

CHEMISTRY 1220

SPRING 2013 CHECKLIST: TTH CLASS



LECTURE #1

Syllabus overview, course expectations, Mastering Chemistry registration, Polleverywhere registration, www.drful.com

Before Lecture #2 you must:

- Register for Mastering Chemistry (Course ID: TTHCHEM1220SP13)
- Register for Polleverywhere

Lecture Videos to Watch or Textbook Sections to Read Before Lecture #2:

- Section 13.1 Properties of Solutions (3:55)
- Section 13.1 The Solution Process (8:15)
- Section 13.2 Saturated Solutions and Solubility (6:56)
- Section 13.3 Factors Affecting Solubility (7:21)
- Section 13.3 Miscibility (5:29)
- Section 13.3 Pressure Effects on Gas Solubility (4:18)
- Section 13.3 Pressure Effects on Gas Solubility Example Problem (3:31)
- Section 13.4 Expressing Solution Concentration (6:47)
- Section 13.4 Solution Concentration Example Problem (5:31)

Mastering Chemistry Pre-Lecture #2 Assignment (due 6:30 pm Thurs., Jan. 10th):

- Interactive Activity – Energetics of Solution Formation
- Interactive Activity – Henry's Law
- Solubility

LECTURE #2: THURSDAY, JANUARY 10th

Polleverywhere Lecture Questions

- Dissolution of NaCl in Water (Go Figure 13.4)
- Energetics of Solution Formation (GIST 13.4)
- Henry's Law (13.38)
- Solubility of Gases and Intermolecular Forces (13.33 – Copy)
- Units of Concentration (13.49)
- Units of Concentration (13.53)

Lecture Videos to Watch or Textbook Sections to Read Before Lecture #3:

- Section 13.5 Colligative Properties (7:50)
- Section 13.5 Colligative Properties Example Problem #1 (4:49)
- Section 13.5 Colligative Properties Example Problem #2 (3:29)
- Section 14.1 Factors That Affect Reaction Rates (3:04)
- Section 14.2 Reaction Rates (4:52)
- Section 14.2 Reaction Rates Example Problem (10:15)

Mastering Chemistry Pre-Lecture #3 Assignment (due 8:00 am Tues., Jan. 15th)

- Boiling Point Elevation and Freezing Point Depression for Solutions in Water
- Animation – Osmosis and Osmotic Pressure
- Molar Mass from Colligative Properties
- Reaction Rates

MASTERING CHEMISTRY GRADED HOMEWORK ASSIGNMENT #1
DUE SUNDAY, JANUARY 13th at 11:59 PM

LECTURE #3: TUESDAY, JANUARY 15th

Polleverywhere Lecture Questions

- Vapor Pressure Lowering (13.68)
- Freezing Point Depression (13.75)
- Molar Mass from Osmotic Pressure (13.82)
- Factors that Affect Reaction Rates (GIST 14.1)
- Reaction Rates and Stoichiometry (14.25)

Lecture Videos to Watch or Textbook Sections to Read Before Lecture #4:

- Section 14.3 Concentration and the Rate Law (5:28)
- Section 14.3 Concentration and the Rate Law Example Problem #1 (7:50)
- Section 14.3 Concentration and the Rate Law Example Problem #2 (7:50)
- Section 14.4 1st Order Integrated Rate Law (8:18)
- Section 14.4 Half Life for 1st order Reactions (2:48)
- Section 14.4 1st Order Half Life Example Problem (4:19)
- Section 14.4 2nd Order Integrated Rate Law Expression (3:21)

Mastering Chemistry Pre-Lecture #4 Assignment (due 8:00 am Thurs., Jan. 17th)

- Interactive Activity – The Rate Law
- Interactive Activity – The Kinetics of a Second Order Reaction

LECTURE #4: THURSDAY, JANUARY 17th

Polleverywhere Lecture Questions

- Rate Laws (14.35)
- Using Spectroscopic Methods to Measure Rates (14.107)
- Change in Concentration with Time (14.45)
- Determining Rate Laws with Experimental Data (14.47)
- Integrated Rate Law Expressions (14.51)
- Half Life (14.46)

Lecture Videos to Watch or Textbook Sections to Read Before Lecture #5:

- Section 14.5 Temperature and Rate (2:13)
- Section 14.5 The Collision Model (4:37)
- Section 14.5 The Orientation Factor (4:27)
- Section 14.5 Transition State Theory (9:55)
- Section 14.5 The Arrhenius Equation (5:53)

