CHM2046 GENERAL CHEMISTRY II FALL 2024

INSTRUCTOR INFORMATION

Instructors	Email/Office/Phone	Office Hours
Professor Ashlyn R. Hale Class days: M,W,F Period 4 OR 5 OR T Period 8, R Periods 8-9 Room: CLB-C130	Email in Canvas preferred, CLB 412D Ashlyn.rose.hale@chem.ufl.edu 294-3661 Class Numbers MWF Period 4: 10756, 10757, 10777, 10778, 10779, 10780, 10781, 10782 Class Numbers MWF Period 5: 10783, 10784, 10809, 10810, 10811, 10812, 10813, 10814 Class Number TR: 30332	MW Periods 7,8,9 LEI308

INSTRUCTOR INFORMATION

Instructors	Email/Office/Phone	Office Hours
Professor Daniel R. Talham Class days: T Period 7, R Period 6-7 Room: CLB-C130	Email in Canvas preferred, CLB 412 talham@chem.ufl.edu 392-9016 Class Numbers: 10815, 10816, 10840, 10841, 10842, 10843, 10844, 10845	Tues 11:00 – 12:30 and Thurs 4:00 – 5:30 in CLB412

TEACHING ASSISTANTS

Grad TAs: TBA Email: TBA Office hours at the CLC: TBA Undergraduate TAs: TBA

Broward Teaching Center offers free virtual tutoring assistance. See their website for details.

COURSE DELIVERY/MEETING TIMES

The course is delivered in a face to face format. See instructor information for course meeting times.

Room: CLB-C130. Classes days: M,W,F (Hale); T,R (Talham or Hale)

Discussion sections: Wednesday (Talham or Hale) or Thursday (Hale) depending on the section.

Exams are evening assembly exams, on campus, rooms TBA, periods E2-E3.

COURSE FEES

Additional Course Fees: $1.49

TENTATIVE COURSE SCHEDULE

The following lecture and quiz schedule is *tentative*, but **exam dates will not change**.
Holidays: Sep 2, Oct 18, Nov 11, Nov 25-29; Reading Days: Dec 5-6

Week	Worksheet/Quiz/Test	Topics	Silberberg Chapters
1 (Aug 22-23)	**none**	Intro, Kinetics review, Equilibrium	Chap. 16.5, 17
2 (Aug 26-30)	**Worksheet 1**	Equilibrium	Chap. 17
3 (Sep 2-6)	**Worksheet 2**	Equilibrium & Acid-Base Equilibria	Chap. 17, 18
4 (Sep 9-13)	**Quiz 1 (Sep 11/12)**	Acid-Base Equilibria	Chap. 18
5 (Sep 16-20)	**Worksheet 3**	Acid-Base Equilibria, Buffers, and Acid-Base Titration	Chap. 18,19
6 (Sep 23-27)	**Progress Exam 1 Monday Sep 23 (8:20pm-10:20pm)** **Worksheet 4 (Wed/Thurs)**	Buffers and Acid-Base Titration	Chap 19
7 (Sep 30 – Oct 4)	**Quiz 2 (Oct 2/3)**	Equilibria of Ionic Solids and Complex Ions & Thermodynamics	Chap 19, 20
8 (Oct 7 – 11)	**Worksheet 5**	Thermodynamics	Chap 20
9 (Oct 14-18)	**Progress Exam 2 Oct 17 (8:20pm-10:20pm)**	Thermodynamics & Electrochemistry	Chap 20, 21
10 (Oct 21-25)	**Worksheet 6**	Electrochemistry	Chap 21
11 (Oct 28-Nov 1)	**Worksheet 7**	Electrochemistry & Main group elements	Chap 20, 14
12 (Nov 4 – 8)	**Quiz 3 (Nov 6-7)**	Main group elements	Chap 14
13 (Nov 11-15)	**Worksheet 8**	Main group elements	Chap 14
14 (Nov 18-22)	**Progress Exam 3 Wednesday Nov 20 (8:20pm-10:20pm)**	Elements in Nature & Transition Metals	Chap 22, 23
15 (Nov 25-29)	**none**	No classes (Thanksgiving)	
16 (Dec 2-4)	**none**	Elements in Nature & Transition Metals	Chap 22, 23
December 7	**Final Exam Dec 7 (8:00 pm - 10:00 pm)**		

