

## General Chemistry I

**CHEM 111-900 (4 credits)**

**Winter, 2014**

### **Course Description:**

Introduces the principles of general chemistry. Covers SI units, unit factor calculations, states of matter, elements and compounds, energy, atoms, electronic configurations, ionic and covalent bonds, Lewis dot structures, shapes of molecules, chemical equations, stoichiometry, molarity, gas laws, nuclear chemistry, equilibrium between different states of matter, and some colligative properties of solutions.

### **Objectives:**

- Develop an understanding of the basic principles of atomic and molecular structure
- Develop chemical accounting skills needed to perform calculations based on reaction stoichiometry, solution concentration, equilibrium constants and gas laws.
- Develop understanding of principles of chemical reactivity including reaction driving forces, rates and equilibrium.
- Encourage critical thinking about the role of chemistry in society, health, and the environment.
- Enhance appreciation of the role of chemistry in improving our lives.
- Learning goals for each topic are stated in the text.

**Course Schedule (1/06/14 - 3/22/14)**

Unit	General Topic	Reading Assignment or Exam Coverage	Homework Due Date or Exam Date
1	Measurements	Chapter 1	1/13/14
2	Energy and Matter	Chapter 2	1/20/14
3	Atoms and Elements	Chapter 3	1/27/14
4	Nuclear Chemistry	Chapter 4	2/03/14
	Mid-Term Exam #1	Covers Units 1-4	2/05/14
5	Compounds and their Bonds	Chapter 5	2/10/14
6	Chemical Reactions & Quantities	Chapter 6	2/17/14
7	Gases	Chapter 7	2/24/14
	Mid-Term Exam #2	Covers Units 5-7	2/26/14
8	Solutions	Chapter 8	3/03/14
9	Chemical Equilibrium	Chapter 9	3/10/14
10	Acids and Bases	Chapter 10	3/17/14
Final Exam	Comprehensive Final Exam	Covers Units 1 - 10	3/19/14

## Contact Information for Course Designer and Instructor

Daniel A. Kleier  
Stratton 414  
Drexel University  
Philadelphia, PA 19104  
Email: [dak48@drexel.edu](mailto:dak48@drexel.edu)  
Telephone: 215-895-1861

### Course web-sites:

<https://learn.dcollege.net/> , <http://www.masteringchemistry.com>

You will always find the most current syllabus (supersedes this version), course schedule and announcements about changes in the course and exams at the blackboard website. A link will also be provided to the Mastering Chemistry website for tutorials, and on-line homework. **You are expected to check these sites regularly.**

### Required textbook:

Karen C. Timberlake, *General, Organic, and Biological Chemistry: Structures of Life, Fourth Edition*, Pearson Benjamin Cummings, 2007 (ISBN-13: 978-0-321-75089-1).

The book can be purchased with an access code to the MasteringChemistry homework site (ISBN-13: 978-0-321-75012-9) from the Barnes & Noble Drexel-University City Main Campus Bookstore (<http://drexel.bncollege.com/>), or ordered online from the publisher ([www.mypearsonstore.com](http://www.mypearsonstore.com)). As a less expensive alternative, you may wish to purchase an eText version of this book (ISBN-13: 978-0-321-76693-9) at [www.mypearsonstore.com](http://www.mypearsonstore.com) or at the MasteringChemistry website where you will be doing your homework assignments (see below). It's important you buy this book because:

- There will be required reading from the book
- Homework assignments will come from the book
- I will test on material from the book
- It will help you get a better grade in my course

## Required Access to Online Tutorials and Homework:

I will also be using **MasteringChemistry**, an online program that includes tutorials, and exercises. This is where your weekly homework assignments will appear. You can also purchase access to an electronic version of the text at the Mastering Chemistry site.

- Obtain an access code for "MasteringChemistry" (MC). If you buy a new book from the publisher, you may purchase it with an access code to MasteringChemistry (ISBN-13: 978-0-321-75012-9). An access code can also be purchased separately by clicking on the "Students" button on the MC home page ([www.masteringchemistry.com](http://www.masteringchemistry.com)), selecting "US and Canada", and then selecting "No, I need to buy access" and then following the steps indicated. When you purchase at the MC website you will need to scroll to an image of the textbook. There are several textbooks written by Timberlake, so make sure you select the correct one (see above). It has a picture of a sprig of dark purple olives on the cover.
- Once you have an access code, go to the MC home page ([www.masteringchemistry.com](http://www.masteringchemistry.com)) and register for MC by clicking on the "Students" button and following the instructions. You will select a username and password during the registration process.
- Once you have a username and password, sign in to the MC website ([www.masteringchemistry.com](http://www.masteringchemistry.com)) using the username and password that you specified during registration.
- Click **Yes** to indicate that you have received a Course ID, then join the course by entering the Course ID **MCKLEIERCHEM111W14** and click **Continue**.

