

# Tentative Syllabus

## CHEM1041 General Chemistry II

MWF 12:20 – 1:15 (please see your schedule for recitation section location and time)

**Instructor: Dr. Daniel Waddell**

**Office: 508 Rieveshl**

**E-mail: [waddeldl@ucmail.uc.edu](mailto:waddeldl@ucmail.uc.edu)**

### **Office Hours (508 Rieveshl)**

Monday, Wednesday, Friday - 1:30-2:30 p.m.

Tuesday, Thursday – 9:30 – 11:00 a.m.

I am more than willing to meet with you by appointment if these times slots do not fit your schedule. Also, please note that email ([waddeldl@ucmail.uc.edu](mailto:waddeldl@ucmail.uc.edu)) is a good way to reach me and I try to respond as quickly as possible (within reason!)

### **Tips for Success in this Course**

1. Attend all lectures and recitation sections
2. Complete all assignments to the best of your ability – do not wait until just before the due date and rush to finish – work through as many practice problems as possible!
3. In addition to assigned work – complete as many practice problems from the book as time allows
4. Keep up to date with the material and ask questions as soon as they arise
5. The SIs, TAs, and I all want you to succeed in this course! Please ask for help before the exams and before you get too far behind. It is too late to change a grade after an assignment or exam has taken place.
6. Chemistry doesn't have to be boring – study with friends – make it a chemistry party!

### **Chapters Covered in Gen Chem II**

Chapter 12 – Intermolecular Forces: Liquids, Solids and Phase Changes

Chapter 13 – The Properties of Mixtures: Solutions and Colloids

Chapter 14 – Periodic Patterns in the Main-Group Elements

Chapter 16 – Kinetics: Rates and Mechanisms of Chemical Reactions

Chapter 17 – Equilibrium: The Extent of Chemical Reactions

Chapter 18 – Acid-Base Equilibria

Chapter 19 – Ionic Equilibria in Aqueous Systems

Chapter 20 – Thermodynamics: Entropy, Free Energy, and the Direction of Chemical Reactions

Chapter 21 – Electrochemistry: Chemical Change and Electrical Work

Chapter 22 – The Elements in Nature and Industry

Chapter 23 – Transition Elements and Their Coordination Compounds

## **Learning Outcomes**

By the end of the semester, each student should be able to:

1. Describe the types of intermolecular forces and explain the role they play in determining the physical properties of a compound.
2. Solve problems involving colligative properties of solutions.
3. Determine the rate of a reaction and its dependence on time, concentration and temperature.
4. Discuss how reaction mechanisms lead to the development of rate laws.
5. Apply the principles of equilibrium to chemical systems including aqueous solutions.
6. Perform calculations involving enthalpy, entropy and free energy.
7. Demonstrate an understanding of the construction and operation of galvanic and electrolytic electrochemical cells.
8. Determine standard and non-standard cell potentials.
9. Predict and describe chemical properties, classification of the elements, and periodic patterns of reactivity.
10. Relate the chemistry they learn to applications and problems in society.
11. Effectively solve chemistry problems that require analytical and interpretative skills and use algebraic methods.

## **A Little Policy:**

### **My expectations**

I will be honest with you and treat you with respect. I expect the same from you towards me and your fellow classmates.

### **Required Course Material**

The following **textbook** is required for Chemistry 1041 (and was also used in Chemistry 1040): Silberberg, "Chemistry, The Molecular Nature of Matter and Change", 6<sup>th</sup> ed. This text is available in a two-volume version, custom printed for UC for Chem. 1040 and Chem. 1041, respectively. The original (national), one-volume version contains exactly the same material as these two volumes combined.

**Online access:** ConnectPlus (which includes the ebook and regular LearnSmart) is required. Last semester it was included ("bundled") with new copies of the FIRST volume of the two-volume set in the bookstore. The online access, however, is good for the full year, NOT just the first semester. It is therefore NOT included with the second volume. Most students will simply be continuing from last semester and will already have online access. If not, a ConnectPlus access code will have to be purchased separately.

Since ConnectPlus includes year-long online access to the full textbook, it is completely adequate by itself for both semesters, without any actual physical copy, as long as you are comfortable with the electronic-only version. Connect will be used for your homework and is also a good resource for additional explanations and problems.

**Clicker:** Clickers are available in the bookstore and on the company's website (<https://store.turningtechnologies.com/> – when asked for a school code, enter Jg@8 ). You will likely need to use this system in more than one of your courses – you only need to buy one “clicker”.

### **Calculators**

A simple, non-programmable calculator is REQUIRED for use on all exams in Chem. 1041. Graphing calculators are not allowed. It must have logarithmic and exponential functions and allow the use of scientific notation. Sharing is not permitted, and no adjustment will be made on account of calculator malfunction (including dead batteries – a solar-powered model is strongly recommended). **Cell phone calculator apps may NOT be used on exams.** Suitable calculators are readily available from many sources. Among others, the two following examples are available for around \$10: Casio FX-300MS and Casio FX260SLRSC.

### **Make-up Exams**

I do not mind giving make-up exams. However! You ABSOLUTELY must notify me prior to the start of the scheduled examination (or in a reasonable time frame –usually within one week) in case of an emergency or you will receive a grade of zero.

