

## CHEM 415 & 531: Advanced Inorganic Chemistry

Course: CHEM 415 & 531 will meet every Tuesday and Thursday from 12:30-1:45 p.m. in room Science 122.

Instructor: Dr. Bukuo Ni  
Office: STC 303  
Phone: 903-886-5382, e-mail: Bukuo.Ni@tamuc.edu  
Office Hours: Mon-Fri 2:00 – 3:00 pm or by appointment.

**Required Textbook:** "Inorganic Chemistry", Catherine E. Housecroft and Alan G. Sharpe (3<sup>rd</sup> Edition, ISBN 978-0-13-175553-6)

**Additional Book for your study of this course:**

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

**Course description and learning outcomes:** This course covers descriptive chemistry of more interesting elements and compounds and the standard topics in coordination, organometallic, solid-state chemistry, and catalysis and some industrial processes. Prerequisites are sound knowledge of general chemistry and familiarity with organic, physical and analytical chemistry. Regular attendance and active learning are expected. Students' questions and comments are welcome.

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

### Grading

Your performance and final grade in the course will be evaluated on the basis of total points earned. The distribution of points will be based on the following: Homework (20 points), which will be assigned and discussion throughout the semester. Two partial exams and comprehensive final exam will carry 50 and 30 points, for a total of 80. The final letter grade will be based on a standard scale 90-100% A, 80-89% B, 70-79% C, 60-69% D, and below 60% F. The grades may be curved, if warranted.

There will be absolutely no make-ups 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.

\*For undergraduate students, CHEM 415L will be 100 points (20% of course grade).

### Academic Integrity Code:

Ethical behavior is expected in all work. Any material submitted in Inorganic Chemistry must represent your own work and follow the Academic Integrity Code. Students supplying materials for others to "look at" (e.g. exams) may be charged with academic misconduct. The use of 'cheat sheets', stored text, constants, or formulas in calculators may be regarded as a violation of academic standards. A zero tolerance policy will be in effect. If you haven't already done so, you should familiarize yourself with TAMU-C's academic policies and regulations, especially those dealing with academic integrity.

### Tentative Schedule

The tentative schedule is subject to change.

<i>Week of</i>	<i>Lecture Topic</i>	<i>Reading</i>
----------------	----------------------	----------------

1 Jan 14-20	An introduction to molecular symmetry	Ch. 4
2 Jan 21-27	Reduction and oxidation	Ch. 8
3 Jan 28-Feb 3	Group 1: the alkali metal	Ch. 11
4 Feb 4-10	The group 2 metals	Ch. 12
5 Feb 11-17	The group 13 elements (Exam I, 16)	Ch. 13
6 Feb 18-24	The group 14 elements	Ch. 14
7 Feb 25-Mar 3	The group 15 elements	Ch. 15
8 Mar 4-10	The group 16 elements	Ch. 16
SB Mar 11-17	Spring break	
9 Mar 18-24	The group 17 elements	Ch. 17
10 Mar 25-31	Organometallic compounds of s- and p-block elements (Exam II, March 29)	Ch. 19
11 Apr 1-7	d-Block metal chemistry: general consideration	Ch. 20
12 Apr 8-14	d-Block metal chemistry: coordination complex	Ch. 21
13 Apr 15-21	Organometallic compounds of d-block elements	Ch. 24
14 Apr 22-Apr 28	d-Block metal complexes: reaction mechanisms	Ch. 26
15 Apr 29-May 3	Catalysis and some industrial processes	Ch. 27
May 7	Final exam	

***ADA ELIGIBLE STUDENTS: Students requesting accommodations for disabilities must make arrangements through the Disability Resources & Services office. For more information, please contact the Office of Student Disability Resources and Services, Texas A&M University-Commerce, Gee Library Room 13, Phone (903) 886-5150 or (903) 886-583, Fax (903) 468-8148, E-mail: StudentDisabilityServices@tamuc.edu. ADA eligible students should make arrangements with the instructor in the first week of the semester regarding special arrangements needed for classroom or testing facilities and procedures to accommodate the disability.***

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