

General Chemistry II (CHEM 102)

Winter Term, 2014

Course components:

1) lecture; 2) Online Web-based Learning (OWL); 3) recitation; and 4) laboratory.

Objectives:

At the end of the course, students should be able to:

- understand the concept of the atomic and molecular nature of matter;
- learn the basis of the structure and the physical properties of solids, liquids, and gases;
- understand the factors affecting the chemical reactivity of solids, liquids, and gases;
- solve quantitative problems with stoichiometry, chemical equilibria, and the rates of chemical reactions;
- use chemical terminology and units of measures correctly;
- run elementary chemistry experiments and interpret experimental data using appropriate software tools.

Lecturers:

- Dr. **Monica Ilies**; Chemistry Department; Office: Disqué 224 [course coordinator]
 - Lecture E (honors): Mon, Wed, Fri; 2:00-2:50 PM; Disqué 103
 - Lecture F: Mon, Wed, Fri; 4:00-4:50 PM; Disqué 103
- Dr. **Daniel King**; Chemistry Department; Office: Disqué 509
 - Lecture A: Mon, Wed, Fri; 9:00-9:50 AM; Disqué 103
- Dr. **Molly O'Connor**; Chemistry Department; Office: Stratton 410
 - Lecture B: Mon, Wed, Fri; 12:00-12:50 PM; Disqué 103
- Dr. **Susan Rutkowsky**; Chemistry Department; Office: Disqué 412
 - Lecture D: Mon, Wed, Fri; 1:00-1:50 PM; Disqué 103
- Dr. **Dora Schnur**; Chemistry Department; Office: Disqué 403
 - Lecture C: Mon, Wed, Fri; 11:00-11:50 AM; Disqué 103

First e-mail contact for general course inquiries:

Dr. Monica Ilies: mi73@drexel.edu

First e-mail contact for OWL inquiries:

Dr. Paul Deroo: pwd26@drexel.edu

First e-mail contact for laboratory and recitation inquiries:

The corresponding instructors (see contact information posted to the course website).

Course Website: <https://learn.dcollege.net>

Note: Most of our communication will be by e-mail and via the course website. **Please check the course website and your Drexel email account regularly.**

Required Course Materials:

Note: Please read the **CHEM 102 welcome e-mail** for instructions. This e-mail is also posted on the course website, in case you did not receive it.

If you took CHEM 101 at Drexel University last fall and bought a 24-months version of the OWL, you do NOT need to purchase ANY new materials.

a) Textbook:

J.W. Moore, C.L. Stanitski, and P.C. Jurs, *Chemistry - The Molecular Science*, 4th Ed., Thomson/Brooks/Cole, 2010.

b) Laboratory Manual:

E. Thorne, *Laboratory Manual for General Chemistry, Drexel University, CHEM 101/CHEM 102 Academic Year 2013-2014*.

c) Supplementary Materials

a) **OWL account code**, either as part of the textbook bundle OR purchased separately at the following website:

<http://www.cengagebrain.com/shop/en/US/storefront/US?cmd=catProductDetail&ISBN=978-0-495-05099-5>

Notes:

a₁) OWL accounts cannot be shared or reused.

a₂) **If you purchased the 24-months version of the OWL for CHEM 101, you do NOT need to purchase a new OWL code.**

b) A **simple scientific calculator** for use in labs and exams.

Note: A periodic table will be provided as part of your test package at the time of each exam.

c) A pair of **safety glasses or goggles** and a **lab coat** that **must** be worn **at all times** in the laboratory.

1. Grading Structure:

Activity	% Grade	Additional Information
Exams	35	Please see section 3.
Final Exam	25	Please see section 4.
OWL Assignments	10	Do NOT register for OWL before reading the OWL Instructions posted on the course website.
Recitation	10	Please see section 5.
Labs	20	Please see section 6.
Total	100	

Grading policy:

Exact grade boundaries will be determined at the end of the term in a meeting with all lecturers. As a general criterion, students who meet all the requirements will earn grades in the following ranges:

A- to A+ if they score **at least 90%** overall; **B- to B+** if their final score $\geq 80\%$; **C- to C+** if final score $\geq 70\%$; **D to D+** if final score $\geq 60\%$. Questions about final grades should be raised as soon as possible.

