

Chemistry Department

Course Outline - Chemistry , CPC 201.

Introduction to Inorganic Chemistry, 2.

Prerequisites

Credit Hours - 3

Instructor - Paul S. Cohen. Kinggama45@aol.com Information for the course will occasionally be posted at <http://public.me.com/paulscohen> in a "Touro" folder.

General inorganic chemistry is an introduction to college chemistry. The course is consistent with American Chemical Society standards in both coverage and difficulty. Topics in chemistry 2 include aqueous solutions, kinetics, equilibrium, thermodynamics, acid-base equilibria, K_{sp} , electrochemistry, nuclear, and organic chemistry.

The objectives of the course are

1. To provide the foundation necessary for more advanced work in chemistry, for courses such as organic and physical chemistry.
2. To prepare students adequately for examinations such as the MCAT's which they may need for later advancement.
3. To provide sufficient background in chemistry to enrich the student's understanding of the physical world, and to enhance comprehension in related science areas, such as geology, physics, and biology.

Course Content. (Based on "Brown and Lemay – Chemistry" cited below)

1. Intermolecular Forces, Liquids, and Solids. Chapter 11. Omit section 11.7
Answer Problems 13, 15, 23, 25, 33, 41, 43, 49, 53, 71, 75, 77
2. Solutions. Chapter 13. Omit section 13.6 Answer problems
15, 17, 23, 25, 31, 33, 35a, 37, 38, 39, 41, 43, 44, 47, 59, 61, 65, 67, 75 (use table on page 549)
3. Kinetics. Chapter 14. Answer problems
5, 13, 19, 21, 23, 25, 27, 29, 30, 31, 32, 33, 37, 39, 41, 61, 63, 67, 69, 73, 86, 89, 99, 100
4. Chemical Equilibrium. Chapter 15. Answer problems 6, 13, 15, 17, 19, 21, 23, 27, 29, 30,
31, 33, 35, 37, 39, 41, 43, 44, 45, 49, 51, 52, 53, 55, 69
5. Acids and bases. Chapter 16. Problems 15 through 20, 21, 27, 31, 33, 35, 37, 41, 43, 45, 47,

49, 51, 53, 55,57, 59. 65, 73, 75, 77, 79, 81, 83, 85, 87, 91, 93, 95, 101, 120

6. Aqueous equilibria. Chapter 17. Omit mathematical treatment of formation constants, page 688. Answer questions 15 through 27, odd numbers only, 31, 33, 35, 37, 39, 41, 43, 45, 47, 49, 51, 53, 54.

7. Thermodynamics. Chapter 19. Answer problems 9,21,23,31,37,39,41
43,49,51,53,55,61,63,65,71,73,75,77, 79

8. Electrochemistry. Chapter 20. Omit section 20.8 (corrosion) Answer problems
11,12,13,15, 17,19, 21,23,25, 29, 31,33, 35, 38,41,42, 45,49, 51, 53, 55,57,58, 59,61, 63.
85, 86, 87, 88, 96, 99

9. Coordination Compounds. Chapter 24. Answer problems 11,13, 23,27,29, 31, 43,47

10. Nuclear Chemistry. Chapter 21. Answer problems 7,9,11,13, 17,19, 21 23,25, 28, 33,35,
39, 57

11. Organic Chemistry. Chapter 25. 25.1 to 25.7 only. Answer problems
11,13,14,17,19, 20,21,25, 27, 31, 41, 43, 51, 53,

General Calendar for chemistry 2.

Week 1. Chapter 11

Week 2. Chapter 13

Week 3. Chapter 14

Week 4. Chapter 15

Week 5. Chapter 16

Week 6. Lecture test I. Chapters 11 to 16.

Week 7. Chapter 17

Week 8. Chapter 17

Week 9. Chapter 17

Week 10. Chapter 19.

Week 11. Chapter 20.

Week 12. Lecture test II. Chapters 17,19, and 20.

Week 13. Chapter 20

Week 14. Chapter 24

Week 15. Chapter 25.

Week 16. Chapter 21

Course Requirements: There is an accompanying laboratory program requiring 3 hours of lab work per week. There are two in class lecture tests, and a final examination, which are counted equally in the formulation of the final grade.

Students are expected to answer all of the questions in the text listed above.

Grading: The grade is based on performance on three two hour examinations. These include two in class lecture tests, and the final; they are counted equally. The average test score constitutes 80 % of the grade. Students must also complete a laboratory program; the laboratory grade is counted 20 %.

Text - Brown, Lemay, Bursten - Chemistry, the Central Science 11th Edition. ISBN 013 978-0013-600617-6 Prentice Hall, Publishers, 2009.

The Mission Statement of the Department of Chemistry and Physics is attached.

Chemistry 2 will meet the following goals and objectives of the Mission Statement:

1.1 The student will be able to demonstrate knowledge of the following basic concepts in chemistry:

- § Thermodynamics and kinetics
- § Acid-base equilibria
- § Electrochemistry and nuclear chemistry
- § Nomenclature and structure of organic compounds
- § Chemistry of functional groups

2. The students will be able

2.1 To demonstrate competence in the scientific method by conducting scientific investigations that involve observing, recording, and interpreting data

2.2 To develop analytic and critical thinking skills

3.1 To demonstrate their knowledge of Chemistry through oral and written communication