



CHM2046 – General Chemistry II

SUMMER 2025

**Monday/Tuesday/Wednesday/Friday (MTWF)
Period 2, 9:30AM-10:35AM (in-person in CLB 130)**

Sections: 10547 - 55

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INSTRUCTOR INFORMATION

May 12 through June 20 Dr. Martina Sumner E-mail (for administrative purposes): m.sumner@chem.ufl.edu	June 30 through August 8 Dr. Steven Harris E-mail (for administrative purposes): steven.harris@chem.ufl.edu
Student Hours All student hours will meet in Leigh Hall 400. MT: 12:45 – 1:45 pm W 11 to 12 pm R 9 to 10:45 am F 8:45 to 9:20 AM	Student Hours TR: 12:15 pm – 1:30 pm W: 11 am to 1:30 pm R: 9:30 to 10:30 am

Expect a reply to an e-mail within 48 hours or on a Monday after a weekend.

We value your input regarding making this course more accessible and inclusive. Please reach out with suggestions.

We welcome you to contact us outside of class and student hours. You may email us via canvas and/or see us before or after class.

TEACHING ASSISTANTS

All TA hours: Held in the Chemistry Learning Center (CLC), SFH 105. These student hours will be listed on the Canvas home page.

[Academic Resources](#) offers free tutoring assistance. See their website for details.

COURSE DELIVERY/MEETING TIMES

- face-to-face in CLB130 MTWF
- discussion section (Thursday class) in-person
- Exams in-person only (DTE – evening assembly exams), 7-9 PM

RECOMMENDED COURSE MATERIALS

TEXTBOOK

A free OER (Open Educational Resources, OpenStax) chemistry book is available in pdf form on the canvas page (Chemistry 2e).

Optional: The text Chemistry: The Molecular Nature of Matter and Change, any edition Silberberg & Amateis (McGraw Hill)

All other assigned material will be available through Canvas.

Iclicker for answering clicker questions during lecture (free).

CALCULATOR (REQUIRED, MUST PURCHASE)

- TI-36 good calculator, has quadratic functions and is most like TI-83, need logarithmic function

COURSE COMMUNICATIONS

GENERAL QUESTIONS

General course questions should be posed to your instructor during student hours, or to TAs during their student hours or during discussion sessions.

PRIVATE OR GRADE-RELATED QUESTIONS

Direct these to your instructor via the mail function in Canvas. Do not email outside of Canvas to your instructor's external email address – we aren't permitted to discuss grade related questions outside of Canvas. You will be asked to resend the query through Canvas. Instructor response time to email queries is <48 h during the workweek, or the first business day for emails received Friday or over the weekend.

GRADING

GRADE POLICY

- Grades are not rounded at the end of the semester.
- No extra credit available
- Current UF grading policies for assigning grade points can be found in [the catalog](#).
- Assignments weights are as follows:

Assignment Group	Weight %
Progress Exams	57%
Final Cumulative Exam	23%
Discussion/Worksheets	6%
PLV	6%
Quizzes	6%
iClicker	2%
TOTAL	100%

Grade scale (note: there is no rounding to your score in Canvas):

Letter	A	A-	B+	B	B-	C+	C	D+	D	D-	E
Cutoff	90.0	86.0	83.0	80.0	77.0	73.0	69.0	66.0	63.0	60.0	< 60.0

COURSE POLICIES

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. Unfortunately, life happens and you may need extra time to complete an assignment. Let me know so we can come up with a solution. All Homework assignments are due when the Canvas website states. To get the most out of these assignments they need to be completed on time to keep your learning material on track

EXAMS

- Exams are at night (7-9 PM)
- Exam dates in the schedule (at the end of the syllabus)
- Scantrons, formula sheet, and blank scratch paper are provided.
- Bring pencils and eraser.
- Use an allowable non-graphing, non-programmable scientific calculator.
- Turn your cell phones and other electronic devices off and keep in your bag.

