



Principles of Chemistry II

CHEM-1212

Spring 2024 Sections 05, 06, 07, 08, 09 3 Credits 01/06/2024 to 05/07/2024 Modified 01/21/2024

Description

Second course in a two-semester sequence covering the fundamental principles and applications of chemistry for science majors. Topics to be covered include chemical bonding, properties of solids, liquids and gases, solutions, equilibria, acids and bases, solubility, thermodynamics, kinetics and electricity.

Corequisite: CHEM 1212L

This is a Core IMPACTS course that is part of the *STEM* area.

Core IMPACTS refers to the core curriculum, which provides students with essential knowledge in foundational academic areas. This course will help master course content, and support students' broad academic and career goals.

This course should direct students toward a broad *Orienting Question*:

- How do I ask scientific questions or use data, mathematics, or technology to understand the universe?

Completion of this course should enable students to meet the following *Learning Outcome*:

- Students will use the scientific method and laboratory procedures or mathematical and computational methods to analyze data, solve problems, and explain natural phenomena.

Course content, activities and exercises in this course should help students develop the following *Career-Ready Competencies*:

- Inquiry and Analysis
- Problem-Solving
- Teamwork

Requisites

Prerequisites:

(CHEM 1211 Minimum Grade: C and CHEM 1211L Minimum Grade: C) or CHEM 1211K Minimum Grade: C) and (MATH 1113 Minimum Grade: C or (MATH 1111 Minimum Grade: C and MATH 1112

Minimum Grade: C))

Corequisites:

CHEM 1212L

Contact Information

Farooq Khan

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Office: TLC 2-117

Office Hours

REVISED Face-to-face Student Office Hours in TLC 2-117

Tuesdays 9:30 am - 12:00 noon; 2:00 pm - 3:00 pm

Wednesdays 10:00 am - 11:00 am; 12:30 - 2:00 pm; 3:30 - 5:30 pm

Thursdays 11:00 am - 12:00 noon; 2:00 pm - 3:00 pm

Additional office hours may be arranged by appointment.

Meeting Times

Tuesdays, Thursdays

CLASS, INCLUDING IN-CLASS EXAMINATIONS, 3:30 -4:45 pm

ATTENDANCE IS MANDATORY.

IN-CLASS PARTICIPATION POINTS APPLY EACH CLASS DAY. PLEASE SEE THE SYLLABUS.

Materials

Embedded textbook, OpenStax, with PowerPoint Notes

An ACS Study Guide for General Chemistry is REQUIRED. It is the one you also used in CHEM 1211.

Outcomes

Welcome to Chemistry 1212!

Chemistry encompasses a wide array of phenomena. Photosynthesis, combustion of fuels, and reactions in the atmosphere are a few examples. Interestingly, the human body may be considered a laboratory with a large number of reactions in progress simultaneously. Fortunately, diverse chemical phenomena are systematically studied using the concepts of structure, energetics, kinetics and equilibria. These concepts are a central theme in Chemistry 1212.

Four words summarize a tried and tested strategy for learning the most in this course. *Take your homework seriously.* Homework assignments will be given regularly during the semester. Approximately 60 % of questions on the examinations will closely resemble these assignments. As a student, I always found it useful to supplement lectures with informal study sessions with my peers. You will be pleasantly surprised to find that a fellow student can clarify a concept or provide cute short-cuts while solving problems.

Students are expected to acquire a basic understanding of the following topics: inter-molecular forces, solutions, kinetics, equilibria, thermodynamics and electrochemistry. They are also expected to acquire an awareness of the role of Chemistry in everyday life. Students will also learn to apply the scientific method in laboratory activities in the concurrent course, CHEM 1212L, collect and analyze data and formulate appropriate conclusions from data analyses and communicate their findings.

