

CHM2045 – GENERAL CHEMISTRY I – SUMMER 2022

COURSE DELIVERY: This course will be delivered in a **synchronous HyFlex format**. The lectures will be held in CLB130 from 11 TO 12:05 pm on Mondays, Tuesdays, Thursdays, and Fridays. Students can attend in person or via Zoom. The Zoom link is posted on the Canvas course homepage. Discussion sections will be held in-person. Your discussion section will meet on Thursdays as per your schedule in ONE.UF.

INSTRUCTORS: e-mail via canvas (for administrative purposes). Expect a reply within 48 hours or on a Monday after a weekend.

May 9 through June 17 Dr. Martina Sumner E-mail (for administrative purposes): m.sumner@chem.ufl.edu	June 27 through August 5 Dr. Steven Harris E-mail (for administrative purposes): steven.harris@chem.ufl.edu
Office Hours (in-person) Zoom via request MTWF: 8:30 to 9:20 am W 11 to 12 pm R 9:30 to 10:30 am	Office Hours TR: 12:15 pm – 1:30 pm W: 11 am to 1:30 pm R: 9:30 to 10:30 am

MATERIALS: Silberberg 9th edition recommended (copies of the 8th ed and solution manual are available in the Marston Science library, solution manual for EOCs available under course reserves), the ALEKS with ebook will be available for \$68.

RECOMMENDED MATERIALS: Silberberg and Amateis, 9th ed. (PLAs will have sample problems from the 8th ed- see below), Chemistry, the molecular nature of matter and change,

You will also need a non-graphing / non-programmable **scientific calculator** like the TI (Texas instrument series) or Casio. TI-36 does quadratic function which will be helpful in chm2046. ALEKS with ebook will be available for \$68 for one semester. Iclicker for answering clicker questions during lecture (free).

Optional: eBook of Student Solutions Manual made specifically for this course. Title: GENERAL CHEMISTRY - CHM 2045, ISBN: 9781307629521 and can be purchased here: <https://create.mheducation.com/shop/> through McGraw Hill or through UF Bookstore. The Marston Science Library has the book and the student solution manual available.

DESCRIPTION: CHM 2045 and CHM 2045L constitute the first semester of the two-term sequence of General Chemistry, CHM 2045/2045L - 2046/2046L. CHM2045 is a 3-credit class. Prerequisite information and credit suitability can be found in the Undergraduate Catalog. Requirements for class attendance and make-up exams, assignments, and other work in this course are consistent with university policies that can be found at: <https://catalog.ufl.edu/ugrad/current/regulations/info/attendance.aspx>

ABBREVIATIONS: HW: Homework (optional on canvas; required on ALEKS), PLA: Pre-lecture assignment (required), LA: Lecture assignment (optional), ALQ: after lecture quiz (optional), ALEKS: Assessment and Learning in Knowledge Spaces

ALEKS: Two percent of the course grade will be based on completion of the Aleks prep course. The deadline for completion of the Aleks prep course is **Friday, May 18th**. The following shows the points you can earn based on completion:

% ALEKS Completion	0 – 69%	70 – 79%	80 – 89%	90 – 98%	99 - 100%
% of grade earned	0%	0.5%	1.0%	1.5%	2.0%

For more info and how to register please see <https://www.chem.ufl.edu/undergraduate/aleks/>

COURSE OBJECTIVES: As both a general education requirement and major's course, CHM2045 serves to teach: the scientific method, skills for problem solving, general chemistry knowledge, and a connection to the principles that govern the natural world.

