CHEM*1050 Winter 2010

Student Course Information

Course Coordinator:			
Dr. John D. Goddard	MACN 340		
jgoddard@uoguelph.ca			
Lecturers:			
Dr. Mark Baker	MACN 122	Section 1	ROZH 104 MWF 12:30-13:20
mbaker@uoguelph.ca			
Dr. Lori Jones	MACN 331	Section 2	ROZH 104 TuTh 08:30-09:50
lojones@uoguelph.ca			
Dr. Dan Thomas	SCIE 2504	Section 3	WMEM 001 MWF 15:30-16:20
dfthomas@uoguelph.ca			

1. Required Materials

(a) **Textbook Package.** "General Chemistry", 9th ed. Ebbing and Gammon, Houghton Mifflin Co. 2009; plus Ebbing/Gammon OWL with e-book Printed Access Card.

(b) **Laboratory Manual** for CHEM*1050. Purchased in the Department. Safety goggles (not safety glasses). Purchased in the Department.

(c) **A lab coat** is required.

(d) **Scientific calculator** with ln, exp or e^x, $\log_{10}$ and 10^x functions. Calculators or notebook computers capable of storing text information are **NOT** allowed in examinations.

(e) **Stapler** All lab reports must be stapled prior to being put into the Grey Boxes near MACN 128.

2. WET LABORATORY Begins Monday January 11! Bring your lab manual.

(a) Students attend their wet chemistry labs according to their lab section number. Your course section number is made up of the lecture and lab section numbers. The first two numbers are the lecture section and the last two numbers the lab section. 0125 means lecture section 01 and lab section 25.

If your lab section is an odd number (e.g. 0213 – Lab section 13) then you follow the Group A Student schedule. If your lab section is an even number e.g. 0322 Lab section 22 then you follow the Group B Student schedule.
The laboratory is an integral part of the course and you **must** attend all wet laboratories.

(b) **Laboratory Time and Authorization.**
You must attend your first lab to receive mandatory safety training.
This safety lab is a prerequisite for all subsequent labs.
As proof that you are registered in a particular lab, you **must** bring a computer printout dated Jan. 07, 2010 or later of "My Class Schedule" from Web Advisor to your first lab.

(c) **Laboratory Quizzes**
A brief quiz will be held at the beginning of some of the laboratory periods. See the Laboratory Schedule for details. These quizzes count towards your laboratory grade and will usually be based on the experiment that you are about to perform.

(d) **Laboratory Reports**
Laboratory reports are handed in exactly one week after your lab period (and not an earlier day) and before 4:30 p.m.
Put your **stapled** report in the appropriate Grey Box (labeled with your lab room number) located near MACN 128.
If your report is not received a grade of zero will be assigned.

(e) **Missed Wet Laboratory.**
Refer to the Purple Page for Lab Absences in First-Year Chemistry on the CHEM*1050 website.

(f) **Laboratory Exemptions for students who are repeating CHEM*1050.**
DEADLINE: Wednesday, January 13.
Students who obtained a lab grade of **at least 60 per cent** but who failed the course as a whole may apply for a laboratory exemption. The laboratory work must have been completed **during one of the three preceding semesters** in which the course was offered. Apply online at www.chemistry.uoguelph.ca/labexemption.

Students who are granted a wet lab exemption **must complete the online dry computer labs** and can attend any Midterm Prep. Problems Lab in Week 6.

3. WEB SITE

The CHEM*1050 website is an integral part of the course and must be accessed several times per week. All important announcements for the course will be made on the website.

The web site can be accessed through the portal **http://www.uoguelph.ca/courselink/** Your Username is your Central Login (that part of your assigned University of Guelph e-mail address before the @ sign). Your **password** is your Central Login Account Password. The course website provides numerous resources such as practice quizzes and a discussion board.

4. COURSE HELP

(a) **Your Lecturer.**

Your professor will be available at certain times for consultation and help. Office hours will be arranged at the first class meeting.

