

# Chemistry 142

## Dr. Heather Patrick

### Spring 2003

#### Course Description

Chemistry 142 is the continuation of Chemistry 141 and, along with the respective labs, completes the two-semester course in General Chemistry. The Chemistry 141-142 sequence is designed for students who plan to major in chemistry or another science and for those who plan on attending medical school, dental school, veterinary school, pharmacy school, or most allied health schools. Topics covered in Chemistry 142 include solution chemistry, transition metal chemistry, chemical kinetics, chemical equilibrium, thermodynamics, acid-base chemistry, electrochemistry, and nuclear chemistry.

#### Course Goals

The goal of the Chemistry 141-142 sequence is to provide an introduction to the study of matter and the changes it undergoes. The course aims to develop a student's analytical, problem solving, and critical thinking skills, and it emphasizes the application of these skills to both macroscale and microscale systems.

Both Chemistry 141 and Chemistry 142 assume a good working knowledge of algebra, and they will provide you with the chemistry background to take further advanced courses in chemistry, such as organic chemistry, physical chemistry, and analytical chemistry. General Chemistry will also prepare you for the chemistry portion of the physical sciences section on the MCAT.

#### Materials

General Chemistry, An Integrated Approach, 3<sup>rd</sup> ed., by Hill and Petrucci

Optional: Study guide, selected solutions manual

Laboratory manual: sold by the Chemistry Department

Carbon-copy lab notebook

Safety glasses

The three materials required for lab must be obtained prior to your first lab meeting.

#### Office Hours

Pierce 202

Mon – Fri 8:30 – 9:30 or by appointment

(770) 784-8396

hpatri2@emory.edu

#### Attendance

You are expected to attend all lectures and lab sessions. If, however, you are absent due to an emergency, you must notify me. You are responsible for all material covered in lecture if absent.

You are allowed 3 absences in lecture and no absences in lab. If you exceed the 3-absence limit for any reason, you will lose 1 point from your final course average for the 4<sup>th</sup> absence, 2 additional points for the 5<sup>th</sup> absence, and 3 additional points for each further absence.

Make-up exams will not be given, regardless of the reason an exam was missed. If you miss an exam and present me with an acceptable excuse, the grade on the final exam will count in place of the missed exam grade. You must notify me by the day and time of the exam that you will not be present, and you must give me the reason for the absence. If the excuse is not considered acceptable, the exam grade will be a zero. It is up to me to make the determination as to whether an excuse is acceptable. Illness or an emergency situation are the only acceptable excuses for missing an exam. Missing an exam also counts as a course absence.

Being late to class is rude and distracting. Therefore, 3 tardies will be treated as 1 absence. If you are more than 15 minutes tardy, you will be counted absent. If you come in late, it is your responsibility to see me immediately after class to ensure that you are marked tardy and not absent. No adjustments will be made at a later time. When you are in class, you must be attentive and not disturb others. Leaving class early counts as an absence, as does sleeping through a class or being generally inattentive.

### Problem Sets

Problem sets will be assigned on a weekly basis, and you are encouraged to work together on these. These will periodically be collected and graded. Although all homework will not be graded, it is imperative that you thoroughly understand all assigned problems. Solutions will be posted outside my office and on electronic reserve after the problem sets have been handed in. It is your responsibility to ensure that you understand the posted solutions to all assigned problems. Since General Chemistry is a problem-oriented course and the tests will consist mainly of problems, it is essential that you become proficient in working them. You should attempt each problem before seeking help from the book, your notes, other students, or the solutions manual. It is not sufficient to be able to follow how a problem is worked; on a test you will have to work a problem through, and the only way you will be able to do this is if you have worked several practice problems.

### Quizzes

Brief, previously announced quizzes will be given sporadically throughout the course. These will be given in the first few minutes of class. Make-up quizzes will not be given, regardless of the reason a quiz was missed. If you miss a quiz and present me with an acceptable excuse, the quiz will not count toward your grade. You must notify me by the day and time of the quiz that you will not be present, and you must give me the reason for the absence. If the excuse is not considered acceptable, the quiz grade will be a zero. It is up to me to make the determination as to whether an excuse is acceptable. Illness and emergency situations are the only acceptable excuses for missing a quiz.

Unannounced quizzes will also be given on occasion. These will cover textbook reading assignments that have been assigned prior to the quiz. The honor code applies to all quizzes.

### Tests

There will be 4 exams, given approximately every 3 – 4 weeks. These will be given in class and will last 50 minutes each. You must take the exam in your regular class time. If you come in late, you will not be given extra time to finish the exam. You may bring only a calculator and pencils; any other material will be given out with the exam. Make sure that your calculator is working and that you know how to use it. The honor code applies to all exams.

