

Dr. Stacey-Ann Benjamin **Office:** FLI 255 **Email** (for administrative purposes): sbenjami@ufl.edu

Course 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.

Lectures: T 2nd & 3rd periods (8:30 – 10:25 am); R 3rd period (9:35 – 10:25 am) in CLB 130

Office Hours: T, R Period 5 (11:45 am – 12:35 pm) in FLI 258
Chemistry and course-content queries should be made in person during office hours (and not by email – see below) in FLI 258 during 5th period on Tuesdays and Thursdays, or immediately after lectures in CLB 130 if time permits.

Email: Email is for administrative purposes only, and not for remote instruction. Course administrative queries only can be emailed to me (from your official UF email account: student@ufl.edu only - students must use your official @ufl.edu email or have your @ufl.edu emails automatically forwarded to your preferred email address). You may also email me in Canvas if you wish.

Discussion Sections: All discussion sessions are on Wednesdays. Please note your section and attend your assigned session. Discussions begin on 1/15

Teaching Assistants: Sayak Das Gupta - sayakdasgupta@ufl.edu
Will Carden - wgcarden@chem.ufl.edu

Required Course Material: ALEKS Prep Access and TopHat Subscription (details below)

Course Textbook: *Chemistry, The Molecular Nature of Matter and Change*; Silberberg and Amateis; 8th Edition; McGraw Hill; ISBN 9781259631757.

- There is an option to opt-in to the eText for a discounted price via UF All Access.
- Copies of the text along with the solutions manual are available in Marston Science Library.

The content of this course will come from the text. It is the student's responsibility to be prepared for all class sessions. One way to demonstrate preparedness and engagement in your own learning is to read your textbook outside of class.

Calculators: A nonprogrammable, scientific calculator is required for this course. Calculators are allowed during quizzes and exams but may NOT be shared. Graphing and programmable calculators are NOT permitted during quizzes and exams. Cell phones and other electronic devices may NOT be used for calculations.

Attendance: It is highly recommended that students attend ALL lectures. Merely reading the textbook from home will not suffice. Knowing concepts emphasized and practicing examples presented in class will prove beneficial for success in the course. In the event of an unavoidable class absence, it is the student's responsibility to keep up with the work covered during his/her absence.

ALEKS Prep: Two percent of the course grade will be based on completion of the Aleks prep course. Every student taking CHM2045 must complete the ALEKS prep for the current semester regardless of prior classes, training, or previous ALEKS completion. The deadline for completion of the Aleks prep course is **Friday, January 22nd**. 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/>

Top Hat (Class Participation): Tophat subscription for in class clicker questions. After the Drop/Add period ends, lecture participation will be facilitated via the Top Hat student response system (www.tophat.com). You will be able to submit answers to in-class questions using Apple or Android smartphones and tablets, laptops, or other applicable web-enhanced device. No clickers required. Three percent of the course grade (3 %) will be based on performance on in-class Top Hat questions. You can earn points in class by correctly answering Top Hat questions (1 point per correct answer + 1 point per participation). Absence from class during these times, for whatever reason, will result in forfeiture of that day's participation score – no exceptions. However, missing one or two will not severely affect your overall score.

You can visit the Top Hat Overview (<https://success.tophat.com/s/article/Student-Top-Hat-Overview-and-Getting-Started-Guide>) within the Top Hat Success Center which outlines how you will register for a Top Hat account, as well as providing a brief overview to get you up and running on the system. An email invitation will be sent to you by email, but if don't receive this email, you can register by simply visiting our course website: <https://app.tophat.com/e/339323/>

Note: our Course Join Code is **339323**

Top Hat may require a paid subscription, at the University of Florida a one semester access is \$20.00 and full year access is \$30.00.

Should you require assistance with Top Hat at any time, due to the fact that they require specific user information to troubleshoot these issues, please contact their Support Team directly by way of email (support@tophat.com), the in app support button, or by calling 1-888-663-5491.

Canvas: Here you will find course activities such as online homework problems, worksheets, quiz and exam grades, necessary course notes, and important date reminders. Canvas may be accessed using the following website : <http://elearning.ufl.edu/>. 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/>.

