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Fall 9-1-2020

CHMY 401.01: Advanced Inorganic Chemistry

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Goals: This course will examine the coordination chemistry of metals with a focus on structure, bonding of ligands, electronic spectra and representative reactions. Concepts in atomic structure, molecular symmetry, and molecular orbital theory will provide the underpinnings for developing an understanding of the chemistry of metals and how it contrasts with carbon-based chemistry.

When/Where: Monday, Wednesday, and Friday from 3:00 to 3:50 pm, in Chemistry 123

Instructor: Dong Wang, Chem 217, x4290, dong1.wang@umontana.edu

Office Hours: by appointment

Text: Shriver and coauthors, *Inorganic Chemistry*, 6th ed., Freeman

Text website: [Inorganic Chemistry 6th edition website](#)

Course website: [Moodle](#)

Evaluation:

a) 35 one-minute paper by email – 400 points	40% of grade
b) Three 1-hour in-class exams – 100 points each	30% of grade
c) Final take-home exam – 300 points	30% of grade

Course Content and Exam Date Overview:

Topic	Text
Atomic structure	Chap. 1
Molecular structure and bonding	Chap. 2
Basic redox chemistry	Chap. 5
Molecular symmetry	Chap. 6
Coordination chemistry	Chap. 7
Transition metal chemistry and reactions	Chap. 20 Chap. 21
Exam 1 (Friday, Sept. 18)	
Exam 2 (Friday, Oct. 16)	
Exam 3 (Friday, Nov. 9)	
Final Exam (Take-home Nov. 19-23)	

Course Notes:

- Each one-minute paper is due by email to dong1.wang@umontana.edu within 24 hours after the class. Use 2-3 sentences to summarize the contents covered in class and ask any question you might have.
- The final exam is comprehensive and take-home. The exam will be handled out at the end of the last class on Wednesday Nov. 18th and the answers will be collected by Nov. 23rd at 5pm. You are required to work independently on the final exam.
- Suggested problems will be assigned. Homework problems are meant to reinforce lecture materials. They will not be collected or graded. Answers to these problems are available in the Solutions Manual (available at the UM Bookstore).
- If you have a legitimate conflict with an exam date, you must inform the instructor **at least 1 week before the exam** to make alternate arrangements. Missed exams will receive a grade of zero. Final exam received after Nov. 23rd 5pm will receive a grade of zero.
- The \pm grading system will be employed.
 - See the [Catalog for Academic Policies and Procedures](#) which includes grading policies
- See the [Student Conduct Code](#) for the definition and potential consequences of academic misconduct and plagiarism.
- Information on disability accommodations is available on the [University of Montana Accessibility Website](#).

COVID-19 Specific Notes:

- Mask use is required within the classroom. [View UM's face covering policy](#). Stay home if you feel sick and/or exhibit COVID-19 symptoms. Contact the Curry Health Center at 406-243-4330.
- If you are diagnosed COVID-19, follow instructions for quarantine and contact me.
- Cleaning wipes are provided when you enter the classroom. Please use them to sanitize your desk and chair surfaces before and after each class.
- Be familiar with the entrance and exit of the classroom (Chemistry 123).
- The maximum capacity of Chemistry 123 is 21. Available seats have been marked.
- Drinking and eating is strongly discouraged.
- Attendance will be taken for each class for tracking purposes.

Tentative Schedule

Month	Week	Topic	Reading
August	19, 21	Review of atomic structure	1.1-1.7
	24, 26, 28		
	31		
September	2, 4	Molecular structure and symmetry	2.1-2.3 6.1-6.5
	7	Labor Day Holiday, no class	
	9, 11	Molecular structure and symmetry	2.1-2.3 6.1-6.5
	14, 16		
	18	Hour Exam 1	
	21, 23, 25	Molecular orbital theory	2.4-2.11 6.6-6.10
28, 30			
October	2	Coordination chemistry - introduction	7.1-7.15
	5, 7, 9		
	12, 14		
	16	Hour Exam 2	
	19, 21, 23	Coordination chemistry - bonding	20.1-20.3
26, 28, 30			
November	2, 4, 6	Spectroscopy	20.4-20.6
	9	Hour Exam 3	
	11	Veterans Day Holiday, no class	
	13	Redox chemistry and other reactions	Chapter 5, 21
	16, 18		
23	Final Exam due at 5pm		