XAVIER UNIVERSITY **CHEM 420-01** (Inorganic Chemistry) **FALL 2018**

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Office Hours: Mon., Wed., & Fri. 12:30-1:30; Tue. & Thu. 11:00-12:00; and by appointment.

Text: ***Inorganic Chemistry***, 5th ed.; G. Miessler, P. Fischer, & D. Tarr; Prentice Hall; 2014.
Prerequisite: CHEM 330 (Quantum Chemistry) or permission of the instructor.
Format: Three lectures each week, 9:00-9:50, MWF in Logan 1 (3 credits)

Description: The course begins with structure and bonding of molecules, highlighted by Point Groups and M.O. Theory. Next, acid/base theory and the solid state will be examined. Finally, coordination compounds will be explored; our survey will include spectroscopy, organometallics, and catalysis.

Problem Sets: Four sets (contributing 298 points toward the overall grade) will be distributed. Students may discuss relevant *general concepts*, but not specific answers; however, I can be consulted freely.

Tests: Three exams (262 points) will be given. Dates will be announced at least one week in advance.

Final Exam: Wednesday, December 12, 8:00-9:50. This contributes 80 points toward the overall grade. This is a standardized examination prepared by the American Chemical Society.

Special Needs: Students should inform the instructor of any individual conditions, medical or otherwise, that may require special attention. Appropriate consideration will be given in these situations.

Attendance: Regular attendance is highly recommended but not required.

Academic Honesty: Cheating on any examination or exercise will result in a grade of "**F**" for the course. The student may appeal according to normal procedures as stated in the University Catalog.

Grading Scale: **A** 600+; **A-** 580-599; **B+** 560-579; **B** 535-559; **B-** 510-534; **C+** 490-509; **C** 470-489; **C-** 450-469; **D+** 425-449; **D** 400-424; **F** below 400.
Upon review at the end of the semester, this scale may be adjusted downward.

NOTE: According to the Xavier University Catalog, a grade of "A" is earned for "Exceptional" performance. This is also the policy of the Chemistry Department faculty. The Department Grading Policies should be viewed by all students on the Departmental WEB site: http://www.xu.edu/chemistry_dept/courses.htm

TENTATIVE SCHEDULE

CLASS	CHAP.	TOPIC
1-2	2	Atomic Structure (pages 18-40 only)
3-4	3	Simple Bonding Theory
5-8	4	Symmetry and Point Groups (skip Section 3)
9-12	5	Molecular Orbitals (skip pages 158-164)
13		TEST #1
14-17	7	The Crystalline Solid State (skip Sections 6 and 7)
18-20	6	Acid-Base and Donor-Acceptor Chemistry (skip pages 206-209)
21-22	9	Coordination Chemistry I: Structures and Isomers (skip Section 5)
23-25	10	Coordination Chemistry II: Bonding (skip pages 382-387)
26		TEST #2
27-39	11	Coordination Chemistry III: Terms, Microstates, and Electronic Spectra
30-31	12	Coordination Chemistry IV: Mechanisms (skip Sections 4, 5, and 9)
32-35	13	Organometallic Chemistry: Structure and Bonding (skip pages 497-499, 518-520)
36-37	14	Organometallic Chemistry: Reactions and Catalysis (skip Section 4)
38-39	15	Parallels between Main Group and Organometallic Chemistry
40		TEST #3

41-42	8	Main-Group Elements (Sections 1 and 3 only) (Handout: Latimer Diagrams)
43-44	XX	Review (Old A.C.S. Exam Questions)