Student Course Information
General Chemistry II
CHEM*1050 Winter 2012

Course Coordinator:				
John Goddard **jgoddard@uoguelph.ca** MACN 340				
Lecturers:	**Section**	**Room**	**Days**	**Time**
Mark Baker **mbaker@uoguelph.ca** MACN 122	Section 1	ROZH 104	MWF	12:30-13:20
Kristy Erickson **kerickso@uoguelph.ca** SCIE 2506	Section 2	ROZH 104	TuTh	08:30-09:50
Rick de Laat **rdelaat@uoguelph.ca** SCIE 2503	Section 3	ROZH 104	MWF	15:30-16:20
Renee Webber **rwebber@uoguelph.ca** SCIE 2506	Section 4	MAC 149	TuTh	08:30-09:50

1. Required Materials

(a) **Textbook.** General Chemistry, 9th ed. Ebbing and Gammon, Houghton Mifflin Co. 2009.(General Chemistry, 9th ed. Enhanced Ebbing and Gammon, Brooks/Cole 2011 also is acceptable.)

(b) **Laboratory Manual** for CHEM*1050. Purchased in the Department.

(c) **Safety goggles** (not safety glasses). Purchased in the Department.

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

(e) **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.

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

(g) **Sapling Learning Access**. To complete the optional online Sapling Homework you will need to purchase access either online with a credit card (www.saplinglearning.ca) or in the University Bookstore.

2. WET LABORATORY Begins in Week 1 which starts Monday January 09. Bring your lab manual.

(a) Students attend their wet chemistry labs according to their lab section number. If your lab section is an odd number (e.g. 0113 – Lab section 13) then you follow the Group A Student schedule. If your lab section is an even number e.g. 0214 Lab section 14 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. Bring "My Class Schedule."**
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. 02, 2012 or later of "My Class Schedule" from Web Advisor to your first lab.

(c) **Laboratory Quizzes**
A pre-lab quiz will be given **on Sapling** for some of the wet labs. You do not need to purchase access to the Sapling Homework in order to complete the pre-lab quizzes. See the Laboratory Schedule for experiments which have pre-lab quizzes. 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 normally 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 11.
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 available on Courselink** and may 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

(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.**

Assistance is available in the Chemistry Learning Centre in Lib360 in the Science Commons on the third floor of the library.
A graduate teaching assistant will be available to assist you with both lecture and laboratory material. The Chemistry Learning Centre schedule is 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:

Scheme 1

Midterm Examination	25%
Final Examination	45%
Wet Laboratories & Laboratory Quizzes	15%
Online Dry Laboratories (course website)	5%
Sapling Homework	10%

Scheme 2

Midterm Examination	30%
Final Examination	50%
Wet Laboratories & Laboratory Quizzes	15%
Online Dry Laboratories (course website)	5%
Sapling Homework	0%

The Sapling Homework provides a means for you to test your learning weekly. You may choose not to complete the online Sapling Homework and the weights of your midterm and final examinations will be increased (Scheme 2).Your final grade will be based on the scheme which produces the highest grade.

(b) Online Sapling Homework

If you choose to do the Sapling Homework, there will be eleven assignments delivered through Sapling. Normally you will have one week to complete the assignments which are due by 11:55 p.m. on Wednesdays. The first homework assignment is due Jan.18. If an assignment is not attempted a grade of zero will be assigned. There will be **eleven** assignments and **all eleven** will be used in calculating your final homework grade. Further details are available on the course website. There is a Practice Assignment and a Math Review not for credit which may be completed.

(c) **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. 16 and Feb. 05.

Your results must be submitted to the Marking Module by Feb. 05 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 Jan. 30 and Mar. 04.

Your results must be submitted to the Marking Module by Mar. 04 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 Feb. 27 and Mar. 18.

Your results must be submitted to the Marking Module by Mar. 18 at 11:59 p.m.

(d) **Midterm Examination Saturday, February 11 2:00 to 3:30 p.m.**
Room assignments will be posted on the CHEM*1050 website.
This examination covers the material from Weeks 1 to 5.
Midterm Conflict: Send an email from your uoguelph account to the course coordinator by Friday Feb. 3 stating the reason for the conflict. The room, date, and time for an alternate midterm will be posted on the website.

