General Chemistry I
CHEM 2045

The instructor reserves the right to make changes or corrections to this syllabus at any time. Students will be notified when any changes are made via an announcement on canvas.

Course Overview

Description

CHM 2045 and CHM 2045L constitute the first semester of the two term sequence of General Chemistry, CHM 2045/2045L - 2046/2046L. 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

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.

INSTRUCTOR:

DR. MARTINA SUMNER Flint #250 E-mail (for administrative purposes): m.sumner@chem.ufl.edu	**Office Hours (Flint #250):** MWF 8:30 to 9:20 am, 10:35 to 11:35 am, 1:50 to 3:20 pm Tuesdays by appt from 1:30 to 2:45 pm starting Sept. 4

REQUIRED MATERIALS:

- Tophat subscription for in class clicker questions.
- nonprogrammable, scientific calculator (TI) or casio, TI-36 does quadratic function which will be helpful in chm2046
- Aleks (see below)

RECOMMENDED MATERIALS:

- Silberberg and Amateis, 8th ed (can acquire an earlier edition), Chemistry, The molecular nature of matter and change, can get ebook for $49 for 5 years - only available until September 14th

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 **Monday, September 10th.** 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/

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

4 Progress Exams	60%
Final Cumulative Exam	23%
Aleks	2%
Quizzes	5%
Clickers/Worksheets	5%
Pre-lecture assignments (PLA)/Homework (HW)	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-	

Information on current UF grading policies for assigning grade points can be found at:
https://catalog.ufl.edu/ugrad/current/regulations/info/grades.aspx

ONLINE PRE-LECTURE ASSIGNMENTS/HOMEWORK: Five percent of the course grade will be based on online pre-lecture assignments through canvas. Each pre-lecture assignment is due before class. A weekly homework assignment will also be due. You should also work **all** sample problems, follow up problems, and multiple end-of-chapter problems for each chapter.

QUIZZES: Five percent of the course grade will be based on weekly quizzes administered via canvas (5-10 questions, 30-60 minutes). We will have at least 10 quizzes – if we have more than 10 the best 10 will count towards your grade. You must work individually on these questions. Quizzes will be available on canvas for 24 hours (usually Tuesdays from 12 am to 11:59 pm). They are due by 11:59 pm on Tuesday unless otherwise noted. Treat the quizzes as a mini exam (as a check to see whether you are prepared for an exam).

CLICKERS/WORKSHEETS: Five percent of the course grade will be based on in-class clicker questions and weekly discussion worksheets. Clicker questions will be asked throughout class. You can earn points in class by correctly answering clicker questions through TopHat. Each class day will be worth 2 points regardless of how many questions were asked. You can only receive credit for participating in the clicker questions from your registered period. Clicker questions start counting towards your grade on Wednesday, August 29. **WORKSHEETS** There will be 10 worksheets. The first discussion classes meet the week of August 27, the last one the week of November 26. You can earn 2 points by completing worksheets in the discussion sections.

DISCUSSION CLASSES/WORKSHEETS: The Discussion Classes meet every week and your attendance is expected unless otherwise noted (starts week of August 27). Your discussion section will contain weekly worksheets that will count toward your overall grade.

You must go to your assigned discussion section to receive credit for the worksheet. The worksheet will be posted to canvas by Monday night. You may start working on it before you come to discussion. Form groups of 2 to 3 students and work on it together. Any grade discrepancy needs to be addressed within a week of posting grades to canvas (an announcement will be posted to canvas). If you missed a discussion section and show your completed worksheet to your TA the following week you will receive half credit. Any worksheet that is later than a week is worth no points.

STUDYING:
This is an intense course. You will have to work hard to earn the grade you want. Get help early. Don't wait to the last minute. Remember you are the one that is responsible for studying the material and making sure you know it.

CONTACTING THE INSTRUCTOR / OFFICE HOURS: Emails are for administrative purposes only, and not for distance-instruction. All academic inquiries must be made during office hours or before/after lectures (if time permits). If this is not possible, visit the CLC (see below). Please be prepared before coming to office hours, bring specific questions and your previous work.

CHEMISTRY LEARNING CENTER (CLC): There is free help available from graduate student teaching assistants in the CLC Monday through Friday (about 8:30 to 6 pm) in JHH (Hernandez) Hall 105. 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 online. Additionally, 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.

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.

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/.

CLASS DEMEANOR: In order to have an optimal learning environment, the classroom needs to be free of disruptions. Therefore, it is expected that students come to class on time and leave only when class is concluded by the instructor, and that the class is not disrupted by student talking or cell phone noises.

