Student Course Information
CHEM*1040 – Winter 2009
General Chemistry I

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1. REQUIRED MATERIALS

(a) **Textbook:** General Chemistry, 9th ed., Darrell Ebbing and Steven Gammon, Houghton Mifflin Co., 2009.
Also Available: Student Solutions Manual, D. Bookin, D. Ebbing, and S. Gammon, 2009.

(b) **CHEM*1040 Organic Chemistry Notes**, **Laboratory Manual** and **safety goggles** (not safety glasses) can be purchased from the Chemistry Department. (Goggles may also be purchased from the Bookstore.)

(c) **Lab coats** are required and available from the University Bookstore.

(d) **Indigo Instruments Molecular Model Kit** is available in the University Bookstore.

(e) **Electronic 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) **A stapler**.

(g) **Strongly Recommended - i>Clicker Student Response Unit** is available in the University Bookstore. Students will use "*clickers"* to register their responses to questions posed in class.

2. EVALUATION

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

Online Quizzes for Credit (course website)	5%
"Wet" Laboratory & Lab Quizzes	20%
Online "Dry" Laboratory Work (course website)	7%
Midterm Examination 1	15%
Midterm Examination 2	18%
Final Examination	35%

(b) **Online Quizzes for Credit**
The quizzes are delivered on the course Blackboard website. ***http://courselink.uoguelph.ca.***
You may use your text and notes when attempting the quizzes.
You will have an unlimited amount of time to complete each quiz up to when the quiz closes.
Remember to save your answers as you do each question.
Each quiz can be attempted twice, but you will get different questions for each attempt, and you will receive the higher grade. **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 – Atomic & Molecular Structure	**closes Wed. Jan. 21, 11:59 pm**
Quiz #2 – Stoichiometry & Reactions	**closes Wed. Feb. 4, 11:59 pm**
Quiz #3 – Equilibrium, Acids & Bases	**closes Wed. Mar. 4, 11:59 pm**
Quiz #4 – Buffers & Titration Curves	**closes Wed. Mar. 18, 11:59 pm**
Quiz #5 – Organic Chemistry	**closes Wed. Apr. 1, 11:59 pm**

(c) **Online "Dry" Computer Laboratory Work**

NOTE: Students repeating CHEM*1040 who are granted a "wet" lab exemption **must complete the online "dry" computer laboratories.**

Each computer lab consists of two parts: the Experiment and the Marking Module. Both are delivered on the website. The Experiment can be done at any time and can be done as many times as you wish. However, each time you repeat an experiment, you will be assigned a new "unknown" number. After you are satisfied with your results and have completed all calculations, **only then** open the Marking Module to input your results. You may only grade your lab work once. Note the time of the Marking Module deadlines!

1. *Atomic Spectroscopy Computer Lab* – based on Experiment 6 in your CHEM*1040 Laboratory Manual. The marking module closes **Sun. Feb. 8, 11:59 pm.**
2. *Volumetric Analysis Computer Lab* – The marking module closes **Sun., Mar.1, 11:59 pm.**
3. *Gaseous Equilibria Computer Lab* – The marking module closes **Sun. Mar. 15, 11:59 pm.**
4. *Organic Chemistry Computer Lab* – This lab is partially based on Experiment #8 in your CHEM*1040 Laboratory Manual. The marking module closes **Sun. Mar. 29, 11:59 pm.**

(d) **Midterm Examination 1**: **Mon. Feb. 2 - 5:40 to 6:40 pm**

(e) **Midterm Examination 2:** **Tues. Mar. 17 - 5:40 to 6:40 pm**

(f) **Final Examination:** **As scheduled by the registrar.**

(g) 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**.

3. POLICY ON MISSED WORK

(a) **Missed Midterm Examination:**

If you did not write the midterm, documentation must be given to your instructor. If a valid excuse is received, the percentage value of the midterm will be added to the percentage value of the other exams. Otherwise, a grade of zero will be assigned. No make-up midterm examination will be given.