- Section 14.5 The Arrhenius Equation Example Problem (5:01)
- Section 14.6 Reaction Mechanisms (2:53)
- Section 14.6 Proposing a Reaction Mechanism (5:48)
- Section 14.6 Proposing a Mechanism Example Problem #1 (2:32)
- Section 14.6 Proposing a Mechanism Example Problem #2A (5:41)
- Section 14.6 Proposing a Mechanism Example Problem #2B (6:57)
- Section 14.7 Catalysis (2:41)

Mastering Chemistry Pre-Lecture #5 Assignment (due 8:00 am Tues., Jan. 22nd):

- Reaction Rates and Temperature
- Theoretical Models for Chemical Kinetics and Reaction Profiles
- Mechanisms and Molecularity

MASTERING CHEMISTRY GRADED HOMEWORK ASSIGNMENT #2
DUE SUNDAY, JANUARY 20th at 11:59 PM

LECTURE #5: TUESDAY, JANUARY 22nd

Polleverywhere Lecture Questions

- How Temperature Influences Rate (14.56)
- Factors Influencing Rate (14.59 – Copy)
- Determining Activation Energy (14.67)
- Proposing a Reaction Mechanism (14.77)
- Proposing a Reaction Mechanism (14.78)
- Catalysis (14.95)

Lecture Videos to Watch or Textbook Sections to Read Before Lecture #6:

- Section 15.1 Chemical Equilibrium (3:08)
- Section 15.2 The Equilibrium Constant (5:44)
- Section 15.2 Equilibrium Expressions Involving Gases (7:49)
- Section 15.3 Magnitude of Equilibrium Constants (5:50)
- Section 15.3 Combining Equilibrium Constants (6:46)
- Section 15.4 Heterogeneous Reactions (4:42)

Mastering Chemistry Pre-Lecture #6 Assignment (due 8:00 am Thurs., Jan. 24th):

- Visual Representation of Equilibrium
- Linking Equilibrium and Kinetics

LECTURE #6: THURSDAY, JANUARY 24th

Polleverywhere Lecture Questions

- The Concept of Equilibrium (15.13)
- Equilibrium Constants (15.23)
- Determining Equilibrium Constants from Experimental Data (15.26)
- Combining Equilibrium Constants (15.27)
- Heterogeneous Reactions (15.28)

Lecture Videos to Watch or Textbook Sections to Read Before Lecture #7:

- Section 15.6 The Reaction Quotient Q (6:44)

- Section 15.6 Calculating Equilibrium Concentration Example Problem #1 (9:44)
- Section 15.6 Calculating Equilibrium Concentration Example Problem #2 (5:45)
- Section 15.7 Le Chatlier's Principle (2:46)
- Section 15.7 The Effect of Changing Concentration (4:57)
- Section 15.7 The Effect of Pressure Changes (4:20)
- Section 15.7 The Effect of an Inert Gas, Temperature, and Catalysis (5:17)

Mastering Chemistry Pre-Lecture #7 Assignment (due 8:00 am Tues., Jan. 29th):

- Fundamentals of Equilibrium Concentration Calculations
- Applying Le Chatelier's Principle

MASTERING CHEMISTRY GRADED HOMEWORK ASSIGNMENT #3
DUE SUNDAY, JANUARY 27th at 11:59 PM

LECTURE #7: TUESDAY, JANUARY 29th

Polleverywhere Lecture Questions

- Calculating Equilibrium Concentrations (15.52)
- Calculating Equilibrium Concentrations (15.55)
- LeChatlier's Principle (15.61)
- LeChatlier's Principle (15.66)
- Disturbing Equilibrium (15.62)

Lecture Videos to Watch or Textbook Sections to Read Before Lecture #8:

- Section 16.1 Acid-Base Equilibria (4:09)
- Section 16.2 Bronsted-Lowry Acids and Bases (6:22)
- Section 16.2 Conjugate Acid-Base Pairs (5:37)
- Section 16.2 Relative Strengths of Acids and Bases (7:23)
- Section 16.2 Relative Strengths of Acids and Bases Example Problem (3:12)
- Section 16.3 The Autoionization of Water (5:25)
- Section 16.4 The pH Scale (4:41)
- Section 16.5 pH of Strong Acids (5:23)