For lab, recitations, and OWL grades, please contact your corresponding instructors. The contact information for all course instructors is posted on the course website. The course instructor(s) may contact you via e-mail if there are problems with your grades.

2. Lectures:

Lectures will be given on topics and sections of the text listed in the Course Schedule (see **p. 8**). Some of the subject matter not covered in lecture will be covered in lab. Some of the lecture material will be posted to the course website, while some things will be discussed only in class. Therefore, **constant attendance in lectures is highly recommended**. **Not all required material will be covered in lecture**. You are responsible for all material in the sections of the text listed on the Course Schedule, whether covered in lecture or not. **The Course Schedule is provided as a guide and will be revised if dictated by prevailing circumstances** (e.g., pedagogical purposes; level of students' knowledge, etc.). **Cell phone use is disruptive to the classroom environment; hence instructors have the right to prohibit it during classes.**

3. In-term exams: non-cumulative

Three, 50-min. exams will be given at **8:00 AM**, on the dates indicated in the Course Schedule (see **p. 8**). **Locations of these exams will be posted on the course website and also announced in class.**

Each in-term exam will consist of about **25 multiple-choice questions**. **Exams may include questions on lab material**. **The average of the three in-term exams will represent 35% of the final course grade.**

After the exam starts, no student will be allowed to leave the testing room without handing in the exam. **Once a student leaves the testing room, he/she will not be allowed to re-enter it for any reason.** Students arriving late to the exam, after any other student has left, will not be permitted to take the exam. All students are responsible for bringing to the exam their own operational writing instruments and calculators - **no sharing will be allowed**. A periodic table (as the last page of the test) and values of important constants will be provided as needed. **No other materials will be allowed.**

It generally takes 2-5 school days for grades to be reported back to students.

The use of active cell phones and random-access devices (e.g., MP3 players, tablets, iPods) is NOT ALLOWED in exam rooms. **Cell phones MAY NOT be used as calculators or watches on exams.**

There will be an opportunity during the last week of classes to make up **ONLY ONE missed exam**. The make-up exam will include material covered after the third exam and will be taken at the same time by all students who are eligible to take it. **To be eligible to take the make-up exam, you have to e-mail the course coordinator with a reasonable explanation for missing the initial exam.** Eligible students

will be notified by email (on their **Drexel e-mail accounts**) regarding the date, time, and location of the exam. *The make-up exam can only be used to replace a missed exam, NOT to improve a grade on an exam that was taken.* There will be **no opportunity to retake the make-up exam**, regardless of the reason for missing it.

4. Final Exam: cumulative

The final exam will be a **2-hr exam** held during the final exams week. The date, location and start time will be set by the University, announced in class, and posted to the course website. The final exam will consist of about **45 multiple-choice questions** and will represent **25% of your final grade**. **Students who do NOT score at least 45 on the final exam will NOT pass the course**, regardless of their prior performance in the course. **All rules mentioned in Section 3 apply to the final exam, too.** **There is NO MAKE UP FOR THE FINAL EXAM. Students MUST be present for the final.**

Final Exam Week is Tue, March 18th – Sat, March 22nd. Students should expect to be at Drexel the entire week. The final exam will NOT be rescheduled to accommodate travel plans.

5. Recitations:

Recitations are designed to give you experience in explaining and working problems. Recitation instructors are prepared to answer *any* question in this chemistry course, but priority will be given to those on the current subject matter. Students are expected to solve the **problems assigned for Recitation** (listed in the **Course Schedule** - see p. 8) **before** coming to class. It is expected that **students in the honors sections** will have fewer questions about the regular problems assigned for recitation, since they are supposed to have a better background for a deeper understanding of the material. Consequently, **additional problems** with a higher degree of difficulty are assigned to these sections, so that honors students can develop specific critical thinking skills.

