

CHM 2046	General Chemistry 2 Gower Sections	Spring 2016
-----------------	--	--------------------

INSTRUCTOR: George (Jeff) Gower (jgower@ufl.edu)

Lectures: MWR 9th Period (CLB 130)

Discussion Classes: Tuesdays (period and room depends on section number)

Office hours: MWR 6th–7th Periods (CLB 314, 392-2155)

PREREQ: Grade of C or higher in CHM 2045.

TEXT: Chemistry: The Molecular Nature of Matter and Change (6th Edition)

by Martin Silberberg (McGraw-Hill)

PLANNED LECTURE SCHEDULE

Planned Lecture Schedule	Chapters
Jan. 6 – 28: Principles of Chemical Equilibrium; Acid-Base Potential; Acid-Base Equilibria; Buffers; Titrations	17–19.2 (skip 17.3 and 17.6)*
Feb. 3 – 11: Solubility Equilibria; Selective Precipitation	19.3–19.4
Feb. 15 – 24: Gas-Phase / Heterogenous Equilibria; Reaction Yield Optimization	(17.3 and 17.6)*
Mar. 7 – 14: Thermodynamics (Enthalpy, Entropy, Free Energy, Reaction Spontaneity, and Work) and Equilibria; Thermodynamic Coupling	20 (review Ch. 6)
Mar. 16 – 28: Oxidation/Reduction Potential; Electrochemistry and Equilibria; Voltaic and Electrolytic Systems	4.5–4.6 and 21
Mar. 31 – Apr. 11: Main-Group and Transition Elements: Elemental Potential, Periodicity, and Application; Coordination Chemistry; Crystal Field Theory	14, 22, 23 (review Ch. 8–13)
Apr. 13 – 20: Introduction to Nuclear Chemistry; Introduction to Organic Chemistry	24, 15

HOLIDAYS (no classes): Jan. 18 (MLK); Feb. 29 – Mar. 4 (Spring Break)

E-LEARNING (<http://elearning.ufl.edu>): We will be using the **CANVAS** option in E-Learning for this course. Here you will find the syllabus, your gradebook for the class, selected lecture material, Online-Practice-Problems (under "Quizzes"), lecture video links, files, Suggested-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 online <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/>.

LECTURES: It is fully expected that all students are present for each lecture and that all students are responsible for everything spoken and discussed during lectures. No exceptions, no excuses. If a student needs to miss a lecture (which should be a very rare occasion), the student may watch the video-recorded lecture; however, the video-recorded lectures are a very poor substitute for being present in the lecture hall. For further information about the official UF attendance policy, see <https://catalog.ufl.edu/ugrad/current/regulations/info/attendance.aspx>

DISCUSSION CLASSES: Students are expected to attend all Discussion Classes during the periods for which you are registered. Discussion Classes Begin On Tuesday, January 12th. During the Discussion Classes your TAs will hold interactive open-discussion sessions covering any of the previous week's lecture material or any related conceptual or calculational concerns that the students may have, and/or student questions about Online-Practice-Problems or Current-Semester-Exam-Problems or Suggested-End-Of-Chapter-Problems. During these sessions, students will also complete worksheets that relate to the previous week's lecture material – these worksheets will be turned in and will count toward your course grade (see "Grades" below).

“HOW TO SUCCEED IN COLLEGE CHEMISTRY”: This document is posted in the Files folder in Canvas. Read it carefully and **do exactly as it says**. 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 most likely result in frustration and lack of success in this course for the majority of students. Please do not disregard this advice.

ONLINE PRACTICE PROBLEMS (“QUIZZES”): There will be weekly Online Practice Problem sets posted under the "Quizzes" tool on the Canvas web site for this course. Problem sets will open at 12:00am on Monday mornings and close at 11:59pm on the following Sunday nights (exceptions: the last problem sets that occur just before an Exam will have close dates at 11:59pm the night prior to the Exam date). Although you'll be given four (4) submission attempts for each problem set (be sure to write down your answers because you'll have to re-enter them for each submission attempt), your first attempt should be done “cold” (with no outside assistance), as if you were taking an exam or quiz, in order to ASSESS yourself 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). Warning: In order to access the problem sets after the due dates (for study purposes), you must at least open the problem sets and submit an answer prior to the close date/time; failure to do so will result in the problem sets being inaccessible to you for the remainder of the semester. It is up to the student to keep track of the open/close schedule - no requests for time extensions on the problem sets will be granted. To help avoid any Canvas or computer issues that may arise, it is suggested that you do the problem sets early enough in the week to avoid last-minute time or computer issues. Each correctly-answered problem will be worth 0.33 points, and the total score sum will be capped at 50 points (of a potential 60+ points) at the end of the semester; a maximum of 50 points will be applied to your course grade (see “Grades” below).