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

4 Progress Exams	60%
Final Cumulative Exam	23%
ALEKS prep	2%
ALEKS HW	3%
ALEKS quiz	3%
iclicker	1%
PLA	3%
Worksheets/discussion	5%
TOTAL	100%

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

90-100% = A	83-85.9% = B+	73-76.9% = C+	66-68.9% = D+	< 60 = E
86-89.9% = A-	80-82.9% = B	69-72.9% = C	63-65.9% = D	
	77-79.9% = B-		60-62.9% = D-	

A minimum grade of C is required for general education credit. Information on current UF grading policies for assigning grade points can be found at:

<https://catalog.ufl.edu/ugrad/current/regulations/info/grades.aspx>

WORKLOAD: As a Carnegie I, research-intensive university, UF is required by federal law to assign at least 2 hours of work per week outside of class for every contact hour. Work done in these hours may include reading/viewing assigned material and doing explicitly assigned individual or group work, as well as reviewing notes from class, synthesizing information in advance of exams or papers, and other self-determined study tasks.

ASSIGNMENT DUE DATES: All due dates for assignments are clearly posted in the course assignments of the Canvas page and reflect the most up-to-date information. All assignments must be completed by the stated due date and time for credit. A Dean of Students note verifying documentation of illness or personal matter must be provided for at least five of the seven days of the week of the assignments' deadline for accommodations to be considered. If you want to have access to a particular assignment, you need to open and submit it once. Several assignments are dropped before calculating your final grade (see each category for how many). Attendance and Make-Up Work Requirements for class attendance and make-up exams, assignments and other work are consistent with university policies that can be found at: <https://catalog.ufl.edu/UGRD/academic-regulations/attendance-policies/>.

POSTED GRADES: Should a student wish to dispute any grade received in this class, the dispute must be in writing (via e-mail to m.sumner@chem.ufl.edu or steven.harris@chem.ufl.edu) and submitted to the instructor within one week of the grade being posted to canvas. The deadline for grade dispute for Dr. Sumner's half is June 17. After one week has passed from when the grade was posted and the student made aware of the posting of the grade(s) via an announcement on canvas, the instructor considers those grades final.

PRE-LECTURE ASSIGNMENTS (PLA): You will be expected to complete pre-lecture assignments in preparation for each class day. This assignment is based on the reading in the Silberberg book and on the sample problems. These assignments will be posted on Canvas under the quizzes tab (and under Modules for each chapter) and will be due prior to class. You will have multiple attempts to successfully answer the pre-lecture assignments. Up to three assignment will be dropped before the final exam.

DISCUSSION CLASSES/ WORKSHEETS: The Discussion Classes meet every Wednesday, and your attendance is **mandatory**. 5 points will be awarded when you attend your discussion class. The worksheet (canvas quiz) is worth 5 points. A total of 10 points can be earned each week by attending your discussion class and correctly answering the worksheet questions. The paper worksheets will be posted on Canvas in advance, and you may start working on it before you come to discussion. A canvas quiz will open on Thursday and due by 11:59 pm (questions randomly selected from the worksheet). Any grade discrepancy needs to be addressed within a week of posting grades to canvas to your graduate TA. One assignment will be dropped from this category before calculating your final grade.

ALEKS HW AND QUIZZES: There will be a HW due every Tuesday and Thursday. Before you can open the HW assignment you will have to watch the video assignment. You will have multiple attempts to successfully answer the HW questions. A quiz is due every Friday on whatever material we have covered. The quiz is timed and you have one attempt. One quiz and three HW will be dropped before calculating your final grade.

QUIZZES in ALEKS: 3 percent of the course grade will be based on the weekly Friday quizzes. These quizzes are checks on your progress, i.e., are you ready for the upcoming exam. So be prepared. I will let you know via an announcement on canvas. You must work individually on these quizzes to gauge your mastery of the material and to give you a reality check on what you know or do not know. Treat each quiz as a mini exam (as a trial to see whether you are prepared for an exam). One quiz will be dropped before calculating your final grade.

HOMEWORK IN ALEKS: There will be a HW due every Tuesday and Thursday. Before you can open the HW assignment you will have to watch the video assignment. A quiz is due every Friday on whatever material we have covered. You will have multiple attempts to successfully answer the HW questions. One quiz and three HW will be dropped before calculating your final grade.

