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| <b>CHM 2046</b> | <b>General Chemistry 2</b><br><b>Gower Sections</b> | <b>Spring 2015</b> |
|-----------------|---|--------------------|

**INSTRUCTOR:** Jeff Gower ([jgower@ufl.edu](mailto:jgower@ufl.edu))

Lectures: MWR 9<sup>th</sup> Period (CLB 130)

Discussion Classes: Tuesdays (multiple periods and rooms)

Office hours: MWR 7<sup>th</sup> and 8<sup>th</sup> Periods (CLB 314, telephone: 392-2155)

**PREREQ:** Grade of C or higher in CHM 2045.

**TEXT:** Chemistry: The Molecular Nature of Matter and Change (6<sup>th</sup> Edition)

by Martin Silberberg (McGraw-Hill)

**PLANNED LECTURE SCHEDULE:** It is expected that you attend each lecture and that you attend the lecture period for which you are registered. While attendance is not taken, it will be assumed that all students are present at every lecture. For UF attendance policy, see <https://catalog.ufl.edu/ugrad/current/regulations/info/attendance.aspx>

| <u><b>Tentative</b></u> Lecture Schedule and Topics    | <b>Chapters</b>              |
|--|------------------------------|
| Jan. 7 – Jan. 29: Acid-Base Equilibria                 | 17–19.2 (skip 17.3 and 17.6) |
| Feb. 2 – Feb. 12: Solubility Equilibria                | 19.3–19.4                    |
| Feb. 16 – Feb. 26: Gas-Phase / Heterogenous Equilibria | 17.3 and 17.6                |
| Mar. 9 – Mar. 19: Thermodynamics and Equilibria        | 20 (review Ch. 6)            |
| Mar. 23 – Apr. 2: Redox Reactions / Electrochemistry   | 4.5–4.6 and 21               |
| Apr. 6 – Apr. 16: Main-Group and Transition Elements   | 14, 22, 23 (review Ch. 8–13) |
| Apr. 20 – Apr. 22: Nuclear Chemistry                   | Chap. 24                     |

**HOLIDAYS (no classes):** Jan. 19 (MLK) and Mar. 2–6 (Spring Break)

**PROGRESS EXAMS AND FINAL EXAM SCHEDULE:** All during-term Progress Exams (45-minute, 10-question exams) will take place on Thursdays in lecture. The Final Exam (2-hour, 25-question exam) will take place on the registrar-scheduled Final Exam day and time below, in rooms that will be announced at the end of the semester. You may only use a non-graphing non-programmable scientific calculator (with log, ln, root, and exponent (scientific notation) functions) on exams. Be sure to also bring pencils, section number, and your UF ID card. No notes, papers, cell phones or other electronic devices can be in view during exams.

| <b>Date</b>   | <b>Exam</b>            |
|---|------------------------|
| <b>Thursday, Jan. 29 (in lecture)</b>                           | <b>Progress Exam 1</b> |
| <b>Thursday, Feb. 12 (in lecture)</b>                           | <b>Progress Exam 2</b> |
| <b>Thursday, Feb. 26 (in lecture)</b>                           | <b>Progress Exam 3</b> |
| <b>Thursday, Mar. 19 (in lecture)</b>                           | <b>Progress Exam 4</b> |
| <b>Thursday, Apr. 2 (in lecture)</b>                            | <b>Progress Exam 5</b> |
| <b>Thursday, Apr. 16 (in lecture)</b>                           | <b>Progress Exam 6</b> |
| <b>Saturday, Apr. 25 (7:30am – 9:30 am; rooms to be posted)</b> | <b>Final Exam</b>      |

**All exams are cumulative.** Cumulative exams are a necessity in CHM2046 because each successive topic builds upon, and depends upon, previously covered material. (This is one of the reasons for the more-frequent exam schedule above). Therefore, do not allow yourself to get behind, and always review your previous exams when studying for successive exams. No makeup progress exams will be given for any reason. Since unavoidable emergent situations (illnesses, accidents, emergencies, etc.) do arise occasionally, I've incorporated a dropped-exam policy (the best 5 of 6 progress exams will be counted toward your grade - see under "GRADES" below). If you know in advance that you must be absent for an exam due to a documented and approved

academic or UF athletic conflict, bring the documentation to your instructor beforehand (at least one week prior to the scheduled exam) and an early conflict exam will be scheduled for you. Planned or emergency trips home or elsewhere are not approved conflicts, however. For more information on UF General Chemistry exam policy, see [http://iteach.chem.ufl.edu/Exam\\_Absence\\_Policy\\_GChem\\_s13.pdf](http://iteach.chem.ufl.edu/Exam_Absence_Policy_GChem_s13.pdf)

**Checking your Scantron:** Out of the tens of thousands of exam scantrons that have been scored while I've been at UF, not one has been scored incorrectly. Any discrepancies have always been due to student bubbling error, which of course can not be negotiated. However, scantrons may be checked during the two established instructor office hour sessions following the posting of the exam score in your Sakai gradebook, after which no further scantron checking will be accommodated.

