

Chemistry 340/441

Advanced Inorganic Chemistry

Spring 2011

Dr. Duarte Mota de Freitas, FH 022, Ext. 83091, E-mail dfreita@luc.edu

Classroom: CS 202; Classtime: M, W and F 12:35 p.m. - 1:25 p.m.

Office Hours: M and W, 1:45 p.m. – 2:45 p.m., FH 022; other times by appointment.

Required Textbooks:

Housecroft Inorganic Chemistry 3e, 3rd Edition, Catherine Housecroft and Alan G. Sharpe, ISBN-13: 978-0-13-175553-6, Prentice Hall, 2008

Solutions Manual Inorganic Chemistry 3e, 3rd Edition, Catherine Housecroft

ISBN-13: 978-0-13-204849-1, Prentice Hall, 2008

Recommended: Any Molecular Model Kit, e.g., Framework Molecular Model Student Kit, Brumlik, ISBN-13: 978-0-13-330076-5, Prentice Hall. or Darling Models, Kit #1A (see www.molecularvisions.com)

<u>Lecture #</u>	<u>Date</u>	<u>Topic</u>	<u>Reading</u>
1	1/19	Atomic Structure	Ch. 1
2	1/21	Atomic Structure	Ch. 1
3	1/24	Electronegativity	Ch. 2
4	1/26	Molecular shapes and VSEPR	Ch. 2
5	1/28	Symmetry Elements	Ch. 4
6	1/31	Point Groups	Ch. 4
7	02/2	Introduction to Group Theory	Ch. 4
8	02/4	Applications of Group Theory	Ch. 4
9	02/7	VB and MO models of Diatomics	Ch. 2
10	2/09	MO models of Polyatomics	Ch. 5
11	2/11	MO models of Polyatomics	Ch. 5

Lecture #	Date	Topic	Reading
12	2/14	Review	
13	2/16	EXAM I (Lectures 1 – 11)	
14	2/18	Solid State Structure	Ch. 6
15	2/21	Solid State Structure	Ch. 6
16	2/23	Acids and Bases	Ch. 7
17	2/25	Acids and Bases	Ch. 9
18	2/28	Isomerism and Properties of Coordination Cpds.	Ch. 20
19	03/2	Crystal Field Theory	Ch. 21
20	03/4	Crystal Field Theory	Ch. 21
21	3/14	M.O. Theory of Coordination Compounds	Ch. 21
22	3/16	Magnetochemistry	Ch. 21
23	3/18	Ligand Field Stabilization Energy	Ch. 21
24	3/21	Review	
25	3/23	EXAM II (Lectures 14 – 23)	
26	3/25	Term Symbols	Ch. 21
27	3/28	Electronic Spectra	Ch. 21
28	3/30	Electronic Spectra	Ch. 21
29	04/1	Substitution Reactions in D _{4h} Complexes	Ch. 26
30	04/4	Substitution Reactions in O _h Complexes	Ch. 26
31	04/6	Electron Transfer Reactions	Ch. 26
32	04/8	The 18-electron rule	Ch. 24
33	4/11	Carbonyl and π -donor complexes	Ch. 24
34	4/13	Organometallic Reactions	Ch. 24
35	4/15	Homo- and Heterogeneous Catalysis	Ch. 27

Lecture #	Date	Topic	Reading
36	4/18	Bioinorganic Chemistry	Ch. 29
37	4/20	Bioinorganic Chemistry	Ch. 29
38	4/27	Bioinorganic Chemistry	Ch. 29
39	4/29	Review	

The final examination will be on F, 5/6, 9:00 - 11:00 a.m., CS202 (60% on Lectures 26-39; 20% on Lectures 1-11, and 20% on Lectures 14-23).

The Tutoring Center offers free small group tutoring and lab (drop-in) tutoring for Loyola students. The groups meet once a week through the end of the semester and are led by a student who has successfully completed study in the course material. To learn more or request tutoring services, visit the Tutoring Center online at www.luc.edu/tutoring.

By the end of the first week of classes, students who need special testing accommodations should give the instructor documentation that has been approved by the Services for Students with Disabilities (SSWD).

Academic Integrity: Please refer to the policies on dishonest academic behavior in the Graduate or Undergraduate Studies Catalogs (for details see www.luc.edu/academics/catalog/undergrad/reg_academicgrievance.shtml).

Grading Policy: 100 points for each 50-min exam, 25 points for each of the four 15-min quizzes and 200 points for the final exam for a grand total of 500 points. The exams will be made up of multiple-choice and short-answer questions, whereas only multiple-choice questions will be used for the quizzes. The final exam will be comprehensive with 60% covering material since Exam II and the remaining 40% will test the materials from Exams I and II. No makeup exams will be given. A missed exam or quiz requires written supporting documentation from a physician, funeral director or equivalent, and a score will be established based on the average of the remaining course assignments.

Class grades will be calculated by two separate methods. The method that generates the highest letter grade will be used.

Method 1: The mean of the total raw scores for the class will be calculated and designated as the C+/B- cutoff. One-third of the standard deviation will be added or subtracted from the mean to arrive at the remaining grades. For example, a student must be one standard deviation above the mean to obtain a grade of A-.

Method 2: The following scale of total raw scores will be used to establish class letter grades:

A = 100-85

A- = 84-80

B+ = 79-75

B = 74-70

B- = 69-65

C+ = 64-60

C = 59-55

C- = 54-50

D+ = 49-45

D = 44-40

F = Less than 40