

# General Chemistry I (CHEM 101)

Fall Quarter, 2013

## 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 that chemical reactions transform matter from one substance to another;
- answer qualitative questions about foundational chemistry topics, such as the electronic structure of atoms and molecules, properties of elements and compounds, and chemical bonding;
- solve quantitative problems involving chemistry topics, such as stoichiometry, thermochemistry, and properties of gases;
- 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): Tue, Thu; 2:00-2:50 PM; Disqué 103
- Dr. **Anthony Addison**; Chemistry Department; Office: Disqué 418
  - Lecture D: Tue, Thu; 1:00-1:50 PM; Disqué 103
- Dr. **Daniel King**; Chemistry Department; Office: Disqué 509
  - Lecture A: Wed, Fri; 9:00-9:50 AM; Disqué 103
  - Lecture C: Tue, Thu; 11:00-11:50 AM; Disqué 103
- Dr. **Molly O'Connor**; Chemistry Department; Office: Stratton 410
  - Lecture B: Wed, Fri; 12:00-12:50 PM; Disqué 103
- Dr. **Susan Rutkowsky**; Chemistry Department; Office: Disqué 412
  - Lecture F: Tue, Thu; 12:00-12:50 PM; Disqué 103

## First e-mail contact for general course inquiries:

Dr. Monica Ilies: [mi73@drexel.edu](mailto:mi73@drexel.edu)

## First e-mail contact for OWL inquiries:

Dr. Paul Deroo: [pwd26@drexel.edu](mailto:pwd26@drexel.edu)

## First e-mail contact for laboratory and recitation inquiries:

Please see the contact information for the corresponding instructors (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 101 welcome e-mail for instructions about how to purchase course materials. The welcome e-mail is also posted on the course website in case you did not receive it.

### a) Textbook:

J.W. Moore, C.L. Stanitski, and P.C. Jurs, *Chemistry - The Molecular Science*, 4<sup>th</sup> 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 (24 months) 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:

a<sub>1</sub>) OWL accounts cannot be shared or reused.

a<sub>2</sub>) Since all course materials will be used for CHEM 101 and CHEM 102 courses to be offered in the Fall, Winter, and Spring Terms of 2013-2014, you **CANNOT** buy the 6-month version of the OWL because it will expire before the end of the Winter term. **Do not lose the OWL access card, or you will be required to purchase a new code to replace it.**

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	<b>Do NOT register for OWL before reading the OWL Instructions email sent to you right after the Welcome e-mail.</b>
Recitation	10	Please see section 5.
Labs	20	Please see section 6.
<b>Total</b>	<b>100</b>	

## Grading policy:

Exact grade boundaries will be determined at the end of the term. 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  $\geq 60\%$ . There is no **D-** in this course. Questions about final grades should be raised as soon as possible. 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 class.**

## 3. In-term exams: non-cumulative

**Three, 50 min exams** will be given as **indicated in the Course Schedule** (see **p. 8**). Dates, times and 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 grade** for the course.

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 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.

**Active cell phones and the use of random-access devices (e.g., MP3 players, tablets, iPods) are NOT ALLOWED in exam rooms. Cell phones MAY NOT be used as a calculator 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, a student must submit an application (available on the course website) by 11/25/13 that includes a reasonable explanation for missing the initial exam. Eligible students will be notified by email 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 hrs 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 represents **25% of your final grade**. A student who does **NOT score at least 45 on the final exam will NOT pass the course**, regardless of his/her 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 Mon, Dec. 9 – Sat, Dec. 14. 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 also 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 presented each week. Consequently, **additional problems** with a higher degree of difficulty are assigned to these sections. The aim is for honors students to 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 may only make up 3 recitations during the term.**

**Note:** Recitations scheduled to meet on **Mon, Oct. 14 (Columbus Day Holiday)**, and between **10 AM and 1 PM on Tue, Oct. 22 (Convocation)**, will be **cancelled**. Students are encouraged to attend another recitation that week, but will **not** lose points if they do not attend another recitation. **The Oct. 14<sup>th</sup> recitations will be made up on Mon, Nov. 25<sup>th</sup>, but the Oct. 22<sup>nd</sup> recitations will not be made up.**