(b) **Missed Final Examination:**

If you miss a final exam, you need to contact your Program Counsellor as soon as possible (refer to *http://www.uoguelph.ca/uaic/program_counsellors.shtml* for the list of Program Counsellors). Official documentation is required. Consult the Undergraduate Calendar (Section VIII, under Academic Consideration – Incomplete Final Examinations /Final Assignments).

4. "WET" LABORATORY – Begins Monday, Jan. 12! Bring your lab manual.

Students attend their chemistry labs according to their lab section number. If your lab section is an odd number (e.g. course section 0243 = lab section 43), then you follow the "Week Acid Student Schedule". If your lab section is an even number (e.g. course section 0358 = lab section 58), then you follow the "Week Base Student Schedule". **See Laboratory Schedule**. The laboratory is an integral part of the course and you must attend all the labs.

(a) **Laboratory Time and Authorisation**

You must attend your first lab to receive mandatory safety training. As proof that you are registered in a particular lab section, you must bring a computer print-out dated **Jan. 05, 2009 or later** of "My Class Schedule" from WebAdvisor to your first lab.

(b) **Laboratory Quizzes**

The in-lab quizzes count towards 20% of your laboratory grade, and will usually be based on the experiment that you are about to perform. Refer to the Laboratory Schedule.

(c) **Laboratory Reports**

Laboratory reports are normally to be handed in exactly one week after your lab period (and not an earlier day) and before 4:30 p.m. Submit your report into the appropriate Grey Box located near MACN 128.

(d) **Missed Laboratory**

Refer to the "Purple Page for Lab Absences in First-Year Chemistry"

(e) **Laboratory Exemptions for students who are repeating CHEM*1040**

DEADLINE: Tuesday, Jan., 6, 2009.

Students who obtained a "wet" laboratory grade of **at least 60%,** 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.

NOTE: Students repeating CHEM*1040 who are granted a "wet" lab exemption **must complete the online "dry" computer laboratories.**

WINTER 2009 LAB SCHEDULE

DATE	**"WEEK ACID" Student Schedule** (**ODD** lab section numbers)		**"WEEK BASE" Student Schedule** (**EVEN** lab section numbers)	
Jan. 5 - 9	No "Wet Labs" this week Lectures run normally		No "Wet Labs" this week Lectures run normally	
Jan. 12 - 16	**Arrive at regular starting time.** Check-in, Safety*	No Quiz	**Arrive 1 ½ hours after regular starting time.** Check-in, Safety*	No Quiz
Jan. 19 - 23	**Arrive at regular starting time.** Experiment 0: Introduction to Laboratory Equipment	No Quiz	**Arrive 1 ½ hours after regular starting time.** Experiment 0: Introduction to Laboratory Equipment	No Quiz
Jan. 26 - 30	Experiment 2: Chemical Reactions in Aqueous Solution	**Quiz On Safety**	Online Computer Lab – Atomic Spectroscopy (Exp 6) - Blackboard	Marking Module
Feb. 2 - 6	Online Computer Lab – Atomic Spectroscopy (Exp 6) - Blackboard	Marking Module	Experiment 2: Chemical Reactions in Aqueous Solution	**Quiz On Safety**
Feb. 9 - 13	Experiment 3: Standardization of Sodium Hydroxide	**Quiz**	Online Computer Lab – Volumetric Analysis - Blackboard	Marking Module
Feb. 23 - 27	Online Computer Lab – Volumetric Analysis - Blackboard	Marking Module	Experiment 3: Standardization of Sodium Hydroxide	**Quiz**
Mar. 2 - 6	Experiment 5: Buffers, Titration Curves and Indicators	**Quiz**	Online Computer Lab – Gaseous Equilibria - Blackboard	Marking Module
Mar. 9 - 13	Online Computer Lab – Gaseous Equilibria - Blackboard	Marking Module	Experiment 5: Buffers, Titration Curves and Indicators	**Quiz**
Mar. 16 - 20	Experiment 4: Synthesis of Aspirin - an Important Acid **Hand in Report at end of lab.**	**Quiz**	Online Computer Lab – Organic Chemistry - Blackboard	Marking Module
Mar. 23 - 27	Online Computer Lab – Organic Chemistry - Blackboard	Marking Module	Experiment 4: Synthesis of Aspirin - an Important Acid **Hand in Report at end of lab.**	**Quiz**
Mar. 30 – Apr. 3	**Arrive at regular starting time.** Clean-Up & Review final lab grades	No Quiz	**Arrive 1 ½ hours after regular starting time.** Clean-Up & Review final lab grades	No Quiz