### **Absences**

You get 3 “free” absences from lecture and 2 dropped scores for recitation. With this in mind, there will generally not be makeups. If you miss a recitation or lecture, including those for legitimate reasons, you will simply use one of your “free” misses. If there are unique circumstances which will cause you to miss a large number of classes and recitations please meet with me before your absences and we can discuss your individual circumstances.

### **Important Dates:**

Last Day to Drop with 100% refund: September 2

Last Day to Drop with 50% refund: September 8

Last Day to Withdraw: October 31

### **Chemistry 1041 TA Office**

The Chemistry 1041 TA Office is located in 508A Rieveschl. Teaching assistants will be available to help you learn to work problems and to answer questions during the times posted there. You may consult with any Chem. 1041 TA present, it doesn't have to be your own. You are also encouraged to make use of the computer facilities in the Else Schulz Information Commons in the Chemistry-Biology library across from 502 Rieveschl.

## Academic Misconduct

In this course you are encouraged to study and prepare for examinations with other students. However, when taking exams, you are required to work alone. The University regulations are explicit about academic misconduct and cheating, and these regulations will be fully enforced. Students engaging in such misconduct may be brought up on charges as outlined in the student code of conduct. See [http://www.uc.edu/Code\\_of\\_Conduct.html](http://www.uc.edu/Code_of_Conduct.html).

## Tentative Schedule

### **Week 1**

Monday, August 25

Wednesday, August 27

Friday, August 29

Introduction/Chapter 12

Chapter 12

Chapter 12

### **Week 2**

Monday, September 1

Wednesday, September 3

Friday, September 5

NO CLASS, Labor Day

Chapter 12

Chapter 13

### **Week 3**

Monday, September 8

Wednesday, September 10

Friday, September 12

Chapter 13

**Homework 12 Due**

Chapter 13

Chapter 14

### **Week 4**

Monday, September 15

Wednesday, September 17

Friday, September 19

Chapter 14

**Homework 13 Due**

Chapter 14

Chapter 14/Review

### **Week 5**

Monday, September 22

Wednesday, September 24

Friday, September 26

**Exam I (Chapters 12, 13, 14)**

**Homework 14 Due**

Chapter 16

Chapter 16

### **Week 6**

Monday, September 29

Wednesday, October 1

Friday, October 3

Chapter 16

Chapter 16

Chapter 17

### **Week 7**

Monday, October 6

Wednesday, October 8

Friday, October 10

Chapter 17,

**Homework 16 Due**

Chapter 17

No class – Fall Reading Day

**Week 8**

Monday, October 13

Wednesday, October 15

Friday, October 17

Chapter 18

**Homework 17 Due**

Chapter 18

Chapter 18/Review

**Week 9**

Monday, October 20

Wednesday, October 22

Friday, October 24

**Exam II (Ch 16, 17, 18)****Homework 18 Due**

Chapter 19

Chapter 19

**Week 10**

Monday, October 27

Wednesday, October 29

Friday, October 31

Chapter 19

Chapter 19

Chapter 20

**Week 11**

Monday, November 3

Wednesday, November 5

Friday, November 7

Chapter 20

**Homework 19 Due**

Chapter 20

Chapter 21

**Week 12**

Monday, November 10

Wednesday, November 12

Friday, November 14

Chapter 21

**Homework 20 Due**

Chapter 21

Chapter 21/Review

**Week 13**

Monday, November 17

Wednesday, November 19

Friday, November 21

**Exam III (Ch 19, 20, 21)****Homework 21 Due**

Chapter 23

Chapter 23

**Week 14**

Monday, November 24

Wednesday, November 26

Friday, November 28

Chapter 23

Chapter 22

**Homework 23 Due**

Thanksgiving Holiday

**Week 15**

Monday, December 1

Wednesday, December 3

Friday, December 5

Chapter 22

Anything left/Final Exam Review

Final Exam Review

**Final Exam**

Monday, December 8; 1:30 - 3:30 p.m.

## **Grades**

Lecture (Chem. 1041) and laboratory (Chem. 1041L) are separate courses with separate grades. The grade in Chemistry 1041 will be based on the following:

Attendance/clicker participation ( 3 "free" absences) – 8%

Online Homework – 8%

Recitation (2 lowest scores dropped) – 10%

Exam 1 – 18%

Exam 2 – 18%

Exam 3 – 18%

Final Exam (Comprehensive) – 20%

**The following scale will be used to determine your final grade:**

89–87%	B+	100–93%	A	92–90%	A–
76–74%	C+	86–80%	B	79–77%	B–
63–61%	D+	73–67%	C	66–64%	C--
		60–54%	D	53–51%	D--
		<50%	F		

No extra credit assignments will be given at the end of the course.

## **Recitations:**

You will meet with your TAs during recitation. Please come prepared to ask questions and work on a worksheet covering recent material. You should bring your book, calculator and any other resource you want. You will work through problems both individually and as groups. Your recitation grade will be based on your performance on the worksheet. Your lowest 2 recitation grades will be dropped.