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

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) 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", 6th 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**

<table>
<thead>
<tr>
<th>Week</th>
<th>Date</th>
<th>Topic</th>
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<tbody>
<tr>
<td><strong>Week 1</strong></td>
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<tr>
<td>Monday, August 25</td>
<td>Introduction/Chapter 12</td>
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<td>Wednesday, August 27</td>
<td>Chapter 12</td>
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<tr>
<td>Friday, August 29</td>
<td>Chapter 12</td>
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<tr>
<td><strong>Week 2</strong></td>
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<tr>
<td>Monday, September 1</td>
<td>NO CLASS, Labor Day</td>
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<tr>
<td>Wednesday, September 3</td>
<td>Chapter 12</td>
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<td>Friday, September 5</td>
<td>Chapter 13</td>
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<td><strong>Week 3</strong></td>
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<tr>
<td>Monday, September 8</td>
<td>Chapter 13</td>
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<tr>
<td>Wednesday, September 10</td>
<td><strong>Homework 12 Due</strong></td>
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<tr>
<td>Friday, September 12</td>
<td>Chapter 14</td>
<td></td>
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<td><strong>Week 4</strong></td>
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<tr>
<td>Monday, September 15</td>
<td>Chapter 14</td>
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<tr>
<td>Wednesday, September 17</td>
<td><strong>Homework 13 Due</strong></td>
<td></td>
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<tr>
<td>Friday, September 19</td>
<td>Chapter 14</td>
<td></td>
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<td><strong>Week 5</strong></td>
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<tr>
<td>Monday, September 22</td>
<td>Chapter 16</td>
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<tr>
<td>Wednesday, September 24</td>
<td><strong>Exam I (Chapters 12, 13, 14)</strong></td>
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<tr>
<td>Friday, September 26</td>
<td><strong>Homework 14 Due</strong></td>
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<td><strong>Week 6</strong></td>
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<tr>
<td>Monday, September 29</td>
<td>Chapter 16</td>
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<tr>
<td>Wednesday, October 1</td>
<td>Chapter 16</td>
<td></td>
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<tr>
<td>Friday, October 3</td>
<td>Chapter 17</td>
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<td><strong>Week 7</strong></td>
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<tr>
<td>Monday, October 6</td>
<td>Chapter 17, <strong>Homework 16 Due</strong></td>
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<tr>
<td>Wednesday, October 8</td>
<td>Chapter 17</td>
<td></td>
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<tr>
<td>Friday, October 10</td>
<td>No class – Fall Reading Day</td>
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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. 104) and laboratory (Chem. 104L) are separate courses with separate grades. The grade in Chemistry 104 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:**

<table>
<thead>
<tr>
<th>Grade</th>
<th>Percentage</th>
<th>Letter</th>
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<tbody>
<tr>
<td>A</td>
<td>90–100%</td>
<td>A–</td>
</tr>
<tr>
<td>A–</td>
<td>89–93%</td>
<td>F</td>
</tr>
<tr>
<td>B</td>
<td>86–89%</td>
<td>B–</td>
</tr>
<tr>
<td>B–</td>
<td>86–80%</td>
<td>B</td>
</tr>
<tr>
<td>C</td>
<td>79–85%</td>
<td>C–</td>
</tr>
<tr>
<td>C–</td>
<td>73–76%</td>
<td>C</td>
</tr>
<tr>
<td>D+</td>
<td>63–69%</td>
<td>D–</td>
</tr>
<tr>
<td>D–</td>
<td>60–62%</td>
<td>D</td>
</tr>
<tr>
<td>F</td>
<td>&lt;50%</td>
<td>F</td>
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</tbody>
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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.