

General Chemistry II CHM 2046 (Lopez, Period 8-9, HPBC, Spring 2020)

*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 2046 and CHM 2046L constitute the second 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/UGRD/academic-regulations/attendance-policies/>

COURSE OBJECTIVES: As both a general education requirement and majors course, CHM2046 serves to teach: the scientific method, skills for problem solving, general chemistry knowledge, and a connection to the principles that govern the natural world.

LECTURE: T Period 8-9 (3:00 am to 4:55 pm) / R Periods 8-9 (3:00 am to 4:55 pm) RNK 0210,
INSTRUCTOR:

Lectures: January 6th through April 22nd

Dr. Simon E. Lopez

Office: LEI #312 (located at Leigh Hall)

E-mail (for administrative purposes only):

simonlopez@chem.ufl.edu

Office Hours (LEI #312)

M,W,F 11:00 am - 12:30 pm

MATERIALS:

Required: TopHat Subscription.

Recommended: Chemistry Textbook by Silberberg (any edition) + other college-level general chemistry books. There is an option to opt-in to the Silberberg 8th edition eText for a discounted price via UF All Access for a limited time. (Copies of the 8th ed and solution manual are available in the Marston Science Library).

Non-graphic / non-programmable scientific calculator.

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

3 Progress Exams	60%
Final Cumulative Exam	23%
Online Homework	10%
Worksheets	2%
Top Hat in class questions	5%
TOTAL	100%

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

92-100% = A	88-91.9% = A-	84-87.9% = B+	80-83.9% = B	76-79.9% = B-
72-75.9% = C+	68-71.9% = C	64-67.9% = D+	60-63.9% = D	56-59.9% = D-
< 56.0% = E				

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 simonlopez@chem.ufl.edu) and submitted to the instructor 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.

ONLINE HOMEWORK:

Ten percent of the course grade (10 %) will be based on online homework assignments through the Canvas website of CHM2046. Each assignment has a displayed deadline for earning full credit; assignments that are late can be completed for half credit (maximum 24h later, contact Dr. Lopez). Students that miss a homework deadline due to an excused absence can ask for an extension by contacting the instructor. You can earn up to 10 % toward your grade by completing these assignments.

IN CLASS TOP HAT QUESTIOS:

After the Drop/Add period ends, lecture participation will be facilitated via the Top Hat student response system (<https://tophat.com/>). You will be emailed by Top Hat with instructions on how to register for usage of the system. You'll be able to use your smart phone or laptop or tablet or any other applicable device. No clickers required. Five percent of the course grade (5 %) 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). No "makeup" Top-Hat options will be offered for any reason - no exceptions.

WORSHEETS: Every Friday a weekly worksheet will be available through Canvas. It will count toward your overall grade (2%). You must answer online your assigned worksheet 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.

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 to be had from graduate student teaching assistants 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>.

University of Florida
CHM 2046 General Chemistry 2
Spring 2020; Course Schedule

Instructor: Dr. Simon E. Lopez, 312 Leigh Hall (Office).

E-mail: simonlopez@chem.ufl.edu (for administrative purposes); Phone: (352)392-9700.

E-Learning (Canvas): <https://lss.at.ufl.edu/> (will be updated regularly).

Classes: T, R (period 8-9; 3:00 pm – 4:55 pm).

Location: RNK-0210, Rinker Hall (RNK).

Office Hours: M (11:00 a.m. – 12:30 p.m.), W (11:00 a.m. – 12:30 p.m.), and F (11:30 a.m.– 12:30 p.m.) *in 312 Leigh Hall.*

Week	Dates	Topics (# of Lectures)	Chapters*
Jan 6 th	Jan 7,9	Review of Chemical Kinetics; Reaction Rates; Activation Energy; Reaction Mechanisms; Catalysts (2)	Ch. 16
Jan 13 th Jan 20 th	Jan 14,16,21,23	Gas-phase and Heterogeneous Equilibria; Le-Chatelier's Principle; Reaction yield: Optimization (4)	Ch. 17
Feb 5th (Wednesday): Progress Exam 1 (8:20-10:20 pm); Cumulative Ch. 16-17			
Jan 27 th	Jan 28, 30	Brønsted-Lowry acid-base potential and equilibria (1) Acid-Base Titrations and Buffers (1)	Ch. 18.1-18.8 Ch. 19.1
Feb 3 rd	Feb 4,6	Acid-Base Titrations and Buffers (2)	Ch. 19.1-19.2
Feb 10 th	Feb 11 Feb 13	Lewis Acid-Base (Electrophile-Nucleophile, reactions and mechanisms (1) Solubility Equilibria, selective precipitation (1)	Ch. 18.9
Feb 17 th Feb 24 th	Feb 18,20,25,27	Solubility Equilibria, selective precipitation; Complex ions and Amphoteric Hydroxides (4)	Ch. 19.3-19.4
March 16th (Monday): Progress Exam 2 (8:20-10:20 pm); Cumulative Ch. 16-19.4			
March 9 th	March 10,12	Equilibrium Thermodynamics (2)	Ch. 20
March 16 th March 23 rd March 30 th	March 17 March 24,26, 31 + April 2	Equilibrium Thermodynamics (1) Oxidation/Reduction Potential: Redox Reactions; Electrochemistry and Equilibria; Voltaic & Electrolytic Cells (4)	Ch. 20 Ch. 21
April 15th (Wednesday): Progress Exam 3 (8:20-10:20 pm); Cumulative Ch. 16-21			
April 6 th	April 7,9	Transition Metals (2)	Ch. 23
Apr 13 th	Apr 14,16	Introduction to Nuclear Chemistry (2)	Ch. 24
Apr 20 th	Apr 21	Introduction to Organic Chemistry (1)	Ch. 15
April 25th (Saturday): Final Exam (10:00 am-12:00 pm); Cumulative Ch. 15-21+23,24			
Holidays (no classes): January 20th (Dr. Martin Luther King Jr. Day); Feb 29th- March 7th (Spring Break)			

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.

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 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: 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.

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.

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.

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://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. 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. The DRC has 4 business day policy to submit Accommodated Testing Requests (ATRs).

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 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 PROGRAM OBJECTIVES: 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 CHM2046: 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.