**CHEM 3110 - DESCRIPTIVE INORGANIC CHEMISTRY**

**Text:** DESCRIPTIVE INORGANIC CHEMISTRY, 4th Ed., Rayner and Canham, VHPS, 2006

**Prerequisites:** CHEM 1120-1121

Course Outline

I. Building a Network of Ideas Around the Periodic Table

A. History

B. Electron Configuration

C. Periodic Trends

D. The Network

II. Hydrogen and its Compounds

A. Nuclear Reactions

B. Preparation of H2

C. Uses of H2

D. Hydrides

III. Oxygen and its Compounds

A. Preparation of O2

B. Uses of O2

C. Lewis Structures and Shapes of Molecules

D. Water

1. Solubility in H2O

2. Self-ionization

E. Acids and Bases

1. Naming

2. Relative Strengths

IV. Group IA (1)

A. Preparation, Properties, and Trends

B. Compounds

C. Reduction Potentials

D. Peroxides and Superoxides

V. Group 2A (2)

A. Preparation, Properties, and Trends

B. Compounds

VI. Group 3A (13)

A. Preparation, Properties, and Trends

B. Compounds

C. Structural Aspects of Boron and its Compounds

D. Boron Hydrides

VII. Group 4A (14)

A. Preparation, Properties, and Trends

B. Pπ-dπ Bonding

C. Carbon Allotropes

D. Silicates

VIII. Group 5A (15)

A. Preparation, Properties, and Trends

B. Compounds

C. Nitrogen Oxides

IX. Group 6A (16)

A. Preparation, Properties, and Trends

B. Compounds

C. Catenation

X. Group 7A (17)

A. Preparation, Properties, and Trends

B. Compounds

C. Oxoacids and Salts

D. Interhalogens

XI. Group 8A (18)

A. Properties and Trends

B. Compounds