Lakehead
UNIVERSITY

DEPARTMENT OF CHEMISTRY

Chemistry 1110: Modern Chemistry I

Course Outline, Fall 2006

Contact Information

Instructor: C. D. MacKinnon
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Office: CB-4038 Office hours: 9:30-10:30 T, Th, F
Website: www.chemistry.lakeheadu.ca or by appointment

Lab Instructor: Brad Miller (CB-2043, 343-8233, bmiller@lakeheadu.ca)

Lectures: M, W, F 11:30 - 12:30. **Location**: AT-1003
Layout: Each lecture will be part class/part tutorial. Students will be expected to do a reading *before each class*. Students may wish to bring their text to class.

Prerequisite: Chemistry 12U (or equivalent)

Course Overview: This course provides an introduction to the nature of material and the fundamental laws of chemistry. Problem solving is emphasized, both quantitative (numerical) and qualitative (descriptive) aspects.

Texts - BOTH are *required* for the course.

1. Chemistry, 7th Edition. S.S. Zumdahl and S.A. Zumdahl, Houghton Mifflin Company. You may purchase the book alone or packaged with a solutions manual.
2. Chemistry 1110 Laboratory Manual, Department of Chemistry, Lakehead University, Fall 2006 version.

Laboratories The laboratory is an integral part of the CHEM1110 course. Students who fail to complete the laboratory program will be not be considered to have completed the course. **Location**: CB 2044. **Schedule**: see attached. Labs start on Sept. 14.

Laboratory exemptions may be available for those who have previously taken 1110 (or 1101). Apply for an exemption during the first week (in class) to determine eligibility.

Marking Scheme

30%	two term tests (each worth 15%)
40%	final exam (scheduled by registrar)
20%	laboratory (as broken down in manual)
10%	tutorial assignments

Course Outline Chapters are from Zumdahl and Zumdahl, 7th Edition.

1.	Review	*Chapters 1-4*. Students should be familiar with this material from their high school chemistry courses. (3 classes)
2.	Gasses	*Chapter 5*. Gas laws, kinetic molecular theory. (3 classes)
3.	Thermochemistry	*Chapter 6*. Calorimetry, enthalpy, Hess's Law, bond enthalpies. (4 classes)
4.	Atomic Structure	*Chapters 7, 18*. Quantum structure of the atom, periodicity, structure of the nucleus, nuclear fission and fusion. (6 classes)
5.	Chemical Bonds	*Chapters 8, 9*. Covalent and ionic bonds, molecular geometry, molecular orbital theory. (4 classes)
6.	Liquids and Solids	*Chapter 10*. Structure of liquids, structure of solids. (3 classes)
7.	Organic Chemistry	*Chapter 22*. Hydrocarbons, functional groups, nomenclature, biological molecules. (8 classes)
8.	Inorganic Chemistry	*A selection from Chapters 19-21*. (2 classes)

Course Website The course website (www.chemistry.lakeheadu.ca/mackinnon/1110.html) will contain class-by-class topics, readings, and exercises from the text.

Important Dates

Labs Start	Thursday, 14 September
Midterm 1	Friday, 13 October (material to the end of class # 8) 15%
Midterm 2	Friday, 3 November (material to the end of class #17 "cumulative") 15%
Exam	Scheduled by registrar (on all course material) 40%