2015

Chemistry 203 Organic Chemistry I Fall 2015

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SCHEDULE & READING ASSIGNMENTS

This schedule is tentative and subject to change. Only lecture topics, textbook readings, and practice problems are on this schedule. There will be readings, assignments and problems that are not on this schedule. All other assigned work will be available in Cobra Learning.

Week	ChemActivity / Topic	
	Tuesday	Thursday
1	Introduction & Syllabus Lewis Structures & Formal Charge	VSEPR, Hydridization & Bonding (CA 1-3 at home)
2	CA 4A, B	CA 4B, 4C
3	CA 4C, 5A	CA 5A, 5B
4	CA 5B, 6A	CA 6B
5	CA 6C, 7A	CA 7A, 7B
6	Review	**EXAM I** (Review)
7	CA8A, 8B	8B, 9A
8	CA 9B, 10A	CA 10A, 10B
9	CA 11, 12A	CA 12A, Review
10	**EXAM II** (Review)	CA 12B
11	CA 13A	CA 13B
12	CA 13C, 13D	CA 13D, 14A
13	CA 14B, C	CA 14C, Review
14	**EXAM III** (Review)	**NO CLASS**
15	CA 15A, 15B	CA 15B, 16A
16	CA 16B,C	CA 16C, Review

NOTE: NW1 will be on Exam I and NW2 will be on Exam II. We will not spend class time on these worksheets – you will need to complete them on your own.

Topic	Assigned Readings - Hornback		Hornback Problems
	Sections	Pages	
Introduction & Syllabus	01-01 Field of Organic Chemistry	1-3	
CA 1	01-02 Simple Atomic Structure 01-03 Ionic Bonding 01-04 Covalent Bonding 01-10 Shapes of Molecules	3-5, 18-22	1.12, 1.13, 1.22
CA 2	01-05 Lewis Structures 01-06 Covalent Ions 01-07 Formal Charges 02-01 Common Bonding Situations 02-02 Bond Strengths and Bond Lengths	6-15, 30-34	1.5, 1.6, 1.8, 1.17, 1.18, 1.19, 1.31, 1.32, 2.1
CA 3	03-01 Atomic Orbitals 03-02 Molecular Orbitals 03-03 Single Bonds and sp3 Hybridization 03-04 Double Bonds and sp2 Hybridization 03-05 Triple Bonds and sp Hypridization	61-77	3.5, 3.6, 3.7, 3.8, 3.20, 3.21
CA 4	01-09 Polar Bonds 01-11 Dipole Moments 02-05 Physical Properties and Molecular Structure 02-06 Melting Points, Boiling Points, and Solubilities 04-01 Definitions 04-02 The Acid-Base Equilibrium 04-03 Rate of the Acid-Base Reaction 04-04 Effect of the Atom Bonded to the Hydrogen on Acidity 04-05 Inductive Effects 04-06 Hydrogen Bonding 04-07 Hybridization 04-09 Tables of Acids and Bases 04-10 Acidity and Basicity of Functional Groups and Solvents	17-18, 22-24, 44-49, 103-120, 128-135	1.11, 1.14, 1.21, 1.27, 1.37, 1.40, 2.11, 2.13, 2.14, 2.15, 2.27, 2.29, 2.35, 4.1, 4.4, 4.9, 4.12, 4.13, 4.15, 4.16, 4.17, 4.22, 4.24, 4.29, 4.30, 4.34,
CA 5	01-08 Resonance 03-06 Resonance and MO Theory 03-07 Rules for Resonance Structures 03-08 Types of Resonance Interactions 04-08 Resonance	15-16, 78-94, 120-127	1.10, 1.23, 1.25, 1.30, 1.35, 3.12, 3.13, 3.14, 3.16, 3.25, 3.26, 3.28, 4.19, 4.20, 4.35, 4.36, 4.37, 4.47
NW 1	05-01 Alkanes 05-02 Common Nomenclature System of Alkanes 05-03 Systematic Nomenclature System of Alkanes 05-04 Systematic Nomenclature System of Cycloalkanes	142-156	5.1, 5.3, 5.5, 5.6, 5.10
CA 6	02-03 Constitutional Isomers 02-04 Degree of Unsaturation 05-05 Alkenes 06-01 Cis-Trans Isomers 06-02 Designating the Configuration of Cis-Trans Isomers 06-03 Conformations	34-43, 157-160, 178-193	2.4, 2.6, 2.7, 2.10, 2.21, 2.22, 5.12, 6.1, 6.3, 6.4, 6.6, 6.17, 6.19
CA 7	06-04 Conformations of Cyclic Molecules 06-05 Conformations of Cyclohexane 06-06 Conformations of Other Rings 06-07 Conformations of Cyclohexanes with One Substituent 06-08 Conformations of Cyclohexanes with Two or More Substituents	193-214	6.8, 6.10, 6.14, 6.21, 6.24, 6.26, 6.32

