

## CHM2045 – GENERAL CHEMISTRY I – Fall 2020

**INSTRUCTOR:** Dr. Steven Harris e-mail (for administrative purposes):  
[steven.harris@ufl.edu](mailto:steven.harris@ufl.edu).

**OFFICE HOURS:** MWF during Period 6 (12:50 to 1:40 pm), Period 7 (1:55 to 2:45 pm), & Period 8 (3:00 to 3:50 pm) Zoom link:  
When you attend office hours and ask a question, I expect to be able to see you via your camera on zoom.

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

Class date	Topic
Aug. 31	Chapter 1-2
Sept. 2	Ch. 3.1, The Mole
Sept. 4	Ch. 3.2, 3.3 Empirical formula, Balancing equations
Sept. 7	<b>Labor Day Holiday</b>
Sept. 9	3.4, 4.1 limiting reactant and concentration units
Sept. 11	Ch. 4.2 and 3 writing net ionic eq and precipitation reactions
Sept. 14	Ch. 4.4 acid-base reactions
Sept. 16	Ch. 4.5 and 6 redox reactions
Sept. 18	Ch 5.1, 5.2, 5.3 Overview of states, Pressure, Gas laws
	<b>Exam 1 (Ch. 1-4) Wed., Sept. 16</b>
Sept. 21	5.4, Rearrangement of ideal gas law
Sept. 23	5.5, 5.6, KMT and real gases
Sept. 25	6.1, 6.2, Forms of energy; enthalpy
Sept. 28	6.3, 6.4, Calorimetry: Constant V and const. P
Sept. 30	6.4, 6.5, 6.6, Stoichiometry of thermochemical rxn, Hess's Law, $\Delta H$ of formation
Oct. 2	<b>Homecoming (no class)</b>
Oct. 7	16.1, 16.2, Chemical kinetics: expressing reaction rate
Oct. 9	16.3, 16.4, Rate law and its components; Integrated rate laws
Oct. 12	16.5, 16.6, Theories of chemical kinetics
Oct. 14	16.6, 16.7, Reaction mechanisms and catalysis

Oct. 19	16.7, 7.1, Nature of light
	<b>Exam 2 (Ch. 5,16,6) Tues. Oct. 20</b>
Oct. 21	7.4, Quantum mechanical model of atom
Oct. 23	8.1, Many-electron atoms
Oct. 26	8.2, 8.3, Trends in atomic properties (atomic size, ionic size)
Oct. 28	8.4, 9.1, 9.2, Atomic Properties; Ionic bonding model
Oct. 30	9.3, 9.4, Covalent bonding model and bond energy
Nov. 2	9.5, 9.6, Electronegativity and bond polarity
Nov. 4	10.1, Lewis structures, resonance, formal charge
Nov. 6	10.2, VSEPR
Nov.9	10.3, Molecular shape and polarity
Nov. 11	<b>Veterans Day Holiday no class</b>
Nov. 13	11.1, 11.2, Valence bond theory, modes of orbital overlap
Nov. 16	11.2, 11.3, Molecular orbital theory (MO)
Nov. 18	11.3, 12.1, 12.2, Physical states; phase changes, heating curve calculations
Nov. 20	12.2, 12.3, 12.4, Intermolecular forces, liquid state
	<b>Exam 3 (Ch. 7-11) Fri, Nov. 20</b>
Nov. 23	12.4, 12.5, The uniqueness of water;
Nov. 25-28	<b>Thanksgiving Holiday</b>
Nov. 30	12.6, The solid state: structure, properties, and bonding
Dec. 2	13.1, 13.2, 13.3, Types of solutions; why substances dissolve
Dec. 4	13.4, 13.5, Solubility as an equilibrium process; concentration terms
Dec. 7	13.6, Colligative Properties
Dec. 9	Review ch. 1-16
<b>Dec. 14</b>	<b>Monday: Final exam 7:30 to 9:30 am</b>

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

**Holidays (no classes):** Monday, Sept. 7 (Labor Day); Friday, Oct. 2 (Homecoming); Wednesday, Nov. 11 (Veterans Day); Wednesday through Friday, Nov. 25-27 (Thanksgiving)

## RECOMMENDED MATERIALS:

Silberberg and Amateis, 8<sup>th</sup> ed. (PLAs will have sample problems from the 8<sup>th</sup> ed- see below), Chemistry, The molecular nature of matter and change, can get eBook for less than \$50 for 5 years – available for a limited time.

<https://www.bsd.ufl.edu/G1CO/IPay1f/start.aspx?TASK=INCLUDED>

You will also need a non-graphic/non-programmable scientific calculator.

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.

**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>

**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, September 18<sup>th</sup>**. 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:

3 Progress Exams	60%
Final Cumulative Exam	23%
Aleks	2%
Worksheets	5%
Pre-lecture assignments (PLA)/Homework (HW)	5%
Quizzes/ Proficiency quizzes	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
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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>

**POSTED GRADES:** Should a student wish to dispute any grade received in this class, the dispute must be in writing (via e-mail to [steven.harris@ufl.edu](mailto:steven.harris@ufl.edu)) and submitted within one week of the grade being posted to canvas. 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. 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.

**HOMEWORK (HW):** Two to four homework assignments will be due per chapter to help you understand the material. The homework will be posted on Canvas under the quizzes tab (and under the Module for that chapter). You will have multiple attempts to successfully answer the questions. Up to six assignments will be dropped at the end of the semester from the PLA/HW category. Additional HW assignments for each chapter can be found under Quizzes (and under the Module for that chapter), then scroll down to Practice Quizzes. These are not worth any points.

You should also work numerous EOCs. The solution manual for all EOCs are available in the Marston Science library.