Mastering Chemistry Pre-Lecture #8 Assignment (due 8:00 am Thurs., Jan. 31st):

- Conjugate Pairs
- Acid-Base Relationships in Water
- pH and Kinetics

LECTURE #8: THURSDAY, JANUARY 31st

Polleverywhere Lecture Questions

- Conjugate Acid-Base Pairs (16.16)
- Relative Strengths of Acids and Bases (16.23)
- Autoionization of Water (16.29)
- pH Scale (16.38)
- pH of Strong Acids (16.43)

Lecture Videos to Watch or Textbook Sections to Read Before Lecture #9:

- Section 16.6 pH of Weak Acids Example Problem #1 (4:48)
- Section 16.6 pH of Weak Acids Example Problem #2 (9:34)
- Section 16.6 Polyprotic Acids (5:58)
- Section 16.6 Percent Ionization (4:58)
- Section 16.7 Weak Bases (4:33)
- Section 16.8 Relationship Between K_a and K_b (4:30)

Mastering Chemistry Pre-Lecture #9 Assignment (due 8:00 am Tues., Feb. 5th):

- PhET Simulation – Acid-Base Solutions
- Weak Polyprotic Acids
- Percent Ionization

MASTERING CHEMISTRY GRADED HOMEWORK ASSIGNMENT #4
DUE SUNDAY, FEBRUARY 3rd at 11:59 PM

LECTURE #9: TUESDAY, FEBRUARY 5th

Polleverywhere Lecture Questions

- K_a and pK_a (16.49)
- pH of weak acids/weak bases (16.59)
- Percent Ionization (16.63)
- Calculating the pH of a Polyprotic Acid Solution (16.67 – Copy)
- Relationship Between K_a and K_b (GIST 16.11)

Lecture Videos to Watch or Textbook Sections to Read Before Lecture #10:

- Section 16.9 Acid-Base Properties of Salt Solutions Part 1 (5:02)
- Section 16.9 Acid-Base Properties of Salt Solutions Part 2 (5:22)
- Section 16.10 Acid-Base Behavior and Chemical Structure (4:36)
- Section 16.10 Oxyacids (5:53)
- Section 16.10 Carboxylic Acids (4:37)
- Section 16.11 Lewis Acids and Bases (3:12)

Mastering Chemistry Pre-Lecture #10 Assignment (due 8:00 am Thurs., Feb. 7th):

- Acid-Base Properties of Salt Solutions
- Relative Strengths of Oxyacids, Carboxylic Acids, and Amines
- Lewis Acids and Bases

LECTURE #10: THURSDAY, FEBRUARY 7th

Polleverywhere Lecture Questions

- Strength of Salt Solutions (16.78)
- pH of Salt Solutions (16.81)
- Factors that Affect Acid Strength (16.92)
- Carboxylic Acids (16.87)
- Lewis Acids and Bases (16.97)

Lecture Videos to Watch or Textbook Sections to Read Before Lecture #11:

- Review For Exam #1: Thursday, February 14th 8:00 – 9:45 pm

Mastering Chemistry Pre-Lecture #11 Assignment (due 8:00am Thurs., Feb. 14th):

- Practice Midterm Exams

MASTERING CHEMISTRY GRADED HOMEWORK ASSIGNMENT #5
DUE SUNDAY, FEBRUARY 10th at 11:59 PM

LECTURE #11: TUESDAY, FEBRUARY 12th

Polleverywhere Lecture Questions

- Exam #1 Self Assessment

Lecture Videos to Watch or Textbook Sections to Read Before Lecture #12:

- Review For Exam #1: Thursday, February 14th 8:00 – 9:45 pm

Mastering Chemistry Pre-Lecture #12 Assignment (due 8:00am Thurs., Feb. 14th):

- Practice Midterm Exams

LECTURE #12

MIDTERM EXAM #1 REVIEW SESSION
CHAPTERS 13, 14, 15, and 16.1-16.5

EXAM #1: THURSDAY, FEBRUARY 14th 8:00 – 9:45 PM

Lecture Videos to Watch or Textbook Sections to Read Before Lecture #13:

- Section 17.1 The Common Ion Effect (5:44)
- Section 17.2 Buffer Solutions (3:42)
- Section 17.2 How Buffers Work (5:35)
- Section 17.2 Calculating pH of Buffer Solutions (5:51)
- Section 17.2 Buffer Example Problem (10:50)
- Section 17.2 Choosing the Proper Buffer Solution (7:56)
- Section 17.2 Buffer Example Problem #2 (4:21)
- Section 17.3 Acid-Base Titrations (11:54)
- Section 17.3 Weak Acid-Strong Base Titration pH Before Base Added (2:38)
- Section 17.3 Weak Acid-Strong Base Titration pH After Base is Added (3:51)
- Section 17.3 Weak Acid-Strong Base Titration pH After More Base is Added (2:41)
- Section 17.3 Weak Acid-Strong Base Titration pH at Endpoint (6:04)
- Section 17.3 Weak Acid-Strong Base Titration pH Beyond Endpoint (3:53)
- Section 17.3 Weak Acid-Strong Base Titration Curve (4:53)

Mastering Chemistry Pre-Lecture #13 Assignment (due 8:00 am Tues., Feb. 19th):

- Base/Acid Ratios in Buffers
- Titrations

MASTERING CHEMISTRY GRADED HOMEWORK ASSIGNMENT #6
DUE SUNDAY, FEBRUARY 17th at 11:59 PM

LECTURE #13: TUESDAY, FEBRUARY 19th

Polleverywhere Lecture Questions

- Common Ion Effect (17.15)
- Buffered Solutions (17.23)
- Buffered Solutions (17.26)
- Acid-Base Titrations (17.41)
- Acid-Base Titrations (17.46)

Lecture Videos to Watch or Textbook Sections to Read Before Lecture #14:

- Section 17.4 Overview of Solubility (6:07)
- Section 17.4 The Solubility Product Constant (8:45)
- Section 17.4 K_{sp} Example Problem (7:47)
- Section 17.4 Ranking the Solubility of Slightly Soluble Salts given the K_{sp} Part I (9:14)
- Section 17.4 Ranking the Solubility of Slightly Soluble Salts given the K_{sp} Part II (12:47)
- Section 17.6 Criteria for Precipitation (11:49)
- Section 17.6 If Two Solutions are Mixed Will a Precipitate Form? (7:30)
- Section 17.6 Order of Precipitation, Minimum Concentration Needed to Facilitate Precipitation, and Best Separation (14:56)

Mastering Chemistry Pre-Lecture #14 Assignment (due 8:00 am Thurs., Feb. 21st):

- Introduction to Solubility and the Solubility Product Constant
- Solubility Constant Expression
- Fractional Precipitation of Metal Carbonates

LECTURE #14: THURSDAY, FEBRUARY 21st

Polleverywhere Lecture Questions

- Determining K_{sp} Using Experimental Data (17.113)
- Stoichiometry of the K_{sp} Lab (17.103)
- Relating K_{sp} to Molar Solubility (17.51)
- Selective Precipitation (17.71)
- Best Separation (17.72)

Lecture Videos to Watch or Textbook Sections to Read Before Lecture #15:

- Section 17.5 Common Ion Effect (11:32)
- Section 17.5 pH Effects (4:26)
- Section 17.5 How does adding acid/base influence solubility? (11:01)
- Section 17.5 Does Zinc Hydroxide follow the rules we've discussed so far? (4:27)
- Section 17.5 Complex Ion Formation and Coordination Complexes (7:33)
- Section 17.5 Re-analyzing Zinc Hydroxide (5:53)
- Section 17.5 Solubility of Zinc Hydroxide in 15 M NH_3 (11:55)
- Section 17.5 Determining the Concentration of Free Metal Cations in Solution (13:25)
- Section 17.5 Amphotericism (6:11)

- Section 17.5 Solubility of $\text{Al}(\text{OH})_3$ in 15 M NH_3 (13:56)
- Section 17.5 Molar Solubility of $\text{Al}(\text{OH})_3$ in 15 M NH_3 continued (10:28)
- Section 17.5 Amphoteric Effects on Solubility (4:10)

Mastering Chemistry Pre-Lecture #15 Assignment (due 8:00 am Tues., Feb. 26th):

- The Effect of Acid on Solubility
- Acid Rain: Effect on Solubility of Calcium Carbonate
- Solubility of Zinc Hydroxide in Basic Solution

