

General Chemistry A

Chemistry 101

Summer 2012

Instructor: Dr. A. W. Herlinger, 418 Flanner Hall, 773-508-3127, **email:** aherlin@luc.edu.

Office Hours: M. & W. 3:30–4:30 PM, other times by appointment.

Required Textbook: *Chemistry, The Central Science*, T. L. Brown, H. G. LeMay, B. E. Burston, C. J. Murphy, and P. M. Woodward, Prentice Hall, Inc., 12th ed., 2012. ISBN-10: 0321696727 | ISBN-13: 97816967274. Access to Mastering Chemistry is not required.

Recommended Textbook: *Student's Guide, Chemistry, The Central Science*, J. C. Hill, Prentice Hall, Inc., 12th ed., 2012. ISBN-10: 0321704584 | ISBN-13: 9780321704580. This paperback contains numerous additional, detailed, worked-out examples as well as many practice exam questions. This could be shared to reduce cost.

Lecture Outlines for each chapter will be periodically sent by Email.

Meetings: Lectures will be at 12:30–3:20 PM in Dumbach Hall Room 125 on Monday, Wednesday and Friday as scheduled.

Course Description: A study of chemical principles and reactions with emphasis on the development of a scientific attitude and an understanding of the fundamental concepts of chemistry.

Course Objectives: Provide a foundation for advanced work in chemistry and an appreciation for the scientific method with special emphasis on problem solving and the acquisition of knowledge of the properties and reactions of matter. Gain an understanding of the principles of chemistry and its applications.

Calculators: Only simple inexpensive scientific calculators can be used during examinations. Graphing and/or programmable calculators are not allowed during examinations. Calculators may not be shared and their cases or covers must be removed.

Cell Phones: Cell phones may not be physically present or used during examinations.

Examinations and Academic Honesty: Course grades will be determined from the scores achieved on examinations given on the dates listed. All examinations are cumulative and may include material that has appeared on previous exams. **Five points will be deducted from your exam score if the answer sheet is turned in after the exam has ended and/or your name and identification number are not properly filled in.**

All students are responsible for exercising the highest level of academic integrity while taking examinations. The University policy on academic integrity is stated in the Undergraduate Catalog at: http://www.luc.edu/academics/catalog/undergrad/reg_academicintegrity.shtml.

Tentative Schedule of Topics

<i>Date</i>	<i>Day</i>	<i>Topics</i>	<i>Chapter</i>	<i>Pages</i>
5/21	M	Matter and Measurements Mathematical Operations	1	2 – 31, xxix 1051 – 1057
5/23	W	Atomic Theory of Matter Molecules and Ions	2	38 – 51 52 – 68
5/25	F	Examination I Chemical Equations	3	76 – 85
5/28	M	Memorial Day – No Class		
5/30	W	Stoichiometry Aqueous Reactions	3 4	86 – 104 114 – 138
6/1	F	Examination II Solution Stoichiometry	4	139 – 149
6/4	M	Thermochemistry; Calorimetry	5	158 – 180
6/6	W	Hess's Law Atomic Spectra	5 6	181 – 195 206 – 218
6/8	F	Examination III Quantum Mechanical Model	6	219 – 232
6/11	M	Electron Configurations Periodic Properties	6 7	233 – 239 248 – 268
6/13	W	Group Trends Basic Chemical Bonding	7 8	269 – 279 288 – 304
6/15	F	Examination IV Lewis Structures	8	305 – 314
6/18	M	Covalent Bond Strength Molecular Geometry	8 9	315 – 322 330 – 344
6/20	W	Orbital Overlap; Hybrid Orbitals	9	345 – 357
6/22	F	Examination V Gas Laws	10	382 – 390

6/25	M	The Ideal-Gas Law Kinetic Theory & Real Gases	10	391 – 401 402 – 415
6/27	W	Intermolecular Forces Phase Changes	11	424 – 438 439 – 444
6/29	F	Final Examination		

End-of-Chapter Problems: Students making good progress in the course should be able to solve, independently, most or all of the end-of-chapter problems in the textbook. The exemplary problems listed below are “assigned”. The assigned problems are to be attempted, but are to not be submitted for grading.

End-of-Chapter Exercises:

Selected End-of-Chapter Problems:

Chapter 1: 4, 6, 7, 9, 13, 19, 21, 25, 31, 33, 37, 39, 41, 49, 55, 59, 69, 71, 72, 78

Chapter 2: 4, 9, 13, 15, 17, 21, 23, 29, 31, 39, 43, 47, 55, 61, 65, 69, 73, 87, 92, 94, 101

Chapter 3: 3, 7, 9, 11, 19, 25, 31, 39, 43, 49, 57, 59, 65, 69, 73, 79, 83, 89, 94, 101

Chapter 4: 2, 7, 13, 25, 31, 39, 43, 45, 49, 51, 59, 69, 75, 77, 85, 96, 99, 103, 114

Chapter 5: 5, 11, 13, 21, 27, 31, 35, 45, 49, 51, 53, 59, 63, 69, 73, 79, 87, 91, 97, 114

Chapter 6: 6, 8, 15, 17, 24, 29, 31, 35, 41, 43, 47, 49, 53, 57, 61, 63, 65, 69, 75, 90

Chapter 7: 2, 5, 15, 17, 21, 29, 31, 33, 39, 41, 43, 51, 53, 57, 65, 67, 73, 83, 93, 106

Chapter 8: 2, 7, 9, 15, 19, 23, 31, 35, 37, 41, 47, 51, 55, 59, 63, 65, 71, 87, 90

Chapter 9: 3, 5, 9, 11, 25, 31, 34, 39, 43, 45, 47, 49, 53, 61, 63, 65, 67, 114

Chapter 10: 2, 5, 19, 25, 31, 37, 41, 45, 55, 59, 61, 71, 73, 75, 77, 83, 91, 97, 95, 109

Chapter 11: 5, 7, 9, 11, 15, 19, 21, 33, 39, 41, 43, 51, 53, 55, 57, 67, 70, 72, 84

Grading Scheme: Course grades will be based on the average score received on the final exam and the highest four of the five hour exams given, i.e., the **lowest hour exam** score will be dropped. If an hour exam is missed for any reason, the score for this exam (0, zero) will be dropped. If a second hour exam is missed, a make-up exam will be given at the discretion of the lecturer. A make-up exam will be given only in case of an extreme family crisis or serious illness, which must be verified by a letter from a parent or an attending physician. A written request for a make-up exam for the second missed hour exam must be received by the course instructor no later than three (3) calendar days after the scheduled date of the exam. If a written request is not received by this deadline a make-up exam will not be given. A grade of F is assigned if three hour exams are missed.

Grading Scale: The following scale will be used to determine letter grades, **A** 100-86; **B** 85-74; **C** 73-62; **D** 61-50; **F** < 50. Plus and minus grades will be assigned proportionately within the designated ranges. Grading contributions are entirely from exams.