representative biomolecules. Laboratory work includes the above topics, plus qualitative analysis of select cations, and chromatography. The keeping of a laboratory notebook and the writing of formal reports is emphasized

**Prerequisite: 34105 General Chemistry I**

### TEXT AND MATERIALS:

Chemistry: Text: Zumdahl, Chemistry 6<sup>th</sup> edition, Houghten/Mifflin Company.  
ISBN 0-61822163-8

Zumdahl, Chemistry Student Solution Guide, ISBN 0-618-22163-8.

Materials: Scientific Calculator and Laboratory Notebook. Laboratory manual will be distributed through out the semester.

### RELATIONSHIP TO PROGRAMS:

Chemistry 34106 is a continuation of 34105 and is designed for the physical science or biological science related major. It is also an excellent course for someone planning on a career in science or engineering education. This course does not require calculus. If in doubt about the proper chemistry course to take, consult with your advisor or with the Department Chair. The Science and Engineering Department offers this course. This course may be applicable to several programs. Consult your advisor and refer to the OCCC catalog, which contains authoritative information. If changes in procedures and requirements are necessary, the instructor will announce them.

### COURSE OBJECTIVES:

The student who successfully completes this course will

- understand the fundamental models of chemistry
- learn about how chemistry is involved in the real world
- help to develop skills for problem solving

## GRADING SYSTEM:

The grading for this course will be determined as follows

Quizzes	20%
Test 1	10%
2	10%
3	10%
Final	20%
Lab. Work	20% + 10% Project & Report

## ATTENDANCE AND WITHDRAWAL:

Perfect attendance is assumed in this course. The student's grade will reflect any lack of attendance. It is the student's responsibility to speak with instructor and withdraw from the course if things are not going well.

No make-up for quizzes is allowed for any reason. However, two quizzes with the lowest grade will be dropped from the average.

## SUPPORT SERVICES:

Tutoring services are available in the Library. There is also a study lounge available in Horton Hall, which is close to all the faculty offices. There are services available for students with disabilities. Any such conditions should be communicated privately to the instructor on the first day of class so that any necessary special arrangements or accommodations can be made.

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**34106 General Chemistry II**

<u>Week</u>	<u>Topic</u>	<u>Lab</u>
1.	Chemical Equilibrium Equilibrium Constant	Scientific Data
2.	Chatelier's Principle Acid & Bases, PH & H <sup>+</sup> conc.	Equilibrium Constant
3.	Weak Acid Bases - Salts & Hydrolysis	Acid/Base Titration
4.	Common Ion Effect Buffers Solutions Indicators & Titration	Potentiometric Titration
5.	Titration Polyprotic Acid - Review	Buffers
6.	Test 1 Acid/Bases Equilibrium Position - Complexes	Project Planning Presentation
7.	Solubility Product K <sub>sp</sub> Calculations Thermodynamics, Entropy	Solubility Product
8.	Free Energy & Spontaneity Non-standard Conditions Chemical Kinetics	Group 1 Analysis
9.	Rate Laws & Half Life Catalysis & Rate Theory Rate Mechanisms	Thermodynamics
10.	Electrochemistry Std. Voltaic Cell Potentials Nernst Equation & Free Energy	Clock Reaction
11.	Applications Nuclear Chemistry Review	Electrochemistry

	Week	Topic
	Test 2	
12.	Rate of Nuclear Reactions Nuclear Stability & Energy	Radioactivity
13.	Organic Chemistry Nomenclature & Function Group Polymers	Organic/Nomenclature I
14.	Biochem/Proteins Carbohydrates	Organic/Nomenclature II
15.	Nucleic Acid	
16.	Lipids Review Final	Organic Synthesis