

2022 CCS CHEMISTRY SYLLABUS

All work is assigned on the date given at left; Due the following class period unless otherwise specified.
Detailed assignments are found in the Kolbe Course Plan by Semester and Week Number.

CCS Week	Date	Lecture	Kolbe Course Plan	Labster / Lab Work
Summer		Students are expected to complete and correct Week 1 which covers Ch 1 & 2 independently before the first day of class. It is mostly Physical Science review.	*** First Semester *** Week 1	Chemistry Lab Safety (No lab worksheet required)
1	Sep 16	Introductions, Ch 3.1 and 3.2: * Scientific Notation, Accuracy, Precision, Error * Significant Figures, SI Units, Temperature, Density	Week 2	Matter & Phase Change
2	Sep 23	Ch 3.3 and 4.1: * Unit Conversions, Dimensional Analysis * Atoms, Early Models of the Atom	Week 3	
3	Sep 30	Ch 4.2, 4.3: * Atomic nucleus * Atomic Number, Mass Number, Isotopes, Atomic Mass	Week 4	
4	Oct 7	Ch 5.1, 5.2: * Energy Levels, Atomic Orbitals * Electron Arrangement in Atoms	Week 5	Pipetting: Mastering the Techniques
5	Oct 14	REVIEW DAY	Week 6 - EXAM I	
6	Oct 21	Ch 6.1, 6.2: * Intro to & History of Periodic Table * Reading the Periodic Table, Electron Configurations in Groups	Week 7	Atomic Structure
7	Oct 28	Ch 6.3, 7.1: * Periodic Trends (Ionization Energy, etc.) * Valence Electrons, Cations, Anions	Week 8	
8	Nov 4	Ch 7.2, 7.3: * Ionic Bonds & Ionic Compounds * Metallic Bonds, Alloys	Week 9	Periodic Table
9	Nov 11	Ch 8.1, 8.2: * Molecules, Molecular Compounds * The Octet Rule, Coordinate Covalent Bonds * Bond Dissociation Energies, Resonance	Week 10	Ionic and Covalent Bonds - FORMAL LAB
10	Nov 18	Ch 8.3, 8.4: * Molecular Orbitals, VSEPR Theory, Hybridization * Polar Bonds, Intermolecular Attraction	Week 11	
THANKSGIVING BREAK				
11	Dec 2	REVIEW DAY	Week 12 - EXAM II	
12	Dec 9	Ch 9.1, 9.2: * Naming Ions * Naming / Writing Formulas for Ionic Compounds	Week 13	
13	Dec 16	Ch 9.3, 9.4: * Naming / Writing Formulas for Molecular Compounds * Naming / Writing Formulas for Acids & Bases	Week 14	
CHRISTMAS BREAK				
14	Jan 13	Ch 9.5, 10.1: * Laws of Definite & Multiple Proportions * More practice with Chemical Names & Formulas * The Mole, Avagadro's Number, Molar Mass	Week 15	Titration
15	Jan 20	Ch 10.2, 10.3: * Mole-Mass & Mole-Volume Relationships * Percent Composition, Empirical & Molecular Formulas	Week 16	Solution Preparation
16	Jan 27	Ch 11.1, 11.2, 11.3: * Intro to Chemical Equations, Balancing * Types of Reactions, Net Ionic Equations, Precipitates	Week 17	
17	Feb 3	REVIEW	Week 18 - EXAM III	
18	Feb 10	Ch 12.1, 12.2: * Using Chemical Equations * Mole Ratios, Other Stoichiometric Calculations	*** Second Semester *** Week 1	

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19	Feb 17	Ch 12.3, 13.1: * Limiting Reagents, Percent Yield * Kinetic Theory, Gas Pressure & Temperature	Week 2	Stoichiometry
20	Feb 24	Ch 13.2, 13.3, 13.4: * Liquids: Evaporation, Vapor Pressure, Boiling Point * Solids: Melting, Freezing, Crystal Structures * Sublimation, Phase Diagrams	Week 3	Ideal Gas Law
21	Mar 3	Ch 14.1, 14.2, 14.3, 14.4: * Properties of Gases, The Gas Laws * Ideal Gases, Law of Partial Pressures	Week 4	
22	Mar 10	Ch 15.1, 15.2, 15.3: * Water: Liquid & Solid States * Solutions, Electrolytes, Hydrates, Suspensions, Colloids	Week 5	
23	Mar 17	REVIEW DAY but also Ch 16.1, 16.2: * Solubility, Molarity, Percent Solutions	Week 6 - EXAM IV & Week 7	
24	Mar 24	Ch 16.3, 16.4: * Colligative Properties, Molality & Mole Fraction * Freezing Point Depression, Boiling Point Elevation	Week 8	
25	Mar 31	Ch 17.1, 17.2: * Thermochemistry, Endo & Exothermic Processes * Heat Capacity, Specific Heat, Calorimetry	Week 9	
EASTER BREAK				
26	Apr 14	Ch 17.3, 17.4: * Heat of Fusion, Heat of Vaporization, Heat of Sol'n * Hess's Law, Standard Heats of Formation	Week 10	Skip "Equilibrium" lab. Instead we will do: Heat Fusion of Ice, p. 571. FORMAL LAB
27	Apr 21	Ch 18.1, 18.2, 18.3, 18.4, 18.5: * Reaction Rates, Rate Laws * Reversible Reactions, Solubility Equilibrium * Free Energy Enthalpy & Entropy	Week 11	Basic Chemistry Thermodynamics
28	Apr 28	REVIEW DAY	Week 12 - EXAM V	
29	May 5	Ch 19.1, 19.2, 19.3: * Acid-Base Theories, Hydrogen Ions, Acidity, pH * Strong / Weak Acids and Bases	Week 13	
30	May 12	Ch 19.4, 19.5: * Acid-Base Reactions, Titration, Salts in Solution	Week 14	Acids & Bases
31	May 19	Ch 20.1, 20.2, 20.3: * Oxidation & Reduction, Corrosion * Oxidation Numbers, Redox Reactions	Week 15 & 16	
32	May 26	* First half of class - thorough review * Take Exam VI in class today	EXAM VI in class (Cross out the one question from Ch 21)	

*** In the event of a snow day, class will be held at the usual time via Zoom video conference. An invitation will be sent by email for students to join. Students should plan to proceed with the syllabus as presented here, regardless of snow days unless stated otherwise.