**Grading Scheme:**

<b>Activity</b>	<b>% of Final Grade</b>	<b>Additional Information</b>
Mastering Chemistry Homework	25	Homework to be completed online
Mid-term Exams	40	Two 60 minute exams
Final Exam	35	Comprehensive, 120 minute exam
Total	100	

**Grading policy:**

Students who meet all the requirements will earn letter grades according to the following mapping of numeric grades to letter grades.

97 - 100 → A <sup>+</sup>	87 - 90 → B <sup>+</sup>	77 - 80 → C <sup>+</sup>	67 - 70 → D <sup>+</sup>
93 - 97 → A	83 - 87 → B	73 - 77 → C	60 - 67 → D
90 - 93 → A <sup>-</sup>	80 - 83 → B <sup>-</sup>	70 - 73 → C <sup>-</sup>	< 60 → F

**Incomplete Policy:**

A grade of "INC" will only be entered under exceptional circumstances. At the discretion of an instructor, the grade of "INC" (Incomplete) may be reported in place of a letter grade for any course in which the instructor deems that the work has not been completed and that the student can complete the work within an agreed upon time (which must be in accordance with University policy and the statute of limitations governing grade changes). A grade of "INC" may be entered for a student at the time grades are submitted for the course. The conditions and terms for the completion of the course are at the discretion of the instructor and are to be mutually agreed upon by the instructor and the student. It is recommended that a written agreement be developed between the student and instructor to clarify expectations and process. If the grade is not submitted within one full academic year, the "INC" will turn into an "F" on the student's record and be reflected in the student's GPA. The grade of "F" will be considered a permanent grade.

Any questions about final course grades should be raised as soon as possible;

## Final Examination Policy for Seniors in the Spring Quarter

During the spring quarter, averages for degree candidates will be calculated at the end of the 10th week. This average will include the two mid-term exams. The exams will be weighted as 75% of the grade and the MasteringChemistry assignments as 25%. If this estimated average is passing, a graduating senior will have the option of accepting the grade and being exempt from the final. Otherwise, graduating seniors will take a final the first day of the final examination period, regardless of the final examination schedule.

**Academic Dishonesty / Cheating:** Students are held to the highest expectations and standards regarding honesty in all aspects of the course. Drexel University's academic, ethical, and honesty policies apply. Cheating, including misrepresentation of the work of others as your own, will not be tolerated. The honor system requires that all exam work be yours alone and unassisted. Cases of cheating will be reported to the University and the College of Arts and Sciences. Academic dishonesty may result in failure or expulsion.

As part of this policy, students are permitted to use the class discussion board to post questions, and share information related to the weekly homework assignments. See the section on "Homework and Readings" below for more details.

More information on the "Academic Dishonesty" policy is provided by the provost's office at:

<http://www.drexel.edu/provost/policies>

**Lectures:** Lectures will be presented on topics in the order as indicated above. The lectures will be delivered as narrated Flash movies. They will be posted under the "Lectures" heading for the weekly unit on the Blackboard Learn (BBLearn) site for the course. Lectures require that you have a Flash player, unless otherwise noted. [Install Flash Player](#) before you view any lectures. Lecture files in Powerpoint format will also be made available.

**Not all required material will be covered in a lecture. You are also responsible for material in the assigned readings.** The course units will correspond roughly with the weeks of the quarter, but the schedule may be revised if dictated by prevailing circumstances. A course unit will generally run from 7:00 AM on Tuesday to 11:00 PM on the following Monday.

When you view the "Lecture" heading for a unit, you will see files for the topic being covered during the week at hand. Files for topics covered during previous weeks will still be available under earlier unit headings. Within each unit, you will find individual lecture files labeled as "Lecture x: Subject" where x is the sequence number for the lecture, and "Subject" is a short subject line describing the content of the lecture. Usually, there will be 3 lecture files per weekly unit. When you click on the lecture file, it will begin running. You will see my animated notes, and hear me speaking to you. Each Monday, the lecture notes for that week will become available, and will remain available throughout the remainder of the quarter.

## **E-mail and web-based communication**

E-mail communications from the instructor will be sent to the student's official Drexel University e-mail address. The instructor will usually communicate to the students via the "Announcements" section of Blackboard. Students should routinely check their Drexel email and Blackboard for the latest class announcements.

If you are having trouble with your e-mail account, go to <http://accounts.drexel.edu>. For help with your Blackboard account, contact Drexel eLearning technical support using the form found at <http://www.drexel.com/help>. Please limit your e-mail to the instructor to personal questions. All other questions should be posted on the course discussion board.

## **Discussion Board:**

Each week a link to a new discussion forum will be available at the bottom of the Blackboard unit for that week. The discussion board can be used to pose problems, questions and requests related to material covered in the class or homework. Please also feel free to ask questions about the operation of the class, and its administration. Occasionally, a forum may be opened based on a thought-provoking question or assertion designed to generate discussion.

