Schema KZ4014 Oorganisk kemi, 9 hp

VT2018 (08.02.2018 – 19.03.2018)

dag vecka	måndag	tisdag	onsdag	torsdag	fredag
06 05/02-09/02				F1 Rö1	F2 Rö2
07 12/02-16/02	F3 Rö3	F4 Rö4	F5 Rö5	L1 L1	
08 19/02-23/02		L2 L2	F6 F7	F8 Rö6	F9
09 26/02-02/03	F10	F11 Rö7	L3 L3	L3 L3	F12
10 05/03-09/03	F13	L4 L4	L4 L4	F14 L5	Rö8 L5
11 12/03-16/03	F15 Rö9	F16 (extra Rö ☺)		Reservlabb L1,2	Frågestund
12 19/03-23/03	Tenta				

Tider: fm 9:15 – 12; em 13 – 17
F (1-16) föreläsningar, R (1-9) räkneövningar, L (1-5) labbar
F och R: Ulrich Häussermann (ulrich.haussermann@mmk.su.se)
L: Daniel Eklöf (daniel.eklof@mmk.su.se)

Lokaler: se time edit schema.
Notera att det är inte möjligt att erbjuda reservlabb för L3, L4 och L5. Missar man de labbarna får man göra om ett år senare.

Kursliteratur:
"Inorganic Chemistry" 6th edition (by Mark Weller, Tina Overton, Jonathan Rourke, Fraser Armstrong) ISBN: 978-0-19-964182-6

Föreläsningar

F1: Introduction

F1: Repetition of concepts and methods, physical techniques in inorganic chemistry (chapters 1, 2, 8)

F2 – F3: acid-base chemistry (chapter 4)

F2: Arrhenius and Bronsted-Lowry concepts. Non-aqueous and non-protic solvents. Oxoacids and polyoxo compound formation (pp 116-130, pp142 - 150)

F3: Lewis concept, Lewis acid-base reactions (pp132-142)

F4 – F5: Redox chemistry (chapter 5)

F4: Reduction potentials and redox stability (pp 154 – 170)

F5: Application of redox stability, stability diagrams (pp 170-184)

F6 – F8: Main group chemistry

F6: Periodic trends and principles of main group chemistry (chapter 9).

F7: Group 1,2, and 13 elements (essentials from chapters 10 to 13)

F8: Group 14 and 15 elements (essentials from chapters 14 and 15) and group 16-18 elements (excerpts from chapters 16 to 18)

F9 – F12: Transition metal chemistry

F9: Introduction to coordination compounds (chapter 7, pp 209 – 232) and d-block elements (chapter 19, pp 488 – 514)

F10: d metal complexes: electronic and molecular structure, properties (chapter 20, pp 515 – 530)

F11: d metal complexes: electronic and molecular structure, properties (contd.)

F12: d metal chemistry: organo metallic chemistry, reactions (a little from chapters 21 and 22)

F13 – F16: Clusters and solids

F13: Clusters

F14: Description of solids, structures of solids (chapter 3)

F15: Classification of solids (metals, alloys, semiconductors, insulators), bonding in solids (chapter 3 contd).

F16: Materials chemistry (excerpts from chapter 24)

Räkneövningar

RÖ1: Properties of atomic orbitals, construction of MOs, VSEPR, symmetry

RÖ2: Acid-base

RÖ3: Acid-base

RÖ4: Redox

RÖ5: Redox

RÖ6: Main group chemistry

RÖ7: Transition metal chemistry

RÖ8: Clusters and solids

RÖ9: Solids

Laborationer

1. Acid base chemistry (metal ions in aqueous solution, hydroxide, oxides, HSAB principles).

2. Redox chemistry (Ag-NH_3 complexes and stability constants).

3. Synthesis and characterization of a hypervalent IBr_2^- species.

4. Ammonia complexes of Co(III) and thermochromic materials.

5. Synthesis and characterization of various Fe oxides, ferrofluids.