Recitation grades will be determined based on both **participation and attendance**. Since there are 10 Recitations, **each missed recitation** will translate into **10 points lost** (5 points for attendance and 5 points for participation). If you cannot attend your regularly scheduled recitation, you **must** attend another recitation **that same week** and **sign in**, with that instructor's permission, to earn credit for that week. **You must notify your regular instructor to let him/her know that you attended another recitation.** You do not need to inform the course coordinator about making up recitations. **You are responsible for finding out the schedule of different recitation sections and for arranging the make-up with the corresponding instructors.** **You may only make up 3 recitations during the term. You can attend another recitation class more than 3 times, but NOT for credit.**

Note: Recitations scheduled to meet on **Mon, Jan. 20 (MLK University Holiday)**, will be **cancelled**. Students in these sections are encouraged to attend another recitation that week, but will **NOT** lose points if they do not attend another recitation. **These students will have an extra recitation on Mon, Mar. 17, so all students have 10 recitation classes.**

6. Laboratories:

Laboratory supplements the course material by offering you training in basic experimental techniques, as well as in recording and reporting of experimental results. **You will have a chemistry lab every other week, beginning in week 2 for even-numbered lab sections OR week 3 for odd-numbered lab sections** (see the Laboratory Schedule below).

Laboratory Schedule: Disque Hall (see Notes below for exceptions)

	Lab 1	Lab 2	Lab 3	Lab 4
Title	Exp. # 5 Ester Preparation (non-Honors only) OR Exp. #9 Separating Mixtures (Honors only)	Exp. #6 Kinetics of Alcohol Oxidation	Exp. #7 Acids & Bases	Exp. #8 Electro-chemical Cells
Even Number Lab Section	Week of January 13 th	Week of January 27 th	Week of February 10 th	Week of February 24 th
Odd Number Lab Section	Week of January 20 th *	Week of February 3 rd	Week of February 17 th	Week of March 3 rd

***Note:** Labs for sections 63, 65, 67, 69 will NOT run on Mon, Jan. 20th (MLK Holiday). These labs will run on Mon, Jan. 13th, in Disqué 302, at the same time as the originally scheduled labs.

Each student is required to submit an individual lab report for each lab experiment. The average of the scores for all lab reports **must be at least 55% to pass the course**. If you are retaking CHEM 102, you may be able to use the lab grade you earned during the previous term. You **must** e-mail the course coordinator to determine if you are eligible to take advantage of this opportunity.

Lab reports are due **one week after you do the lab** (before the building closes at 10 PM). You should submit your lab report by placing it in your **lab instructor's slot box** (across from Disqué 304 - see the yellow sign on the mail slot furniture, in the hallway, near the entrance to the Chemistry Office). Ensure that the **cover page** of your report displays: **your name and the name of your instructor**; course number; **lab section number**; and the title of the experiment. A **blank cover page** and **grading rubrics** are available on the **course website** in the "Lab Reports Info" folder. To write lab reports, **use the corresponding grading rubrics** and **all the additional information** given in the "Treatment of the Data" section for each experiment in your lab manual.

You are required to submit a **legible, handwritten** procedure **at the beginning of each lab**, which is worth **5 points** of your lab report grade. This procedure should be a brief summary of the experimental procedure in your lab manual (write it as concise steps). If you do not hand in the procedure, you will still be allowed to complete the lab, but you will lose the 5 points associated with that report component. **Late submissions of the procedure will not be accepted.**

Data sheets must be signed by the instructor prior to your leaving the lab, and then must be attached to the corresponding lab reports. Data sheets **may be shared with your lab partner only!**

You may collaborate with lab partners on the calculations, but the rest of the report must represent your individual work. **Any lab reports that are full or partial copies of any other source (INCLUDING THE LAB MANUAL) will receive zero (0) points.** Five points will be deducted for **each day** (NOT including weekends or holidays) that **the lab report is late**. Lab reports submitted **more than 2 weeks late** will NOT be accepted. **Failure to submit the lab report** after performing an experiment will result in **not more than 20 points** score for that lab (15 points for performing the experiments + 5 points for the handwritten lab procedure handed on time).