IClicker: For in class participation (answering clicker questions on the material that you read for that day and we are covering that day). Each day is worth 3 points. Several points will be dropped before calculating your final iclicker average.

AFTER LECTURE QUIZZES (ALQ) and CANVAS HOMEWORK (HW): OPTIONAL.

After-lecture quizzes after each day's lecture. These quizzes are posted on Canvas under the Practice quizzes tab (and under Modules for each chapter) and will be due at the end of the lecture day by 11:59 pm. You will have 3 attempts to successfully answer the ALQ.

Several optional homework assignments will be due per chapter to help you understand the material. The homework will be posted on Canvas under the Practice quizzes tab (and under the Module for that chapter). You will have multiple attempts to successfully answer the questions. These are not worth any points.

You should also work on numerous End-of-Chapter questions (EOCs). The solution manual for all EOCs is available in the Marston Science library.

EXAMS: Exams will be taken in the evenings outside of class (8:20pm to 10:20pm), and the exam room assignments will be posted to canvas in an announcement. You must use a non-graphing non-programmable scientific calculator on exams (with log, ln, root, and exponent (scientific notation) functions). Be sure to also bring pencils, section number, and your UFID card. No notes, papers, cell phones or other electronic devices can be in view during exams. Exams are 120 minutes each and up to 30 questions.

To alleviate the stress of exams, we've incorporated an "average/replace" policy (the lowest of the four progress exams will be replaced by the average of the four progress exams). This "average/replace" policy will help to minimize the impact of a single poor performance but it will not completely disappear. For example, if a student has: Example (unapproved absence): Exam 1, 70%; Exam 2, 0%; Exam 3, 90%; Exam 4, 80% The Progress Exam 2 score (0%) will be replaced by $\{(70+0+90+80) / 4\} = 60\%$. Example (poor exam performance): Exam 1, 70%; Exam 2, 40%; Exam 3, 90%; Exam 4, 80% The Progress Exam 2 score (40%) will be replaced by $\{(70+40+90+80) / 4\} = 70\%$

Any and all exam grade disputes or Scantron confirmations must be performed within one week of the scheduled exam date. Bubbling errors will not be negotiated. A 5 point penalty will be applied for failure to bubble in a UFID correctly or not taking the exam in the assigned room. A 30 point penalty will be applied for failure to bubble in a form code or the wrong form code.

All exam grade disputes must be performed within one week of the scheduled exam date.

EXAM ABSENCES: Absences will be handled in accordance with official UF academic regulations. For more information, see <https://catalog.ufl.edu/UGRD/academic-regulations/>. See below for further clarification for two different types of situations.

(1) Conflicts with other events: Acceptable reasons to miss a scheduled exam include conflicting evening exams in courses with higher course numbers, religious holidays, military obligations,

special curricular requirements (e.g., attending professional conferences), or participation in official UF-sanctioned activities such as athletic competitions, etc. For more information on such absences see the official UF Policy at <https://catalog.ufl.edu/UGRD/academic-regulations/attendance-policies/#absencestext>). If you must be absent for an exam due to a documented and approved conflict known in advance, you must e-mail your instructor the documentation at least one week prior to the scheduled exam and an early conflict exam will be scheduled for you.

(2) Missing an exam due to an emergency or sudden illness: If you are absent for an exam due to an unpredicted documented medical reason or family emergency, you must contact the instructor as soon as possible, and you may be asked to have your excuse verified by the Dean of Students Office (DSO). Your instructor will follow UF academic regulations in evaluating the notification and/or documentation received by you or by the DSO on your behalf. Once your instructor is satisfied with the validity of your exam absence a make-up exam will be scheduled after a reasonable amount of time, i.e., before the end of the semester. If your documentation is deemed insufficient to excuse your absence you will receive a zero on the missed exam.

