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# Inorganic Chemistry (Quickstudy: Academic)

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**Quick Study Academic**

**WORLD'S #1 ACADEMIC OUTLINE**

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**Inorganic Chemistry**

What is inorganic chemistry? All of the chemistry not covered in carbon-centered organic and biochemistry—the remaining 70 or so elements!

**PERIODIC TABLE OF THE ELEMENTS**

**Periodic Table**

**REACTIONS**

**Inorganic** – many types of reactions

**Acid-Base reactions**

**Oxidation** – loss of electrons, and oxygen

**Reduction** – gain of electrons, reduce oxygen

**LEWIS Acidity** – the ability to, H<sub>3</sub>BO<sub>3</sub>

**Precipitation** – dissolved ions form solids

**Hydrolysis** – water reacts with a compound

**Decomposition** – compounds to elements

**4.1st & 5.2nd Transition Series: Cr-Pu**

**Zr** **Mo** **W** **Tc** **Ru** **Rh** **Pd** **Ag**  
**Hf** **Ta** **W** **Os** **Os** **Ir** **Pt** **Au**

**a.** Configuration comparable to the 4th transition series  
**b.** Trends in acidic “tenthander contraction”

**c.** Metal multiple bonds 3d and 4d series share components, delta orbital, four-fold orbitals

**6.3d Transition of Yb, Er & Lu**

**d.** Complex molecular structures: Nd<sub>2</sub>O<sub>3</sub> exists as a cluster

**6.4f Silver** – anomaly: a non-transition metal Silver reacts with S → Ag<sub>2</sub> – silver sulfide Ag<sub>2</sub>S + S → Ag<sub>2</sub>

**6.4f Manganese** – Quadrupole 3d-3d bond MnO<sub>4</sub> → MnO<sub>4</sub><sup>-</sup> tetrahedral – four lone pairs

**7.5d Titanium** – MnO<sub>2</sub> – Mn<sub>2</sub>O<sub>3</sub>

**8.6d Transition** – synthetic element

**8.7 Platinum Metals: Os, Os, Ir, Pt, Pt**

**a.** Oxidation state 0-4; reduction state 1-3; catalysts for hydrogenation; catalytic converters

**9. Scandium, Yttrium, Lanthanum & the Lanthanides**

**a.** Lanthanide element with except Ce

**b.** Trends – Ce-Eu

**c.** Compounds ionic and ionic potential

**d.** Most compounds have a metal oxidation state of +3, some +2 and +4

**e.** Ce-4+ one more valence electron, Sm, Eu & Yb +2 state that fifth 4f orbital

**f.** Electronically valence 6s & 4f close in energy

**10. Titanium Chemistry: d<sub>2</sub> f<sub>0</sub>**

**Ti** (prototype of 1 electron systems)

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## Synopsis

Our 3-panel (6-page) guide is jam-packed with chemistry information not covered in organic chemistry and biochemistry. Perfect for science students who want to focus on the aspects of chemistry that go beyond what is covered in material that deals with organic topics, this guide covers the key concepts, principles, figures and formulas that inorganic chemistry students will need to know in order to succeed. Tables, images and graphic elements further enhance the text.

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Fantastic easy access guide for quick review of inorganic chemistry principles!

Comprehensive review sheet, makes a great reference

Helped me ace the class. A good study tool.

Awesome !!!

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