

Schema KZ4014 Oorganisk kemi, 9 hp

VT2021 (11.02.2021 – 22.03.2021)

vecka	dag	måndag	tisdag	onsdag	torsdag	fredag
06					F1	F2
08/02-12/02					Rö1	Rö2
07		F3	F4	L1	L1	F5
15/02-19/02		Rö3	Rö4	L1	L1	Rö5
08		F6	F7	L2	L2	F8
22/02-26/02		Rö6		L2	L2	
09		F9	L3	L3	F10	F11
01/03-05/03		Rö7	L3	L3		
10		F12	L4	L4	F13	F14
08/03-12/03		Rö8	L4	L4		Rö9
11		F15	L5	F16	Reservlabb	Frågestund
15/03-19/03		Rö10	L5			
12		Tenta				
22/03-26/03						

Tider: F: 9:15–12:00; Rö: 13:00–16:00; L1,2,5: 10:00–16:00; L3,4 10:00–19:00

F (1-16) föreläsningar, R (1-10) räkneövningar, L (1-5) labbar

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Alla moment är online. Notera att under labbtillfällen ska samtidigt labbrapport utfärdas. Första versionen av labbrapporten ska lämnas in vid slutet av andra dagen av labbet. Notera vidare att man får bara ett rättningstillfälle för sin labbrapport. Sista inlämningsdatum för (rättad) labbrapport är 31/03.

Kurslitteratur:

“Inorganic Chemistry” 7th edition (by Mark Weller, Tina Overton, Jonathan Rourke, Fraser Armstrong) ISBN: 978-0-19-876812-8

Föreläsningar

F1-2: Introduction (chapters 1-3, 8)

F1-2: Repetition of concepts and methods, physical techniques in inorganic chemistry.

F3 – F4: acid-base chemistry (chapter 5)

F3: Arrhenius and Bronsted-Lowry concepts. Non-aqueous and non-protic solvents. Oxoacids and polyoxo compound formation (pp 150-163, pp174 - 181)

F4: Lewis concept, Lewis acid-base reactions (pp164-174)

F5 – F6: Redox chemistry (chapter 6)

F5: Reduction potentials and redox stability (pp 185 – 198)

F6: Application of redox stability, stability diagrams (pp 199-211)

F7 – F9: Main group chemistry

F7: Periodic trends and principles of main group chemistry (chapter 9).

F8: Group 1,2, and 13 elements (essentials from chapters 10 to 13)

F9: Group 14 and 15 elements (essentials from chapters 14 and 15) and group 16-18 elements (excerpts from chapters 16 to 18)

F10 – F13: Transition metal chemistry

F10: Introduction to coordination compounds (chapter 7) and d-block elements (chapter 19).

F11: d metal complexes: electronic and molecular structure, properties (chapter 20, pp 515 – 530)

F12: d metal complexes: electronic and molecular structure, properties (contd.)

F13: d metal chemistry: organo metallic chemistry, reactions (a little from chapters 21 and 22)

F14 – F16: Clusters and solids

F14: Clusters, description of solids, structures of solids (chapter 4)

F15: Classification of solids (metals, alloys, semiconductors, insulators), bonding in solids (chapter 4 contd).

F16: Materials chemistry (excerpts from chapter 24)

Räkneövningar

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

RÖ2: Properties of atomic orbitals, construction of MOs, VSEPR, symmetry

RÖ3: Acid-base

RÖ4: Acid-base

RÖ5: Redox

RÖ6: Redox

RÖ7: Main group chemistry

RÖ8: Transition metal chemistry

RÖ9: Clusters and solids

RÖ10: Solids and intro into powder X-ray diffraction (peak positions and indexing)

Laborationer

1. Acid base chemistry (metal ions in aqueous solution, hydroxide, oxides, HSAB principles).
2. Redox chemistry (Ag-NH₃ complexes and stability constants). Working with Pourbaix diagrams
3. To be announced.
4. To be announced.
5. Characterization of crystalline solid materials by powder X-ray diffraction.