COURSE SCHEDULE (the lecture schedule is tentative, but exam dates will not change):

Class date	Topic	Before class	After class (optional)	Silberberg 9th Chapters*
May 9	Chapters 1-2	Read syllabus, familiarize yourself with canvas		Ch. 1-2
May 10	Ch. 3.1-3	PLA Ch. 3.1-3		Ch. 3.1-3
May 11	Discussion sections worksheet			Ch 1-2
May 12	Ch. 3.4 stoichiometry	PLA Ch. 3.4		Ch. 3.4
May 13	Ch 3	PLA ch 1-3 review		
May 16	Ch. 4.1 through 3 solution concentration, writing net ionic eq and precipitation reactions	PLA Ch. 4.1-3	ALQ Ch. 4.1-3, HW Ch. 4.1, HW Ch. 4.3	Ch. 4.1-3
May 17	Ch. 4.4 acid-base reactions	PLA Ch. 4.4	ALQ Ch. 4.4, HW Ch. 4.4	Ch. 4.4
May 18	Worksheet/ discussion			Ch 3
May 19	Ch. 4.5 and 6 redox reactions	PLA Ch. 4.5/6	ALQ Ch 4.5/6, HW Ch. 4.5	Ch. 4.5

May 20	Ch 4 review	PLA ch 4 review		
May 23	Ch 5.1/2/3 overview of gases, P, gas laws	PLA Ch. 5.1/2/3	ALQ Ch. 5.1-3, HW Ch 5.1-3	Ch. 5.1/2/3
May 24	Rearrangement of ideal gas law	PLA Ch. 5.4	ALQ Ch 5.4, HW Ch 5.3/4	Ch. 5.4
May 25	Worksheet/discussion			Ch 4, 5.1-4
May 26	KMT and real gases	PLA Ch. 5.5/6	ALQ Ch. 5.5/6, HW Ch. 5.4	Ch. 5.5/6
May 27	Review ch 1-5			
May 31	Exam 1 (Ch. 1-5) no class			
June 1	No worksheet or discussion			
June 2	Forms of energy; enthalpy	PLA Ch.6.1/2	ALQ Ch 6.1/2, HW Ch 6.1-2	Ch. 6.1/2
June 3	Calorimetry: Constant V and const. P	PLA Ch. 6.3	ALQ Ch 6.3, HW Ch 6.3/4	Ch. 6.3
June 6	Stoichiometry of thermochemical rxn, Hess's Law, ΔH of formation	PLA Ch. 6.4/5/6	ALQ Ch 6.4/5/6, HW Ch 5/6	Ch. 6.4/5/6
June 7	Ch 6 review		Optional HW	
June 8	Worksheet/discussion			Ch 6
June 9	Chemical kinetics: expressing reaction rate; rate law and its components	PLA Ch. 16.1/2/3	ALQ Ch 16.1-3, HW Ch 16.1-3	Ch. 16.1/2/3
June 10	Integrated rate laws	PLA Ch. 16.4	ALQ Ch 16.4, HW Ch 16.4	Ch. 16.4
June 13	Reaction mechanisms	PLA Ch. 16.6	ALQ Ch 16.6, HW Ch 16.6	Ch. 16.6
June 14	Theories of chemical kinetics and catalysis	PLA Ch. 16.5/7	ALQ Ch 16.5/7, HW Ch 16.5/7	Ch. 16.5/7
June 15	Worksheet/discussion			Ch 16