MASTERING CHEMISTRY GRADED HOMEWORK ASSIGNMENT #7
DUE SUNDAY, FEBRUARY 24th at 11:59 PM

LECTURE #15: TUESDAY, FEBRUARY 26th

Polleverywhere Lecture Questions

- Common Ion (17.56)
- pH Effects (17.59)
- Complex Ion Formation (17.64)
- Free Ion Concentration (17.63)
- Amphoteric Effects (17.99)
- Factors Influencing Solubility (17.106)

Lecture Videos to Watch or Textbook Sections to Read Before Lecture #16:

- Section 19.1 Thermodynamics (11:13)
- Section 19.2 Spontaneous Process and Entropy (10:58)
- Section 19.2 Mathematical Definition of Entropy (9:10)
- Section 19.3 Macro and Micro States (13:04)
- Section 19.3 Comparing Entropy of Various Systems (6:39)
- Section 19.3 2nd Law of Thermodynamics (11:43)
- Section 19.3 3rd Law of Thermodynamics (9:58)

Mastering Chemistry Pre-Lecture #16 Assignment (due 8:00 am Thurs., Feb. 28th):

- Qualitative Predictions About Entropy
- The Boltzmann Equation
- Entropy and the Second Law of Thermodynamics

LECTURE #16: THURSDAY, FEBRUARY 28th

Polleverywhere Lecture Questions

- Enthalpy and Entropy (19.1)
- Entropy and Microstates (19.33)
- Spontaneous Reactions (19.11)
- Signs of Enthalpy and Entropy (19.3 – Copy)
- Comparing Entropy (19.48)
- Spontaneous Reactions and Temperature (19.66)
- Entropy of the Solution Process

Lecture Videos to Watch or Textbook Sections to Read Before Lecture #17:

- Section 19.5 Free Energy
- Section 19.5 Predicting the Sign of Delta G (5:06)

- Section 19.6 Free Energy Under Non-standard Conditions (14:40)
 - Section 19.6 Thermochemistry of the Haber Process (14:34)
- Mastering Chemistry Pre-Lecture #17 Assignment (due 8:00 am Tues., Mar. 5th):
- Interactive Activity – Temperature Dependence of Entropy
 - Gibbs Free Energy: Temperature Dependence
 - Free Energy and the Reaction Quotient
 - Gibbs Free Energy and Equilibrium

MASTERING CHEMISTRY GRADED HOMEWORK ASSIGNMENT #8
DUE SUNDAY, MARCH 3rd at 11:59 PM

LECTURE #17: TUESDAY, MARCH 5th

Polleverywhere Lecture Questions

- Gibbs Free Energy (19.83)
- Gibbs Free Energy and Equilibrium (19.85)
- How Thermochemistry Relates to Solubility (19.112 – Copy)
- Thermochemistry Lab Data

Lecture Videos to Watch or Textbook Sections to Read Before Lecture #18:

- Review For Exam #2: Thursday, March 7th 8:00 – 9:45 pm

Mastering Chemistry Pre-Lecture #12 Assignment (due 8:00 am Thurs., Mar. 7th):

- Practice Midterm Exam

LECTURE #18: THURSDAY, MARCH 7th

MIDTERM EXAM #2 REVIEW SESSION
CHAPTERS 16.6 – 16.11, 17, and 19.1 – 19.4

EXAM #2: THURSDAY, MARCH 7th 8:00 – 9:45 PM

SPRING BREAK

LECTURE #19: TUESDAY, MARCH 19th

INTRODUCTION TO RESEARCH
INVESTIGATION OF THE RETENTION CAPACITY OF SOILS FOR METALS

Lecture Videos to Watch or Textbook Sections to Read Before Lecture #20:

- Section 20.1 Electrochemistry Observations (11:22)
- Section 20.1 Electrochemistry (11:44)
- Section 20.3/20.4 Silver-Copper Voltaic Cell Part 1 (7:15)
- Section 20.3/20.4 Silver-Copper Voltaic Cell Part 2 (10:23)
- Section 20.3/20.4 Silver-Iron Voltaic Cell (6:22)
- Section 20.3/20.4 Voltaic Cells (11:20)

Mastering Chemistry Pre-Lecture #20 Assignment (due 8:00 am Thurs., Mar. 21st):

- Animation – Analysis of a Copper-Zinc Voltaic Cell
- A Nickel-Aluminum Galvanic Cell