#### 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** on the next page).

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

	<b>Lab 1</b>	<b>Lab 2</b>	<b>Lab 3</b>	<b>Lab 4</b>
<b>Title</b>	Exp. #1 Conductivity of Solutions	Exp. #2 Stoichiometry and Limiting Reagents	Exp. #3 Spectroscopy	Exp. # 4 Determination of Molar Mass by Freezing Point Depression
<b>Even Number Lab Sect.</b>	Week of September 30 <sup>th</sup>	Week of October 14 <sup>th</sup> *	Week of October 28 <sup>th</sup>	Week of November 11 <sup>th</sup>
<b>Odd Number Lab Sect.</b>	Week of October 7 <sup>th</sup>	Week of October 21 <sup>st</sup> *	Week of November 4 <sup>th</sup>	Week of November 18 <sup>th</sup>

\***Notes:** a) Labs for sections **64H, 66, 68H, and 70** will **NOT** run on **Mon, Oct. 14<sup>th</sup>** (Columbus Day holiday). These labs will instead run on **Mon, Oct. 21<sup>st</sup>**, in **Disqué 302**, at the same time as the originally scheduled labs.

b) Labs for sections **73, 75 and 125** will **NOT** run on **Tue, Oct. 22<sup>nd</sup>** (Convocation). These rescheduled labs will run on **Tue, Nov 26<sup>th</sup>**, at their regular times and rooms.

For each lab experiment, each student is required to submit an individual lab report. The average of the scores for all lab reports **must be at least 55% to pass the course**. If you are retaking CHEM 101, you may be able to use the lab grade you earned during the previous term. You **must** contact 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** (same day, 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 scales** are available on the **course homepage** in the "**Lab Reports Info**" folder. To write lab reports, **use the corresponding grading scale** 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 steps, with bullets). 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. The handwritten lab procedures will be signed by the instructor, and then attached to your lab report when you hand it in the following week.**

**Data sheets** must be attached to the corresponding lab reports and **must be signed by the instructor prior to your leaving the lab**. The 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 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 the signed data sheet + 5 points for the handwritten lab procedure).

**Everyone MUST wear a 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 too crowded). You **must** let your regular instructor know that you have made up the lab. In this case, 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 week (see p. 8)**. You can make up **ONLY ONE** experiment during the make-up lab week. Therefore, **you are strongly advised to attend all of your regularly scheduled lab sessions.**

**Note:** 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 in the preparation of 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 a failing (F) grade** for the assignment and/or course.

For more information, see material in “Academic Dishonesty” under the “Academic Policies” tab at the following link: [http://drexel.edu/studentaffairs/community\\_standards/studentHandbook/](http://drexel.edu/studentaffairs/community_standards/studentHandbook/)

### **8. Disability Services:**

Students with disabilities should see material under the “Health and Disability Services” tab at the following link: [http://drexel.edu/studentaffairs/community\\_standards/studentHandbook/](http://drexel.edu/studentaffairs/community_standards/studentHandbook/)

Students with disabilities who wish to request special accommodations at Drexel University need to present a current accommodation verification letter (“AVL”) to one of the instructors before

accommodations can be made. AVL's are issued by the Office of Disability Services (“ODS”); <http://www.drexel.edu/ODS/index.html>. **Any student requesting special testing accommodations must contact Dr. Ilies at least seven (7) days prior to the exam. 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**, at the following times: **Mon and Fri, 9:00 AM - 1:00 PM; Wed, 1:00-6:00 PM; Thu, 9:00 AM - 4:00 PM.** Help on how to study is also available through the **Drexel Learning Center (DLC), in Creese Student Center, Rm 050** (Phone: 215-895-2568).