June 16	Review of ch 6 and 16			
June 16	Exam 2 (ch 6, 16)			
June 17	Office hours only			
June 20-24	Summer Break			
June 27	Nature of light	PLA Ch. 7.1	ALQ Ch 7.1, HW Ch 7.1	Ch. 7.1
June 28	Quantum mechanical model of atom	PLA Ch. 7.4, 8.1	ALQ Ch 7.4, HW Ch 7.4	Ch. 7.4, 8.1
June 29	Worksheet on ch 7			
June 30	Quantum Mech. Model and periodic table	PLA Ch. 8.1-2	ALQ Ch 8.1-2, HW Ch 8.1-2	Ch. 8.1-2
July 1	Trends in atomic properties (atomic size, ionic size)	PLA Ch. 8.3/4	ALQ Ch 8.3-4, HW Ch 8.3, HW Ch 8.3-4	Ch. 8.3-4
July 5	Ionic bonding model	PLA Ch. 9.1/2	ALQ Ch 9.1-2	Ch. 9.1/2
July 6	Worksheet on ch 8			
July 7	Covalent bonding model and bond energy	PLA Ch. 9.3/4	ALQ Ch 9.3/4, HW Ch 9.2-4	Ch. 9.3/4
July 8	Electronegativity and bond polarity	PLA Ch. 9.5/6	ALQ Ch 9.5/6, HW Ch. 9.2-5, HW Ch 9.5-6	Ch. 9.5/6
July 11	Lewis structures, resonance, formal charge	PLA Ch. 10.1	ALQ Ch 10.1, HW Ch 10.1	Ch. 10.1
July 12	VSEPR	PLA Ch. 10.2	ALQ Ch 10.2, HW Ch 10 Lewis, HW Ch 10.2	Ch. 10.2
July 13	Worksheet on ch 9			

July 14	Molecular shape and polarity	PLA Ch. 10.3	ALQ Ch 10.3, HW Ch 10.3	Ch. 10.3
July 15	Review for exam			
July 18	Exam over ch 7 -10			
July 19	Valence bond (VB) theory, modes of orbital overlap	PLA Ch. 11.1/2	ALQ Ch 11.1/2. HW Ch 11.1	Ch. 11.1/2
July 20	Worksheet on ch 11.1-2			
July 21	Molecular orbital theory (MO)	PLA Ch. 11.3	ALQ Ch. 11.3, HW Ch 11.3, HW Ch 11.1-3	Ch. 11.3
July 22	Physical states; phase changes, heating curve calculations	PLA Ch. 12.1/2	ALQ Ch. 12.1/2, HW Ch 12.2	Ch. 12.1/2
July 25	Intermolecular forces, liquid state, and uniqueness of water	PLA Ch. 12.3/4/5	ALQ Ch. 12.3/4/5, HW Ch 12.2(2), HW Ch 12.3/4	Ch. 12.3/4/5
July 26	The solid state: structure, properties, and bonding	PLA Ch. 12.6	ALQ Ch 12.6, HW Ch 12/6	Ch. 12.6/7
July 27	Worksheet over cha 11.3 and ch 12.1-5			
July 28	Types of solutions; why substances dissolve	PLA Ch. 13.1/2/3	ALQ Ch 13.1-3	Ch. 13.1/2/3
July 29	Exam 4 over ch 11 and 12			
Aug. 1	Solubility as an equilibrium process; concentration terms	PLA Ch. 13.4/5	ALQ Ch. 13.4/5, HW Ch 13.1-4	Ch. 13.4/5
Aug. 2	Colligative Properties	PLA 13.6/7	ALQ Ch. 13.6/7, HW Ch. 13.6	Ch. 13.6
Aug 3	Ch 13 review		HW Ch 13.4-6,	

			HW Ch 13.5	
Aug. 3	Final exam 7-9 PM			

*The topics that will be covered from each chapter will be selective and announced in class.

Holidays (no classes): Monday, May 30 (Memorial Day); June 20 - 24 Summer Break; Monday, July 4 (Independence Day)

CONTACTING THE INSTRUCTOR / OFFICE HOURS: Emails are for administrative purposes only, and not for distance-instruction. All academic inquiries must be made during Zoom office hours. If this is not possible, visit the graduate TAs zoom office hours (schedule posted on Canvas). Please be prepared before coming to office hours, bring specific questions and your previous work.

