

CHE 450G
Practical Inorganic Chemistry

Dr. Stephen M. Holmes
15 Chemistry-Physics
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Office hours by appointment

Lecture: 12 – 12:50 PM MW
Where: 103 Chemistry-Physics Bldg.
Lab: 1-4 PM MW; CP-36

Required Texts:

G. S. Girolami, T. B. Rauchfuss, R. J. Angelici *Synthesis and Technique in Inorganic Chemistry*, 3rd Ed.
G. L. Miessler; D. A. Tarr *Inorganic Chemistry*, 2nd Ed.
A. Vincent *Molecular Symmetry and Group Theory*

Supplementary Texts (optional and useful additions to your library):

F. A. Cotton *Chemical Applications of Group Theory*
Y. Jean; F. Volatron; J. Burdett *An Introduction to Molecular Orbitals*
D. F. Shriver; P. W. Atkins; C. H. Langford *Inorganic Chemistry*
K. F. Purcell; J. C. Kotz *An Introduction to Inorganic Chemistry*
N. N. Greenwood; A. Earnshaw *Chemistry of the Elements*
C. Elschenbroich; A. Salzer *Organometallics A Concise Introduction*
F. A. Cotton; G. Wilkinson *Advanced Inorganic Chemistry*, 5th Ed.
R. S. Drago *Physical Methods for Chemists*, 2nd Ed.

Grading Distribution

Score Component	Total Points	Percentage of Final Grade (%)
Core Experiments (5)	500	25
Development Experiments (2)	400	20
Problem Sets (~5)	200	10
In-Class Exams (2)	400	20
Comprehensive Final Exam (1)	300	15
Overall Technique, Notebook, Participation, Safety, etc.	200	10
Total	2000	100

Grade Distribution

100% < **A** < 90% < **B** < 80% < **C** < 70% < **D** < 60% < **E**

Attendance

Mandatory attendance in lecture is required. More than two unexcused absences will result in one percentage point deduction from the final grade average. Unexcused absences from the laboratory component are not allowed. See the Official University Absence Policy for allowable and excused absences.

Extensions (rare) for laboratory reports will not be permitted unless:

- (1) A complete extension request form is submitted at least 2 days prior to report due date
- (2) Instructor reviews request form, meets with student, and approves request prior to due date

Chem 450G

For updated Lecture Topics, Laboratory schedules, report and homework due dates, and Exam dates regularly refer to www.chem.uky.edu/research/holmes/classes/CHE450G/

Date	Tentative Topics/Order/Assigned Reading	
Wednesday	Aug. 24	Introduction
Monday	Aug. 29	Atomic Structure
Wednesday	Aug. 31	Periodic Trends
<i>Monday</i>	<i>Sept. 5</i>	<i>Labor Day, Academic Holiday</i>
Wednesday	Sept. 7	Periodic Trends
Monday	Sept. 12	Lewis and VSEPR Structures
Wednesday	Sept. 14	Group Theory: Symmetry operations
Monday	Sept. 19	Group Theory: Symmetry operations
Wednesday	Sept. 21	Point Groups
Monday	Sept. 26	Point Groups
Wednesday	Sept. 28	Reducible Representations
Monday	Oct. 3	Reducible Representations
Wednesday	Oct. 5	Group Theory; IR and Raman
Monday	Oct. 10	Group Theory; IR and Raman
<i>Wednesday</i>	<i>Oct. 12</i>	<i>Exam 1, 12-1 PM</i>
Monday	Oct. 17	Hybridization and Molecular Orbital theory
Wednesday	Oct. 19	SALCS: Homonuclear diatomic molecules
Monday	Oct. 24	SALCS: Heteronuclear diatomic molecules
Wednesday	Oct. 26	Molecular Orbital Diagrams
Monday	Oct. 31	Molecular Orbital Diagrams
Wednesday	Nov. 2	Crystal-Field Splitting Diagrams
Monday	Nov. 7	Transition Metal MO Diagrams
Wednesday	Nov. 9	Walsh/Correlation diagrams
<i>Monday</i>	<i>Nov. 14</i>	<i>Exam 2, 12-1 PM</i>
Wednesday	Nov. 16	Spectrochemical and Nephelauxetic Series
Monday	Nov. 21	Metal-Ligand bonding/Ligand Types
Wednesday	Nov. 23	Electron Counting (EAN Rule)
Monday	Nov. 28	Electron counting (non-18 electron)
Wednesday	Nov. 30	Ligand-Field Stabilization Energies
Monday	Dec. 5	Ligand Substitution Reactions
Wednesday	Dec. 7	Ligand Substitution Reactions
Monday	Dec. 12	Ligand Substitution Reactions
Wednesday	Dec. 14	Inorganic Nomenclature
<i>Friday</i>	<i>Dec. 16</i>	<i>Final Exam, 1 PM</i>