PROGRESS EXAM “AVERAGE/REPLACE” POLICY

- Applies to all students.
- No dropped progress exam.
- Average/replace policy (lowest of the 3 progress exams replaced by the average of the 3 exams) see below for an example

For example, if a student scores the following on their three progress exams: 0%, 65%, 80%, the 0% would be replaced with the average of 0, 65 and 80, which is 48%. That is a much better score than a 0.

- 10 points will be deducted if you bubble in the incorrect or no form code for the first issue, but 30 points will be deducted for any additional form code issues.
- 5 points deducted if you are in the incorrect room or your name is on the no-match list from the scanning center

PRE-LECTURE ASSIGNMENTS (PLA)

- PLAs prepare you for that day's class (read the assigned sections in the book, work the sample problem in the book, then attempt PLA)
- 3 attempts, highest one will count
- Due before class so you are ready for class.
- 3 of the PLA assignments will be dropped before calculating your overall grade

DISCUSSION SESSIONS & WORKSHEETS

- Thursday discussion class (in-person)
- Paper version available under Modules, suggestion: do before attending your discussion section
- Attendance and participation will earn you 5 points.
- Friday wksheet quiz on canvas will earn you 5 points (3 attempts)
- Grade discrepancies: address to your grad TA within one week
- One assignment will be dropped from this category.

Worksheets problems are similar to exam problems and prepare you for the actual exam.

QUIZZES

- Quiz upon chapter completion
- 2 attempts (60 minutes each), highest one counts
- Keeps you learning and recalling information
-

OPTIONAL CANVAS HOMEWORK (HW)

- Optional HW in Canvas can be found under quizzes, then scroll down to Practice Quizzes

IClicker

- Keeps you engaged and active in the classroom.
- 3 days (about 9 points) are dropped before calculating your final iclicker grade.

Posted Grade Disputes

- In writing via email to instructor
- Within one week of posting grade

Attendance, Extension Requests

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/>

Exam 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 may include 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 (within Canvas) 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 from you or from 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.

Workload

- UF is a Carnegie I research-intensive university.
- Federal law requires UF to assign at least 2 hours of work per week outside of class for every contact hour

General Education Objectives and Learning Outcomes

Primary General Education Designation: Physical Sciences (P) ([area objectives available here](#))

A minimum grade of C is required for general education credit. Courses intended to satisfy the general education requirement cannot be taken S/U.

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.

Some of the specific skills I hope you will obtain in this course are listed below:

The course objectives align with the UF General Education student learning outcomes and physical science area learning outcomes:

General Education SLO	Physical Science SLO	Course Objective Alignment	Assessment
Content	Identify, describe, and explain the basic concepts, theories and terminology of natural science and the scientific method; the major scientific discoveries and the impacts on society and the environment; and the relevant processes that govern biological and physical systems.	Objectives 1-6	All assessments and student practice assignments offer opportunities for students to demonstrate content knowledge.
Critical Thinking	Formulate empirically-testable hypotheses derived from the study of physical processes or living things; apply logical reasoning skills effectively through scientific criticism and argument; and apply techniques of discovery and critical thinking effectively to solve scientific problems and to evaluate outcomes.	Objectives 1-6	Pre-lecture assignments (PLA), After-lecture assignments (ALQ), discussion class (worksheet), worksheet quiz on canvas, weekly quiz, exam
Communication	Communicate scientific knowledge, thoughts, and reasoning clearly and effectively.	Objective 3-6	Weekly discussion class, worksheet quiz on canvas

COURSE LEARNING OUTCOMES

A complete list of student learning outcomes is posted in Canvas, organized by module/chapter.

UNIVERSITY POLICIES

STUDENTS REQUIRING ACCOMMODATIONS

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.

Accommodations are not retroactive, therefore, students should contact the office as soon as possible in the term for which they are seeking accommodations.