CHEMISTRY LEARNING CENTER (CLC): There is free help to be had from graduate student teaching assistants. Your discussion TA will have office hours in the CLC. Additionally, there is the teaching center <http://www.teachingcenter.ufl.edu> which offers some resources for being successful in your chm2045 class.

HONOR CODE: UF students are bound by The Honor Pledge which states, "We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honor and integrity by abiding by the Honor Code. On all work submitted for credit by students at the University of Florida, the following pledge is either required or implied: "On my honor, I have neither given nor received unauthorized aid in doing this assignment." The Honor Code (<https://catalog.ufl.edu/ugrad/current/regulations/info/grades.aspx>) specifies a number of behaviors that are in violation of this code and the possible sanctions. Furthermore, you are obligated to report any condition that facilitates academic misconduct to appropriate personnel. If you have any questions or concerns, please consult with the instructor or TAs in this class. **You will receive a 0 for the exam if cheating has been detected.**

CANVAS (<http://elearning.ufl.edu>): Here you will find the syllabus, gradebook, files, class announcements, and other pertinent info for the course. It is your responsibility to check Canvas often to make sure that you do not miss important announcements and to ensure that your gradebook is accurate. For computer assistance, visit <http://helpdesk.ufl.edu/>.

DISABILITIES: Students with disabilities who experience learning barriers and would like to request academic accommodations should connect with the Disability Resource Center by visiting <https://disability.ufl.edu/students/get-started/>. It is important for students to share their accommodation letter with their instructor and discuss their access needs, as early as possible in the semester.

UF MULTICULTURAL & DIVERSITY AFFAIRS: Department within the Division of Student Affairs. Multicultural and Diversity Affairs (MCDA) celebrates and empowers diverse communities and advocates for an inclusive campus for all students across identities. MCDA is located on the second level in the student union. <https://multicultural.ufl.edu/>

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.

COUNSELING AND WELLNESS CENTER: Visit counseling.ufl.edu/ or call 352-392-1575 for information on crisis services as well as non-crisis services.

UF TEACHING CENTER (CLAS): Broward Hall, 352-392-2010 or to make an appointment 352-392-6420. General study skills and tutoring. teachingcenter.ufl.edu/

INCLUSIVE LEARNING ENVIRONMENT: We embrace the University of Florida's Non-Discrimination Policy, which reads, "The University shall actively promote equal opportunity policies and practices conforming to laws against discrimination. The University is committed to non-discrimination with respect to race, creed, color, religion, age, disability, sex, sexual orientation, gender identity and expression, marital status, national origin, political opinion or affiliations, genetic information and veteran status as protected under the Vietnam Era Veterans' Readjustment Assistance Act." We are committed to fostering an open and inclusive classroom and laboratory environment in our College, where every student, guest instructor and contributor feels valued. If you have questions or concerns about your rights and responsibilities for inclusive learning environment, please see your instructor or refer to the Office on Multicultural & Diversity Affairs Website: <http://www.multicultural.ufl.edu/>

EVALUATIONS: Students are expected to provide professional and respectful feedback on the quality of instruction in this course by completing course evaluations online via GatorEvals. Guidance on how to give feedback in a professional and respectful manner is available at <https://gatorevals.aa.ufl.edu/students/>. Students will be notified when the evaluation period opens, and can complete evaluations through the email they receive from GatorEvals, in their Canvas course menu under GatorEvals, or via <https://ufl.bluera.com/ufl/>. Summaries of course evaluation results are available to students at <https://gatorevals.aa.ufl.edu/public-results/>."

GENERAL EDUCATION REQUIREMENTS: This course satisfies the general education program requirements for the physical sciences at the University of Florida. More information regarding the program objectives, student learning outcomes, and specific goals for CHM2045/CHM2046 can be found in the [General Education Program Requirements](#) document found on Canvas.