Everyone MUST wear a long-sleeve lab coat and safety glasses or goggles while in the lab. Prescription glasses must be covered with safety goggles unless written documentation is provided to the instructor that indicates that the lenses meet or exceed the ANSI Z87 1-1989 standard and are equipped with side shields. **Shorts or open-toed shoes are NOT ALLOWED.** All students must sign a form stating that you understand and will abide by this policy prior to being allowed to work in the lab.

If you are more than 5 minutes late to lab, you will NOT be permitted to perform the experiment at that time. If you miss a lab, try to make up that lab in one of the other sections (the same experiment runs for 2 consecutive weeks), **with that instructor's permission** (due to safety regulations, the number of persons allowed in the lab at one time is limited, and the instructor may deny your participation in another section, if that section is at capacity). **The lab schedule for all sections is usually posted on the wall outside the corresponding lab rooms.** You **must** let your regular instructor know that you have made up the lab. In the case of a make-up, your lab report is due to your **regular** lab instructor one week after the experiment was performed. If you are unable to make up the missed lab during the two weeks that it is running, you **must make up the lab during the make-up lab day (see p. 8).** You can make up **ONLY ONE** experiment during the make-up lab day. Therefore, **you are strongly advised to attend all of your regularly scheduled lab sessions.**

Notes: 1) **Make-up labs DO NOT run in the same room or at the same time as your regular labs.**

You will be informed about the location of the make-up labs.

2) The make-up lab day can **ONLY** be used for experiments that were missed, NOT to improve a lab grade OR to redo an experiment where a lab report was never submitted.

7. Academic Honesty and/or Cheating:

Students are held to the highest expectations and standards regarding honesty in all aspects of the course, including taking exams and writing laboratory reports. Cheating, **including misrepresentation of the work of others as your own**, will not be tolerated. **Please understand plagiarism and do NOT commit it.** Cases of cheating will be reported to the College of Arts and Sciences and the University. **Students caught cheating will receive an F grade** for the assignment and/or course. For more information, please see the material provided by the following link:

http://www.drexel.edu/provost/policies/academic_dishonesty.asp

8. Disability Services:

Students with disabilities should see material under the following link:

<http://www.drexel.edu/oed/disabilityResources/Overview>

Students with disabilities who wish to request special accommodations at Drexel University **must present a current accommodation verification letter (“AVL”) to the course coordinator at least 7 days before** the time at which accommodations will be made. AVL's are issued by the Office of Disability Resources (“ODR”); <http://www.drexel.edu/oed/policies/forms>. **Once submitted, the AVL letter is valid for all exams, including the final exam. Students with special accommodations will be e-mailed by the course coordinator about their specific exam room and procedures. Accommodations will NOT be made if the AVL is first provided on the day of the exam.**

How Will You Learn Chemistry in This Course?

It has been our experience in the past that to do well in this course, you must spend at least two hours on chemistry for every hour you spend in class (three hours is recommended). However, the exact time of study needed to be successful really depends on your previous background and personal style of study. We recommend focusing on successfully completing the homework assignments, but don't ignore the extra questions at the end of the chapter. The assignments provided should prepare the “average” student to get the “average” grade. Higher grades require more practice. The more you practice chemistry (for example, by solving problems), the faster you will be able to get through the easy problems on an exam and thus have more time to think about the more difficult ones.

There is **free tutoring** (no appointment necessary) available for additional help in **Stratton 106**. **Tutoring hours will be announced during the first week of the term.** Help on how to study is also available through the **Drexel Learning Center (DLC), in Creese Student Center, Room 050** (Phone: 215-895-2568).

