

Chemistry Department

Course Outline - Chemistry , CPC 201.

Introduction to Inorganic Chemistry, 2.

Prerequisites

Credit Hours - 3

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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) Note that problems that are particularly likely to be tested are **bolded**.

1. Solutions. Chapter 13. Omit section 13.6 **Answer problems 15,17, 25,29, 35, 39 , 41, 43, 45, 47, 55,57, 61,63, 65,69,71,73, 75**

2. Kinetics. Chapter 14. **Answer problems 3, 5, 13, 17,19,23,25,27, 29,30, 31, 33, 34, 35 37, 39,41,43,45,47,69,73, 77, 99, 100,115, 116.**

3. Chemical Equilibrium. Chapter 15. **Answer problems 13,15,17, 19, 21,23, 25, 27, 31,33, 35a, 37, 39, 43, 44, 45, 49, 51,53,55, 61, 63 , 67**

4. Acids and bases. Chapter 16. Problems 13,15 through 20, 21,23, 27,29, 33, 35, 37, 41,43, 45, 47, 49, 51, 53, 55,57, 59. 63, 73, 75, 77, 79, 81, 83, 95, 107, 120
5. Aqueous equilibria. Chapter 17. Omit mathematical treatment of formation constants, page 731. Answer questions 15 through 25, odd numbers only, 27, 31, 33, 35, 37, 39, 41, 43, 45, 47, 49, 51, 53, 54,55,57,71 ,
6. Thermodynamics. Chapter 19. Answer problems 11,13,15,21,25,31,37,41 43a,b,c, 49,53,55,57,59, 61,63,65,71,77, 79, 81, 85
7. Electrochemistry. Chapter 20. Omit section 20.8 (corrosion) Answer problems 12a,b,c,13,15, 17,19, 21,23,25,27, 29,33, 35, 37, 41, 49, 51, 53, 55,57,58, 59,61, 63,67, 89,91, 92, 99, 104
8. Coordination Compounds. Chapter 23. Answer problems 23,25,27, 35,37,40, 41, 47
9. Organic Chemistry. Chapter 24. 24.1 to 24.7 only. Answer problems 13,14,15,17, 21,23, 27, 31,35, 45,47, 55,57 ,
10. Nuclear Chemistry. Chapter 21. Answer problems 7,9,11,13, 17,19, 21 23,25, 28, 33,35, 39, 57

General Calendar for chemistry 2.

Week 1. Chapter 13

Week 2. Chapter 14

Week 3. Chapter 15

Week 4. Chapter 16

Week 5. Chapter 17

Week 6. Lecture test I. Chapters 13 to 16.

Week 7. Chapter 17

Week 8. Chapter 17

Week 9. Chapter 19

Week 10. Chapter 20.

Week 11. Chapter 20.

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

Week 13. Chapter 23

Week 14. Chapter 24

Week 15. Chapter 21.

Week 16. general review

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 12th Edition.

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