

Chemistry Department

Course Outline - Chemistry , CPC 101.

Introduction to Inorganic Chemistry, 1.

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 1 include atomic structure, bonding, stoichiometry, solutions, thermochemistry , and phases of matter.

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.

Important!

This is a college course. There is no extra credit other than what appears on exams. There are no make-up tests. You cannot make up for a poor exam grade by writing a report.

Except in the case of a dire emergency, do NOT miss the lecture tests. There are no alternate exams. Should you be unable, due to illness or other emergency, to take a lecture test, the value of the final examination will be increased to make up the lost points.

Course Content. (based on 12th edition of Brown and Lemay)

1. Basic concepts. Chapter 1. Problems 5,11, 13,14,15,17,19,21,27,29,33,35,37,39,41,43a and b only Memorize symbols for elements in table 1.2. We will not do conversions outside the metric system.

2. Atoms molecules and ions. Know tables 2.4 and 2.5 entirely. Problems 1,4,5, 6, 11,13,15,16,19, 21,23,25,27,29, 31,35a ,37,41,43,45,49,52,53, 55,57, 59, 61,63, 65,67, 69,70,71,101,102

3. Stoichiometry, chapter 3. Problems

1,9,11,13,17,19,21,23,25,27,28,33,35,39,43,45,47,49,51,53,59, **61, 63, 77, 79, 81**

4. Solution stoichiometry. Chapter 4, problems 15, 19, 21, 23, 25,39, 45,53, 56, 59,60, **61, 67,71,72,75, 76, 81, 83, 85, 111**

5. Thermochemistry. Chapter 5, problems 5, 25, 29,31, 37, 41, 44, 45,**47** 49, 53, 55, 57

61,**62,63, 65,67, 69,71, 74, 75,**

6. Electronic structure of atoms. Chapter 6, Problems 9-19,odd, 23,25,33, 35, 36,**37,49, 51, 53,54,55,57,59,63,64,65, 67,69,71,73,75**

7. Periodic Table. Chapter 7, Problems 11,15,19, 23, 24, 25, 27, 29, 31, 33, 36, 39, 41, 42, 45, 47, 53, 57,69, 71

8. Bonding. Chapter 8, problems 7,9, 11, 13,17, 19, 20,21, 24, 31,33, 35, 37, 39, 41, 45, 49
51, 53, 54, 55, 59, 60, 61, 63, 65, 69, 71, 90

9. Bonding, Chapter 9. Problems 13, 16, 17, 19, 21, 22, 23, 24, 25, 27, 31, 35, 36, 37, 43, **47, 49, 51, 55, 59, 61, 63 65, 89**

10. Gases, chapter 10. Problems 5,19,23, 25, 27, 29, 30,31, 34, 35, 39, 41, 49, 50, 54, 55, 59, 61, 65, 69, 71, 75, 77, 83,91

11. Intermolecular forces, Phase changes. Chapter 11, Problems 5, 9, 15, 17, 19, 21
23,**25, 29, 33, 35, 37, 39, 45, 47, 49, 51, 53, 55, 57, 59, 61, 75**

General Calender.

Week 1 Chapter 1

Week 2 Chapter 2

Week 3 Chapter 3

Week 4 Chapter 4

Week 5 Chapter 4

Week 6 Lecture test 1

Week 7 Chapter 5

Week 8 Chapter 10

Week 9	Chapter 6
Week 10	Chapter 6
Week 11	Chapter 7,
Week 12	Lecture test 2 (Chapters 5, 6,7, 10)
Week 13	Chapter 8
Week 14	Chapter 9
Week 15	Chapter 11
Week 16	Complete chapter 11

Final examination.

Note that two sessions are reserved for lecture examinations. These are usually given in the sixth and twelfth weeks.

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. Prentice Hall, Publishers, 2008.

Purchase of the solutions manual is highly recommended.