RECOMMENDED COURSE MATERIALS

TEXTBOOK

Required text: Chemistry: The Molecular Nature of Matter and Change (10th edition), by Martin Silberberg and Patricia Amateis, McGraw Hill. Note: UF All Access provides an ebook option. https://www.bsd.ufl.edu/G1CO/IPay1f/start.aspx?TASK=INCLUDED or via Canvas. Alternatives: Any other edition of the Silberberg book. Any comprehensive General Chemistry textbook.

CALCULATOR (REQUIRED, MUST PURCHASE)

You will require a calculator capable of logarithmic functions that you must provide for yourself. For exams and quizzes, the calculator must be non-graphing and non-programmable.

GRADING

GRADE POLICY

There is no extra credit available for this course. Grades are not rounded at the end of term. Exam grades or course grades are not curved. Current UF grading policies for assigning grade points can be found in the catalog.

Tentative assignment weights are as follows:

Assignment Group	Points
Progress Exams	500 (2 best scores plus ½ of lowest score)
Quizzes	180 (3 total, 60 each)
Discussion Worksheets	70 (70 maximum out of possible 80)
Final Cumulative Exam	250
TOTAL	1000

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

Letter	A	A-	B+	B	B-	C+	C	C-	D+	D	E
Cutoff	850	820	780	750	720	680	650	620	580	550	< 550

These cutoffs will not be raised but can be lowered at the discretion of the instructors.

COURSE COMMUNICATIONS

GENERAL QUESTIONS

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

e-Learning: We will use the Canvas e-learning site (http://elearning.ufl.edu) to provide other class materials, convey announcements and track grades.

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.

COURSE POLICIES

SUGGESTED READINGS AND HOMEWORK

Detailed agendas, including topics to be covered, suggested reading, and suggested practice questions and problems will be provided approximately every two weeks. These agendas will also announce the range of material to be included on each quiz and test. Answers to the homework problems will be posted on the Canvas site. Homework will not be graded, but quizzes and tests will closely follow assigned homework questions. **Working on homework with a partner or in groups is strongly encouraged.**

DISCUSSION SECTIONS AND WORKSHEETS

Discussion sections will be used for scheduled quizzes and team worksheets, which earn points toward your course grade. Discussion sections also provide an opportunity for questions and clarifications on homework problems, reading, and lecture content. **Participation during discussion is expected for full credit on team worksheets.**

QUIZZES

There will be **three quizzes that will be given** during the Wednesday or Thursday discussion sections (depending on the course section you are enrolled in). They are timed to also help you prepare for the Exams. Students must work independently and follow the honor code.

EXAMS

Exams occur in the evenings, periods E2-E3, in exam rooms TBA. Exam Dates are provided in the schedule listed above in this syllabus document. You are permitted use of a non-graphing non-programmable scientific calculator. Notes, cell phones or other electronic devices are not permitted. Scantrons and blank paper are provided. Students must work independently and follow the honor code.

PROGRESS EXAM POLICY

This applies to all students. No progress exam score will be dropped for any reason. To alleviate the stress of potential issues that do not fall under officially sanctioned absences, we have incorporated a **policy to the limit the impact of the lowest exam score: in computing final grades, the lowest exam score will be assigned half the value of the other two exams.** This policy helps to minimize the impact of a single poor performance (it will not disappear, but will be minimized). A significant penalty is assessed for student failure to bubble in the correct form code on the scantron.

POSTED GRADE DISPUTES

Should a student wish to dispute any grade received in this class, the dispute must be in writing (via Canvas e-mail to *your* instructor) 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) to Canvas, the instructor considers those grades final.

