

**Lehman College
City University of New York
Department of Chemistry**

CHE 169 General Chemistry Laboratory II

Instructor: Professor Marc S. Lazarus
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Course Description

CHE 169: General Chemistry Laboratory II. *3 hours, 1.5 credits.* Continuation of CHE 167. Emphasis will be on inorganic preparation, ionic separation, and qualitative analysis. PRE or COREQ: CHE 168. PREREQ: CHE 167.

Place of course in degree program

This course is a degree program requirement for the Chemistry, Biochemistry and Biology programs. This course is recommended to premedical, pre-veterinary, and pre-dental students.

Requirement Designation - Required Core - Life and Physical Sciences

Academic or Learning Objectives

Students will:

- Be able to analyze samples of unknowns using chemical reactions and separation techniques to determine which chemical species are present.
- Use experimental results and the gas laws to determine the molar volume of a gas.
- Use colligative properties to determine the molar mass of an unknown.
- Be able to determine rate laws and equilibrium constants using graphing software as applied to experimental results.
- Qualitatively interpret observations of chemical changes in terms of chemical equilibrium.
- Use the observed chemistry of acids and bases to draw conclusions and utilize the pH scale.
- Determine the solubility product and observe the common ion effect on an equilibrium involving a saturated solution of solid ionic compound.

Required Readings

Text: Lehman College Experiments, Staff, Department of Chemistry. {LC}

Grading Policy

There are twelve lab reports, each graded out of 10 points. You can drop two lab reports. In addition, there is one final exam administered on the last day of class for 30 points. The total course grade is calculated out of 130 points.

**SAFETY GLASSES MUST BE WORN
IN THE LABORATORY AT ALL TIMES!**

Required Equipment: Padlocks, matches, paper towels and detergent

Attendance Policy

The attendance to the laboratory is compulsory. A student cannot miss more than TWO laboratories and pass the course. **No make-up laboratories will be given.**

General Chemistry II Laboratory

EXPERIMENTS		
Week	Lab#	Title
1	0 & 1	Check in and Using Graphical Analysis Program
2	2	Limiting Reagent
3	3	Calculation of an Equilibrium Constant Using Spectrophotometry I
4	3	Calculation of an Equilibrium Constant Using Spectrophotometry II
5	4	Le Chatelier's Principle and Chemical Equilibrium
6	5	Acids, Bases and pH
7	6	Volumetric Analysis of Acids and Bases
8	7	Molar Solubility, Determination of a Solubility Product and the Common Ion Effect
9	8	Determination of the Molar Volume of a Gas
10	9	Enthalpy of a Chemical Reaction
11	10	Determination of Molar Mass by Freezing Point Depression
12	11	Determination of a Rate Law
13	12	Electrical Conductivity
14	13	Check out

Experiment Schedule for Spring 2019 Semester (by Week number)

M	Week	T	Week	W	Week	Th	Week
28-Jan	1	29-Jan	1	30-Jan	1	31-Jan	1
4-Feb	2	5-Feb	2	6-Feb	2	7-Feb	2
11-Feb	3	12-Feb	CC	13-Feb	3	14-Feb	3
18-Feb	CC	19-Feb	3	20-Feb	4	21-Feb	4
25-Feb	4	26-Feb	4	27-Feb	5	28-Feb	5
4-Mar	5	5-Mar	5	6-Mar	6	7-Mar	6
11-Mar	6	12-Mar	6	13-Mar	7	14-Mar	7
18-Mar	7	19-Mar	7	20-Mar	8	21-Mar	8
25-Mar	8	26-Mar	8	27-Mar	9	28-Mar	9
1-Apr	9	2-Apr	9	3-Apr	10	4-Apr	10
8-Apr	10	9-Apr	10	10-Apr	11	11-Apr	11
15-Apr	11	16-Apr	11	17-Apr	12	18-Apr	12
22-Apr	SR	23-Apr	SR	24-Apr	SR	25-Apr	SR
29-Apr	12	30-Apr	12	1-May	13	2-May	13
6-May	13	7-May	13	8-May	14	9-May	14
13-May	14	14-May	14				
		CC=College Closed					
		SR=Spring Recess					