Topic	Assigned Readings - Hornback		Hornback Problems
	Sections	Pages	
NW 2	02-07 Introduction to Functional Groups 05-05 Alkenes 05-06 Alkynes 05-07 Alkyl Halides 05-08 Alcohols 05-09 Ethers 05-10 Amines	50-52, 157-171	2.16, 5.15, 5.16, 5.18, 5.20, 5.21, 5.23, 5.24, 5.29, 5.31, 5.33
CA 8	11-01 The General Mechanism 11-02 Addition of Hydrogen Halides 11-03 Addition of Water 11-06 Oxymercuration-Reduction 11-13 Additions to Conjugated Dienes 08-07 Effect of Substituents on the Rate of the S_N1 Reaction	404-413, 423-426, 270, 272-275, 295-296	11.1, 11.3, 11.5, 11.13ab
CA 9	10-10 Ring Opening of Epoxides 11-04 Addition of Halogens 11-05 Halohydrin Formation 11-08 Addition of Carbenes	372-375, 413-422, 435-439	10.25ab, 11.7abc, 11.10, 11.22, 11.23
CA 10	11-07 Hydroboration-Oxidation 11-10 Hydroxulation 11-11 Ozonolysis 11-12 Catalytic Hydrogenation 10-14 Eliminations to form Carbon-Oxygen Double Bonds; Oxidation Reactions	380-385, 426-435, 439-446	11.5, 11.7, 11.24, 11.27, 11.28, 10.31
CA 11	11-02 Addition of Hydrogen Halides 11-04 Addition of Halogens 11-06 Oxymercuration-Reduction 11-07 Hydroboration-Oxidation 04-07 Hybridization 19-05 Preparation of Carboxylic Acids	406-412, 413-419, 423-435, 120, 822-823	11.4, 11.14, 11.18
CA 12	07-01 Chiral Molecules 07-02 Recognizing Chiral Molecules 07-03 Designating Configurations of Enantiomers 07-04 Properties of Enantiomers 07-05 Molecules with Multiple Chirality Centers 07-06 Stereoisomers and Cyclic Compounds 07-07 Resolution: Separating Enantiomers 07-08 Fischer Projections 07-09 Reactions That Produce Enantiomers 07-10 Other Chiral Compounds	219-247	7.2, 7.3, 7.5, 7.6, 7.8, 7.10, 7.11, 7.12, 7.14, 7.16, 7.22
CA 13	08-01 The General Reaction 08-02 Reaction Mechanisms 08-03 Bimolecular Nucleophilic Substitution 08-04 Stereochemistry of the S_N2 Reaction 08-05 Effect of Substituents on the Rate of the S_N2 Reaction 08-06 Unimolecular Nucleophilic Substitution 08-07 Effect of Substituents on the Rate of the S_N1 Reaction 08-08 Stereochemistry of the S_N1 Reaction 08-09 Leaving Groups 08-10 Nucleophiles 08-11 Effect of Solvent 08-12 Competition between S_N1 and S_N2 Reactions 08-13 Intramolecular Reactions 08-14 Competing Reactions	257-300	8.1, 8.2, 8.6, 8.8, 8.9, 8.11, 8.15, 8.16, 8.17, 8.20, 8.26, 8.27, 8.28, 8.29, 8.40, 8.45

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CA 14	09-01 The General Reaction 09-02 Bimolecular Elimination 09-03 Stereochemistry of the E2 Reaction 09-04 Direction of Elimination 09-05 Unimolecular Elimination 09-06 Regiochemistry and Stereochemistry of the E1 Reaction 09-07 The Competition Between Elimination and Substitution 10-01 Substitution Reactions 10-02 Preparation of Alcohols 10-03 Preparation of Ethers 10-04 Preparation of Esters 10-05 Preparation of Alkyl Halides 10-09 Phosphorus and Sulfur Nucleophiles 10-11 Elimination of Hydrogen Halides (Dehydrohalogenation) 10-12 Preparation of Alkynes 10-13 Dehydration	313-340, 348-362, 371-372, 376-380	9.1, 9.2, 9.5, 9.7, 9.10abc, 9.12, 9.13, 9.15, 9.17, 9.18, 9.26, 10.7, 10.10, 10.16, 10.24, 10.28, 10.29, 10.30, 10.40
CA 15	21-01 Radicals 21-02 Stability of Radicals 21-03 Geometry of Carbon Radicals 21-04 Generation of Radicals 21-05 General Radical Reactions 21-06 Halogenation 21-09 Radical Additions to Alkenes	918-934, 939-941	21.2, 21.5, 21.8, 21.14abc, 21.23
CA 16	10-07 Preparation of Hydrocarbons 10-08 Formation of Carbon-Carbon Bonds 10-15 The Strategy of Organic Synthesis 18-01 General Mechanisms 18-05 Preparation and Properties of Organometallic Nucleophiles 18-06 Addition of Organometallic Nucleophiles	368-371, 385-389, 739-741, 751-758	10.23, 18.8, 18.9, 10.10, 18.41