UNIVERSITY POLICY ON ACADEMIC MISCONDUCT

As a student at the University of Florida, you have committed yourself to uphold the Honor Code, which includes the following pledge: “We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honesty and integrity.” You are expected to exhibit behavior consistent with this commitment to the UF academic community, and on all work submitted for credit 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.” It is assumed that you will complete all work independently in each course unless the instructor provides explicit permission for you to collaborate on course tasks (e.g. assignments, papers, quizzes, exams). Furthermore, as part of your obligation to uphold the Honor Code, you should report any condition that facilitates academic misconduct to appropriate personnel. It is your individual responsibility to know and comply with all university policies and procedures regarding academic integrity and the Student Honor Code. Violations of the Honor Code at the University of Florida will not be tolerated. Violations will be reported to the Dean of Students Office for consideration of disciplinary action. For more information regarding the Student Honor Code, please see: <http://www.dso.ufl.edu/SCCR/honorcodes/honorcode.php>.”

IN-CLASS RECORDING

- ❖ Class is recorded and is available for viewing via mediasite (link is on the bottom of the home page)

Students are allowed to record video or audio of class lectures. However, the purposes for which these recordings may be used are strictly controlled. The only allowable purposes are (1) for personal educational use, (2) in connection with a complaint to the university, or (3) as evidence in, or in preparation for, a criminal or civil proceeding. All other purposes are prohibited. Specifically, students may not publish recorded lectures without the written consent of the instructor. A “class lecture” is an educational presentation intended to inform or teach enrolled students about a particular subject, including any instructor-led discussions that form part of the presentation, and delivered by any instructor hired or appointed by the University, or by a guest instructor, as part of a University of Florida course. A class lecture does not include lab sessions, student presentations, clinical presentations such as patient history, academic

exercises involving solely student participation, assessments (quizzes, tests, exams), field trips, private conversations between students in the class or between a student and the faculty or lecturer during a class session. Publication without permission of the instructor is prohibited. To “publish” means to share, transmit, circulate, distribute, or provide access to a recording, regardless of format or medium, to another person (or persons), including but not limited to another student within the same class section. Additionally, a recording, or transcript of a recording, is considered published if it is posted on or uploaded to, in whole or in part, any media platform, including but not limited to social media, book, magazine, newspaper, leaflet, or third party note/tutoring services. A student who publishes a recording without written consent may be subject to a civil cause of action instituted by a person injured by the publication and/or discipline under UF Regulation 4.040 Student Honor Code and Student Conduct Code.

CAMPUS RESOURCES

Please visit the campus resources link in Canvas for a more comprehensive list.

1. **U MATTER, WE CARE:** If you or someone you know is in distress, please contact umatter@ufl.edu, 352-392-1575, or visit [U Matter, We Care website](#) to refer or report a concern and a team member will reach out to the student in distress.
2. **COUNSELING AND WELLNESS CENTER:** Visit the [Counseling and Wellness Center website](#) or call 352-392-1575 for information on crisis services as well as non-crisis services.
3. **STUDENT HEALTH CARE CENTER:** Call 352-392-1161 for 24/7 information to help you find the care you need, or visit the [Student Health Care Center website](#).
4. **UNIVERSITY POLICE DEPARTMENT:** Visit [UF Police Department website](#) or call 352-392-1111 (or 9-1-1 for emergencies).
5. **UF HEALTH SHANDS EMERGENCY ROOM / TRAUMA CENTER:** For immediate medical care call 352-733-0111 or go to the emergency room at 1515 SW Archer Road, Gainesville, FL 32608; Visit the [UF Health Emergency Room and Trauma Center website](#).
6. **GATORWELL HEALTH PROMOTION SERVICES:** For prevention services focused on optimal wellbeing, including Wellness Coaching for Academic Success, visit the [GatorWell website](#) or call 352-273-4450.