Evaluation

Criteria

Type	Weight	Topic	Notes
Discussion	15 points	Syllabus	<p>Please see the Discussion Area on CourseDen; therein the topic "Syllabus".</p> <p>Please read the syllabus, and post a question relevant to the course. This will also serve as your required participation in the first week of the course. The deadline is 11:59 pm on January 18.</p> <p>Missing this assignment will result in grade of 0 and an automatic withdrawal from the course.</p>

Type	Weight	Topic	Notes
Homework	98 points	Please see under SCHEDULE below.	<p>Online Homework is assigned each week, and is due at 11:59 pm on Thursdays. please access on CourseDen under Assessments; therein Quizzes/Homework.</p> <p>Each homework is worth 7 points. A maximum of three attempts are permitted for each homework, and the average of the three attempts will be counted.</p> <p>A missed homework is an automatic zero. Deadlines will not be extended.</p> <p>The lowest homework score will be dropped. In case you miss a homework, the grade is a 0, which will be dropped.</p> <p>The due dates are listed in the Schedule below.</p> <p>IN ADDITION, EXTRA PROBLEMS WILL BE ASSIGNED, BUT NOT GRADED.</p>

Type	Weight	Topic	Notes
Quizzes	165 points	Please see under SCHEDULE below.	<p>There are FOUR online quizzes, each worth 55 points; please access on CourseDen under Assessments; therein Quizzes.</p> <p>A missed quiz is an automatic zero.</p> <p>The lowest quiz score will be dropped. In case you miss a quiz, the grade is a 0, which will be dropped.</p> <p>Each quiz will be available for 76 hours, Thursday evening (8:00 pm) through Sunday night (11:59 pm). ONLY ONE ATTEMPT IS PERMITTED. Once the quiz is opened, you will only have 60 minutes to complete it.</p> <p>The due dates are listed in the Schedule below.</p>
Workshops	100 points		<p>Attendance in weekly Workshops is mandatory.</p> <p>Please see the announcement posted by Ms. Dusty.</p>
IN-CLASS Examinations	400 points	Please see under SCHEDULE below.	<p>There are FOUR IN-CLASS examinations and ONE ON-LINE examination, each worth 100 points.</p> <p>A missed examination is an automatic zero.</p> <p>The lowest examination score will be dropped. In case you miss an examination, the grade is a 0, which will be dropped.</p> <p>The dates are listed in the Schedule below.</p>

Type	Weight	Topic	Notes
IN-CLASS PARTICIPATION	72 points		<p>Each class day, an in-class participation will consist of one or more written question.</p> <p>Each class day's participation is worth 3 points. You must be physically present in class to get credit.</p> <p>A missed participation is an automatic zero.</p> <p>YOU MAY MISS 2 in-class participation opportunities in THE ENTIRE SEMESTER WITHOUT PENALTY AND STILL GET THE 72 points.</p>
Final Examination	150 points	May 2 2:00 - 4:00 pm	<p>It is an examination written by the American Chemical Society (ACS), based on all the topics in CHEM 1211 and 1212.</p> <p>A missed final is an automatic 0.</p> <p>Please review using the ACS Study Guide.</p>

Breakdown

Resulting grade and related performance levels

Grade	Range	Notes
A	90-100%	
B	80-89%	
C	68-79	
D	58-67%	
F	0-57%	

Assignments

Discussion : Syllabus

Please see the Discussion Area on CourseDen; therein the topic "Syllabus". Please read the syllabus, and post a question relevant to the course. This will also serve as your required participation in the first week of the course. The deadline is 11:59 pm on January 18. **Missing this assignment will result in an automatic withdrawal from the course.**

Homework: Review Types of Bonding and Polarity, Chapter 10 Part A, Chapter 10 Part B, Chapter 11 Part A, Chapter 11 Part B, Chapter 17 Part A, Chapter 17 Part B, Chapter 13 Part A, Chapter 13 Part B, Chapter 14 Part A, Chapter 14 Part B, Chapter 14 Part C, Chapter 15, Chapter 12 and Chapter 16.

Please see the Schedule below for **due dates**, 11:59 pm on Thursdays. Each homework will be open for at least one full week. Three attempts are built in for each homework.

Quizzes: Quiz 1, Quiz 2, Quiz 3, and Quiz 4.

Please access under Assessments/Quizzes on CourseDen.

Each quiz will be available for 76 hours, Thursday evening (8:00 pm) through Sunday night (11:59 pm). ONLY ONE ATTEMPT IS PERMITTED. Once the quiz is opened, you will only have 60 minutes to complete it. **The due dates are listed in the Schedule below.**

IN-CLASS Examinations: Examination 1, Examination 2, Examination 3 and Examination 4, AND ONLINE EXAMINATION 5.