SUGGESTED-END-OF-CHAPTER (EOC) PROBLEMS: These are problems from the Silberberg 6th edition (see top of syllabus) textbook that are selected based on their appropriateness for the course. The complete worked-out solutions are posted in Canvas for each and every EOC problem in this textbook – be sure to utilize this valuable self-assessment resource! These problems are also recommended for self-assessment preparation for exams. (Again, read the “How To Succeed In College Chemistry” document for vital strategies for success in this course when doing EOC problems).

PROGRESS-EXAMS AND FINAL-EXAM SCHEDULE: You may only use a non-graphing non-programmable scientific calculator (with log, ln, root, and exponent (scientific notation) functions) on exams (unless the exam is announced to be a conceptual-only exam, in which case no calculators will be allowed). 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.

Date	Exam
Monday, Feb. 1 (8:20–10:20pm)	Progress Exam 1
Thursday, Feb. 25 (8:20–10:20pm)	Progress Exam 2
Wednesday, Mar. 30 (8:20–10:20pm)	Progress Exam 3
Monday, Apr. 25 (3:00–5:00pm)	Final Exam

All exams are cumulative. Cumulative exams are a necessity in CHM2046 because each successive topic builds upon, and depends upon, previously covered material. Therefore, do not allow yourself to get behind, and **always review your previous exams when studying for successive exams!**

Checking your Scantron: Scantrons may be viewed during the two established instructor office hour sessions (in CLB 314) following the posting of the exam score in your Canvas gradebook, after which no further scantron checking will be accommodated.

PROGRESS-EXAM OR DISCUSSION-CLASS CONFLICTS/ABSENCES: No makeup Progress Exams or Discussion-Class Worksheets will be given after the regularly scheduled Exam/Discussion date for any reason. Since unavoidable emergent situations (illnesses, accidents, family emergencies, etc.) do arise occasionally, we've incorporated a dropped-exam policy (the best 2 of 3 Progress Exams will be counted toward your grade) and a dropped-worksheets policy (the best 10 of 13 Discussion-Class Worksheets will be counted toward your grade). If you know in advance that you must be absent for an exam due to a documented and approved academic or UF athletic conflict or other pre-approved conflict, bring the applicable documentation to me at least one week prior to the scheduled exam, and an early conflict exam will be arranged for you (failure to bring documentation and/or obtain one-week pre-approval for the early exam will result in your request being denied). For more information on UF General Chemistry exam policy, see http://iteach.chem.ufl.edu/Exam_Absence_Policy_GChem_s13.pdf

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 Canvas.

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). Please always indicate your course (whether CHM2045 or CHM2046) when emailing. 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:

Online Practice Problems ("Quizzes") (max. 50 pts. of potential 60+ pts)	50 pts
Discussion-Class Worksheets (best 10 of 13 @ 10 pts)	100 pts
Progress Exams (best 2 of 3 @ 200 pts)	400 pts
Final Exam	250 pts
TOTAL	800 pts

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 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. Summarized results of these evaluations 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, reaction rates, chemical thermodynamics and equilibria. The scientific method and the place of chemistry in the everyday world are emphasized.

PROGRAM OBJECTIVES: General Chemistry and Qualitative Analysis (aka General Chemistry II, or CHM2046) covers the basic concepts, theories and terms related to chemical equilibria, thermodynamics, elemental characteristics, and the chemical potentials associated with chemical species in systems covered in the course. The course will focus on major scientific developments and their impacts on society, science and the environment, and the relevant processes and potentials that govern and characterize the discussed chemical systems. Students will formulate empirically-testable hypotheses derived from the study of these systems, apply logical reasoning skills through scientific criticism and argument, and apply techniques of discovery and critical thinking to evaluate potential outcomes of chemical processes. In addition to the described educational objectives of the course, it is also expected that preparatory objectives will be met and surpassed, with regard to rendering students equipped for success in future courses in the physical sciences, by way of a sound competency with the CHM2046 material and how it relates to earlier studies (CHM2045 and earlier) and later studies in chemistry and other scientific disciplines.

These objectives will be accomplished through interactive participation in the course lectures and discussion sections, and individual work done on provided guided and structured homework resources. Successful achievement will be assessed through weekly discussion section quizzes and monthly Progress Exams, as well as a Final Exam.

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
CONTENT	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.
COMMUNICATION	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.
CRITICAL THINKING	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.