LECTURE #20: THURSDAY, MARCH 21st

Polleverywhere Lecture Questions

- Redox Reactions (20.3 Copy)
- Redox Reactions (20.15)
- Voltaic Cells (20.27)
- Voltaic Cell Stoichiometry (20.37)
- Voltaic Cell Demo

Lecture Videos to Watch or Textbook Sections to Read Before Lecture #21:

- Section 20.2 Balancing Redox Reactions (14:43)
- Section 20.5 E_{cell} and Delta G Part 1 (10:28)
- Section 20.5 E_{cell} and Delta G Part 2 (5:24)
- Section 20.6 Cell Potential and Concentration (8:33)
- Section 20.6 Application of the Nernst Equation (7:51)

Mastering Chemistry Pre-Lecture #21 Assignment (due 8:00 am Tues., Mar. 26th):

- Balancing Redox Reactions and Stoichiometry
- Interactive Activity – The Relationship Among E_{cell} , K_{eq} , and Gibbs Free Energy
- The Nernst Equation and pH

**MASTERING CHEMISTRY GRADED HOMEWORK ASSIGNMENT #9
DUE SUNDAY, MARCH 24th at 11:59 PM****LECTURE #21: TUESDAY, MARCH 26th**

Polleverywhere Lecture Questions

- Balancing Redox Reactions (20.23)
- Balancing Redox Reactions (20.24)
- E_{cell} and ΔG (20.52)
- Non-standard Cell Potentials (20.68)
- Magnitude of Cell Potential (20.69)
- Nernst Equation (20.71)

Lecture Videos to Watch or Textbook Sections to Read Before Lecture #22:

- Section 20.9 Electrolysis (2:53)
- Section 20.9 Stoichiometry of Electrolytic Processes (4:51)
- Section 20.9 Electrolysis Example (3:34)
- Section 20.9 Electrolysis of H_2O (8:39)
- Section 20.9 Calculating Concentration in Electrolysis (5:35)

Mastering Chemistry Pre-Lecture #22 Assignment (due 8:00 am Thurs., Mar. 28th):

- Simulation – Electrolysis

LECTURE #22: THURSDAY, MARCH 28th

Polleverywhere Lecture Questions

- Electroplating (20.91)
- Electrolysis and Concentration (20.92)
- Cell Potential and pH (20.68)
- Calculating Cell Potential (20.71)

- Interpreting Electrochemical Lab Data
- Laboratory Manual Sections to Read Before Lecture #23:
- Research Project
- Mastering Chemistry Pre-Lecture #23 Assignment:
- none

**MASTERING CHEMISTRY GRADED HOMEWORK ASSIGNMENT #10
DUE SUNDAY, MARCH 31st at 11:59 PM**

LECTURE #23: TUESDAY, APRIL 2nd

**ANALYZING RESEARCH DATA
INVESTIGATION OF THE RETENTION CAPACITY OF SOILS FOR METALS**

Lecture Videos to Watch or Textbook Sections to Read Before Lecture #24:

- Section 23.1 Transition Metals and Coordination Complexes (4:35)
- Section 23.1 The Electromagnetic Spectrum and Color (6:06)
- Section 23.1 Orbital Energies (9:07)
- Section 23.1 UV-Vis Spectroscopy (7:11)
- Section 23.1 UV-Vis Spectroscopy Part 2 (9:29)
- Section 23.1 Electron Configuration of Transition Metal Complexes (9:05)
- Section 23.2 Chemistry of Coordination Complexes (9:24)
- Section 23.2 Coordination Complexes Before 1893 (7:37)
- Section 23.2 Modern Day Formulas for Transition Metal Complexes (8:24)
- Section 23.4 Arranging Ligands Around the Transition Metal Center: Introducing Isomers (15:01)
- Section 23.4 Isomer Overview (3:53)
- Section 23.4 Linkage Isomers (6:07)
- Section 23.4 Coordination Sphere Isomers (3:49)
- Section 23.4 Geometric Isomers (8:18)
- Section 23.4 Optical Isomers/Enantiomers (13:50)

Mastering Chemistry Pre-Lecture #24 Assignment (due 8:00 am Thurs., Apr. 4th):

- Electron Configuration and Oxidation Numbers
- Coordination Complexes
- Visualizing Complexes
- Isomers and Enantiomers