### Schedule

Chapter 22, sections 7, 10-12  
Chapter 11  
Chapter 12  
Chapter 13  
Chapter 14  
Chapter 15  
Chapter 16  
Chapter 17  
Chapter 18  
Chapter 19 (if time)  
Chapter 23 (if time)

### Test Schedule

Exam I	Friday, Feb. 7
Exam II	Friday, March 7
Exam III	Friday, April 4
Exam IV	Friday, April 25

Exams may be moved back to the next class meeting if necessary to cover the material. The material covered on each exam will be announced in class.

There will be a cumulative final exam given during the regularly scheduled final exam period.

### Review Sessions

I will hold an optional review session one afternoon each week; the date and time will be announced in class. No new material will be covered in these sessions. This is your opportunity to ask questions that have arisen while studying or ask to see problems worked.

### Preparation for Class<sup>1</sup>

In what has become a seminal article in higher education, Arthur Chickering and Zelda Gamson outlined “Seven Principles for Good Practice in Undergraduate

Education.” Many years of research went into the development of this list, and it has proven itself as an invaluable resource since its inception. Some of these principles involve actions that are your responsibility, some involve actions that are my responsibility, and some involve actions that are our combined responsibility. According to Chickering and Gamson, good practice in undergraduate education:

1) Encourages contact between students and faculty

I will be available for you and responsive to your needs both in and out of class, and it is your responsibility to speak up in class or come to my office when you need assistance. I will also arrange for out-of-class activities where we don't even have to talk about Chemistry (but we might want to, anyway!).

2) Develops reciprocity and cooperation among students

“Good learning, like good work, is collaborative and social, not competitive and isolated.” (Chickering and Gamson, p. 2) When you are struggling with a topic, discuss it with your peers. As mentioned above, you are strongly encouraged to work together on your problem sets. This is where most of your learning will occur!

3) Encourages active learning

Simply sitting in class, listening to lectures, and watching others solve problems will not be sufficient in this class. You must be actively engaged in your studies if you want to succeed.

4) Gives prompt feedback

I will always return and review graded quizzes and tests in the next class period. I will always return graded problem sets in the next class period. As explained above, I will post solutions, and it is your responsibility to review these assignments and ask any questions you have about them.

5) Emphasizes time on task

You will work hard in this class! See Dr. Parker's “Survival Guide” for more details.

6) Communicates high expectations

I expect you to work hard in this class! If you do not know the material inside and out, as well as backward and forward, you will not do well on the exams.

7) Respects diverse talents and ways of learning

Students learn in a wide variety of ways, and I will work with you to find what works for you.

### Honor Code

It is assumed that all Oxford College students will adhere to the highest standards of academic honesty and will uphold the Oxford College Honor Code. Accordingly, I do not proctor exams.

On exams, you may not use any material not distributed with the exam itself except for a calculator and pencils. Any other material you bring into the room must be left at the front of the room. During a quiz or exam, you may not give or receive any assistance. On assignments for outside class (including lab reports), the work is to be your work alone; you may not give or receive any assistance from

other people, and you may only use authorized materials. You may collaborate with other students on your problem sets, but you may not simply copy the work of another student or permit someone else to copy your work.

Since absences and tardies can affect your grade, giving false information about these is a violation of the Honor Code. Note also that the Oxford College Honor Code expects students to report any violations of the Code of which they are aware.

### Laboratory

Your lab instructor will explain the lab procedures to you. The lecture and lab are designed to coordinate so that you will have covered material in class before being required to use that material in lab. As you will note in the next section, your lab grade can either improve or lower your final course average.

### Grading

Your quizzes and problem sets will count as one exam grade, and the final exam will count as two exam grades, giving a total of 7 (4 exams + final counting twice + quizzes/problem sets). The lowest of these 7 grades will be dropped. The average of the remaining 6 grades will constitute the lecture portion of your course grade.

Your lab grade will count in one of two ways, whichever results in a higher grade in the course for you:

(1) Your course grade will be computed by adjusting your grade on the lecture portion using your lab average as shown below:

93 and up	+2	73 – 75	-4
90 – 92	+1	70 – 72	-5
85 – 89	No adjustment	67 – 69	-6
82 – 84	-1	64 – 66	-7
79 – 81	-2	61 – 63	-8
76 – 78	-3	58 – 60	-9
		57 and below	-10

In addition, for every lab report grade below 50, 1 point will be subtracted from your course average.

OR

(2) Your course grade will be computed by taking 80% of your lecture grade and 20% of your lab grade. You must pass both the lecture and the lab portions of the course or you will receive an F.

Grades (after accounting for lecture, lab, and absences) will be assigned as follows, with no rounding:

93 – 100	A	77 – 79	C+
90 – 92	A-	73 – 76	C
87 – 89	B+	70 – 72	C-
83 – 86	B	67 – 69	D+
80 – 82	B-	60 – 66	D
		Below 60	F

#### References

- 1) Chickering, A.W. and Gamson, Z.F. (1987). Seven Principles for Good Practice in Undergraduate Education. AAHE Bulletin, March, 1987.