* The Safety Laboratory is a legal requirement. You must attend a safety lab session.

5. LECTURE SCHEDULE – Please read the appropriate sections in the text **before** lectures.

Week	Dates	Topics	Online Resources	Text Reference	Text Questions
Week 0		Measurement, Significant Figures, Atoms, Molecules & Ions, The Mole.	**Self-Assessment Quiz** *Stoichiometry* e-lectures: *Review topics 1–3 and 7	***Review, Ch 1, 2 & Ch 3, 3.1 – 3.5**	Chapter 1: 1.35, 1.41, 1.81, 1.83, 1.127. Chapter 2: 2.43, 2.51, 2.65, 2.67, 2.75, 2.77, 2.79, 2.83, 2.85, 2.87, 2.91, 2.93, 2.99, 2.101, 2.109, 2.111, 2.119, 2.123, 2.127. Chapter 3: 3.37, 3.39, 3.45, 3.61, 3.65, 3.67, 3.73.
Week 1–2	Jan. 5 to Jan. 16	Atomic structure, periodic trends, Lewis structures, VSEPR, bonding, Intermolecular forces.	Periodic Table Los Alamos Chemicool VSEPR tutorial Question of the Week **Atomic and Molecular Structure Practice Quiz**	***Review: 7.1 – 7.4** Ch 7, 7.5 Ch 8, 8.1 – 8.7 Ch 9, 9.2 – 9.9 Ch 10, 10.1 – 10.4 Ch 11, 11.5	Chapter 7: 7.25, 7.33, 7.37, 7.45, 7.69, 7.87, 7.97, 7.105, 7.107. Chapter 8:8.16, 8.21, 8.24, 8.39, 8.43, 8.49, 8.61, 8.63, 8.65, 8.81. Chapter 9:9.43, 9.45, 9.49, 9.57, 9.59, 9.63, 9.65, 9.69, 9.71, 9.77, 9.93, 9.97, 9.99, 9.123. Chapter 10: 10.27, 10.31, 10.33, 10.35, 10.39, 10.41, 10.45, 10.49, 10.53, 10.65, 10.69, 10.73, 10.93 Chapter 11: 11.63, 11.69, 11.71.
Quiz #1 – Atomic & Molecular Structure **closes Wed. Jan. 21, 11:59 pm**.					
Week 3–4	Jan. 19 to Jan. 30	Stoichiometry & Reactions.	*Stoichiometry* e-lectures: topics 4 – 6 Nomenclature Practice Titration and Analysis Problem Question of the Week **Stoichiometry & Reactions Practice Quiz A + B**	Ch 3, 3.6 – 3.8 Ch 4, 4.1 – 4.4, 4.7 – 4.10 ***Review Ch 5, 5.1 – 5.5**	Chapter 3: 3.24, 3.81, 3.83, 3.89, 3.91, 3.93, 3.97, 3.103, 3.105**,** 3.117, 3.119, 3.129, 3.131. Chapter 4: 4.31, 4.35, 4.37, 4.39, 4.41, 4.43, 4.51, 4.69, 4.71, 4.77, 4.81, 4.85, 4.87, 4.89, 4.93, 4.105, 4.107, 4.109, 4.111, 4.115, 4.119, 4.123, 4.127, 4.135, 4.137, 4.145. Chapter 5: 5.75, 5.77, 5.87, 5.119**,** 5.137, 5.143.
Mon. Feb. 2 ****MIDTERM 1**** 5:40 – 6:40 pm					
Quiz #2 – Stoichiometry & Reactions **closes Wed. Feb. 4, 11:59 pm**.					
Week 5	Feb. 2 to Feb. 6	Equilibrium.	Equilibrium simulation **Equilibrium Practice Quiz** Question of the Week	Ch 14, 14.1 – 14.7	Chapter 14: 14.23, 14.25, 14.35, 14.37, 14.39, 14.41, 14.43, 14.51, 14.53, 14.55, 14.57, 14.59, 14.61, 14.63, 14.73, 14.75, 14.83, 14.87, 14.121, 14.123.
Atomic Spectroscopy Computer Lab –The marking module closes **Sun. Feb. 8, 11:59 pm.**					