**QUIZZES:** 3.5 percent of the course grade will be based on quizzes. These quizzes are checks on your progress, i.e. are you ready for the upcoming exam. The quizzes will be due every Thursday by 11:59 pm. 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 don't know. Treat the progress checks as a mini exam (as a trial to see whether you are prepared for an exam).

**PROFICIENCY QUIZZES:** 1.5 percent of your grade will come from the 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 a minimum of three to a maximum of six Proficiency quizzes over the course of the semester as part of their regular workload. For each exam, a pair of Proficiency Quizzes will be available. The higher score of each pair will contribute to the course grade for a total of 1.5-% (3 PQs are required, each worth 0.5-% of the course grade); the lower score will be dropped. You may complete one or both PQs in each pair. 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 September 9, 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 and have your exam and quiz scores removed from the collected data, you still must take the assigned Proficiency quizzes. Each quiz is designed to be completed within a 30-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 CHM2045/2046. *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](mailto:kmtodd8485@chem.ufl.edu).* In addition to the quizzes, two surveys will be administered through Canvas – the first after the first during-term exam and the second before the final exam. The surveys should take no more than 10-15 minutes to complete. The surveys will be scored for completion, and the scores may contribute to the course grade at the instructors' discretion.

**DISCUSSION CLASSES/ WORKSHEETS:** The Discussion Classes meet every Tuesday and your attendance is **mandatory**. 5 points will be awarded when you attend your TA's zoom session. The worksheet is worth 5 points. A total of 10 points can be earned each week by attending your discussion zoom class and correctly answering the worksheet questions. The 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 Wednesday and due by 11:59 pm (5 questions randomly selected from the worksheet). Any grade discrepancy needs to be addressed within a week of posting grades to canvas to your TA.

**HONORLOCK:** Honorlock will proctor your exams this semester. Honorlock is an online proctoring service that allows you to take your exam from the comfort of your home. You DO NOT need to create an account, download software or schedule an appointment in advance. Honorlock is available 24/7 and all that is needed is a computer, a working webcam, and a stable Internet connection. <https://warrington.ufl.edu/covid-19/information-for-for-students/honorlock-student-guide/> more info on Honorlock

To get started, you will need Google Chrome and to download the Honorlock Chrome Extension. You can download the extension at [www.honorlock.com/extension/install](http://www.honorlock.com/extension/install)

When you are ready to test, log into Canvas, go to your course, and click on your exam. Clicking "Launch Proctoring" will begin the Honorlock authentication process, where you will take a picture of yourself, show your ID, and complete a scan of your room. You will need a small handheld mirror so you can show your computer screen to the camera and also show underneath your table or desk. Honorlock will be recording your exam session by webcam as well as recording your screen. Honorlock also has an integrity algorithm that can detect search-

engine use, so please do not attempt to search for answers, even if it's on a secondary device.

Good luck! Honorlock support is available 24/7/365. If you encounter any issues, you may contact them by live chat, phone (855-828-4004), and/or email ([support@honorlock.com](mailto:support@honorlock.com)).

**EXAMS:** Exams will be administered at night from 6:00pm to 10:20pm (Eastern time) via Honorlock. Exam questions will consist of questions similar to the HW/PLA/worksheet/quizzes/PQ you have completed on Canvas. So expect numeric entry, multiple dropdowns, multiple answer, true/false, multiple choice, matching, and multiple fill in the blanks. You must use a non-graphing non-programmable scientific calculator on exams (with log, ln, root, and exponent (scientific notation) functions).

**Any and all exam grade disputes must be performed within one week of the scheduled exam date.** 5 points will be deducted from your score if you neglect to sign the Honor Pledge question at the end of every exam.

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 attending an exam, you must do the following: (1) contact the Dean of Students office and have them confirm your conflict documentation and have them email their confirmation to me, and then you must (2) contact the current instructor of the course as soon as you are no longer ill (no rush – wait until you are well) and/or as soon as you are able to do so. Failure to do these two steps will result in a zero score for the missed exam. (More information regarding this policy can be found in the General Chemistry Exam Absence Policy found on Canvas.)

Progress Exam "Average/Replace" Policy: (Applies to all students). No Progress Exam scores will be dropped for any reason. 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 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. Example: exam 1 140, exam 2 100, exam 3 180, so average replace 140, so the 100 will be replaced with 140. Another example: exam 1 140, exam 2 0 (missed), exam 3 180, so average of the three exams is 106.67 so the 0 will be replaced with the 106.67. Please keep in mind that you MUST take all exams or its corresponding make-up.

**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 via zoom. Your discussion TA will have office hours on zoom. You will also receive zoom links for the other chm2046 graduate TAs so you may attend any TAs zoom office hours. Additionally, there is the teaching center <http://www.teachingcenter.ufl.edu> which offers some resources for being successful in your chm2046 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.

**5 points will be deducted from your score if you neglect to sign the Honor Pledge question at the end of every exam. You will receive a 0 for the exam and no average/replace, 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 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. Students with disabilities should follow this procedure as early as possible.

**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](mailto: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/](http://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/](http://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.



**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 in class and on Canvas.

I won't record my office hours with students attending so won't need the following statement:

**Class Sessions:** Our class sessions may be audio-visually recorded for students in the class to refer back and for enrolled students who are unable to attend live. Students who participate with their camera engaged or utilize a profile image are agreeing to have their video or image recorded. If you are unwilling to consent to have your profile or video image recorded, be sure to keep your camera off and do not use a profile image. Likewise, students who un-mute during class and participate verbally are agreeing to have their voices recorded.

If you are not willing to consent to have your voice recorded during class, you will need to keep your mute button activated and communicate exclusively using the "chat" feature, which allows students to type questions and comments live. The chat will not be recorded or shared.

As in all courses, unauthorized recording and unauthorized sharing of recorded materials is prohibited.