



Chem 415 Advanced Inorganic Chemistry
COURSE SYLLABUS: Spring 2023

Instructor: William Longley, Adjunct Professor
Office Location: Remote
Office Hours: By appointment after 5 pm
University Email Address: William.Longley@tamuc.edu

Lecture Time: Wednesday 6:00 pm – 8:30 pm | Room 123
Lab time: Thursday at 6:00 pm-9:50 pm | Room 313

Required Textbook: "Inorganic Chemistry," Catherine E. Housecroft and Alan G. Sharpe (4th Edition, ISBN 978-0-273-74275-3)

Additional Book for your study of this course:

"Inorganic Chemistry," 5th Edition, Shriver & Atkins, ISBN: 1-4292-1820-7.

Course description and learning outcomes:

This course assumes knowledge of general chemistry. Prerequisites for this class are CHEM 1411 and CHEM 1412. Inorganic chemistry is a core subdiscipline of chemistry. The course covers descriptive chemistry of more exciting elements and compounds and the standard topics in coordination, organometallic, solid-state chemistry, catalysis, and some industrial processes. Regular attendance and active learning are expected. Students' questions and comments are welcome.

Even though the scope of the class is broad, the topics are interconnected. Understanding each chapter as the course progresses is essential for the big picture to emerge at the end of the semester. This will lay a solid foundation for specialized study/research.

At the end of the course, the student will be able (1) to describe and explain the coordination compounds containing metal as a central atom surrounded by ligands, (2) to understand the stereochemistry of coordination compounds, (3) to classify the type and mechanism involved in coordination compounds reactions; (4) to study the characterization of coordination compounds and its application.

Grading/Evaluation

The grade for this course will be derived as follows:

CHEM 415: Lecture and Laboratory (graded as a single 4-credit hour course.)

Lecture Portion: 80% of the course grade; Lab portion: 20%.

Your performance and final grade in the lecture will be evaluated based on the total points earned. The distribution of points will be based on Homework and quizzes (10 points), which will be assigned and discussed throughout the semester. Two partial exams and a comprehensive final exam will carry 40 and 30 points, for 70 points. The last letter grade will be based on a standard scale of 86-100% A, 75-85% B, 65-74% C, 55-64% D, and below 55% F. The grades may be curved if warranted.

There will be no make-up for exams. If you miss an examination, you will be assigned a zero for that assignment. Homework not submitted on time may receive a grade of zero.

Tentative Schedule

The tentative schedule is subject to change.

<i>Week of</i>	<i>Lecture Topic</i>	<i>Reading</i>
1 Jan 10-12	An introduction to molecular symmetry	Ch. 3
2 Jan 15-19	Acids and bases	Ch. 7
3 Jan 22-26	Reduction and oxidation	Ch. 8
4 Jan 29- Feb 2	Reduction and oxidation	Ch. 8
5 Feb 5-9	Exam 1 (Feb. 7) and the group 1 metals	Ch. 11
6 Feb 12-16	The group 2 metals and the group 13 elements	Ch. 12&13
7 Feb 19-23	The group 14 elements	Ch. 14
8 Feb 26-Mar 1	The group 15 elements	Ch. 15
9 Mar 4-8	The group 16 elements	
10 Mar 11-15	Spring Break	Ch. 16
11 Mar 18-22	The group 17 elements	Ch. 17
12 Mar 25-29	(Exam 2, Mar 27) d-Block metal chemistry: general consideration	Ch. 20
13 Apr 1-5	d-Block metal chemistry: coordination complex	Ch. 21
14 Apr 8-12	Organometallic compounds of d-block elements	Ch. 24
15 Apr 15-19	d-Block metal complexes: reaction mechanisms	Ch. 26
16 Apr 22-26	Catalysis and some industrial processes	Ch. 27
17. Apr 29-May 3	Dead Days, No Class	
18. May 6-10	Final Exam Wed May 8 th , at Class Time	

* Please note that this schedule and topics are subject to change

TECHNOLOGY REQUIREMENTS

LMS

All course sections offered by Texas A&M University-Commerce have a corresponding course shell in the myLeo Online Learning Management System (LMS). Below are the technical requirements

LMS Requirements:

<https://community.brightspace.com/s/article/Brightspace-Platform-Requirements>

LMS Browser Support:

https://documentation.brightspace.com/EN/brightspace/requirements/all/browser_support.htm

Zoom Video Conferencing Tool

https://inside.tamuc.edu/campuslife/CampusServices/CITESupportCenter/Zoom_Account.aspx?source=universalmenu

ACCESS AND NAVIGATION

You will need your campus-wide ID (CWID) and password to log into the course. If you do not know your CWID or have forgotten your password, contact the Center for IT Excellence (CITE) at 903.468.6000 or helpdesk@tamuc.edu.

Note: Personal computer and internet connection problems do not excuse the requirement to complete all coursework promptly and satisfactorily. Each student needs a backup method to deal with these inevitable problems. These methods might include the availability of a backup PC at home or work, the temporary use of a computer at a friend's house, the local library, office service companies, Starbucks, a TAMUC campus open computer lab, etc.

COMMUNICATION AND SUPPORT

If you have any questions or are having difficulties with the course material, please get in touch with your Instructor.

Technical Support

If you have technical difficulty with any part of Brightspace, please get in touch with Brightspace Technical Support at 1-877-325-7778. Other support options can be found here:

<https://community.brightspace.com/support/s/contactsupport>

Interaction with Instructor Statement – Email is the best way to contact me.

