

## Midland College Syllabus

2022 - 2023

CHEM 1412

General Inorganic Chemistry II Lecture

4 Semester Credit Hours

(3 Lecture/4 Lab)

*Core Curriculum Course*

### Instructor Information:

Instructor: [Click here to enter text.](#)

Phone: [Click here to enter text.](#)

Office Hours: [Click here to enter text.](#)

Office: [Click here to enter text.](#)

Email: [Click here to enter text.](#)

**Notice:** Students MUST actively participate by completing an academic assignment required by the instructor by the official census date. Students who do not actively participate in an academically-related activity may be reported as never attended and dropped from the course.

### Course Description:

Chemical equilibrium; phase diagrams and spectrometry; acid-base concepts; thermodynamics; kinetics; electrochemistry; nuclear chemistry; an introduction to organic chemistry and descriptive inorganic chemistry. Prerequisite: CHEM 1411 General Chemistry I (Lecture and Laboratory)

### Core Objectives:

This course fulfills four hours of the Life and Physical Science requirement in the Midland College **Core Curriculum**. The Core Curriculum is a set of courses that provide students with a foundation of knowledge, skills and educational experiences that are essential for all learning. Please visit the [Midland College Catalog](#) for any questions about the Core. As part of the core, this course addresses the following four objectives:

Critical thinking skills – Students will demonstrate critical thinking skills by using appropriate calculations, analyzing experimental data, developing conclusions based upon trends in the data in course assignments, instructor created proctored exams, a departmental final exam, and in the execution of laboratory experiments / reports.

Communication skills – Students will conduct a research experiment and submit an original written report on water hardness in the Permian Basin area (no Lab Manual template provided) that will include experiment title, an abstract, experimental protocols, results (data), and conclusions (interpretation(s) of the data). The written reports will be required for the EDTA/ water hardness titration experiment. (see lab book) The report will be graded on legibility, order, and comprehension of the reader and the quality of the data and calculations.

Empirical and Quantitative skills – Students will demonstrate empirical and quantitative skills by analyzing real-world applications of mass measurement, volume measurement, concentration assessment, stoichiometry, titrations, paper chromatography, spectrophotometry, through course assignments, instructor created proctored exams, and a departmental final exam.

Teamwork – Students will work in groups of two or more to conduct laboratory experiments. Students will be graded on the quality of their data acquired together in addition to their individual conclusions.

### **Text, References and Supplies:**

- Top Hat; General Chemistry ISBN: 9780994802125
- Top Hat Access Card (OER) ISBN: 9780986615108
- Scientific Calculator (Cell phones will not be permitted for use on tests.)

### **Student Learning Outcomes:**

Upon successful completion of this course, students will:

1. State the characteristics of liquids and solids, including phase diagrams and spectrometry.
2. Articulate the importance of intermolecular interactions and predict trends in physical properties.
3. Identify the characteristics of acids, bases, and salts, and solve problems based on their quantitative relationships.
4. Identify and balance oxidation-reduction equations, and solve redox titration problems.
5. Determine the rate of a reaction and its dependence on concentration, time, and temperature.
6. Apply the principles of equilibrium to aqueous systems using LeChatelier's Principle to predict the effects of concentration, pressure, and temperature changes on equilibrium mixtures.
7. Analyze and perform calculations with the thermodynamic functions, enthalpy, entropy, and free energy.
8. Discuss the construction and operation of galvanic and electrolytic electrochemical cells, and determine standard and non-standard cell potentials.
9. Define nuclear decay processes.
10. Describe basic principles of organic chemistry and descriptive inorganic chemistry.

### **Student Contributions, Responsibilities and Class Policies:**

Students will be expected to comply with the policies outlined in the Midland College student handbook. Instructor policies concerning attendance and academic behavior are consistent with the policies in the student handbook. Regular attendance is required to do well in this class.