**E-LEARNING** (<http://lss.at.ufl.edu>): We will be using the **SAKAI** option in E-Learning for this course. Here you will find the syllabus, the Discussion Section schedule, your gradebook for the class, selected lecture material, videos, files, end-of-chapter problem solutions, class announcements, and other pertinent info for the course. It is your responsibility to check the Class Web Site often (as well as your gradebook) to make sure that you do not miss important announcements and other information and to ensure that your gradebook is accurate. If you have any problems with your GatorLink name or password, you should either go on-line <http://www.gatorlink.ufl.edu>, contact the Help Desk at 392-HELP, or go to 520 CSE for personal assistance. For other computer assistance, visit <http://helpdesk.ufl.edu/>.

### **“HOW TO SUCCEED IN COLLEGE CHEMISTRY”:**

In addition to reading this syllabus, there is another document that is required reading for all students in CHM2045/CHM2046: “How to Succeed in College Chemistry”. This document is posted in the Resources folder. Read it carefully and do exactly as it says. No exceptions, no alternatives. The detailed structured method of self-assessment strategic study skills in this document has been proven to work many times by many different students over many years (including yours truly). For most students, it is the only way to succeed in the course (and in other courses like this one). Trust me on this: failure to read and do exactly as it says in this document will result in frustration and lack of success in this course for the majority of students. Please do not disregard this advice.

**SUGGESTED END-OF-CHAPTER (EOC) PROBLEMS:** These are problems from the Silberberg 6<sup>th</sup> edition (see top of syllabus) textbook that are selected based on their appropriateness for the course. The complete worked-out solutions are posted in Sakai for each and every EOC problem in this textbook – be sure to utilize this valuable self-assessment resource! Do as many problems as you can, being sure to focus on your own specific weaknesses. (Again, read the “How To Succeed In College Chemistry” document posted in Sakai for strategies for success in this course).

**WEEKLY ONLINE SELF-ASSESSMENT HOMEWORK:** There will be weekly online self-assessment homework problems posted on the Sakai web site for this course. Each assessment will begin at 12:00am on Thursday mornings and end at 12:00am on the following Thursday mornings (i.e., midnight on Wednesdays). To access the assessments, click on "Assessments" in Sakai. Although you'll be given four (4) submission attempts for each assessment (be sure to write down your answers because you'll have to re-enter them for each submission attempt), you are to take the assessments during the first attempt “cold”, as if you were taking an exam, in order to ASSESS yourself (hence the name of the homework) so that you can identify your specific weaknesses with the material as per the “How To Succeed In College Chemistry” document. Successive attempts are to be made after rethinking each question (or, if necessary, after you've obtained help). Note: In order to access the assessments after the due dates (for study purposes), you must at least open the assessment and attempt a problem; failure to do so will result in the assessment being inaccessible to you for the remainder of the semester. It is up to the student to keep track of the assessment schedule - no requests for time extensions on the assessments, will be granted. To help avoid any Sakai or computer issues that may arise, it is suggested that you do the assessments early enough in the week to avoid last-minute time or computer issues. Each assessment question will be worth 0.6 points, and the total score sum will be capped at 100 points (of a potential 120+ points) at the end of the semester; a maximum of 100 points will be applied to your course grade (see “Grades” below).

**DISCUSSION CLASSES:** The Discussion Classes meet every Tuesday (the schedule of classes will be posted in the Resources folder after the first week of the semester). There are no Discussion Classes during the first week of the semester. During the Discussion Classes, TAs will hold open-discussion tutoring sessions for students who have questions about Self-Assessment Homework problems, End-Of-Chapter Problems, Exam questions, lecture material, or any other conceptual or calculational concerns that the students may have. Students are free to attend as many Discussion Classes as they'd like, so long as there is enough space in the rooms.

**CHEMISTRY LEARNING CENTER (CLC):** Tutoring from graduate student TAs is available in the CLC Mon-Friday in Flint Hall 257. Your discussion TA will have office hours in the CLC, but you may go there anytime any TA is assigned there to get help on questions pertaining to chemistry. A schedule of the TA schedules will be posted in the corridor outside the CLC and also in Sakai.