The dates are listed in the Schedule below.

Final Examination

The Final Examination will be given on Thursday, May 2 during 2:00 pm - 4:00 pm. It is based on all the topics in CHEM 1211 and 1212 and is prepared by the American Chemical Society.

Schedule

The schedule is tentative, and may be changed. Announcements reflecting any changes will be posted.

When	Topic	Notes
Thursday, January 18	Discussion Syllabus	Please see the Discussion Area on CourseDen; therein the topic "Syllabus". Please read the syllabus, and post a question relevant to the course. This will also serve as your required participation in the first week of the course. The deadline is 11:59 pm on January 18. Missing this assignment will result in an automatic withdrawal from the course.
Thursday, January 18	Homework 1 (Review Types of Bonding and Polarity) AND Homework 2 (Chapter 10, Part A)	
Thursday, January 25	Homework 3 (Chapter 10, Part B)	
Sunday, January 28	Quiz 1	Based on Types of Bonding and Polarity (from CHEM 1211) and Chapter 10
Thursday, February 1	Homework 4 (Chapter 11 Part A) and Homework 5 (Chapter 11 Part B)	
Thursday, February 1	IN-CLASS Examination 1	Based on Types of Bonding and Polarity (from CHEM 1211), Chapter 10 and Chapter 11. Please see Practice Examination 1.
Thursday, February 8	Homework 6 (Chapter 17 Part A)	
Thursday, February 15	Homework 7 (Chapter 17 Part B)	
Sunday, February 18	Quiz 2	Based on Chapter 17
Thursday, February 22	Homework 8 (Chapter 13, Part A)	
Thursday, February 29	Homework 9 (Chapter 13, Part B)	

When	Topic	Notes
Thursday, February 29	IN-CLASS Examination 2	Based on Chapters 17 and 13. Please see Practice Examination 2.
Thursday, March 7	Homework 10 (Chapter 14, Part A)	
Wednesday, March 14	Homework 11 (Chapter 14, Part B)	
Sunday, March 17	Quiz 3	Based on Chapter 14
Thursday, March 28	Homework 12 (Chapter 14 Part C)	
Thursday, March 28	IN-CLASS Examination 3	Based on Chapter 14. Please see Practice Examination 3.
Thursday, April 4	Homework 13 (Chapter 15)	
Thursday, April 11	Homework 14 (Chapter 12)	
Thursday, April 18	Homework 15 (Chapter 16)	
Sunday, April 14	Quiz 4	Based on Chapters 15 and 12
Thursday, April 18	Examination 4	Based on Chapters 15, 16 and 12. Please see Practice Examination 4.
Sunday, April 28	Review Quiz for CHEM 1211	I have added this comment: This will be available for one week, April 21 through 28. I will also make a key available.
Thursday, May 2	Final Examination	70 multiple-choice questions; ACS Examination Based on all the topics in CHEM 1211 and 1212 The examination will be held during 2:00 pm - 4:00 pm.

* Course Policies and Resources

General

CourseDen will be used as the platform for announcements, course materials, email and online discussions, as well as quizzes and examinations. The textbook is embedded in the Content on CourseDen.

Please email within CourseDen for routine matters and at fkhan@westga.edu for urgent matters and I will make every effort to respond within 24 hours during the week and within 48 hours on Saturdays, Sundays and holidays.

Missed homework, quizzes, and examinations

A score of 0 will be assigned.

Suggestions: How do I study?

Please follow this suggested order:

- Browse through abbreviated PowerPoint notes;
- Read the textbook and attempt the solved examples;
- Attend Workshops;
- Do the online homework; and
- Take the quiz/examination.

It is a good practice to attempt any given solved example on your own before you look at the solution. Please take your assigned work seriously; I will make every effort to anticipate difficulties and be helpful during my office hours!

Policy on Cheating

Occurrences of cheating are rare. However, cheating by one individual raises questions about fairness for the rest of the class, and indeed, endangers the honor code that governs our examination system. It is after considerable thought that I have arrived at the following formula. If an individual cheats on a quiz/homework/examination for the first time, he/she will obtain a score of zero for that particular quiz/homework/examination. If an individual is caught cheating a second time during the semester, he/she will receive a grade of F for the entire course.