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

PLANNED LECTURE AND EXAM SCHEDULE	Chapters
Aug 22-24: Intro and Review: Atoms, Molecules, and Ions (2)	1–2
Aug 27-31: Stoichiometry and Quantitative Chemistry (3)	3
Sept 5-10: Aqueous Chemical Reactions (3)	4
PROGRESS EXAM 1 – Tuesday, September 11 (8:20−9:50 pm)	**Cumulative**
Sept 12-17: Gases (3)	5
Sept 19-24: Thermochemistry (3)	6
Sept 26: The Nature of Light (1)	7
Sept 28–Oct 5: Kinetics: Rates of Reaction and Rxn Mechanisms (4)	16
Oct 8: Quantum Mechanical Model (1)	7
PROGRESS EXAM 2 – Tuesday, October 9 (8:20−9:50 pm)	**Cumulative**
Oct 10-15: Electron Configuration and Periodic Trends of Elements (3)	8
Oct 17-22: Types of Chemical Bonding (3)	9
Oct 24-31: Lewis Structures and Molecular Geometry (4)	10
PROGRESS EXAM 3 – Monday, November 5 (8:20−9:50 pm)	**Cumulative**
Nov 5 - 9: Theories of Covalent Bonding (3)	11
Nov 14-19: Intermolecular Forces of Attraction; Liquids and Solids (3)	12
Withdrawal deadline Monday, November 19 by 11:59 pm	
Nov 26-30: Solutions and Colligative Properties (3)	13
PROGRESS EXAM 4 – Monday, December 3 (8:20−9:50 pm)	
Dec 5: Solutions and Colligative Properties (1)	13
FINAL EXAM – Tuesday, December 11 (10 to noon)	**Cumulative**

OFFICIAL UF HOLIDAYS (no classes): Monday, Sept. 3 (Labor Day), Friday, Nov. 2 (Homecoming), Monday, Nov. 12 (Veteran's Day), Wednesday through Friday, Nov 21 – 23 (Thanksgiving)

EXAMS: Exams will be taken in the evenings outside of class and the Exam Room Assignments will be posted to canvas. 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 and your UF ID card. No notes, papers, cell phones or other electronic devices can be in view during exams.

No makeup ("do over") progress exams will be given for any reason. If you must be absent for an exam due to a documented and approved academic or UF athletic conflict, e-mail your instructor (m.sumner@chem.ufl.edu) the documentation at least *one week prior* to the scheduled exam and an early conflict exam will be scheduled for you. If you have another exam scheduled at the same time, please e-mail your instructor at least one week prior to the exam, so arrangements can be made for you to take the chemistry exam earlier. If you are absent for an exam due to an unpredicted documented medical reason, you must contact the instructor as soon as possible. More information regarding this policy can be found in the *General Chemistry Exam Absence Policy* document found on Canvas.

To alleviate the stress of potential issues that do not fall under officially-sanctioned absences, 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. Example: exam 1 150, exam 2 missed but an excused absence, exam 3 160, exam 4 180 so average replace 163.33, OR exam 1 150, exam 2 missed but **not** an excused absence so 0, exam 3 160, exam 4 180 so average replace 122.5 (so the 0 will be replaced with 122.5). The student that had an excused absence will replace that 0 on exam 2 with what they make on the final so, if they score a 190/250 on the final their exam 2 will now be 152 points.

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

DISABILITIES: Students with disabilities requesting accommodations should first register with the Disability Resource Center (352-392-8565, http://www.dso.ufl.edu/drc/) by providing appropriate documentation. Once registered, students will receive an accommodation letter which must be presented to the instructor when requesting accommodation. The student is responsible for scheduling the exam dates with the DRC. Students with disabilities should follow this procedure as early as possible.

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.

EVALUATIONS: Students are expected to provide feedback on the quality of instruction in this course by completing online evaluations at https://evaluations.ufl.edu. Evaluations are typically open during the last two or three weeks of the semester, but 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/.

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.

GENERAL EDUCATION STUDENT LEARNING OUTCOMES: The following learning outcomes will be assessed through online assessments and examinations.

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.

SPECIFIC GOALS OF CHM2045: You will be required to analyze scientific concepts and think critically. This means being able to answer both quantitative (mathematical) and conceptual (qualitative) multiple choice problems in a limited period of time. Additionally you will have to write or orally communicate during your discussion periods. We will also demonstrate how these topics can be applied to the scientific method and how observation and experimentation leads us to the development of scientific theories. To achieve this, students will be introduced to the following concepts from the textbook. You will review the importance of chemistry in our everyday lives. You will be required to utilize the methods of science as a logical means of problem solving through critical thinking. This means you must analyze information carefully and logically from multiple perspectives, using discipline specific methods, and develop reasoned solutions to problems. To ensure your competency in these concepts you will be required to complete online homework assignments and take quizzes and exams that require critical thinking, analysis of problems and drawing conclusions.

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.

DISCLAIMER: This syllabus represents my current plans and objectives. If those need to change as the semester progresses, then the changes will be communicated to the class clearly. Check elearning/canvas daily for any pertinent announcements.