## **Examinations:**

Two time-limited (60 minute) exams will be administered on-line as indicated in the course schedule (see above). Exams will usually be available for three days, but once the exam is begun, it must be completed in a single session. **A timer will be set at the beginning of each exam.**

The exams will consist of multiple choice, matching and short response questions. You will need an operational calculator to complete some of the questions. Grades will normally not be curved.

The exams are "open book". You may use your textbook, notes and any other written materials as resources while completing the exams. Online searches such as Google searches are prohibited. Even though the exams will be "open book", you should prepare for them as though they were closed book. You will not want to waste time searching through your open book or notes for material related to a question.

Furthermore, assistance from live sources is strictly prohibited. By submitting an exam, you are certifying that the work is yours and yours alone. The University academic dishonesty policy strictly prohibits collaborating on a test without authorization, as well as permitting someone else to take a test for you.

**While taking an exam, please do not attempt other operations with your computer since this may result in a loss of connection.** In the event that you are disconnected for some reason beyond your control, please immediately send the instructor an email message describing the reason for the loss of connection. Alternative arrangements will then be made for completion of the exam.

### **Final Examination:**

The final exam will be comprehensive with questions based on all course materials and the assigned readings in the textbook. The final exam will be administered during the exam week and will be time limited (120 minutes). Once the exam is begun, it must be completed in a single session. **A timer will be set at the beginning of the final exam. One percentage point will be deducted from your exam grade for each minute used beyond the limit.** Grades will normally not be curved.

### **Homework and Readings:**

It is the student's responsibility to read the chapters associated with the topic list given above in the course schedule.

Homework assignments will be posted on the MasteringChemistry website which can be accessed directly ([www.masteringChemistry.com](http://www.masteringChemistry.com)) or as a link from the BBLearn homepage for CHEM 111. Unit homework assignments will generally be posted by 7:00 AM on Tuesdays. In order to complete assignments, you must have

access to MasteringChemistry (see above). The completed assignments are due by 11:00 PM on the following Monday. Late assignments are normally not considered for grading. Allow extra time for technology glitches. Under exceptional circumstances, extensions may be granted, but under no circumstances will assignments be accepted after the final Monday of the last unit. Homework will be worth 25% of your final grade.

MasteringChemistry is an online problem solving "tutoring" system. The system encourages students to work through problems, moving incrementally toward a procedural understanding of problem types. Students are guided through the solution of multi-step problems, and roadblocks are removed with wrong-answer-based feedback and on-demand hints.

Students are encouraged to work together on homework related questions through the medium of the class discussion board. The goal of these discussions should be help one another come to a better understanding of the concepts and procedures required to solve the homework problems. Students should feel free to ask and respond to questions related to the homework problems, but should refrain from simply requesting or providing the answer to a homework question. Questions about problem solving strategies, relevant concepts and applicable formulae are good ways to open a meaningful dialogue. Responses that suggest an improved problem solving approach, or point to concepts or equations that are related to the problem are preferred. The instructor plans to monitor the discussions, and will occasionally add to the discussion thread.

**Disability Services:** Students with disabilities who wish to request accommodations and services at Drexel University need to present a current accommodation verification letter ("AVL") to the instructor before accommodations can be made. AVL's are issued by the Office of Disability Services ("ODR"); <http://www.drexel.edu/oed/disabilityResources/students/>.

### **Course drops or withdrawals**

For the latest course drop and withdrawal policy check the following documents: [http://www.drexel.edu/provost/policies/course\\_drop.asp](http://www.drexel.edu/provost/policies/course_drop.asp) and [http://www.drexel.edu/provost/policies/pdf/course\\_withdrawal.pdf](http://www.drexel.edu/provost/policies/pdf/course_withdrawal.pdf)

Course Drop Policy:

Courses may only be dropped during the "drop period" lasting from the beginning of the enrollment period through the end of the second week of the quarter.

Dropping a course results in the course being removed from the student's academic record without a "W" appearing on the transcript—specifically, neither the course nor the grade of "W" appears on the student's transcript. Freshmen and new first-term transfer students must meet with their academic advisors to drop courses during the first quarter. Undergraduate upper-class and graduate students may use BannerWeb to drop courses; no approvals are required for upper-class and graduate students.

#### Course Withdrawal Policy:

For students on the quarter system, the withdrawal period lasts from the beginning of the third week through the end of the seventh week of the term. Specifically, withdrawal from a course taken on the quarter system must be executed by close of the business day on the Friday of the seventh week of the term.

Before withdrawing from a course, students should consult with the instructor. All students must obtain their advisor's written authorization before withdrawing from courses. Written authorization is obtained once the instructor has signed the "ENROLL/WITHDRAW" form.