(e) **Final Examination: Saturday, April 14 08:30 to 10:30 a.m.**
The final examination covers the entire course.

(f) 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. 09 – Feb.10.	Energy, Heat, Enthalpy, Work, Thermochemical Equations, Calorimetry, Hess 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
Saturday **Feb. 11**	**Midterm Exam** **Material from weeks 1 to 5.**	
Week 6 Feb.13-Feb.17 **Feb. 20 – Feb. 24** Weeks 7- 9 Feb.27– Mar 16	Redox processes, half-reactions, balancing redox reactions. **WINTER BREAK – NO CLASSES** Voltaic cells, Cell notation, Electromotive force (emf), Standard Cell emfs, Standard Electrode Potentials, Equilibrium constants from emfs, The Nernst equation, Commercial Voltaic cells, Electrolysis.	Ch 19, 19.1 Ch 19, 19.2-19.3 Ch 19, 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. 19 - Apr.05	Reaction Rate, Experimental Kinetics, Rate and Concentration, Rate Laws, Temperature and Rate, Arrhenius, Reaction Mechanisms. Catalysis. Radioactive decay *Friday Apr.06 is a holiday.*	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. 11 2:00 p.m. to 3:30 p.m.
This examination covers material from Weeks 1 to 5.
Final Examination. Saturday, Apr.14 08:30 a.m. to 10:30 a.m.
The final examination covers the entire course.

8. Lab Schedule Winter 2012.

	Group A Students (Odd)	**Group B Students (Even)**
Week 1 Jan.09-13	Check in and Safety Arrive at regular starting time.	Check in and Safety Arrive 90 minutes **after** regular starting time.
Week 2 Jan. 16-20	Expt.1 Enthalpy of Formation Prelab QUIZ on WHMIS and Expt. 1	*Online Computer lab 1 – Bomb Calorimeter*
Week 3 Jan.23-27	*Online Computer lab 1 – Bomb Calorimeter*	Expt. 1 Enthalpy of Formation Prelab QUIZ on WHMIS and Expt. 1 Arrive at regular starting time.
Week 4 Jan.30-Feb.03	Expt. 2 Equilibrium Constant Prelab QUIZ	*Online Computer lab 2 –* ΔG^0, ΔH^0, ΔS^0
Week 5 Feb.06-10	Midterm Preparation. Problems Lab Arrive at regular starting time.	Midterm Preparation. Problems Lab Arrive 90 minutes **after** regular starting time.
Week 6 Feb.13-17	*Online Computer lab 2 –* ΔG^0, ΔH^0, ΔS^0	Expt. 2 Equilibrium Constant Prelab QUIZ Arrive at regular starting time.
Week 7 Feb.27-Mar.02	Expt. 5 Voltaic Cells Prelab QUIZ	*Online Computer lab 3 - Electrolysis*
Week 8 Mar.05-09	*Online Computer lab 3 – Electrolysis*	Expt. 5 Voltaic Cells Prelab QUIZ Arrive at regular starting time.
Week 9 Mar.12-16	Expt. 7 Chemical Kinetics	*Independent learning* Do not come to the lab.
Week 10 Mar.19-23	*Independent learning* Do not come to the lab.	Expt. 7 Chemical Kinetics
Week 11 Mar.26-30	Clean up. Arrive at regular starting time. .	Clean up. Arrive 30 minutes **after** regular starting time.
Week 12 Apr.02-05	Check lab grades. Arrive at regular starting time.	Check lab grades. Arrive 30 minutes after regular starting time.

Online computer lab1 results must be submitted by both groups by Sunday Feb. 05 11:59 p.m.

Online computer lab2 results must be submitted by both groups by Sunday Mar. 04 11:59 p.m.

Online computer lab3 results must be submitted by both groups by Sunday Mar. 18 11:59 p.m.

Friday Apr. 06 is a holiday..

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. Weeks 1 to 5.

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.

II Electrochemistry. Weeks 6 to 9.

Text: 19.39, 19.41, 19.101 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.