And, there is the **TEACHING CENTER** located on the ground floor of Broward Hall, if you'd like to use that free resource. Their web site is <http://www.teachingcenter.ufl.edu>.

**CONTACTING THE INSTRUCTOR / OFFICE HOURS:** Course administrative queries can be emailed to the instructor or made during office hours (or by special appointment if necessary). Chemistry queries should be made in person during office hours or before/after lectures. If this is not possible, please visit the CLC. Please consult the online chapter solutions (if applicable) before coming to office hours.

**GRADES:** Grades for the term will be determined as follows:

|  |                |
|--|----------------|
| Progress Exams (best 5 of 6 @ 100 pts) | 500 pts        |
| Online Self-Assessment Homework        | 100 pts        |
| Final Exam                             | 250 pts        |
| <b>TOTAL</b>                           | <b>850 pts</b> |

The following grade cutoffs will be used (these are non-negotiable):

90-100% = A    86-89% = A-    83-85% = B+    80-82% = B    76-79% = B-  
 73-75% = C+    70-72% = C    66-69% = C-    63-65% = D+    60-62% = D  
 < 60% = E

For further information on UF's Grades and Grading Policies, go to <https://catalog.ufl.edu/ugrad/current/regulations/info/grades.aspx>

**INSTRUCTOR EVALUATIONS:** Students are expected to provide feedback on the quality of instruction in this course by completing online evaluations at <https://evaluations.ufl.edu> during the last two or three weeks of the semester. Students will be given specific times when they are open. Summary results of these assessments are available to students at <https://evaluations.ufl.edu/results/>.

**HONOR CODE:** (<http://www.dso.ufl.edu/sccr/process/student-conduct-honor-code/>)

The UF Student Honor Code applies to all exams and assessments given in this course. Please understand that absolutely no leniency will be extended in any case of academic dishonesty.

**DISABILITIES / STUDENT MENTAL HEALTH COUNSELING:** Students requesting classroom and exam accommodations should contact the Dean of Students Disability Resources Center (DRC) at 392-8565 or <http://www.dso.ufl.edu/drc/> and obtain the proper forms that need to be turned in to me during the first week of class or as soon as possible after obtaining the paperwork from the DRC. It is the student's responsibility to schedule and arrange accommodations with the DRC. Students may seek mental health counseling at any time. See <http://www.counseling.ufl.edu/cwc/>.

**COURSE INFO:** CHM 2046 and CHM 2046L constitute the second semester of the two term sequence of General Chemistry, CHM 2045-2045L-2046-2046L. This sequence is suitable for all science and engineering majors.

**GENERAL EDUCATION CREDIT:** This course is available for general education credit. This course introduces students to fundamental concepts of chemistry including bonding, atomic and molecular structure, chemical reactions, states of matter, and reaction rates. The scientific method and the place of chemistry in the everyday world are emphasized.

**PROGRAM OBJECTIVES:** Physical science courses provide instruction in the basic concepts, theories and terms of the scientific method in the context of the physical sciences. Courses focus on major scientific developments and their impacts on society, science and the environment, and the relevant processes that govern physical systems. Students will formulate empirically-testable hypotheses derived from the study of physical processes, apply logical reasoning skills through scientific criticism and argument, and apply techniques of discovery and critical thinking to evaluate outcomes of experiments.

These objectives will be accomplished through participation in the course lectures and discussion sections, and individual work done on suggested homework assignments and online assessments.

**GENERAL EDUCATION STUDENT LEARNING OUTCOMES:** The following learning outcomes (see table below) will be assessed through monitored Discussion Section preparation and participation, as well as through online assessments and progress (mid-term) examinations and final examinations.

**GENERAL EDUCATION STUDENT LEARNING OUTCOMES, continued:**

| Area                     | Institutional Definition  | Institutional SLO   |
|--------------------------|---|---|
| <b>CONTENT</b>           | Content is knowledge of the concepts, principles, terminology and methodologies used within the discipline.   | Students demonstrate competence in the terminology, concepts, methodologies and theories used within the discipline.  |
| <b>COMMUNICATION</b>     | Communication is the development and expression of ideas in written and oral forms.   | Students communicate knowledge, ideas, and reasoning clearly and effectively in written or oral forms appropriate to the discipline.                            |
| <b>CRITICAL THINKING</b> | Critical thinking is characterized by the comprehensive analysis of issues, ideas, and evidence before accepting or formulating an opinion or conclusion. | Students analyze information carefully and logically from multiple perspectives, using discipline specific methods, and develop reasoned solutions to problems. |