

L E C T U R E S E R I E S

Unit 0 – Introduction to Chemistry (Chapters 1 & 5)

Aug. 10 – Aug. 28

Lecture 1: What is chemistry?

Lecture 2: Scientific method

Lecture 3: Lab safety

Lecture 4: Measurement

Lecture 5: SI Units

Lecture 6: Dimensional Analysis

Unit 1 – Atomic and Molecular Structure (Chapters 2, 3, 11, & 19)

Aug. 31 – Oct. 2

Lecture 7: Introduction to matter

Lecture 8: Classification of matter

Lecture 9: Periodic Table

Lecture 10: Periodicity

Lecture 11: Atomic models

Lecture 12: Fundamental particles

Electrons

Lecture 13: Wave-mechanical model

Lecture 14: Electron configurations

Nucleus

Lecture 15: Nuclear transformations

Lecture 16: Fission and Fusion

Unit 2 – Chemical Bonds, Biochemistry (Chapters 12, 20, & 21)

Oct. 5 – Nov. 6

Lecture 17: Forces of nature

Lecture 18: Ions

Lecture 19: Ionic bonds

Lecture 20: Metallic bonds

Lecture 21: Covalent bonds

Lecture 22: Lewis dot configurations

Lecture 23: Properties of Carbon

Lecture 24: Hydrocarbons

Lecture 25: Proteins & Nucleic acids

Lecture 26: Carbohydrates & Lipids

Unit 3 – Conservation of Matter & Stoichiometry (Chapters 4, 6, & 7) Nov. 9 – Dec. 18

Lecture 27: Naming: Type I, II, & III

Lecture 28: Polyatomics

Lecture 29: Atomic mass

Lecture 30: The mole

Lecture 31: Counting atoms

Lecture 32: Molar mass

Lecture 33: Empirical formulas

Lecture 34: Molecular formulas

Lecture 35: Chemical equations

Lecture 36: Balancing equations

Unit 4 – Kinetics and Thermodynamics (Chapters 10, 13, 14)

Jan. 11 – Feb. 12

Lecture 37: States of Matter

Lecture 38: Phase Changes

Lecture 39: Exothermic & Endothermic

Lecture 40: Specific Heat

Lecture 41: Gases (KMT)

Lecture 42: Gas Laws

Lecture 43: Solids

Lecture 44: Liquids

Lecture 45: Solutions

Lecture 46: Molarity

Unit 5 – Chemical Reactions (Chapters 15, 16, & 17)

Feb. 15 – Mar. 19

Lecture 47: Types of Reactions

Lecture 48: Water formation

Lecture 49: Acids, Bases, & Salts

Lecture 50: Acid, Base models

Lecture 51: Dissociation

Lecture 52: pH Scale

Lecture 53: Chemical Reaction Rates

Lecture 54: Catalysts

Lecture 55: Chemical Equilibrium

Lecture 56: Le Châtelier's Principle