ACADEMIC RESOURCES

1. **E-LEARNING TECHNICAL SUPPORT:** Contact the [UF Computing Help Desk](#) at 352-392-4357 or via e-mail at helpdesk@ufl.edu.
2. **CAREER CONNECTIONS CENTER:** Reitz Union Suite 1300, 352-392-1601. Career assistance and counseling services.
3. **LIBRARY SUPPORT:** Various ways to receive assistance with respect to using the libraries or finding resources.
4. **ACADEMIC RESOURCES CENTER:** Broward Hall, 352-392-2010 or to make an appointment 352- 392-6420. General study skills and tutoring.

5. **WRITING STUDIO:** 2215 Turlington Hall, 352-846-1138. Help brainstorming, formatting, and writing papers.
6. **STUDENT COMPLAINTS ON-CAMPUS:** Visit the [Student Honor Code and Student Conduct Code webpage](#) for more information.
7. **ON-LINE STUDENTS COMPLAINTS:** View the [Distance Learning Student Complaint Process](#).

FEEDBACK

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/>.

GETTING HELP

For issues with or technical difficulties with Canvas, contact the UF Help Desk: <https://lss.at.ufl.edu/help.shtml>; (352)-392-HELP.

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/>

COURSE FEES

Additional Course Fees: none

ABBREVIATIONS: HW: Homework (optional on canvas), PLV: Pre-lecture video assignment (required)

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.

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

Date	Topic	Readings and Preparation Quiz/wksheet/ Discussions Quiz = 1 hour	PLVideo Time for assignment: 60 to 90 minutes/ video	OER pdf page #s
Mon 5/12	Kinetics; rate law, integrated rate law, rate constant	Read syllabus, check out canvas,	Review from chm2045: Chemical Kinetics day 1 (45 min) and day 2 (28 min) optional PLV chemical Kinetics day 1 and 2	599-641
T 5/13	mechanisms, theories of chem kinetics		Chemical Kinetics day 3 (44 min)	
Wed 5/14	Chemical Equilibrium; K and Q, relation between Kc and Kp, comparing Q and K		ChemEq day 1 (32 min)	657-669
R 5/15	Discussion on chemical kinetics	Wksheet quiz on chem kinetics		
Fri 5/16	How to solve eq problems	Quiz on chem kinet	ChemEq day 2 (26 min)	675-682
Mon 5/19	LeChatelier's principle		ChemEq day 3 (35 min)	669-674
T 5/20	Chemical Equilibrium review			
Wed 5/21	Acid-Base Eq.; autoionization of water, pH scale, Ka, pKa and Ka, conjugate acid-base strength, net directions		Acidbase day 1(43 min)	693-716
R 5/22	Discussion on equilibrium and acid base	Wksheet quiz on chem eq		701-716

Fri 5/23	Determine K_a/pK_a of weak acid, % dissociation, calculate K_a from [acid], polyprotic acid, strength of acid by looking at structure	Quiz on chem eq	Acidbase day 2 (39 min)	
Mon 5/26	HOLIDAY			716-721
T 5/27	pH of a weak base, acidic, neutral, basic salts, calculate pH of salt solution		Acidbase day 3 (32 min)	
Wed 5/28	Review acid/bases		Review acid/base	
R 5/29	discussion			
F 5/30	Review Exam 1 (Ch. 16-18)			

Exam 2 buffer, titration, K_{sp} , thermodynamics

Mon 6/2	Buffers, Buffer capacity and preparation		Buffers (32 min)	724-730
Tues 6/3	Strong acid/strong base titration curve; Weak acid/strong base;		Titration day 1 (32 Min)	730-733
Wed 6/4	weak acid/weak base, polyprotic acids		Titration day 2 (14 Min)	733-737
R 6/5	Discussion on buffers, titration			
Fri 6/6	Equilibria of slightly soluble ionic compounds, K_{sp} ; Predicting ppt formation, selective ppt		K_{sp} day 1 (20 Min)	749-756
Mon 6/9	Equilibria involving complex ions		K_{sp} day 2 (26 Min)	757-763, 767-771

