

CHEM 415: Advanced Inorganic Chemistry Spring 2015

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

Instructor: Dr. Bukuo Ni
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Office Hours: Wednesday 2:00 – 3:00 pm or by appointment.

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, CHEM 1412, and CHEM 351. Inorganic chemistry is a core subdiscipline of chemistry. The 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. 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. Having complete understanding of each chapter as the class progresses is essential for the big picture to emerge at the end of the semester. This will lay a solid foundation for the specialized study/research in the future.

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/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: 75% of course grade; Lab portion: 25% of the course grade.

Your performance and final grade in the lecture will be evaluated on the basis of total points earned. The distribution of points will be based on the following: Homework and quiz (15 points), which will be assigned and discussion throughout the semester. Two partial exams and comprehensive final exam will both carry 30 points, for a total of 60. The final letter grade will be based on a standard scale 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 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.

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 20-25	An introduction to molecular symmetry	Ch. 4
2 Jan 26-Feb. 1	Acids and bases	Ch. 7
3 Feb. 2-Feb 8	Reduction and oxidation	Ch. 8
4 Feb 9-15	Reduction and oxidation	Ch. 8
5 Feb 16-22	Exam 1(Feb. 17), and the group 1 metals	Ch. 11
6 Feb 23-28	The group 2 metals and The group 13 elements	Ch. 12&13
7 Mar 2-8	The group 14 elements	Ch. 14
8 Mar 9-15	The group 15 elements	Ch. 15
SB Mar 16-22	Spring break	
9 Mar 23-29	The group 16 elements	Ch. 16
10 Mar 30-Apr 5	The group 17 elements	Ch. 17
11 Apr 6-12	(Exam 2, Apr 7) d-Block metal chemistry: general consideration	Ch. 20
12 Apr 13-19	d-Block metal chemistry: coordination complex	Ch. 21
13 Apr 20-26	Organometallic compounds of d-block elements	Ch. 24
14 Apr 27-May 3	d-Block metal complexes: reaction mechanisms	Ch. 26
15 May 4-May 8	Catalysis and some industrial processes	Ch. 27
May 12	Final exam (comprehensive exam)	

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