Course Content. (based on 11th edition of Brown and Lemay)

1. Basic concepts. Chapter 1. Problems 6,13,14,15,17,19,22,25,27,33,35,37,39,41,43,45. Memorize symbols for elements in table 1.2.
2. Atoms molecules and ions. Know tables 2.4 and 2.5 entirely. Problems 1,9,11,13,16,23,25,27,33,35,37,41,43,45,49,52,55,59,61,65,69,70,71,102
3. Stoichiometry, chapter 3. Problems 1,9,11,13,17,19,21,23,25,27,28,33,35,39,43,45,47,49,51,53,57,58,59, 61, 63, 71, 73, 74, 77
4. Solution stoichiometry. Chapter 4, problems 15, 19, 21, 23, 25, 33,35,39, 45,47,53, 56, 59,60, 61, 67,71,72,75, 76, 81, 83, 85, 111
5. Thermochemistry. Chapter 5, problems 23, 25, 29,31, 37, 41, 44, 45, 49, 54,55, 57
60, 61,62,63, 65,67, 69,71, 74, 75, 103
6. Electronic structure of atoms. Chapter 6, Problems 9-19,odd, 23,25,27,33, 36,37,49, 50, 51,53,54,55,57,59,63,64,67,71,73,75
7. Periodic Table. Chapter 7, Problems 11,15,19, 21, 23, 24, 25, 27, 31, 33, 36, 39, 41, 42, 45, 47, 52,53, 58, 60,61,69, 71
8. Bonding. Chapter 8, problems 7,11, 13,17,20,21, 22,24, 29,31,33, 35,39, 45, 49
51, 52, 53, 54, 59, 60, 61, 90
9. Bonding, Chapter 9. Problems 13, 16, 17, 19, 21, 22, 23, 24, 25, 31, 35, 36, 43, 47, 49, 51
parts a to d, 55, 76
10. Gases, chapter 10. Problems 5,16,19,23, 24, 26, 27, 29, 30, 34, 35, 39, 41, 45, 49, 50, 54,
55, 59, 61, 65, 69, 71, 76, 77, 82
11. Intermolecular forces, Phase changes. Chapter 11, Problems 9, 13, 15, 16, 19, 21
23, 29, 33, 34, 35, 37, 39, 43, 45, 47, 49, 51, 53, 56, 75, 77

Course Content for those with the 10th edition of the text is listed below:

1. Basic concepts. Chapter 1. Problems 1 to 7, 11,12, 13,14, 15, 17, 19, 22,25, 27, 33, 37
39,41,45,69 Memorize table 1.2
2. Atoms, Molecules and ions. Chapter 2. Know Tables 2.4 and 2.5 on pages 62 to 64. Problems
9,11,13,15,17,19, 21,23,27,29, 33,35,37,39,41,43,47,49,53,55,57, 59,61, 65, 95

3. Stoichiometry. Chapter 3. Problems
5,9,11,13,17,19,21,23,25,27,29,33,35,39,43,45,47,49,51,53,57,59,
61, 67,71,73,74,77,80
4. Solution Stoichiometry. Chapter 4. Problems 11,13,15,19,21,23,24, 31,32,37,39,45,47,
51,53,56, 57,59, 60,61,65,69,70,73,79,81,83,111
5. Thermochemistry . Chapter 5 Problems 24,
25,29,31,33,37,39,45,49,51,53,55, 57,60,61,63,65,67,71,73,75
6. Electronic structure of atoms. Chapter 6. Problems
7,9,10,11,13,15,17,19,21,23,26,27,33,36,37,49,50,51,53,54,55,57,59,63,64,65,67,71,73,75
7. Periodic table. Chapter 7. 9,11,13,15,17,19,21,23,25,27,29,31,33,35,37,38,41,43,45
49,54,55,57,65,67
8. Bonding. Chapter 8. 7,11,13, 15, 17,19, 21,24, 25, 29, 31,33,35,37,38,39,43,45,47,49,51,
53, 54, 59,61,65,
9. Bonding. Chapter 9. 13, 15,17,19,21, 23,25,31, 35, 37, 39,41, 43,45,47,49,51,53,55,57,79,96
10. Gases. Chapter 10. 4, 17,21,23,24,25,27,28,32,33,35,37,39,43,45,47,48, 52,53, 57,59, 63,
67, 69,73,75,81
11. Liquids and Solids Chapter 11. 9,11,13,15, 16, 19,21, 23,29, 35, 39, 42, 43, 45, 47,
49,51,53,56,77,78