CHM 2045	General Chemistry Gower Sections	Fall 2016

INSTRUCTOR: George (Jeff) Gower (jgower@ufl.edu)
Lectures: MTR 9th, 10th and 11th periods (CLB 130)
Discussion Sections: Wednesdays and Fridays (multiple periods and locations)
Office hours: MTR 6th and 7th Periods (CLB 314, telephone: 392-2155)

TEXT: **Chemistry: The Molecular Nature of Matter and Change (6th Edition)**
by Martin Silberberg (McGraw-Hill)
This is the suggested textbook (and edition thereof) primarily because worked-out solutions are provide for each end-of-chapter problem in this particular edition of this particular textbook. However, any earlier edition of this textbook, or any other suitable college-level general chemistry textbook, may be used as a reference and source of additional practice problems for this course.

LECTURES: It will be fully expected that all students are physically present and alert (cell phones put away) at every lecture. Please understand that exam questions will be prepared with this expectation in mind. The official UF attendance policy can be found at the link below. https://catalog.ufl.edu/ugrad/current/regulations/info/attendance.aspx
(There will be no lectures on Progress Exam days)
(Although the lectures will be videorecorded via the Mediasite system (the link to the videorecordings can be found on the course web site under "Files"), this is a very poor substitute for physical attendance and should only be used for lecture clarification purposes or in case of unavoidable lecture absence.)

PLANNED LECTURE AND EXAM SCHEDULE	Chapters
Aug 22 – 25: Intro and Review: Atoms, Molecules, and Ions (3)	1–2
Aug 29 – Sep 6: Stoichiometry and Chemical Equations (4)	3
Sep 8 – 15: Aqueous Chemical Reactions (4)	4
Sep 19: Pre-Exam-1 Review Lecture (1)	1–4
PROGRESS EXAM 1 – Tuesday, Sep 20 (8:20–10:20pm)	**Cumulative**
Sep 22 – 27: Thermochemistry (3)	6
Sep 29: Introduction to Atomic Structure (1)	7
Oct 3 – 6: Electron Configuration and Periodic Trends of Elements (3)	8
Oct 10 – 13: Types of Chemical Bonding (3)	9
PROGRESS EXAM 2 – Monday, Oct 17 (8:20–10:20pm)	**Cumulative**
Oct 18 – 20: Lewis Structures and Molecular Geometry (2)	10
Oct 24 – 27: Theories of Covalent Bonding (3)	11
Oct 31 – Nov 3: Gases (3)	5
Nov 7 – 10: Intermolecular Forces of Attraction; Liquids and Solids (3)	12
PROGRESS EXAM 3 – Monday, Nov 14 (8:20–10:20pm)	**Cumulative**
Nov 15 – 29: Solutions and Colligative Properties (4)	13
Dec 1 – 6: Kinetics: Rates of Reactions and Reaction Mechanisms (3)	16
FINAL EXAM – Saturday, Dec 10 (5:30–7:30pm)	**Cumulative**

OFFICIAL UF HOLIDAYS (no classes): Sep 5, Oct 14, Nov 11 and Nov 23–25

E-LEARNING (Canvas) (http://elearning.ufl.edu): Here you will find your gradebook for the class, selected lecture material, Tutorials (under "Quizzes"), the lecture video link, course-related 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. Please set your notification preferences so that course announcements are emailed to you, and be sure that you check your UF email frequently. If you have any problems with your GatorLink name or password, you should either go on-line http://helpdesk.ufl.edu/self-help/ , contact the Help Desk at 392-HELP, or go to 520 CSE for personal assistance. For other computer assistance, visit http://helpdesk.ufl.edu/.

DISCUSSION CLASSES: Discussion Classes Begin On Wednesday, August 31st (for Wednesday sections) and Friday, September 2nd (for Friday sections). During the Discussion Classes indicated in the Worksheet Schedule below, students will discuss and complete Worksheets that relate to the indicated lecture material. Participation and completion of these Worksheets will contribute toward your course grade (see under "Grades" in this syllabus). During non-Worksheet Discussion Classes that occur during the days after each Progress Exam, your TAs will hold discussions to address any conceptual or calculational concerns that you may have regarding the exams just taken.

