CHEM*1050 Winter 2011

Student Course Information

Course Co-ordinator	Dr. Dan Thomas	SCIE 2504 dfthomas@uoguelph.ca
Lecture Section 1 MWF 12:30 ROZH 104	Dr. Mark Baker	MACN 122 mbaker@uoguelph.ca
Lecture Section 2 T Th 8:30 ROZH 104	Dr. Lori Jones	MACN 331 lojones@uoguelph.ca
Lecture Section 3 MWF 3:30 ROZH 104	Dr. Mario Monteiro	MACN 333 monteiro@uoguelph.ca

1. Required Materials

- Textbook Package: "General Chemistry", 9th ed. Ebbing and Gammon, Houghton Mifflin Co. 2009; plus Student Solution Manual.
- Laboratory Manual for CHEM*1050. Purchased in the Department. Safety goggles (not safety glasses). Purchased in the Department.
- A lab coat is required.
- 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.
- All lab reports must be stapled prior to being put into the Grey Boxes near MACN 128.

2. Laboratories

Labs Begin Monday, January 10! Bring Your Lab Manual and "My Class Schedule"

- **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.

- **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. 01, 2011 or later of "My Class Schedule" from Web Advisor to your first lab.

- **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.

- **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.

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

- **Laboratory Exemptions for students who are repeating CHEM*1050.** DEADLINE: Wednesday, January 12. 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 Preparation Problems Lab in Week 5.

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

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

- **First Year Chemistry Learning Centre**
  A graduate teaching assistant will be available to assist you with lecture or laboratory material. The Learning Centre location (MACN 307) and schedule are posted on the CHEM*1050 website.

- **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.

- **CHEM*1050 Website**
  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

- The course grade will be calculated as follows:

Midterm Examination	27%
Final Examination	37%
Wet Laboratories & Laboratory Quizzes	15%
On-line Dry Laboratories (course website)	5%
Four On-line Quizzes for Credit (Sapling Learning website)	8%
On-line Homework (Sapling Learning website)	8%

- **On-line Quizzes for Credit at Sapling Learning** (saplinglearning.com)

The four quizzes for credit are delivered through the Sapling Learning website (not Courselink, as was done last semester). 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 Tuesday

Quiz #1	Thermochemistry and Entropy	Week 4: Feb. 1 - Feb. 3
Quiz #2	Redox and Electrochemical Cells	Week 8: Mar. 8 - Mar. 10
Quiz #3	Electrochemistry	Week 10: Mar. 22 - Mar. 24
Quiz #4	Kinetics	Week 12: Apr. 5 - Apr. 7

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!

- **Online Homework at Sapling Learning** (saplinglearning.com)

Homework assignments are due in weeks 2, 3, 5, 6, 7, 9 and 11 through the Sapling Learning Website. This is a different site than last semester. You will not be required to purchase any new access. Assignments are due 11:59 p.m. on Thursday, starting Jan. 20. If an assignment is not attempted, a grade of zero will be assigned. There will be seven assignments and all seven will be used in calculating your final homework grade. Further details are available on the course website. Note that in the weeks in which there is an on-line quiz, there is no homework due.

- **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.

On-line Computer Lab #1 Bomb Calorimeter	To be completed between January 17 and January 30	Submit to Marking Module by January 30, 11:59 P.M.
On-line Computer Lab #2 ΔH_0, ΔS_0, ΔG_0 Based on Expt. 3 in the CHEM 1050 Lab Manual.	To be completed between January 31 and February 18	Submit to Marking Module by February 27, 11:59 P.M.
On-line Computer Lab #3 Electrolysis Based on Expt. 6 in the CHEM 1050 Lab Manual.	To be completed between February 28 and March 13	Submit to Marking Module by March 13, 11:59 P.M.

- **Mid-Term Examination: Saturday February 12, 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 5. If you have a conflict with the date, you can apply to the course coordinator during the week of Jan. 31 – Feb. 4 to write the Alternate Midterm on Thursday February 10, at 17:30. Apply on-line style http://www.chemistry.uoguelph.ca/alternateexam. Give a brief explanation of why you are unable to attend. Having another exam on that day is not an acceptable reason. We will confirm with you by email whether or not your application to write the Alternate Midterm has been accepted. The rooms for the alternate midterm will be posted on the website.

- **Final Examination: Wednesday April 20, 2:30 - 4:30 P.M.**

The final examination covers the entire course.

- **Exam Policy**

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 Exams

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. We cannot help you regarding a missed final exam. You must consult the Undergraduate Calendar and go see your Program Counsellor as soon as possible.