Online Assignments: Online homework will be assigned in Canvas. Online assignments are intended to help students keep up with the course content. Each assignment has a displayed deadline for earning full credit; you can earn up to 3% toward your grade by completing these assignments.

Discussion Sessions & Worksheets: Discussion classes meet every Wednesday and your attendance is expected (attendance will be checked by your TA). During your discussion session you

will complete weekly worksheets that will count toward your overall grade (3%). The worksheet will be posted to canvas by Monday night. You may start working on it before you come to discussion, but you **must** go to your assigned discussion section to receive credit for the worksheet. 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. If you miss 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. The first discussion classes meet the week of January 13th.

Concept Checks: During the discussion session before an exam, you will be given a concept check quiz. The concept check is intended to help students evaluate your understanding of core principles, be aware of what you know and what you need to work on before taking your exam. Each quiz will last the entire period, and the worked solutions will be posted on Canvas within 24 hours. You **cannot** make up a quiz so attendance and promptness to discussion is necessary.

Proficiency Quizzes: This semester, CHM2045 will be part of an ongoing Chemical Education Research project within the Department of Chemistry at UF. The study will look at exam performance in CHM2045 in correlation with quiz performance. All students, irrespective of whether they wish to participate in the study, will complete three Proficiency quizzes over the course of the semester as part of their regular workload. These quizzes will contribute to the course grade for a total of 2 %. Students will be randomly assigned to one of two groups, and the timing of the quizzes will vary from group to group. To participate in the study, students will complete the Informed Consent Form Survey through a Canvas Survey by January 17, 2020. Participation means that you agree to allow your exam and quiz grades to be collected for research. Participation does not influence your course grade in any way. Please note that you will have to complete the quizzes to earn a portion of the course grade, and they are graded based on correctness, not completion. If you do not wish to participate in the study (have your exam and quiz scores collected for research purposes), you still must take the Proficiency quizzes. Each quiz is designed to be completed within a 60- minute time frame and will be available for two days during the school week. We ask you to participate in the study since the data collected may lead to future improvements of CHM2045. *Special note: Extensions for missed Proficiency Quizzes will not be granted for any reason. However, if you have DRC accommodations for extra time, please email your accommodation letter to Kaylee Todd at kmtodd8485@chem.ufl.edu.*

Additional practice problems: Chemistry is a course best mastered through **constant practice**. Additional practice questions are located at the end of each chapter in your text. It is highly suggested that students practice these problems. Feel free to visit your instructor during office hours to work on questions you may need help with.

Exams: Exams will be taken in the evenings outside of class and the exam room assignments will be posted. 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. To alleviate the stress of exams, we've incorporated an "average/replace" policy (the lowest of the three progress exams will be replaced by the average of the three 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: Exam 1 score of 190/200, Exam 2 score of 150/200 and Exam 3 score of 180/200, then their average/replace score will be 173/200 and it will replace the original Exam 2 score.

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.

Grade Change and Make-up Policies: If you suspect there was an error in the grading of an exam, it is your responsibility to notify the lecturer in person or via email within one week of the grade being posted on Canvas for consideration. Bubbling errors will not be negotiated. A 10 point penalty will be applied for failure to bubble in a UFID correctly or not taking the exam in the assigned room. A 20 point penalty will be applied for failure to bubble in a form code or the wrong form code. No grade change considerations or changes will be made after this one week period.

CLC Hours: Free help with coursework is offered to students in the CLC Monday through Friday 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>.