(b) **Lecture and Lab Help.**

Available in the First Year Chemistry Learning Centre.
A graduate teaching assistant will be available to assist you with lecture or laboratory material. The Learning Centre location and schedule are posted on the CHEM*1050 website.

(c) Supported Learning Groups (SLGs)

SLGs are regularly scheduled small group study sessions. Attendance is voluntary and open to all students enrolled in the course. The study groups are facilitated by successful senior students who have recently taken the course. Students who attend SLG sessions have an opportunity to apply and demonstrate their understanding of course concepts in a safe practice environment. The group study format exposes students to various approaches to learning, problem-solving, and exam preparation. The session times and locations will be available at the SLG web site. There is a link to the SLG page on the CHEM*1050 website.

(d) The CHEM*1050 website contains a variety of materials to assist you with the course. There are practice quizzes and examinations, examples of problems with full solutions, a question of the week, and much more.

5. Evaluation

(a) The course grade will be calculated as follows:

Midterm Examination	28%
Final Examination	40%
Wet Laboratories & Laboratory Quizzes	15%
Online Dry Laboratories (course website)	5%
Four Online Quizzes for Credit(course website)	8%
OWL Homework	4%

(b) **Online Quizzes for Credit**

The quizzes for credit are delivered on D2L. You may use the textbook and any notes when attempting the quizzes. The maximum benefit from the quizzes will be obtained if you do them on your own and under examination conditions.
The quizzes are 75 minutes in duration and will be available on the dates listed below from 01:00 a.m. Tuesday until 11:59 p.m. Thursday.
Answers and help for questions on your quiz may be accessed from Friday morning to Monday afternoon following the quiz date. Each quiz can only be accessed at these times. If a quiz is not attempted, a grade of zero will be assigned**.**
Do not leave your quiz attempt until the last day!

Quiz #1	Thermochemistry and Entropy.	Feb.02 - Feb.04
Quiz #2	Redox and Electrochemical Cells.	Mar.09 - Mar.11
Quiz #3	Electrochemistry.	Mar.23 - Mar. 25
Quiz #4	Kinetics.	Apr.06 – Apr. 08

(c) Online "OWL" Homework (www.cengage.com/owl)
Homework assignments are delivered in Weeks 3 to 11 through "OWL" (Online Web Learning). To access the site you will need an OWL access card provided with the text or sold separately. Assignments are due 11:59 p.m. on Wednesdays, starting Jan. 27. If an assignment is not attempted a grade of zero will be assigned. There will be 9 assignments and all nine will be used in calculating your final homework grade.
Further details are available on the course website.

(d) **Online Dry Laboratory Work (courselink.uoguelph.ca)**

Each of the three computer labs consists of three parts. - an information page, the Experiment and a Marking Module. All are delivered on the course website. The Experiment can be done as many times as you wish. Each time you repeat the experiments you will be given different conditions.
After you are satisfied with your results and have completed all calculations **only then** open the Marking Module to submit your results.

1. Online Computer Lab 1 Bomb Calorimeter.
It is to be completed between Jan.18 and Jan. 31 .
Your results must be submitted to the Marking Module by Jan. 31 11:59 p.m.

2. Online Computer Lab 2 ΔG^0, ΔH^0, ΔS^0
This lab is based on Experiment 3 in your CHEM*1050 Laboratory Manual.
It is to be completed between Feb. 01 and Feb. 14.
Your results must be submitted to the Marking Module by Feb. 14 at 11:59 p.m.

3. Online Computer Lab 3 Electrolysis.
This lab is based on Experiment 6 in your CHEM*1050 Laboratory Manual.
It is to be completed between Mar. 01 and Mar. 14.
Your results must be submitted to the Marking Module by Mar. 14 at 11:59 p.m.

(f) Midterm Examination Saturday, February 27, 9:30 - 11:00 a.m.