WORKSHEET SCHEDULE	Chapter(s)
Worksheet 1: Aug 31 (W) and **Sep 2 (F)**	1–3
Worksheet 2: Sep 7 (W) and **Sep 9 (F)**	3, continued
Worksheet 3: Sep 14 (W) and **Sep 16 (F)**	4
Worksheet 4: Sep 28 (W) and **Sep 30 (F)**	6
Worksheet 5: Oct 7 (F) and **Oct 12 (W)**	7−8
Worksheet 6: Oct 26 (W) and **Oct 28 (F)**	10−11
Worksheet 7: Nov 2 (W) and **Nov 4 (F)**	5
Worksheet 8: Nov 30 (W) and **Dec 2 (F)**	13

No late or make-up Discussion Class Worksheet submissions will be accepted for any reason. To help alleviate concerns over a missed class due to a personal concern (illness, accident, family emergency, wedding, funeral, etc.), you are allowed to miss one (1) Discussion Class Worksheet with no resulting penalty to your grade. If you know in advance that you must be absent for a Worksheet Discussion Class due to a valid UF academic or UF athletic conflict, bring the applicable documentation to your TA at least one week prior to the missed Discussion Class date, and your TA will arrange an alternative project for you to submit in lieu of the Worksheet. Failure to present documentation and/or obtain the one-week pre-approval will result in your request being denied.

EXAMS: Progress Exams (during-term exams) will be taken in the evenings outside of class and the Exam Room Assignments for each exam will be posted in Canvas prior to each exam. You may only use a non-graphing non-programmable scientific calculator on exams (with log, ln, root, and exponent (scientific notation) functions). Be sure to bring pencils, your section number, and your UF ID card. No notes, papers, cell phones or other electronic devices can be in view during exams.

Exam Conflict/Absence Policy: No make-up Progress Exams will be given after the regularly scheduled Progress Exam date for any reason.

(1) If you know in advance that you must be absent for a Progress Exam or for the Final 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 conflict exam will result in your request being denied.

(2) If you experience a last-minute unavoidable emergent situation (illness, accident, emergency, etc.) that prevents you from notifying me prior to an exam, and prevents you from attending an exam (verifiable official documentation must be provided that *clearly* indicates that you were *physically unable* to attend the exam), you need to see me in person as soon as you are no longer ill and/or as soon as you are able to do so.

(More information can be found in the *General Chemistry Exam Absence Policy* document located in the "Files" folder on the course web site.)

Progress Exam "Average/Replace" Policy: (Applies to all students). No Progress Exam scores will be dropped. However, to help alleviate the stress of potential issues that do not fall under the officially-sanctioned absences described above, and that may affect a Progress Exam score (unapproved absence or poor exam performance), the lowest score of the three Progress Exams will be replaced by the average score of all three of the Progress Exam scores:

Example (unapproved absence):

Progress Exam 1, 70%; ProgressExam 2, 0%; Progress Exam 3, 90%

The Progress Exam 2 score (0%) will be replaced by {(70+0+90) / 3} = 53%.

Example (poor exam performance):

Progress Exam 1, 70%; ProgressExam 2, 50%; Progress Exam 3, 90%

The Progress Exam 2 score (0%) will be replaced by {(70+50+90) / 3} = 70%.

Missing scores (or questionable zero scores) and checking your scantron: If your exam score is MISSING from your e-Learning gradebook, or if your exam score is ZERO and you do not think this score is correct, please contact me ASAP. It could be that your UF ID was not properly bubbled in. Scantrons may be viewed during the one-week period of office hour sessions (in CLB 314) following the posting date of the exam score in your Canvas gradebook. Bubbling errors made on scantrons (mis-bubbled exam question answers or mis-bubbled Form Code) can not be negotiated.