Tentative Course Schedule

Week	Topic/Chapter	Special Dates/Notes
1/7 - 1/9	Introduction, Review CH 1, 2	
1/14 – 1/16	The Mole, Chemical Equations, Reaction Stoichiometry CH 3	
1/21 – 1/23	Aqueous Chemical Reactions, Redox Reactions CH 4	W, 1/22 – ALEKS Prep course due by midnight
1/28 – 1/30	Gases & the Kinetic-Molecular theory CH 5	Exam 1, T, 1/28 @ 8:20 – 10:20 pm CH 1, 2, 3, 4
2/4 – 2/6	Thermochemistry CH 6	
2/11 – 2/13	Kinetics CH 16	
2/18 – 2/20	The Nature of Light & Quantum Mechanical Model CH 7	
2/24 – 2/27	Electron Configurations, Periodic Properties of the Elements CH 8	Exam 2, M, 2/24 @ 8:20 – 10:20 pm CH 5, 6, 16, 7
3/3 – 3/5	NO CLASSES	SPRING BREAK
3/10 – 3/12	Chemical Bonding CH 9	
3/17 – 3/19	Lewis Structures and Shapes of Molecules CH 10	
3/24 – 3/26	Shapes of Molecules, Theories of Covalent Bonding CH 10, CH 11	
3/31 – 4/2	Theories of Covalent Bonding CH 11	Exam 3, R, 4/2 @ 8:20 – 10:02 pm CH 8, 9, 10, 11
4/7 – 4/9	IMFs, Liquids CH 12	
4/14 – 4/16	Solids, Solutions & Colligative Properties CH 13	
4/21 – 4/25	Solutions & Colligative Properties CH13	No class 4/23 Final Exam, S, 4/25 @ 3:00 – 5:00 pm Cumulative

***** The last day to withdraw from a course with a “W” is April 10th.** If a student desires to withdraw from this course, it is his/her responsibility to complete the proper process. If a student stops attending class without withdrawing correctly, a grade of F will be assigned.

Course percentage breakdown	
3 during-the-semester Progress exams (20% each)	60%
Final Cumulative Exam	23%
3 Proficiency Quizzes	2%
3 Concept Checks	4%
ALEKS prep	2%
Online Homework	3%
Class Participation (TopHat)	3%
Worksheets	3%
Total	100%

Grading values: Your final letter grade in this course will be based on the following non-negotiable grade cut-offs:

90-100% = A	86-89.9% = A-	83-85.9% = B+	80-82.9% = B	77-79.9% = B-
73-76.9% = C+	69-72.9% = C	66-68.9% = D+	63-65.9% = D	60-62.9% = D-
< 60.0% = E				

Information on current UF grading policies for assigning grade points can be found at:

<https://catalog.ufl.edu/UGRD/academic-regulations/grades-grading-policies/>

Academic Honesty and the Honor Code: Students are expected to exercise honesty and integrity at all times. Any incidents of cheating, plagiarizing/copying, submitting another person's work as your own, having unauthorized possession of quizzes or exams, and/or facilitating other students' acts of academic dishonesty plagiarism, will be taken seriously and will be dealt with in the strictest manner. 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://sccr.dso.ufl.edu/policies/student-honor-code-student-conduct-code/>) 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.

Disabilities: Students with disabilities who experience learning barriers and would like to request academic accommodations should connect with the disability Resource Center by visiting 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.

Students requesting accommodation for disabilities must first register with the Dean of Students Office (<http://www.dso.ufl.edu/drc/>). The Dean of Students Office will provide documentation to the student who must then provide this documentation 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. The DRC has 4 business day policy to submit Accommodated Testing Requests (ATRs). You must submit this documentation prior to submitting assignments or taking quizzes or exams. Accommodations are not retroactive, therefore, students should contact the office as soon as possible in the term for which they are seeking accommodations.

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.

Feedback: 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: This course satisfies the general education program requirements for the physical sciences at the University of Florida. 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 homework assignments and assessments.

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 CHM 2045: 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.

Courtesies: Be reminded that this is a college-level course and students are expected to act accordingly. Please refrain from speaking out of turn in class, texting or talking on cell phones. Please be respectful to your lecturer and I will be respectful to you. The instructor reserves the right and obligation to ask any student whose behavior is deemed inappropriate or disruptive to leave the classroom.

Netiquette: All members of the class are expected to follow rules of common courtesy in all email messages, threaded discussions, and chats. <http://teach.ufl.edu/wp-content/uploads/2012/08/NetiquetteGuideforOnlineCourses.pdf>

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 practice with problems that you do, the more likely you will recognize and know how to approach different kinds of problems, even if you've 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. Solutions to odd-numbered problems are in the back of your text, and feel free to check solutions to the even-numbered problems with your instructor during office hours.
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 current plans and objectives. As we go through the semester, those plans may need to change to enhance the class learning opportunity. The instructor reserves the right to make correction, additions and/or deletions to the syllabus as the above information may be subject to change. Such changes, communicated clearly, are not unusual and should be expected.