

Brooklyn College
Advanced Inorganic Chemistry (Chem. 76.1) – Spring, 2010

Professor Roberto Sanchez-Delgado

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Office hours: Tuesday and Thursday 4:30 pm to 6pm

Textbook: (Available at Brooklyn College Bookstore)

Inorganic Chemistry, Gary L Miessler and Donald Tarr, 3rd Edition, Pearson – Prentice Hall (2004)

Solutions Manual for Inorganic Chemistry (Miessler & Tarr)

Inorganic/organic molecular models

Other recommended books:

Inorganic Chemistry, Catherine E. Housecroft and Alan G. Sharpe, 3rd Ed., Pearson – Prentice Hall (2008) ISBN 978-0-13-175553-6

Shriver and Atkins Inorganic Chemistry, 4th Ed., by Atkins Overton, Rourke, Weller and Armstrong, Freeman (2006)

Molecular Symmetry and Group Theory by Alan Vincent
John Wiley & Sons, SECOND EDITION (2001) ISBN 0-471-48939-5

Grading: GRADES WILL NOT BE NO CURVED

The final grade will be determined as follows:

5 tests 20% each

Tentative dates

	Test 1 Units 1-2	Test 2 Unit 3	Test 3 Units 4-5	Test 4 Unit 6	Test 5 Unit 7
Date	Feb. 16	March 11	April 13	May 4	May 20

No make-up tests will be given except in cases of documented legitimate reasons for absence.

Reading

•This is an advanced course and students are expected to do a lot of work on their own. Lectures may not cover all the contents in the textbook as listed below, but you will be expected to know the assigned material. Questions and discussion during the lectures are strongly encouraged. If you have difficulties, make use of office hours, **I am here to help you succeed**.

•A lot of material will be covered in this course. Keep up-to-date. Read appropriate sections in the textbook before the lectures.

Content and tentative schedule

Unit 1 (weeks 1-2)

Chapters 1-3. Introduction to inorganic chemistry. Revision of basic concepts of atomic theory. Chapters 2-2-4 to 3. Periodic trends. Simple bonding theories.

Unit 2 (weeks 3-4)

Chapter 4. Symmetry and group theory. Applications to vibrational spectroscopy.

Unit 3 (weeks 5-6)

Chapter 5. Molecular orbitals: general principles. Homonuclear diatomic molecules. Heteronuclear diatomic molecules. Larger molecules.

Unit 4 (week 7)

Chapter 6. Acid-base and donor-acceptor properties.

Unit 5 (weeks 8-9)

Chapter 7. The crystalline solid state.

Unit 6 (weeks 10-12)

Chapters 9-11. Coordination chemistry. Nomenclature, isomerism, coordination numbers and geometries. Electronic structure. Ligand field theory. . Electronic spectra. Reactions and mechanisms.

Unit 7 (weeks 13-14)

Chapter 13, 14, 16. Elements of organometallic chemistry and catalysis, bioinorganic and environmental chemistry.