



## Inorganic Chemistry (1)

Course Code	Course Num.	Course Name	Credit Hours	Lec.	Lab.	Tut.	Prerequisites
CHM	211	Inorganic Chemistry (1)	4	2	3	1	CHM 102

### Objectives:

Students should be able to:

- Gain knowledge of the basic information of s and p block elements, inert gases
- Acquire methods of preparation of s and p block elements and their uses.

### Syllabus:

Review on The elements and their compounds: Periodic trends, Valence electron configurations

Hydrogen: The hydrogen ion (proton), The hydride ion, Isotopes of hydrogen, Protium and deuterium, Deuterated compounds, Tritium, Dihydrogen.

Group 1&2 The alkali metals and their compounds: Introduction, Occurrence, extraction and uses, Extraction, Major uses of the alkali metals and their compounds, Physical properties and General properties. Group 2: The alkali earth metals and their compounds: Introduction, Occurrence, extraction and uses, Major uses of the group 2 metals and their compounds, Physical properties and General properties.

Group 13&14: elements and their compounds: Introduction, Occurrence, extraction and uses, Major uses of the group 13 elements and their compounds, Physical properties, Electronic configurations and oxidation states. Group 14: elements and their compounds: Occurrence, Extraction and manufacture, Uses. Some energetic and bonding considerations, Allotropes of carbon, Graphite and diamond: structure and properties.

Group 15&16: elements and their compounds: Introduction, Occurrence, extraction and uses, Physical properties, Bonding considerations, Nitrogen, Phosphorus, Arsenic, antimony and bismuth. Group 16 elements (Chalcogen) and their compounds: Introduction, Occurrence, extraction and uses, Physical properties and bonding considerations.

Group 17&18: elements (Halogens) and their compounds Group 1: the Introduction, Fluorine, chlorine, bromine and iodine, Astatine, Occurrence, extraction and uses, Physical properties and bonding considerations, NMR active nuclei and isotopes as tracers. Group 18 elements (Noble Gas): Introduction, Occurrence, extraction and uses, Physical properties, NMR active nuclei.

### TextBook:

Catherine E. Housecroft and Alan G. Sharpe, Inorganic Chemistry. 2nd ED. Pearson Education Limited, Essex CM20 2JE, England, 2005 ( ISBN: 0130-39913-2)

### References:

Atkins, P., and Overton, T., Rourke, J., Weller, M., Armstrong, F. and Hagerman, M. Inorganic Chemistry. 5th Ed. New York, NY: W.H. Freeman and Company, 2010. ( ISBN: 978-1-42-921820-7)