COURSE AND UNIVERSITY PROCEDURES/POLICIES

Course Specific Procedures/Policies

Syllabus Change Policy

The syllabus is a guide. Circumstances and events, such as student progress, may make it necessary for the instructor to modify the syllabus during the semester. Any changes made to the syllabus will be announced in advance.

University Specific Procedures

Student Conduct

All students enrolled at the University shall follow the tenets of common decency and acceptable behavior conducive to a positive learning environment. The Code of Student Conduct is described in detail in the Student Guidebook

http://www.tamuc.edu/student_guidebook/Student_Guidebook.pdf

Students should also consult the Rules of Netiquette for more information about interacting with students online: <https://www.britannica.com/topic/netiquette>.

TAMUC Attendance

For more information about the attendance policy, please visit the [Attendance](#) webpage and

[Procedures 13.99.99.R0.01](#)

<http://www.tamuc.edu/admissions/registrar/generalInformation/attendance.aspx>

<http://www.tamuc.edu/aboutUs/policiesProceduresStandardsStatements/rulesProcedures/13students/academic/13.99.99.R0.01.pdf>

Academic Integrity

Students at Texas A&M University-Commerce are expected to maintain high standards of integrity and honesty in their academic work. For more details and the definition of academic dishonesty, see the following procedures:

[Undergraduate Academic Dishonesty 13.99.99.R0.03](http://www.tamuc.edu/aboutUs/policiesProceduresStandardsStatements/rulesProcedures/documents/13.99.99.R0.03UndergraduateStudentAcademicDishonestyForm.pdf)

[Undergraduate Student Academic Dishonesty Form](http://www.tamuc.edu/aboutUs/policiesProceduresStandardsStatements/rulesProcedures/documents/13.99.99.R0.03UndergraduateStudentAcademicDishonestyForm.pdf)

<http://www.tamuc.edu/aboutUs/policiesProceduresStandardsStatements/rulesProcedures/documents/13.99.99.R0.03UndergraduateStudentAcademicDishonestyForm.pdf>

[Graduate Student Academic Dishonesty Form](http://www.tamuc.edu/academics/graduateschool/faculty/GraduateStudentAcademicDishonestyFormold.pdf)

<http://www.tamuc.edu/academics/graduateschool/faculty/GraduateStudentAcademicDishonestyFormold.pdf>

<http://www.tamuc.edu/aboutUs/policiesProceduresStandardsStatements/rulesProcedures/13students/undergraduates/13.99.99.R0.03UndergraduateAcademicDishonesty.pdf>

Students with Disabilities-- ADA Statement

The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. This legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you have a disability requiring an accommodation, please contact:

Office of Student Disability Resources and Services

Texas A&M University-Commerce

Velma K. Waters Library Rm 162

Phone (903) 886-5150 or (903) 886-5835

Fax (903) 468-8148

Email: studentdisabilityservices@tamuc.edu

Website: [Student Disability Services](https://www.tamuc.edu/student-disability-services/)

<https://www.tamuc.edu/student-disability-services/>

Nondiscrimination Notice

Texas A&M University-Commerce will comply in the classroom and online courses with all federal and state laws prohibiting discrimination and related retaliation based on race, color, religion, sex, national origin, disability, age, genetic information, or veteran status. Further, an environment free from discrimination based on sexual orientation, gender identity, or gender expression will be maintained.

Campus Concealed Carry Statement

Texas Senate Bill - 11 (Government Code 411.2031 et al.) authorizes the carrying of a concealed handgun in Texas A&M University-Commerce buildings only by persons who have been issued and are in possession of a Texas License to Carry a Handgun. Qualified law enforcement officers or those who are otherwise authorized to carry a concealed handgun in the State of Texas are also permitted to

do so. Pursuant to Penal Code (PC) 46.035 and A&M-Commerce Rule 34.06.02.R1, license holders may not carry a concealed handgun in restricted locations.

For a list of locations, please refer to the [Carrying Concealed Handguns On Campus](#) document and/or consult your event organizer.

Web url:

<http://www.tamuc.edu/aboutUs/policiesProceduresStandardsStatements/rulesProcedures/34SafetyOfEmployeesAndStudents/34.06.02.R1.pdf>

Pursuant to PC 46.035, the open carrying of handguns is prohibited on all A&M-Commerce campuses. Report violations to the University Police Department at 903-886-5868 or 9-1-1.

A&M-Commerce Supports Students' Mental Health

The Counseling Center at A&M-Commerce, located in the Halladay Building, Room 203, offers counseling services, educational programming, and connection to community resources for students. Students have 24/7 access to the Counseling Center's crisis assessment services by calling 903-886-5145. For more information regarding Counseling Center events and confidential services, please visit www.tamuc.edu/counsel

AI Use Policy

Texas A&M University-Commerce acknowledges that there are legitimate uses of Artificial Intelligence, ChatBots, or other software that has the capacity to generate text or suggest replacements for text beyond individual words, as determined by the instructor of the course.

Any use of such software must be documented. Any undocumented use of such software constitutes an instance of academic dishonesty (plagiarism).

Individual instructors may disallow the use of such software entirely for individual assignments or the entire course. Students should be aware of such requirements and follow their instructors' guidelines. If no instructions are provided, the student should assume that such software is prohibited.

In any case, students are fully responsible for the content of any assignment they submit, regardless of whether they used an AI in any way. This specifically includes cases in which the AI plagiarized another text or misrepresented sources.

13.99.99.R0.03 Undergraduate Academic Dishonesty

13.99.99.R0.10 Graduate Student Academic Dishonesty

Students should not attend class when ill or after exposure to anyone with a contagious illness. Communicate such instances directly with your instructor. The faculty will work to support the student in getting access to missed content or completing missed assignments.