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

As a Carnegie I, research-intensive university, UF is required by federal law to assign at least 2 hours of work per week outside of class for every contact hour. Work done in these hours may include reading/viewing assigned material and doing explicitly assigned individual or group work, as well as reviewing notes from class, synthesizing information in advance of exams or papers, and other self-determined study tasks.

GENERAL INFORMATION

PREREQUISITES

Please refer to the Undergraduate Catalog for placement and prerequisite information.

FIRST DAYS

Log into Canvas and access the course. You should check daily for new Announcements and/or emails containing important information.

COURSE DESCRIPTION AND GOALS

Objective: To introduce general chemistry concepts and problem-solving skills and their relationship to advanced topics in science and engineering.

The second semester of the CHM 2045/CHM 2045L and CHM 2046/CHM 2046L sequence. Students who completed CHM 2045 or equivalent at another institution should consult a chemistry advisor before registering for this course.

As both a general education requirement and major's course CHM 2046 serves to teach the scientific method, skills for problem solving, general chemistry knowledge, and connections to the principles that govern the natural world.

Specifically, students will be able to:

1. Clearly communicate in writing information derived from course-related readings/lectures about the major concepts and themes in the chemical sciences.
2. Apply knowledge of the fundamental principles of chemical, acid/base and aqueous equilibria to perform related calculations and make predictions of system behavior.
3. Describe and apply the fundamental principles of thermodynamics and electrochemical systems.
4. Describe the properties of complex ions and coordination compounds. Identify the importance of elements in nature and industry.
5. Analyze chemical principles in advanced applications.

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.

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	Objectives 2-6	All assessments and student practice assignments offer opportunities for students to demonstrate content knowledge.

	processes that govern biological and physical systems.		
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	Homework, quizzes, exams.
Communication	Communicate scientific knowledge, thoughts, and reasoning clearly and effectively.	Objective 1-6	Weekly discussion class, worksheets.

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 (DRC) by visiting https://disability.ufl.edu/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.

We will utilize the DRC for administering accommodations for all quizzes and tests.

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

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

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.

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.

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.

University Police Department: Visit UF Police Department website or call 352-392-1111 (or 9-1-1 for emergencies).

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.

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

- E-learning technical support: Contact the UF Computing Help Desk at 352-392-4357 or via e-mail at helpdesk@ufl.edu.
- Career Connections Center: Reitz Union Suite 1300, 352-392-1601. Career assistance and counseling services.
- Library Support: Various ways to receive assistance with respect to using the libraries or finding resources.
- Teaching Center: Broward Hall, 352-392-2010 or to make an appointment 352- 392-6420. General study skills and tutoring.
- Writing Studio: 2215 Turlington Hall, 352-846-1138. Help brainstorming, formatting, and writing papers.
- Student Complaints On-Campus: Visit the Student Honor Code and Student Conduct Code webpage for more information.
- 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/

DISCLAIMER

This syllabus represents my current plans and objectives. As we go through the semester, those plans may need to change to enhance the class learning opportunity. Such changes, communicated clearly, are not unusual and should be expected.