T 6/10	Spontaneity, entropy		Thermo day 1 (27 min)	783-792
W 6/11	2 nd and 3 rd laws of thermodynamics	Quiz	Thermo day 2 (21 min)	793-96
R 6/12	Discussion on thermodynamics	Wksheet quiz		
Fri 6/13	Free energy, equilibrium		Thermo day 3 (25 min)	796-808
Mon 6/16	Review of thermo	Wksheet quiz Quiz		
T 6/17	Review			
W 6/18	Exam 2			
R 6/19		Holiday		
Fri 6/20		No class		
	Summer Break June 23-27			

Exam 3: Chs. 14, 22, and 21

Mon 6/30	Periodic Patterns; Group 1A-4A		Powerpoint Notes	Ch 14.1-6
Tues 7/1	Periodic Patterns; Group 5A-8A		Powerpoint Notes	Ch 14.7-10
Wed 7/2	Main Group Demonstrations		Powerpoint Notes	
R 7/3	Discussion	Wksheet quiz		
Fri 7/4	July 4 th Holiday			

Mon 7/7	Elements in nature		Powerpoint Notes	Ch 22.1-3
T 7/8	Elements in industry		Powerpoint Notes	Ch 22.4-5
W 7/9	Electrochemistry; balancing redox reactions	PLA ch 21.1	HW Ch 21(1) (34 mins)	Ch 21.1
R 7/10	Discussion	Wksheet quiz		
Fri 7/11	Voltaic cells, cell construction and operation, notation	PLA ch 21.2	HW Ch 21(2) (38 mins)	Ch 21.2
Mon 7/14	Voltaic cell potential, E°	PLA ch 21.3	(39 mins)	Ch 21.3
T 7/15	Free energy and electrical work	PLA ch 21.4	HW Ch 21.4, HW Ch 21.4(2) (42 mins)	Ch 21.4
W 7/16	Electrolytic cells, energy to drive nonspontaneous rxn	PLA ch 21.7	HW Ch 21.7, HW Ch 21.7(2) (31 mins)	Ch 21.7
R 7/17	Discussion	Wksheet quiz		
Fri 7/18	Batteries, primary, secondary, fuel cells, corrosion	PLA ch 21.5/6	(33 mins)	Ch 21.5-6
Mon 7/21	Review			
T 7/22	Exam 3 ch 14, 22, and 21 @ 7 PM			
W 7/23	Transition elements; properties of transition elements and inner elements	PLA Ch. 23.1/2/3	HW Ch. 23.1/2/3 (40 mins)	Ch. 23.1-3
R 7/24	Discussion	Wksheet quiz		

Fri 7/25	Coordination compounds, formulas, and names	PLA Ch. 23.3	HW Ch. 23.3 (37 mins)	Ch. 23.3
Mon 7/28	Crystal field theory	PLA Ch. 23.4	HW Ch. 23.4 (39 mins)	Ch. 23.4
T 7/29	Nuclear reactions; radioactive decay and nuclear stability	PLA 24.1	HW ch 24.1/2 (34 mins)	Ch 24.1
W 7/30	The Kinetics of radioactive decay	PLA 24.2	HW ch 24.2 (30 mins)	Ch. 24.2
R 7/31	Discussion	Wksheet quiz		
Fri 8/1	Ionization, application of radioisotopes,	PLA 24.3/4/5	HW ch 24.3 (33 mins)	Ch 24.3-5
Mon 8/4	The Interconversion of mass and energy; Application of fission and fusion	PLA 24.6	HW ch 24.6 (35 mins)	Ch. 24.6-7
T 8/5	Organic chemistry, structure and classes of hydrocarbons, optical isomers	PLA 15.1/2	HW ch 15.1 (32 mins)	Ch 15.1-2
W 8/6	Some important classes of organic reactions, functional groups	PLA 15.3	HW ch 15.3 (34 mins)	Ch 15.3-4
R 8/7	Final Comprehensive Exam @ 7 PM			

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

Holidays (no classes): Monday, May 26 (Memorial Day); June 19 (Juneteenth), June 23 – 27 Summer Break; Friday, July 4 (Independence Day)