

AP[®] Chemistry

Syllabus 2

Study Guides

Study guides for each chapter must be brought to class daily. Students will complete their study guides in assigned groups immediately after the lecture. Students will be expected to collaborate with fellow group members while completing their study guides. Completed study guides could be an excellent review for chapter, quarter, and semester exams.

Student Solution Manual

The Student Solution Manual is intended to be left at home. Students use it as a resource when completing their homework.

Laboratory Manual

The laboratory manual should be brought to class the day before and the day of the laboratory experiment. Check the weekly class syllabus for lab dates.

Laboratory Notebook (Binder)

The laboratory notebook is designed to organize students' **GRADED** lab reports. It should not be brought to class daily, but will be graded at the end of each quarter. **THIS NOTEBOOK IS MANDATORY!** If a student is missing more than one lab each quarter, they will be given an "incomplete" until this deficiency is remedied. [C7] Once graded labs are returned, late labs will have a 50 percent reduction in points.

Test Corrections

Students may increase their test grade up to 12 percent (maximum grade of 87%) by doing test corrections. Test corrections **must** be completed by students earning a grade of "D" or "F" on an exam. Students earning a grade of "B" or "C" are strongly encouraged to examine problem area on their test also. Students will be given a test correction template to help guide them correct the errors on their exam.

Homework

Homework is due every quiz and test day. Since homework is designed to be practice for quizzes and tests, it is of little value after the fact. Therefore, late homework will not be accepted. Chapter syllabi (with homework questions) will be given well in advance of due dates allowing students the opportunity to work around sports, clubs, employment, and illness.

C7—The course includes a laboratory component comparable to college-level chemistry laboratories. A minimum of one double-period per week or its equivalent is spent engaged in laboratory work. A hands-on laboratory component is required. Each student should complete a lab notebook or portfolio of lab reports. **Note:** Online course providers utilizing virtual labs (simulations rather than hands on) should submit their laboratory materials for the audit. If these lab materials are determined to develop the skills and learning objectives of hands-on labs, then courses that use these labs may receive authorization to use the "AP" designation. Online science courses authorized to use the "AP" designation will be posted on the AP Central® Web site. (For information on the requirements for an AP Chemistry laboratory program, the Guide for the Recommended Laboratory Program is included in the Course Description.)

Self-Tests

A self-test will be given the day before an exam. The test is designed to simulate an actual exam and highlight weak areas of understanding.

Schedule

Date	Chapter	#Days	Test
8/29-9/1	1 Matter & Measurement	4	9/15
9/5-9/8	2 Atoms, Molecules & Ions [C1]	4	9/15
9/11-9/20	3 Mass Relations in Chem.; Stoichiometry [C6]	7	9/29
9/21-9/28	4 Reactions in Aqueous Solution	6	10/6
10/2-10/11	5 The Gaseous State [C2]	6	10/17
10/12-10/23	6 Electronic Structure & Periodicity [C4]	7	10/24
10/26-10/27	Quarter Exam (Chapters 1–6)		
10/31-11/9	7 Bonding [C1]	7	1/17
11/10-11/21	8 Thermochemistry [C3]	6	11/22
11/27-11/28	22 Organic Chemistry (Sec. 1-5)	2	12/8
11/29-12/6	9 Liquids & Solids [C2]	6	12/8
12/7-12/14	10 Solutions [C2]	5	12/20
12/15-1/9	11 Rate of Reaction [C3]	6	1/12
1/17-1/18	Semester Exam (Chapter 1–11)		
1/23-2/2	12 Gaseous Chemical Equilibrium [C3]	9	2/9
2/5-2/12	13 Acids and Bases	5	2/16
2/13-2/28	14 Equilibria in Acid Base Solutions [C3]	10	3/2
3/1-3/8	15 Complex Ions	3	3/20
3/9-3/16	16 Precipitation Equilibria [C3]	6	3/20
3/22-3/23	Quarter Exam (Chapters 1–16)		
4/2-4/9	17 Spontaneity [C3]	5	4/13
4/11-4/19	18 Electrochemistry	6	4/27
4/20-4/24	19 Nuclear Reactions	3	none
4/20-5/14	Review		
5/16-5/29	Lab Practical [C7]		
5/15-A.M.	AP Chemistry Exam		
4/10	Tentative Qualitative Analysis (in-school) Field Trip		

C1—Structure of Matter (Atomic theory and atomic structure, Chemical bonding)

C6—The course emphasizes chemical calculations and the mathematical formulation of principles.

C2 - States of Matter (Gases, Liquids, and Solids; Solutions)

C4—Descriptive Chemistry (Relationships in the periodic table)

C3—Reactions (Reaction types, Stoichiometry, Equilibrium, Kinetics, Thermodynamics)

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Text: Masterton and Hurley, *Chemistry*, 2006, updated 5th ed.

AP Chemistry Labs

All of the experiments below, except where noted with *, will require hands-on work in the laboratory. In collaboration with other students, you will be called upon to collect, process, and manipulate data taken from physical observations, both measured and unmeasured, and then to develop and formally report your conclusions. Students write a laboratory report consisting of purpose, procedure, data, data analysis, error analysis, and conclusion for each laboratory. [C5]

Chapter	Experiment (each experiment averages 2–3 laboratory periods per week) [C7]
1	Chromatography Lab
2	Density of Liquids and Solids Lab
3	Alum Synthesis Lab
4	Analysis of Unknown Chloride Lab
5	Al/Zn Alloy Analysis Lab
6	CuO/Methane Lab
	Online Emission Tube Spectra Exercise*
	Molecular Models Exercise
7	Calorimetry Lab
8	Intermolecular Forces Lab
9	ΔH_{vap} of H ₂ O Lab
	Glass Sweating Activity
10	Ice Cream Lab
11	Kinetics Lab
12	Bucket Lab
	Le Chatelier's Principle Lab
	Beer's Law Lab
	K_{eq} of FeSCN Lab
13	Hydrolysis Lab
14	Intro to pH Meter Lab
	Diprotic Acid Titration
15	Preparation of Tetrammine Copper(II) Sulfate Monohydrate Lab
16	K_{sp} of Ca(OH) ₂ by pH Lab
17	No Labs
18	E° Lab
	ΔG , ΔH , ΔS Lab
Other	10 Test Tube Mystery
	Qualitative Analysis Lab

C5—Laboratory (Physical manipulations; Processes and procedures; Observations and data manipulation; Communication, group collaboration, and the laboratory report)

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Note: All laboratory experiments are student run unless indicated by an *.
* Indicates virtual activity