COURSE: CHEMISTRY 331, Inorganic Chemistry: Main Group Elements

LEC | DAYS | TIME | ROOM | INSTRUCTOR | OFFICE | PHONE | EMAIL | OFFICE HOURS
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L01 | MWF | 13:00-13:50 | ES 162 | Dr. R. Roesler | SB 339 | 220-5366 | roesler@ucalgary.ca | M 11:00 - 12:00
W 15:00 - 16:00

Desire 2 Learn (D2L) course name: https://d2l.ucalgary.ca/d2l/home/106989
Departmental Office: SA 229, 220-5341, uginfo@chem.ucalgary.ca


TOPICS COVERED AND SUGGESTED READING:

COURSE CONTENTS | Lectures | Chapter in Textbook (not all sections will be covered)
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ORIGIN OF THE ELEMENTS | 1 | N/A
ELECTRONIC STRUCTURE OF THE ATOM | 2, 3 | Chapter 1
BONDING MODELS: DISCRETE STRUCTURES | 4 through 7 | Chapter 2
BONDING MODELS: MOLECULAR SYMMETRY | 8 through 12 | Chapter 3 and 5
BONDING MODELS: EXTENDED STRUCTURES | 13 through 17 | Chapter 6
MAIN GROUP ELEMENTS: GENERAL PRINCIPLES | 18, 19 | N/A

Electronegativity
Valence
Oxidation number/state
Coordination Number
d- and f-Block Contraction

CHEMISTRY OF THE MAIN GROUP ELEMENTS

Group 1
Hydrogen
Alkali Metals
  Complex Ions: Crown Ethers and Cryptands
  Lithium Batteries: Primary and Secondary
Group 2
  Water Hardness
Group 13
Boron
  Electron Deficient Compounds
  Lewis Acidity
  Positive Hyperconjugation
  Boranes and Carboranes
  Wade-Mingos Rules
Al, Ga, In, Tl
  Inert pair Effect
  Chemical Vapor Deposition
Group 14
  Carbon Allotropes
  Si, Ge, Sn, Pb
    Hypervalent Compounds
    Semiconductor Grade Silicon
    Negative Hyperconjugation
Group 15
Nitrogen
  P, As, Sb, Bi
    Lewis Basicity
    Multiple bonds to oxygen
Group 16
Oxygen
  S, Se, Te, Po
Group 17
Group 18
Xenon

* The number of lectures allocated to each topic is TENTATIVE