"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 TUTORIALS AND END-OF-CHAPTER HOMEWORK:

ONLINE TUTORIALS: Thirteen (13) tutorials will be posted online on e-Learning/Canvas (under the "Quizzes" tool). These tutorials will walk students through each chapter's content, pointing out important components of each chapter, and give the students an opportunity to assess their understanding and competence with the material via multiple-choice exam-derived questions that are sequenced in logical order to help facilitate learning. The purpose of the tutorials is to help students to self-identify individual weaknesses and calculational mis-steps so that the students will be aware of these weaknesses before the exams do this for them. The proper way to approach the tutorials is to first go through them "cold" so that students can self-assess and self-grade themselves on the material; then, students can work with focus and efficiency to address their own individual weaknesses during subsequent attempts as detailed in the "How To Succeed In College Chemistry" document. You'll have five (5) attempts to successfully answer the questions. The highest scores of 10 of the 13 tutorials will count toward your grade (see under "Grades" below). It is up to the student to keep up with the due-dates during which tutorials are open; no due-date extensions will be given. Failure to at least access the tutorials once before their due dates will result in loss of ability to access the tutorials for the remainder of the semester.

Important - Read: (1) Be sure to write down your answers while doing the tutorials so that you will have them available when re-submitting the answers; (2) It is up to the student to keep up with the due-dates during which tutorials are open; no due-date extensions will be given; (3) Failure to at least access the tutorials once before their due dates will result in loss of ability to access the tutorials for the remainder of the semester – tutorials will not be re-opened for students after their due-dates; and (4) I am aware that the answers to these Tutorials are probably located somewhere on the internet, but your decision whether or not to use these Tutorials in the proper beneficial manner described above will be *your* decision alone and the consequential results thereof will also be your own responsibility. You are a college student now; act like one.

END-OF-CHAPTER PROBLEMS: Suggested problems from the end of each chapter in the textbook will be posted in the Resources folder. Worked-out solutions to all end-of-chapter problems are also found in the Resources folder. Be sure to use this valuable self-assessment resource! I recommend that students use the Tutorials above to self-assess for weaknesses with the material, and to let the results of that self-assessment guide the students as to which End-Of-Chapter problems need to be done. But let me say this: the more problems you do, the more you develop your skills at solving problems and understanding concepts. If success in this course is important to your goals, do not short-change yourself by merely doing the minimum work needed to "get by". Think about it.

INSTRUCTOR EMAIL and OFFICE HOURS: Course administrative queries only can be emailed to me (using your official UF email account: student@ufl.edu). Chemistry and course-content queries should be made in person during scheduled office hours in CLB 314 or immediately after lectures in CLB 130 if time permits. If these options are not possible, and you have questions regarding chemistry understanding, please visit the CLC (see below) where TAs are available to help you. Please consult the online chapter solutions (if applicable) before coming to office hours. Please also understand that **office hours are not study sessions**. When you come to office hours, be sure your queries are pre-prepared and that you are ready to discuss the queries as soon as you arrive; do not plan to sit and study or do practice problems during office hour time.

CHEMISTRY LEARNING CENTER (CLC): There is free help to be had from graduate student teaching assistants in the CLC Monday through 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 on e-Learning. And, there is the **TEACHING CENTER** located on the ground floor of Broward Hall, if you'd like to use that resource. Their web site is http://www.teachingcenter.ufl.edu.

COURSE GRADES: Course grades for the term will be earned as follows:

Assignment/Assessment Type	% of course grade
Progress Exams	60%
Online Tutorials and Discussion Class Worksheets	15%
Final Exam	25%
TOTAL	**100%**

The following grade cutoffs will be used (these are non-negotiable – no curves):
90-100% = A 86-89% = A- 83-85% = B+ 80-82% = B 76-79% = B-
73-75% = C+ 70-72% = C 66-69% = D+ 63-65% = D 60-62% = D-
< 60% = E (a grade of C or higher is required to take CHM2046)

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

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.

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/.

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 accomodations with the DRC. Students may seek mental health counseling at any time. See http://www.counseling.ufl.edu/cwc/.

U MATTER, WE CARE: Your well-being is important to the University of Florida. The U Matter, We Care initiative is committed to creating a culture of care on our campus by encouraging members of our community to look out for one another and to reach out for help if a member of our community is in need. If you or a friend is in distress, please contact umatter@ufl.edu so that the U Matter, We Care Team can reach out to the student in distress. A nighttime and weekend crisis counselor is available by phone at 352-392-1575. The U Matter, We Care Team can help connect students to the many other helping resources available including, but not limited to, Victim Advocates, Housing staff, and the Counseling and Wellness Center. Please remember that asking for help is a sign of strength. In case of emergency, call 9-1-1.

COURSE INFO: CHM 2045 and CHM 2045L constitute the first 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.