~ Wish you much success for the Winter term '14 at Drexel ! ~

Drexel CHEM 102 Teaching Team

Course Schedule

Week	Component	Monday	Tuesday	Wednesday	Thursday	Friday
1	Date	1/6/2014	1/7/2014	1/8/2014	1/9/2014	1/10/2014
	Lecture topic	3:3-4; 8:3,5	8:11; 9:2 (chirality)			6:11; 12:1,3-5
	Recitation	Ch. 3: 4, 23, 24, 26, 27; Ch. 8: 27, 31, 72, 73; <u>Honors</u> : Ch. 3: 12; Ch. 8: 25				
	Lab	No lab this week				
2	Date	1/13/2014	1/14/2014	1/15/2014	1/16/2014	1/17/2014
	Lecture topic	12:6-7		11:1-2		11:3-6
	Recitation	Ch. 9: 28; Ch. 12: 4, 9, 13, 22, 28, 42; <u>Honors</u> : Ch.12: 91				
	Lab	Exp. 5 or 9, even-numbered Lab Sections (and 063, 065, 067, 069 in Disque 302)				
3	Date	1/20/2014	1/21/2014	1/22/2014	1/23/2014	1/24/2014
	Lecture topic	NO CLASSES		11:7-10		5:6; 13:1
	Recitation	(MLK Holiday) Ch. 12: 15, 16, 62, 82, 94; Ch. 11: 17, 28, 46, 105; <u>Honors</u> : Ch. 11: 48,52				
	Lab	Exp. 5 or 9, odd-numbered Lab Sections (except 063, 065, 067, 069)				
4	Date	1/27/2014	1/28/2014	1/29/2014	1/30/2014	1/31/2014
	Lecture topic	13:2-3		13:4-6		13:7-9
	Recitation	EXAM 1 Ch. 11: 87, 93, 114; Ch. 5: 70, 73; Ch. 13: 1, 3, 26, 29 <u>Honors</u> : Ch. 11: 75, 104, 105				
	Lab	Exp. 6, even-numbered Lab Sections				
5	Date	2/3/2014	2/4/2014	2/5/2014	2/6/2014	2/7/2014
	Lecture topic	14:1-2		14:3-4		14:5,6
	Recitation	Ch. 13: 37, 51, 56, 97, 104 Ch. 14: 2, 10, 20, 29 <u>Honors</u> : Ch. 14: 37				
	Lab	Exp. 6, odd-numbered Lab Sections				
6	Date	2/10/2014	2/11/2014	2/12/2014	2/13/2014	2/14/2014
	Lecture topic	14:8; 15:1,3		16:1-2		16:3-4
	Recitation	EXAM 2 Ch. 14: 57, 62, 81; Ch. 15: 1, 4, 29, 31, 93; <u>Honors</u> : Ch. 14: 47;				
	Lab	Exp. 7, even-numbered Lab Sections				
7	Date	2/17/2014	2/18/2014	2/19/2014	2/20/2014	2/21/2014
	Lecture topic	16:5		16:6-7		17:1
	Recitation	Ch. 16: 13, 15, 23, 37, 48, 59, 61; <u>Honors</u> : Ch. 16: 67, 127;				
	Lab	Exp. 7, odd-numbered Lab Sections				
8	Date	2/24/2014	2/25/2014	2/26/2014	2/27/2014	2/28/2014
	Lecture topic	17:2		17:4-6		18:1-3
	Recitation	EXAM 3 Ch. 17: 1, 3, 5, 15, 20, 22, 24, 26 <u>Honors</u> : Ch. 17: 40, 92				
	Lab	Exp. 8, even-numbered Lab Sections				
9	Date	3/3/2014	3/4/2014	3/5/2014	3/6/2014	3/7/2014
	Lecture topic	18:4-5		18:6-7		19:1-2
	Recitation	Ch. 17: 44, 51, 61, 63; Ch. 18: 4, 35, 51 <u>Honors</u> : Ch. 17: 98; Ch. 18: 121				
	Lab	Exp. 8, odd-numbered Lab Sections				
10	Date	3/10/2014	3/11/2014	3/12/2014	3/13/2014	3/14/2014
	Lecture topic	19:3-4		19:5-7		19:9-12
	Recitation	Ch. 18: 57, 79, 119; Ch. 19: 33, 36, 38 <u>Honors</u> : Ch. 18: 62; Ch. 19: 54				
	Lab	MAKE UP LAB DAYS: Tue, 3/11; 9-5 PM; rooms TBA				
11	Date	3/17/2014	3/18/2014	3/19/2014	3/20/2014	3/21/2014
	Lecture topic	Review FINAL EXAM WEEK (Tue, 3/18 - Sat, 3/22)				