**~ We wish you much success for the Fall term '13 at Drexel ! ~**

**Drexel CHEM 101 Teaching Team**



### Course Schedule

Week	Component	Monday	Tuesday	Wednesday	Thursday	Friday
1	Date	9/23/2013	9/24/2013	9/25/2013	9/26/2013	9/27/2013
	Lecture topic	Review Ch. 1-5		Review Ch. 1-5		
	Recitation	Ch 1: 29,92 Honors: 102; Ch 2: 64,69,92 Honors: 127; Ch 3: 41,126				
	Lab	No lab this week				
2	Date	9/30/2013	10/1/2013	10/2/2013	10/3/2013	10/4/2013
	Lecture topic	Review Ch. 1-5		Review Ch. 1-5		
	Recitation	Ch. 3: Honors 153; Ch 4: 19,124,125 Honors: 126; Ch 5: 45,49				
	Lab	Exp. 1, even-numbered sections				
3	Date	10/7/2013	10/8/2013	10/9/2013	10/10/2013	10/11/2013
	Lecture topic	Rev. Ch. 1-5; 7:1-2 (light)		7:3-4 (atomic model) <b>EXAM 1</b>		
	Recitation	Ch 5: 95,129 Honors 130,137; Ch 7: 11,15,25				
	Lab	Exp. 1, odd-numbered sections				
4	Date	10/14/2013	10/15/2013	10/16/2013	10/17/2013	10/18/2013
	Lecture topic	<b>NO CLASS</b>	7:5-6 (orbitals)	7:7-8 (config.)		
	Recitation	Ch 7: 31,38,70,83,141 Honors 134,CP7.A				
	Lab	Exp. 2, even-numbered sections (except 64H, 66, 68H, and 70)				
5	Date	10/21/2013	10/22/2013	10/23/2013	10/24/2013	10/25/2013
	Lecture topic	7:9-12 (periodicity)		6:1-4 (thermochem.)		
	Recitation	Ch 7: 97,127 Honors 145,152; Ch 6: 28,32,36,59				
	Lab	Exp. 2, odd-numbered sections (except 73, 75, and 125)				
6	Date	10/28/2013	10/29/2013	10/30/2013	10/31/2013	11/1/2013
	Lecture topic	<b>EXAM 2</b>	6:5-8 (thermochem.)	6:9-10 (thermo.)		
	Recitation	Ch 6: 83,91,101,109,145 Honors 167,174a-c				
	Lab	Exp. 3, even-numbered sections				
7	Date	11/4/2013	11/5/2013	11/6/2013	11/7/2013	11/8/2013
	Lecture topic	8:1,2,4 (bonding)		8:6-8 (bonding)		
	Recitation	Ch 8: 13,48,53,82,89 Honors 121,122,124				
	Lab	Exp. 3, odd-numbered sections				
8	Date	11/11/2013	11/12/2013	11/13/2013	11/14/2013	11/15/2013
	Lecture topic	<b>EXAM 3</b>	8:9-10; 9:1-2 (VSEPR)	9:2,5 (mol. struct.)		
	Recitation	Ch 8:68,93 Ch 9: 13,14,28 Honors 102,109,112				
	Lab	Exp. 4, even-numbered sections				
9	Date	11/18/2013	11/19/2013	11/20/2013	11/21/2013	11/22/2013
	Lecture topic	9:6 (forces); 10:2-3 (gases)		10:4-6 (gases)		
	Recitation	Ch 9: 51,62 Ch 10: 2,18,42,50 Honors 133,135,CP10.B				
	Lab	Exp. 4, odd-numbered sections				
10	Date	11/25/2013	11/26/2013	11/27/2013	11/28/2013	11/29/2013
	Lecture topic	Thanksgiving				
	Recitation	<b>NO CHEM 101 CLASSES TUESDAY-FRIDAY</b>				
	Lab	Except Exp. 2 for sections 73, 75, and 125				
11	Date	12/2/2013	12/3/2013	12/4/2013	12/5/2013	12/6/2013
	Lecture topic	10:7,8,11 (gases)			Review	
	Recitation	Ch 10: 60,75,126 Honors 137,141				
	Lab	<b>MAKE UP LAB: Tue(12/3) and Wed (12/4)</b>				
12	Date	12/9/2013	12/10/2013	12/11/2013	12/12/2013	12/13/2013
		<b>FINAL EXAM WEEK (12/9-12/14)</b>				