

Chemistry 127 – General Chemistry
COURSE SYLLABUS
Fall 2011

INSTRUCTOR:

Dr. Darin J. Ulness
Ivers 334H
299-3582

Office Hour: M 2:30–3:30
ulnessd@cord.edu

TIME:

Lectures: M W F 8:30–9:40, Ivers 386

Lab: Ivers 359

Recitation: W 8:00–10:00p, Chemistry Tables.

MATERIALS:

Required Texts:

Kotz, Treichel, and Townsend *Chemistry & chemical reactivity* 8th
My Notes

Lab:

Lab packet
Safety glasses are required

ACADEMIC INTEGRITY:

Academic integrity is expected all time during this course. Cheating in any form will not be tolerated. Such activity diminishes the quality of the course for all involved. Any cheating will result in elimination from the class.

EXAMINATIONS and QUIZZES:

We will have four examinations during the semester. Each one will account for 15% of your total grade (see calendar below for dates). **The examinations are to be performed individually and without unauthorized material assistance of any kind.** Academic integrity is expected.

In addition to the exams we will have very short daily quizzes. The quizzes will be held only during the first 5 min of class. There will be no time extensions and no make-ups. To account for excused absences your five lowest quiz scores will be dropped. The total quiz grade will account for 15% of your total grade.

HOMEWORK:

Problem sets will be assigned every period and it will cumulatively account for 10% of your grade. You are *encouraged to work together* on the problem sets. **No late homework will be accepted.**

Homework is the single most important component of the course. You cannot learn the material to an acceptable level without being able to perform and understand the exercises.

LABORATORY :

Your lab grade will account for 15% of your overall grade. Your lab grade will be determined solely by your lab instructor.

GRADING:

The following grading scale will be used.

93+	A	80-82	B-	68-69	D+
90-92	A-	78-79	C+	63-68	D
88-89	B+	73-77	C	60-62	D-
83-87	B	70-72	C-	59-	F

TUTORING:

Chemistry tutoring is available in the Academic Enhancement and Writing Center (AEWC) located in the lower level of Fjelstad Hall. This is a service you must sign up for if you are interested. Tutoring is a two hour per week commitment for the duration of the semester to promote continuous learning and is available on a first-come, first-served basis. Contact Troy Schmidt in the AEWC (schmidt@cord.edu) for more information.

COURSE OBJECTIVES:

- To broaden problem solving skills
- To have a sense of where chemistry fits within the whole of science
 - To have a good sense of how chemistry applies to your field
 - To have a sense of how your field fits in relation to chemistry
- To master the fundamental principles of chemistry
 - To have the ability to solve problems of interest in chemistry
 - To be clear on how these principles relate to other areas of science

***** Note: Chemistry 127 Does NOT count towards the core *****

The “Big Ideas” in chemistry

1. Matter consists of atoms that have internal structures that dictate their chemical and physical behavior.
2. Atoms interact via electrostatic forces to form chemical bonds.
3. Chemical compounds have geometric structures that influence their chemical and physical behaviors.
4. Intermolecular forces, electrostatic forces between molecules dictate physical behavior of matter.
5. Matter changes, forming products that have new chemical and physical properties.
6. Energy is the key currency of chemical reactions in molecular scale systems as well as macroscopic systems.
7. Chemical changes have a time scale over which they occur
8. All chemical changes are in principle reversible and chemical processes often reach a state of dynamic equilibrium.
9. Chemistry is generally advanced via empirical observation.
10. Chemistry constructs meaning interchangeably at the particulate and macroscopic levels.

Date	Topic	Reading	Video
09/02/2011	Physical properties, changes	Chap 1	V010101, V010102, V010103
09/05/2011	Measurement	Chap "Let's review"	V010201, V010202
09/07/2011	Anatomy of the atom, periodic table	Chap 2.1-2.5	V020201, V020202
09/09/2011	The mole	Chap 2.9-2.11	V030101, V030102
09/12/2011	Molecules and compounds	Chap 2.6	V020101, V020102
09/14/2011	*Ions and Ionic compounds*	Chap 2.7-2.8	V020103, V020104
09/16/2011	Chemical equations	Chap 3.1, 3.2, 4.1, 4.3	V030201, V030202
09/19/2011	Stoichiometry	Chap 3.1, 3.2, 4.1, 4.3	
09/21/2011	Limiting reagents	Chap 4.2	V030301
09/23/2011	Integrated calculations		
09/26/2011	Exam 1		
09/28/2011	Net ionic equations	Chap 3.4-3.6	V040201, V040202
09/30/2011	Acids and bases	Chap 3.7	
10/03/2011	Gas forming and REDOX reactions	Chap 3.8-3.9	V040301
10/05/2011	Molarity	Chap 4.5, 4.6, 4.8	V040101, V040102
10/07/2011	Titration reactions	Chap 4.7	V040103
10/10/2011	Energy, Heat, Temperature, 1st law	Chap 5.1-5.4	V210101
10/12/2011	Enthalpy	Chap 5.5	V210102
10/14/2011	Calorimetry	Chap 5.6	V210103
10/17/2011	Hess' law	Chap 5.7	V210104
10/19/2011	Integrated calculations		
10/21/2011	Exam 2		
10/26/2011	Light	Chap 6.1, 6.2	V050101
10/28/2011	Bohr Model	Chap 6.3, 6.4	V050201
10/13/2011	Atomic Orbitals	Chap 6.5, 6.6	V050301, V050302, V050303, V050303
11/02/2011	Atomic Orbitals	Chap 6.5, 6.6	
11/03/2011	Pauli exclusion and the periodic table	Chap 6.7, 7.1-7.4	V050401
11/07/2011	Periodic trends	Chap 7.5, 7.6	V050501, V050502
11/09/2011	Chemical bonding: Lewis dot structure	Chap 8.1, 8.2, 8.5	V060101, V060102
11/11/2011	Chemical bonding: Lewis dot structure	Chap 8.3, 8.4	V060103, V060104
11/14/2011	Properties of bonds	Chap 8.9	V060201
11/16/2011	VSEPR	Chap 8.6-8.8, 8.10	V060301, V060302
11/18/2011	Valence bond theory	Chap 9.1, 9.2	V060401, V060402, V060403, V060404
11/21/2011	Valence bond theory	Chap 9.1, 9.2	
11/23/2011	Exam 3		
11/28/2011	Symmetry		V070101
11/30/2011	Symmetry		
12/02/2011	Intermolecular Forces	Chap 12	V080101, V080201, V080301, V080401
12/05/2011	Ideal gases	Chap 11.1-11.3	V090101
12/07/2011	Ideal gases	Chap 11.4, 11.5	V090102
12/09/2011	Kinetic theory	Chap 11.6, 11.8	V90201
12/12/2011	Integrated calculations		
12/16/2011	Exam IV		

*no class, symposium, but watch video.