### **Attendance Policy:**

It is the responsibility of the students to know the policies and procedures associated with absences. These policies are set by instructors. Excused absences

may include, but are not limited to, illness, severe weather, and death in the family. Instructors will determine whether or not an absence is excused. Please visit the [Midland College Catalog](#)

### **Withdrawal Policy:**

Students who have enrolled in a Texas public institution of higher education as a first-time freshman in fall 2007 or later are permitted to drop no more than six courses during the entire undergraduate career. This limit includes all transfer work taken at a Texas institution of higher education and to second baccalaureate degrees. This statute was enacted by the State of Texas in spring 2007 (Texas Education Code 51.907). Any course that a student drops after Census Day is counted toward the six-course limit if "(1) the student was able to drop the course without receiving a grade or incurring an academic penalty; (2) the student's transcript indicates or will indicate that the student was enrolled in the course; and (3) the student is not dropping the course in order to withdraw from the institution." Please visit the [Midland College Catalog](#)

### **Scholastic Dishonesty:**

Midland College does not tolerate scholastic dishonesty or academic misconduct in any form. Please read the MC Student Handbook on this subject. Please visit the [Midland College Catalog](#)

### **Evaluation of Students:**

<b>Assessment Type</b>	<b>% of Grade</b>	<b>Grade Range</b>
Lecture Exams	65%	A=90%
Lecture Assignments & Quizzes	10%	B=80%
Lab Average	25%	C=70%
		D=60%
		F=below 60%

Students will be evaluated based on the results of examinations and homework given throughout the semester. Students are expected to complete each exam. All normal lecture exams count equally. There will be no makeup exams this semester. The Final exam score counts as a normal exam and replaces your worst exam score if higher or one missed exam score. (See Instructor Make-up Policy)

### **Course Schedule:**

This class meets for 3 lecture hours per week and 3 laboratory hours per week. For a tentative schedule of the class meetings and laboratory meetings, please refer to the schedule distributed to each student on the first class meeting (See Instructor Handout).

## **Non-Discrimination Statement**

Midland College does not discriminate on the basis of race, color, national origin, sex, disability or age in its programs and activities. The following individual has been designated to handle inquiries regarding the non-discrimination policies:

### **Tana Baker**

Title IX Coordinator/Compliance Officer

3600 N. Garfield, SSC 131

Midland, Texas 79705

(432) 685-4781

[tbaker@midland.edu](mailto:tbaker@midland.edu)

For further information on notice of non-discrimination, visit the ED.gov Office of Civil Rights website, or call 1 (800) 421-3481.

## **Americans with Disabilities Act (ADA) Statement:**

Midland College provides services for students with disabilities through Student Services. In order to receive accommodations, students must visit [www.midland.edu/accommodation](http://www.midland.edu/accommodation) and complete the Application for Accommodation Services located under the Apply for Accommodations tab. Services or accommodations are not automatic, each student must apply and be approved to receive them. All documentation submitted will be reviewed and a "Notice of Accommodations" letter will be sent to instructors outlining any reasonable accommodations.

## **Continuity of Instruction Statement**

In the event that on campus activities are suspended due to extenuating circumstances, such as weather or quarantine, the instructor will continue instruction in a manner that best supports the course content and student engagement. In this event, your instructor will notify students of the change via [Click here to enter text](#). At that time, they will provide details about how instruction and communication will continue, how academic integrity will be ensured, and what students may expect during the time that on campus activities are suspended. If a student becomes unable to continue class participation due to extenuating circumstances, (e.g., health and safety, loss of power, etc.) the student should contact their instructor and advisor for guidance. Resources are available to students via the SOS program. Information can be found at <https://www.midland.edu/services-resources/student-services/sos.php>.

## **Grievances or complaints**

Concerns should be expressed as soon as possible to allow for early resolution. Midland College encourages students to discuss their concerns with their instructor first. If you feel uncomfortable discussing your situation with your instructor, students should discuss their concerns with the Chair of the appropriate

department (Biology Chair – Mr. Tomas Hernandez (432-685-6751), Chemistry Chair – Mr. John Anderson (432-685-6737), Engineering and Physics Chair – Dr. Brian Flowers (432-685-4586), Geology Chair – Mr. Antony Giles (432-685-5580), Kinesiology Chair – Ms. Sheena Thompson (432-685-4579), Math Chair – Dr. Krista Cohlma (432-685-4541) then the Dean of Math and Science – Dr. Miranda Poage (432-685-4561). If a resolution is still not possible, students may proceed with the formal complaint process.

<http://catalog.midland.edu/content.php?catoid=14&navoid=2579#grievances-and-complaints>

**Math & Science Division Information:**

Division Office: AHSF 124 (432) 685-4561

Division E-Mail: [mns@midland.edu](mailto:mns@midland.edu)

Department Chair: Mr. John Anderson (432) 685-6737

Dean: Dr. Miranda Poage

Secretary: Sarah Anderson

Clerk: Liliana Orcutt

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