CRITICAL THINKING: Critical thinking skills are essential in the general chemistry course. There are six criteria by which we promote critical thinking: 1. Information acquisition: Identifying and differentiating questions, problems, and arguments. 2. Application: Assessing the suitability of various methods of reasoning and confirmation when approaching a problem. Students are taught to develop hypotheses and to find support and limitations associated with their hypotheses. 3. Analysis: Identifying and analyzing stated and unstated assumption and using logical reasoning to evaluate different viewpoints. 4. Synthesis: Students are encouraged to formulate questions and problems, construct arguments to address such questions and be able to effectively communicate conclusions. 5. Communication: In discussion of alternative points of view, students will be encouraged to criticize or defend their arguments with the use of logical reasoning and evidence. 6. Evaluation: Assessing the quality of evidence and reasoning to draw reasonable conclusions.

MATHEMATICS: It is crucial in the general chemistry course to be competent in mathematics. Listed are the criteria by which we promote understanding and application of math: 1. Information acquisition: Students learn to select data that is pertinent to solving a problem. 2. Application: Use of algebraic, geometric, and statistical reasoning to solve problems. 3. Analysis: Interpret and draw conclusions from formulas, graphs, and tables. 4. Synthesis: To associate patterns and observations to more abstract principles and to consider specific applications of such principles. 5. Communication: Communicating information symbolically, graphically, numerically, and verbally. 6. Evaluation: Estimate and verify solutions to mathematical problems to determine reasonableness, compare alternatives and select optimal results and understand the limitations of mathematical and statistical methods.

COLLEGE CHEMISTRY STUDY TIPS: Success in college-level chemistry primarily requires two things: A strong conceptual understanding of the material, and a competent mastery of quantitative problem-solving strategies that are required to successfully answer word problems that are typical on exams. This means that you must read your textbook and PowerPoint slides and understand them. Then you **MUST PRACTICE** problems in your textbook and on Canvas so that you can diagnose your own strengths and weaknesses with the material. The more you practice with problems that you do, the more likely you will recognize and know how to approach different kinds of problems, even if you have never seen identical questions before. Use the following suggestions as a guide:

1. Attempt each of the end-of-chapter problems one at a time, then check their solutions.
2. If you succeeded in getting the correct answer the first time without looking at the solution, check off that problem in the book, and if you did not succeed in getting the correct answer the first time without looking at the solution, circle the problem number.
3. Re-attempt the circled problems the next day or a few days later to see if you get the correct answer without looking at the solution.
4. Repeat steps 2 and 3 if necessary. Never assume that you have understood or succeeded at a problem until you have obtained the **CORRECT** answer all on your own and **NEVER** merely look at the solutions and say "oh yeah, I see what I did wrong", and move on.

Merely "doing all the problems at the end of the chapters" does not equal "doing all the problems at the end of the chapters correctly". The aim is not only to work hard, but to also work productively.

Giving yourself a "grade" after each session will keep you mentally on track regarding how

you are performing at that time.

ADDITIONAL STUDY HABITS: Any Chemistry course demands a regular sustained effort throughout the semester. This course requires on average 6 – 8 hours per week of work outside of lecture. You are expected to read the appropriate pages from the textbook (or similar chapters in other textbooks) prior to coming to class. The instructor will build on this material, and you are expected to be able to follow in-class discussion. Mastering this course is primarily **your** responsibility, and I am here to help you at all times in your endeavor to be successful. One of the most important things that you should learn while in college is that you must learn to identify your own weaknesses and strengths with the material in your courses and work on those weaknesses by displaying a sense of responsibility for your own learning.

Most importantly, do not allow yourself to fall behind because the material builds up. If you find that you are not grasping essential material by reading the textbook and following in-class discussion, **seek help early!** Visit your instructor's office hours, talk to other students in your class, compare notes, form a study group, practice as many problems as you can, consult other textbooks, go to the LRC, *etc.*

Cramming overnight will not guarantee a favorable result.

Disclaimer: This syllabus represents our current plans and objectives. If those need to change as the semester progresses, then the changes will be communicated to the class clearly via announcements on Canvas.