TENTATIVE SCHEDULE OF LECTURES WITH ASSIGNED READINGS

Class Date MWF sections	Class Date T/R sections	Topics	Estimated time/pages in Silberberg 10th ed.
Aug 23 (F) Aug 26 (M)	Aug 22 (R)	Intro/syllabus, Kinetics review Equilibrium	Ch 16.5, 16.7 (711-718,725-729; 30 min) Ch 17.1-17.3 (745-756; 30 min)
Aug 28 (W)	Aug 27 (T)	Equilibrium	Ch 17.4, 17.5 (756-769, 1 hour)
Aug 30 (F)	Aug 29 (R, 1 period)	Equilibrium	Ch 17.5 (759-769, 45 min)
Sep 4 (W)	Sep 3 (T)	Equilibrium	Ch 17.6 (769-781, 1 hour)
Sep 6 (F) Sep 9 (M)	Sep 5 (R)	Acid-Base Equilibria Acid-Base Equilibria	Ch 18.1-3 (796-806, 45 min) Ch 18.3-18.4 (802-804, 35 min)
Sep 11 (W)	Sep 10 (T)	Acid-Base Equilibria	Ch 18.5 (808-815, 1 hour)
Sep 13 (F) Sep 16 (M)	Sep 12 (R)	Acid-Base Equilibria Acid-Base Equilibria	Ch 18.7-18.8 (820-830, 35 min) Ch 18.5-18.6 (815-820, 30 min)
Sep 18 (W)	Sep 17 (T)	Acid-Base Equilibria	Ch 18.8-18.10 (825-835, 1 hour)
Sep 20 (F) Sep 23 (M)	Sep 19 (R, 1 period)	Buffers	Ch 19.1-19.2 (849-861, 75 min)
Sep 25 (W)	Sep 24 (T)	Buffers, Acid-Base Titration	Ch 19.2-19.3 (851-869, 1.5 hours)
Sep 27 (F) Sep 30 (M)	Sep 26 (R)	Acid-Base Titration, Indicators Equilibria of Ionic Solids	Ch 19.3 (870-874, 30 min) Ch 19.4 (874-887, 1 hour)
Oct 2 (W)	Oct 1 (T)	Equilibria of Complex Ions	Ch 19.5 (889-892, 30 min)

Oct 4 (F) Oct 7 (M)	Oct 3 (R)	Thermochem review, Thermodynamics Thermodynamics	Ch 6 (review if needed), Ch 20.1 (907-918, 45 min) Ch 20.1-20.2 (907-922, 30 min)
Oct 9 (W)	Oct 8 (T)	Thermodynamics	Ch 20.2-20.3 (918-933, 1 hour)
Oct 11 (F) Oct 14 (M)	Oct 10 (R)	Thermodynamics Thermodynamics	Ch 20.3 (923-933, 1 hour) Ch 20.4 (933-939, 35 min)
Oct 16 (W)	Oct 15	Electrochemistry	Ch 21.1 (951-956, 45 min)
Oct 21 (M)	Oct 17 (R 1 period)	Electrochemistry	Ch 21.2 (956-961. 30 min)
Oct 23 (W)	Oct 22 (T)	Electrochemistry	Ch 21.3 (961-970, 1 hour)
Oct 25 (F) Oct 28 (M)	Oct 24 (R)	Electrochemistry Electrochemistry	Ch 21.4 (970-978, 1 hour) Ch 21.7 (984-994, 1.5 hours)
Oct 30 (W)	Oct 29 (T)	Electrochemistry	Ch 21.5-21.6 (978-984 45 min)
Nov 1 (F) Nov 4 (M)	Oct 31 (R)	Main group elements Main group elements	Ch 14.1-3 (581-588, 40 min) Ch 14.4-5 (588-594, 35 min)
Nov 6 (W)	Nov 5 (T)	Main group elements	Ch 14.6 (594-599, 30 min)
Nov 8 (F)	Nov 7 (R, 1 period)	Main group elements	Ch 14.7 (599-607, 45 min)
Nov 13 (W)	Nov 12 (T)	Main group elements	Ch 14.8-14.9 (607-616, 45 min)

Nov 15 (F) Nov 18 (M)	Nov 14 (R)	Elements in Nature and Industry Transition Metals	Ch 22.2 (1013-1018, 35 min) Ch 23.1 (1047-1054, 35 min)
Nov 20 (W)	Nov 19 (T)	Transition Metals	Ch 23.3 (1056-1065, 1.5 hours)
Nov 22 (F) Dec 2 (M)	Nov 21 (R)	Transition Metals Transition Metals	Ch 23.3 (1056-1065, 1.5 hours) Ch 23.4 (1065-1076, 1 hour)
Dec 4 (W)	Dec 3 (T)	Transition Metals	Ch 23.4 (1065-1076, 1 hour)