The College of Arts, Culture, and Scientific Inquiry (CACSI) is dedicated to promoting excellence in teaching, scholarship/creative activity, and service. The College aims to provide students with an understanding of contemporary and historical aspects of the various disciplines within the social, physical, and natural sciences and the arts and humanities. It also aims to support the development of skills needed for professional preparation. CACSI is committed to interdisciplinary inquiry and recognizes the transformative power of education. We empower faculty, staff, students, and alumni to engage responsibly and creatively with the complex environment of the 21st century, relying on the rich knowledge and skills gained from the study of the sciences, the humanities, and the arts. CACSI teaches its students to research, think, write, communicate, and create, empowering them with adaptability, cultural literacy, and sensitivity, along with the critical thinking skills necessary to contribute to their communities and the public good in meaningful ways. CACSI faculty are committed to positively impacting the community at multiple levels via teacher education, public engagement, entertainment, and outreach.

Students are encouraged to practice the following Big Six college experiences to be successful in CACSI coursework and degree programs:

(A) Connect with professors, staff, coaches, etc. who care about you as a person:

1. Connect with a professor(s) who makes you excited to learn;
2. Connect with a mentor(s) who cares about you as a person;
3. Connect with a mentor(s) who pushes you to reach your goals;

(B) Participate in experiential learning opportunities:

4. Complete a long-term project such as a capstone project.
5. Participate in a high-impact practice such as study abroad or an internship
6. Get involved in extracurricular activities and groups.

Institutional Policies

Academic Support

UWG is committed to student success, and the following resources will help you be more successful in your classes.

Center for Academic Success: The [Center for Academic Success \(http://www.westga.edu/cas/\)](http://www.westga.edu/cas/) provides tutoring, academic coaching, and supplemental instruction to help all undergraduate students succeed academically. For more information, contact them: 678-839-6280 or cas@westga.edu.

University Writing Center: The [University Writing Center \(https://www.westga.edu/writing/\)](https://www.westga.edu/writing/) assists students with the writing process. For more information, contact them: 678-839-6513 or writing@westga.edu.

Accessibility Services: Students with a documented disability may work with UWG Accessibility Services to receive essential services specific to their disability. All entitlements to accommodations are based on documentation and USG Board of Regents standards. If a student needs course adaptations or accommodations because of a disability or chronic illness, or if the student needs to

make special arrangements in case the building must be evacuated, the student should notify their instructor in writing and provide a copy of his/her Student Accommodations Report (SAR), which is available only from Accessibility Services. Faculty cannot offer accommodations without timely receipt of the SAR; further, no retroactive accommodations will be given. For more information, please contact [Accessibility and Testing Services \(https://www.westga.edu/student-services/accessibility-testing/index.php\)](https://www.westga.edu/student-services/accessibility-testing/index.php).

Online Course Content

UWG takes students' privacy concerns seriously: technology-enhanced and partially and fully online courses use sites and entities beyond UWG and students have the right to know the privacy policies of these entities. For help with your online classes, additional online tutoring and other student success services, information on privacy and accessibility, and technology requirements, visit this [UWG Online \(https://uwgonline.service-now.com/kb/\)](https://uwgonline.service-now.com/kb/) Help site.

UWG's online virtual tutoring service is Tutor.com, which replaces Smarthinking. Tutor.com provides 24/7, on-demand, 1-to-1 tutoring and homework help in more than 250 subjects. The expert tutors at Tutor.com can help students work through tough homework problems, improve their writing skills, study for a test, review difficult concepts, and so much more! Tutor.com can be accessed in CourseDen under the Resources dropdown menu and is available to all UWG students, regardless of course modality. More information can be found on UWG Online's Tutor.com: [Tutoring Service Knowledge Base article \(https://www.google.com/url?q=https://uwgonline.service-now.com/kb/?id%3Dkb_article_view%26sysparm_article%3DKB0010788&sa=D&source=docs&ust=1689091469862762&usg=AOvVaw2vbm-Y9CAGpzHoFZpHngPF\)](https://www.google.com/url?q=https://uwgonline.service-now.com/kb/?id%3Dkb_article_view%26sysparm_article%3DKB0010788&sa=D&source=docs&ust=1689091469862762&usg=AOvVaw2vbm-Y9CAGpzHoFZpHngPF).