Room assignments will be posted on the CHEM*1050 website.
This examination covers the material from Weeks 1 to 6.
Midterm Conflict: Apply in writing to the course coordinator during the week of Feb. 08 – Feb. 12 to write the **Alternate Midterm on Thursday Feb. 25, 17:30.** Include your name, ID, and reason for conflict and leave the application in the folder on the door of MACN 340. If you are not contacted the week of the examination, your application to write the alternate midterm has been approved. The rooms for the alternate midterm will be posted on the website.

(g) Final Examination: Friday April 23, 08:30 – 10:30 a.m.

The final examination covers the entire course.

(h) All examinations will be closed book, with **no** written or printed materials of **any** kind permitted. Computers or calculators capable of storing text information or formulas are **not allowed**.

6. POLICY ON MISSED EXAMINATIONS.

A grade of zero will be assigned for any missed examination except for valid medical or compassionate reasons.

Missed Midterm Exam. For a missed midterm examination, documentation must be given to your professor in person. There is no need to consult a doctor to obtain a note. However, if you have consulted a medical practitioner because of illness or injury, the doctor's note is acceptable documentation. In the case of a missed midterm, if a valid reason for missing the midterm is received, the percent value of the midterm will be added to the final examination.

No make-up midterm will be given.

Missed Final Exam. Consult the Undergraduate Calendar and your Program Counsellor.

7. Lecture Schedule

Please read the appropriate sections in the text before lectures.

Weeks / Dates		Topics	Text
Weeks 1-5 Jan.11-Feb. 12		Energy, Heat, Enthalpy, Work, Thermochemical Equations, Calorimetry, Hess's Law, Standard Enthalpies of Formation, Fuels. Bond Enthalpies. Energetics of ionic compounds. Entropy and Free Energy, Thermodynamics and Equilibrium. Bioenergetics.	Ch 6, 6.1-6.9 Ch. 18, 18.1 Ch 9, 9.11 Ch.9, 9.1 Ch 18, 18.2-18.5 Ch.18, 18.6-18.7
Feb. 15 - **Feb. 19**		**Winter Break**	
Week 6 Feb. 22-26		Redox processes, half-reactions, balancing redox reactions. Midterm Review.	Ch 19, 19.1
Feb. 27 **09:30-11:00**		**Midterm Examination.** **Material from Weeks 1 to 6.**	
Weeks 7-9 Mar. 01 to Mar.19		Voltaic cells, Cell notation, Electromotive force (emf), Standard Cell emfs, Standard ElectrodePotentials, Equilibrium constants from emfs, The Nernst equation, Commercial Voltaic cells, Electrolysis.	Ch 19, 19.2-19.3 Ch 10, 19.4-19.5 Ch 19, 19.6 Ch 19, 19.7 Ch 19, 19.8 Ch 19, 19.9-19.11
Weeks 10-12 Mar. 22 to Apr. 09		Reaction Rate, Experimental Kinetics, Rate and Concentration, Rate Laws, Temperature and Rate, Arrhenius, Reaction Mechanisms. Catalysis. Radioactive decay	Ch 13, 13.1-13.2 Ch.13, 13.3-13.4 Ch.13, 13.5-13.6 Ch.13, 13.7-13.8 Ch.13, 13.9 Ch 20, 20.4

Midterm Examination, Saturday, Feb. 27, 09:30 - 11:00 a.m.
This examination covers material from Weeks 1 to 6.
Final Examination, Friday, Apr. 23, 08:30-10:30 a.m.
The final examination covers the entire course.

8. Lab Schedule Winter 2010.

	Group A Students	Group B Students
Week 1 Jan.11-15	Check in and Safety Arrive at regular starting time.	Check in and Safety Arrive 90 minutes **after** regular starting time.
Week 2 Jan. 18-22	Expt. 1 Enthalpy of Formation QUIZ on WHMIS and Expt. 1	*Online Computer lab 1 – Bomb Calorimeter*
Week 3 Jan. 25-29	*Online Computer lab 1 – Bomb Calorimeter*	Expt. 1 Enthalpy of Formation QUIZ on WHMIS and Expt. 1

Online computer lab1 results must be submitted by both groups by Sunday Jan.31 11:59 p.m.