LECTURE #24: THURSDAY, APRIL 4th

Polleverywhere Lecture Questions

- Color of Transition Metal Complexes (Color of Transition Metal Complexes)
- The Electromagnetic Spectrum (The Electromagnetic Spectrum)
- Absorbed vs. Observed Colors (Absorbed vs. Observed Colors)
- The UV-Vis Spectrometer (The UV-Vis Spectrometer)

- Electron Configuration of Transition Metal Cations (Electron Configuration of Transition Metal Cations)
- Coordination Number and Oxidation States (Coordination Number and Oxidation States)
- Isomers (Isomers)

Lecture Videos to Watch or Textbook Sections to Read Before Lecture #25:

- Section 23.2 Complex Formation: The Metal-Ligand Bond (3:10)
- Section 23.2 Transition Metal Complexes: Oxidation States, Coordination Numbers, and Geometry (5:51)
- Section 23.2 Stereochemistry (1:37)
- Section 23.2 Determining if an ML_4 Complex is T_d or Square Planar (1:40)
- Section 23.2 Example Problem: Determining if an ML_4 Complex is T_d or Square Planar (6:44)
- Section 23.3 Ligands (7:15)
- Section 23.6 Bonding Theories of Transition Metal Complexes (3:38)
- Section 23.6 Crystal Field Theory Introduction (5:51)
- Section 23.6 Shapes of d orbitals (7:38)
- Section 23.6 Orbital Overlap and Orbital Energies in Crystal Field Theory (10:25)
- Section 23.6 Crystal Field Theory (9:15)
- Section 23.6 The Spectrochemical Series (12:05)
- Section 23.6 High Spin/Low Spin Complexes (7:32)
- Section 23.6 Octahedral Field Splitting vs. Tetrahedral Field Splitting (8:52)
- Section 23.6 Octahedral Field Splitting vs. Square Planar Field Splitting (7:38)
- Section 23.3 The Chelate Effect (10:47)

Mastering Chemistry Pre-Lecture #25 Assignment (due 8:00 am Tues., Apr. 9th):

- Color of Complexes
- Crystal Field Theory
- Magnetism and Crystal Field Theory
- Complex Ions and Multiple Equilibria

MASTERING CHEMISTRY GRADED HOMEWORK ASSIGNMENT #11
DUE SUNDAY, APRIL 7th at 11:59 PM

LECTURE #25: TUESDAY, APRIL 9th

Polleverywhere Lecture Questions

- Crystal Field Splitting (Crystal Field Splitting)
- Number of Unpaired Electrons (Number of Unpaired Electrons)
- Magnetism (Magnetism)
- Magnetism (Magnetism)
- Relating Magnetism to Experimental Data (Relating Magnetism to Experimental Data)

LECTURE #26: THURSDAY, APRIL 11th

MIDTERM EXAM #2 REVIEW SESSION
CHAPTERS 19.1 – 19.5, 20, Research Project, and 23.1 – 23.4

EXAM #2: THURSDAY, APRIL 11th 8:00 – 9:45 PM

Lecture Videos to Watch or Textbook Sections to Read Before Lecture #27:

- Nuclear Chemistry
- Videos Still Need to be Made

Mastering Chemistry Pre-Lecture #27 Assignment (due 8:00 am Tues., Apr. 16th):

- Modes of Radioactive Decay
- Nuclear Decay Equations
- The Uranium Decay Series
- Identification and Characterization of Unstable and Stable Nuclei
- Radiocarbon Dating

MASTERING CHEMISTRY GRADED HOMEWORK ASSIGNMENT #12
DUE SUNDAY, APRIL 14th at 11:59 PM

LECTURE #27: TUESDAY, APRIL 16th

Polleverywhere Lecture Questions

- Nuclear Stability (21.20)
- Nuclear Decay Equations (21.27)
- Rates of Radioactive Decay (21.35)
- Balancing Nuclear Reactions (21.60)
- Radiocarbon Dating (21.39)

LAST LECTURE: THURSDAY, APRIL 18th

- Cancer Research
- Special Guest Speaker
- Most Entertaining Evaluation Comments
- Closing Inspirational Remarks

MASTERING CHEMISTRY GRADED HOMEWORK ASSIGNMENT #13
DUE SUNDAY, APRIL 21st at 11:59 PM

FINAL EXAM REVIEW SESSION TUESDAY, APRIL 23rd 3:00 – 4:30 PM 1000 McPHERSON
CHAPTERS 13 – 23

FINAL EXAM: MONDAY, APRIL 29th 8:00 – 9:45 AM