Mu’tah University

Department of Chemistry

Special Topics in Inorganic Chemistry(0303423)

**Textbooks:**

**1.**Miessler, G. &Tarr, D. ***Inorganic Chemistry,*** *3rd*. ed., Pearson Education, Inc. 2004.

**2*.*** Cotton, F.A.; Wilkinson, G.; Murillo, C.A.; Bochmann, M. ***Advanced Inorganic Chemistry*** 6th ed.

**References:**

2. Spessard, G. &Miessler, G. ***Organometallic Chemistry,*** Prentice-Hall, Inc. 2000.

3. Cotton, F. *et. al*., ***Basic Inorganic Chemistry,*** 3rd ed., 1995.

5. Huheey, J.E.; Kerter, E.A.; Keiteer, R.L. ***Inorganic Chemistry*** 4th ed., Harper Collins, 1993.

|  |  |  |
| --- | --- | --- |
| **Course Content** | **Date (Week Number)** | **Ref. Text Pages** |
| **1. Symmetry and Group Theory**  Properties of a group; examples of groups; group multiplication tables, subgroups, classes; symmetry elements and operations E, Cn, Sn, σ, i; products of symmetry operations; symmetry elements and optical isomerism; classes of symmetry operations; procedure for symmetry classification of molecules and examples. | 27/1/2019 – 21/2/2019  Weeks: 1 - 4 | 73 – 108  Miessler&Tarr |
| **2. Ligand Replacement Reactions**  Oh Complexes, intermediates, square planar complexes, Chelates,reactions of coordinated ligand. | 24/2/2019 – 14/3/2019  Weeks: 5 - 7 | 1283-1306  Cotton& Wilkinson |
| **3. Electron Transfer Processes**  Classification, theories, electronic structureand redox rates, bridging ligands. | 17/3/2019 – 28/3/2019  Weeks: 8 & 9 | 1306-1318  Cotton & Wilkinson |
| **4. Bioinorganic Reaction Mechanisms**  Biochemistry of iron, oxygen carriers,cytochromes, copper proteins | 31/3/2019 – 18/4/2019  Weeks: 10 - 12 | 1335-1369  Cotton & Wilkinson |
| **5. Catalytic Chemistry**  The role of organometallic complexes in catalytic reactions. | 21/4/2019 – 2/5/2019  Weeks: 13 & 14 | 1224-1282  Cotton & Wilkinson |