Week 4 Feb. 01-05	Expt. 2 Equilibrium Constant QUIZ	*Online Computer lab 2 -* ΔG^0, ΔH^0, ΔS^0
Week 5 Feb. 08-12	*Online Computer lab 2 –* ΔG^0, ΔH^0, ΔS^0	Expt. 2 Equilibrium Constant QUIZ

Online computer lab2 results must be submitted by both groups by Sunday Feb.14 11:59 p.m.

Week 6 Feb. 22-26	Midterm Prep. Problems Lab Arrive at regular starting time.	Midterm Prep. Problems Lab Arrive 90 minutes **after** regular starting time.
Week 7 Mar. 01-05	Expt. 5 Voltaic Cells QUIZ	*Online Computer lab 3 - Electrolysis*
Week 8 Mar.08-12	*Online Computer lab 3 – Electrolysis*	Expt. 5 Voltaic Cells QUIZ

Online computer lab3 results must be submitted by both groups by Sunday Mar.14 11:59 p.m.

Week 9 Mar. 15-19	Expt. 7 Chemical Kinetics	*Independent learning*
Week 10 Mar.22-26	*Independent learning*	Expt. 7 Chemical Kinetics
Week 11 Mar.29-Apr.01	Clean up. Arrive at regular starting time.	Clean up. Arrive 90 minutes **after** regular starting time.
Week 12 Apr.05-09	Check lab grade. Last chance. Arrive at regular starting time.	Check lab grade. Last chance. Arrive 90 minutes **after** regular starting time.

9. END of CHAPTER PROBLEMS

Problems are assigned to reinforce the principles covered in lectures, to help you to develop problem-solving skills, and to check your own knowledge. Work done on the problems is not graded, but there is a good correlation between mastering the problems on a week-by-week basis and performance in the course as a whole.

Work the problems in the week that the material is covered in lectures.

A common reason why students fail first year Chemistry is that they fall so far behind with the material that they never catch up. Lectures become harder to comprehend without the reinforcement of constant practice.

Work the problems first then look at the solutions. Working from the solutions is **not** useful for learning.

Solutions to problems

The detailed solutions to the problems are in the Student Solutions Manual. Several copies of the Student Solutions Manual will be on two-hour reserve in the library along with several copies of the text.

I Thermochemistry, Bond Enthalpies, Entropy and Free Energy, Thermodynamics and Equilibrium. Balancing Oxidation Reduction Reactions. Weeks 1 to 6.

Text: 6.35, 6.39, 6.51, 6.55, 6.61, 6.67, 6.69, 6.71, 6.75, 6.79, 6.81, 6.93, 6.95, 6.103, 6.109, 6.117, 6.139.
18.23, 18.25, 18.27, 18.29, 18.31, 9.85, 18.35, 18.39, 18.43, 18.47, 18.51, 18.61, 18.65, 18.69, 9.101, 9.109, 18.73, 18.75, 18.83, 18.85, 18.89, 18.97, 18.101,9.110, 18.121, 19.39, 19.41, 19.101.

II Electrochemistry. Weeks 7 to 9.

Text: 19.25, 19.33, 19.43, 19.45, 19.47, 19.51, 19.53, 19.55, 19.59, 19.61, 19.63, 19.67, 19.71, 19.75, 19.79, 19.83, 19.85, 19.87, 19.91, 19.93, 19.95, 19.105, 19.111, 19.113, 19.117, 19.119, 19.123, 19.141.

III Chemical Kinetics. Weeks 10 to 12.

Text: 13.31, 13.33, 13.41, 13.45, 13.49, 13.53, 13.55, 13.57, 13.59, 13.63, 13.69, 13.71, 13.75, 13.79, 13.81, 13.85, 13.99, 13.101, 13.105, 13.107, 13.117, 13.119, 13.125,13.143.
20.27, 20.61, 20.63, 20.67, 20.75.