Students enrolled in online courses can find answers to many of their questions in the [Online/Off-Campus Student Guide \(http://uwgonline.westga.edu/online-student-guide.php\)](http://uwgonline.westga.edu/online-student-guide.php).

Honor Code

At the University of West Georgia, we believe that academic and personal integrity are based upon honesty, trust, fairness, respect, and responsibility. Students at West Georgia assume responsibility for upholding the Honor Code. West Georgia students pledge to refrain from engaging in acts that do not maintain academic and personal integrity. These include, but are not limited to plagiarism*, cheating*, fabrications*, aid of academic dishonesty, lying, bribery or threats, and stealing. When a student chooses to enroll at the University of West Georgia students pledge the following:

Having read the honor code of UWG, I understand and accept my responsibility to uphold the values and beliefs described, and to conduct myself in a manner that will reflect the values of the institution in such a way as to respect the rights of all UWG community members. As a UWG student, I will represent myself truthfully and complete all academic assignments honestly.

I understand that if I violate this code, I will accept the penalties imposed, should I be found responsible for violations through the processes due to me as a University community member. These penalties may include expulsion from the University. I also recognize that my responsibility

includes willingness to confront members of the University community, if I feel there has been a violation of the Honor Code.

For more information on the University of West Georgia Honor Code, please visit the [Office of Community Standards](https://www.westga.edu/administration/vpsa/ocs/index.php) (<https://www.westga.edu/administration/vpsa/ocs/index.php>) site.

UWG Email Policy

University of West Georgia students are provided a MyUWG e-mail account. The University considers this account to be an official means of communication between the University and the student. The purpose of the official use of the student e-mail account is to provide an effective means of communicating important university related information to UWG students in a timely manner. It is the student's responsibility to check their email.

Credit Hour Policy

The University of West Georgia grants one semester hour of credit for work equivalent to a minimum of one hour (50 minutes) of in-class or other direct faculty instruction AND two hours of student work outside of class per week for approximately fifteen weeks. For each course, the course syllabus will document the amount of in-class (or other direct faculty instruction) and out-of-class work required to earn the credit hour(s) assigned to the course. Out-of-class work will include all forms of credit-bearing activity, including but not limited to assignments, readings, observations, and musical practice. Where available, the university grants academic credit for students who verify via competency-based testing, that they have accomplished the learning outcomes associated with a course that would normally meet the requirements outlined above (e.g. AP credit, CLEP, and departmental exams).

HB 280 (Campus Carry)

UWG follows University System of Georgia (USG) guidance: <https://www.usg.edu/policymanual/section6/C2675> (<https://www.usg.edu/policymanual/section6/C2675>).

You may also visit our website for help with USG Guidance: <https://www.westga.edu/police/campus-carry.php> (<https://www.westga.edu/police/campus-carry.php>).

Mental Health Support

If you or another student find that you are experiencing a mental health issue, free confidential services are available on campus in the [Counseling Center](https://www.westga.edu/student-services/counseling/). (<https://www.westga.edu/student-services/counseling/>). Students who have experienced sexual or domestic violence may receive confidential medical and advocacy services with the Patient Advocates in [Health Services](https://www.westga.edu/student-services/health/) (<https://www.westga.edu/student-services/health/>). To report a concern anonymously, please go to [UWGcares](https://www.westga.edu/uwgcares/) (<https://www.westga.edu/uwgcares/>).

[Online counseling](https://www.westga.edu/student-services/counseling/index.php) (<https://www.westga.edu/student-services/counseling/index.php>) is also available for online students.

ELL Resources

If you are a student having difficulty with English language skills, and / or U.S. culture is not your home culture, specialized resources are available to help you succeed. Please visit the [E.L.L. resource page](https://www.westga.edu/isap/ell-resources.php) (<https://www.westga.edu/isap/ell-resources.php>) for more information.

Additional Items