Week	Dates	Topics	Online Resources	Text Reference	Text Questions
Volumetric Analysis Computer Lab – The marking module closes **Sun., Mar.1, 11:59 pm.**					
Quiz #3 – Equilibrium, Acids & Bases **closes Wed. Mar. 4, 11:59 pm**.					
Week 6-9	Feb. 9 to Mar. 13	Acids & bases, Salts, Buffers, Titration curves.	Tutorial on Logarithms *Acid-Base* e-lectures, topics 1 – 7 Acids and Bases – Concepts **Acids and Bases Practice Quiz** *Salts* e-lectures, topics 1 – 3 *Buffers* e-lectures, topics 1 – 2 Buffers Animations **Salts and Buffers Practice Quiz** Titration Curves Titration animation **Titration Curves Practise Quiz** Question of the Week	Ch 15, 15.1 – 15.3 Ch 15 15.6 – 15.8 Ch 16, 16.1 Ch 16, 16.3 – 16.7	Chapter 15: 15.27, 15.28, 15.29, 15.31, 15.33, 15.35, 15.51, 15.53, 15.57, 15.59, 15.61, 15.67, 15.71, 15.85, 15.99, 15.107. Chapter 16: Acids & Bases: 16.1, 16.9, 16.23, 16.25, 16.35, 16.39, 16.41, 16.45, 16.51, 16.53, 16.55, 16.57, 16.59, 16.63, 16.65, 16.101, 16.111, 16.115. Salts & Buffers 16.27, 16.29, 16.71, 16.73, 16.75, 16.77, 16.81, 16.83, 16.113, 16.141. Titration Curves: 16.15, 16.31, 16.85, 16.87, 16.89, 16.93, 16.107, 16.109, 16.119, 16.121, 16.135, 16.143.
Gaseous Equilibria Computer Lab – The marking module closes **Sun. Mar. 15, 11:59 pm.**					
Tues. Mar. 17 ****MIDTERM 2**** 5:40 – 6:40 pm					
Quiz #4 – Buffers & Titration Curves **closes Wed. Mar. 18, 11:59 pm**.					
Organic Chemistry Computer Lab –The marking module closes **Sun. Mar. 29**					
Quiz #5 – Organic Chemistry **closes Wed. Apr. 1, 11:59 pm**.					
Week 10–12	Mar. 16 to Apr. 3	Organic chemistry. Final Exam Review.	Structural isomer *Organic nomenclature practice Stereoisomers The Macrogalleria **Organic Chemistry Practise Quiz** Question of the Week	Ch 23, 23.1 – 23.7 Ch 24, 24.1 – 24.2 Organic Chemistry Notes – all questions	Chapter 23: 23.14, 23.25, 23.29, 23.35, 23.39, 23.41, 23.53, 23.55, 23.65. Chapter 24: 24.29, 24.31, 24.53, 24.55.

* Topics marked with an asterisk are not covered in class but will be examined.