7. Lecture Schedule

Please read the indicated sections in the text before coming to the lectures.

Weeks and Dates	Topics	Relevant Sections in Text
Weeks 1 - 5 January 10 - February 11	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.	Chapter 6: 6.1 - 6.9 Chapter 18: 18.1 Chapter 9: 9.1 and 9.11 Chapter 18: 18.2 - 18.5 Chapter 18: 18.6 - 18.7
Mid-Term Examination Saturday, February 12 9:30 - 11:00	Exam covers material from weeks 1 - 5.	
Week 6 February 14 - 18	Redox processes, Half-reactions, Balancing Redox Equations.	Chapter 19: 19.1
Winter Break February 21 - 25		
Weeks 7 - 9 February 28 - March 18	Voltaic Cells, Cell notation, Electromotive force, Standard Cell Potential, Standard Electrode Potential. Equilibrium from Potential. Nernst Equation Batteries. Electrolysis.	Chapter 19: 19.2 - 19.3 Chapter 19: 19.4 - 19.5 Chapter 19: 19.6 Chapter 19: 19.7 Chapter 19: 19.8 Chapter 19: 19.9 - 19.11
Weeks 10 - 12 March 21 - April 8	Reaction Rate, Experimental Kinetics, Rate and Concentration, Rate Laws, Temperature and Rate, Arrhenius Equation, Reaction Mechanisms. Catalysis Radioactive Decay.	Chapter 13: 13.1 - 13.2 Chapter 13: 13.3 - 13.4 Chapter 13:13.5 - 13.6 Chapter 13: 13.7 - 13.8 Chapter 13: 13.9 Chapter 20: 20.4
Final Examination Wednesday, April 20 2:30 - 4:30 P.M.	Exam covers the entire course.	

8. Laboratory Schedule

	Group A Students (Lab Section Number is Odd)	**Group B Students** (Lab Section Number is Even)
Week 1 January 10 - 14	Check in and Safety Arrive at regular lab start time	Check in and Safety Arrive 90 minutes AFTER regular lab start time.
Week 2 January 17 - 21	Expt. 1 Enthalpy of Formation Lab Quiz on WHMIS and Expt. 1	*Online Computer lab 1 – Bomb Calorimeter*
Week 3 January 24 - 28	*Online Computer lab 1 – Bomb Calorimeter*	Expt. 1 Enthalpy of Formation Lab Quiz on WHMIS and Expt. 1 Arrive at regular lab start time.
On-line computer lab 1 results must be submitted by both groups by Sunday January 30 11:59 p.m.		
Week 4 January 31 - February 4	Expt. 2 Equilibrium Constant Lab Quiz.	*Online Computer lab 2 – ΔH^0, ΔS^0, ΔG^0*
Week 5 February 7 - 11	Midterm Preparation. Problems Lab. Arrive at regular lab start time.	Midterm Preparation. Problems Lab. Arrive 90 minutes AFTER regular lab start time.
Week 6 February 14 - 18	*Online Computer lab 2 – ΔH^0, ΔS^0, ΔG^0*	Expt. 2 Equilibrium Constant Lab Quiz. Arrive at regular lab start time.
On-line computer lab 2 results must be submitted by both groups by Sunday February 27 11:59 p.m.		
Week 7 February 28 -March 4	Expt. 5 Voltaic Cells Lab Quiz.	*Online Computer lab 3 – Electrolysis*
Week 8 March 7 - 11	*Online Computer lab 3 – Electrolysis*	Expt. 5 Voltaic Cells Lab Quiz. Arrive at regular lab start time.
On-line computer lab 3 results must be submitted by both groups by Sunday March 13 11:59 p.m.		
Week 9 March 14 - 18	Expt. 7 Chemical Kinetics	*Independent Learning. Do not come to lab.*
Week 10 March 21 - 25	*Independent Learning. Do not come to lab.*	Expt. 7 Chemical Kinetics Arrive at regular lab start time.
Week 11 March 28 - April 1	Clean up. Arrive at regular lab start time.	Clean up. Arrive 90 minutes AFTER regular lab start time.
Week 12 April 4 - 8	Last chance to check lab grade. Arrive at regular lab start time.	Last chance to check lab grade. Arrive at regular lab start time.

9. Textbook 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.

Section I: Weeks 1 - 6	Thermochemistry and Thermodynamics. Enthalpy, Entropy, and Free Energy. Equilibrium. Balancing Redox Equations.	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.
Section II: Weeks 7 - 9	Electrochemistry	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.
Section III: Weeks 10 - 12	Chemical Kinetics	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.