

COORDINATION CHEMISTRY – STUDY PLAN

DATE	SECTIONS	PAGES	EXERCISES	PROBLEMS	KEY WORDS
31/1	1.4-1.9 2.1-2.3 2.10-2.16	9-31 34-38 50-61	1.12 + 1.13 + 1.14 + 1.19 + 1.21 + 1.23 + 1.24 + 1.25 + 2.1 + 2.2 + 2.19 + 2.20	1.2 + 1.7 + “draw and name all 5 d-orbitals”	quantum mechanics, orbitals, aufbau-principle, ionization potential, ionic radii, VSEPR, bond order, oxidation states
7/2	4.3-4.4 4.9-4.12 5.1-5.4	121-123 131-140 148-154	4.14 + 4.17 + 5.11 + 5.22	4.5 + 4.12	Brønsted + lewis acid/base, HSAB, oxidation, reduction, solvation
14/2	6.1-6.5	179-191	6.1 + 6.3	6.3 + Practise Figure 6.9	symmetry groups, labels, elements, vibrations, isomerism, chirality
21/2	7.1.-7.15	199-220	7.1 + 7.4 + 7.5 + 7.6 + 7.7 + 7.9 + 7.10 + 7.14	7.4 + 7.10	Coord chem.: configurations, ligands, nomenclature, coord. numbers, isomerism, chelate effect, formation constants
28/2	8.1-8.10 + “computational techniques”	223-245 250-251	8.5 + 8.12 + 8.14 + 8.16	Suggest methods to study complexes of Fe ³⁺ , Zn ²⁺ , Mn ²⁺	X-ray, UV/IR/Raman, EPR, NMR, Mössbauer ionization techniques, DFT
6/3	19.1-19.6 19.7-19.11	449-460 460-471	19.1 + 19.4 + 19.5 + 19.9 + 19.12	19.2	TM, occurrence, trends, halides, oxides, sulfides, nitride, metal- metal bonding
13/3	20.1 20.2 20.5-20.6 20.8-20.9	473-483 483-487 497-501 502-504	20.1 + 20.4 + 20.5 + 20.8 + 20.14 + 20.22	20.8 + 20.10	crystal field theory, spectrochem. series, LFSE, spin, Jahn-Teller, ligand field, MLCT, LMCT
20/3	21.1-21.2 21.4 21.8-21.9 21.10-21.12	507-512 514-516 522-524 524-529	21.5 + 21.15	21.5 + 21.6	ligand substitution: associate, dissociative, interchange, trans effect, steric effects, ET, Irving- Williams, Marcus equation
27/3	22.1-22.14 22.18-22.19 22.23-22.26	534-551 553-564 572-575	22.1 + 22.2 + 22.7 (Hint: Table 22.7) 22.12 + 22.20	22.6 + 22.8	organometallics, 18-electron rule, 16 electron systems, backbonding, carbonyls, metallocenes, metathesis, insertion
10/4	26.1-26.8 26.10-26.16	690-703 704-716	26.2 + 26.3 + 26.4 + 26.9 + 26.12	26.1 + 26.2	catalytic cycle, turnover number, homogeneous & heterogeneous catalysis, Wilkinson's/Ziegler- Natta catalyst, selectivity
17/4	27.1-27.2 27.3-27.6 27.7-27.8	722-731 731-738 738-745	27.2 + 27.3 + 27.5	27.2 + Exam-type problems	cell structure + elements in life, amino acid & special ligands, transport, Transcription, Mg/DNA, medicine
24/4	27.9-27.11 27.17-27.21	745-763 772-778	27.6	Exam-type problems	Biocatalysis, enzymes with metals, metals in medicine + perspectives
1/5	Read and prepare for questions and “difficult topics”		Repetition + exam problems	Exam-type problems	Repetition