

Chemistry  
Class Syllabus

**Week**

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Note: As with many college courses, students are expected to have read the material and done some work prior to class. This way they come prepared with questions about the material and are ready to discuss what is being taught. If the first time a student hears some of the formulas or vocabulary is during the lecture, they will become lost.

Note - For each Module, you will complete the reading and OYO's at home.

We will go over the OYO, Reviews & Practice Problems in class.

Be prepared for a quiz over the reading or vocabulary each week.

**1 Module ONE - Students need to have read and done OYO's, etc prior to class**

Before Class -

Read pages i-xii & Module One

Complete all On Your Own questions in a notebook.

Copy all vocabulary words in your notebook

Complete the Review, Practice Problems, & Extra Practice Problems

Extra Practice Problems

In Class -

Go over Module One OYO, Review, Practice Problems

Experiment 1.3

Introduce Module Two Concepts

**2 Module TWO**

Before Class -

For Fun - try experiments 1.1 & 1.2. Bring in completed Lab Report for extra credit.

Complete the test for Module One

Read Module Two and be prepared to discuss the concepts

OYO's 2.1-2.7

In Class -

Answer any questions from Module One

Discuss pages 37-53

Energy & Heat

Units for Measuring heat & Energy

The Nature of a Scientific Law

Calorie Unit

First Law of Thermo

Go over the math involved with conversions and measuring heat.

Celsius to Fahrenheit

Kelvin

Measuring Heat

**3 Module TWO**

Before Class -

Have all OYO's for Module Two complete

Copy all vocabulary words in your notebook

Complete Review & Practice Problems for Module Two

In Class -

Go over Exam from Module One

Answer Questions from pages 37-50

Discuss Pages 53-60

Calorimetry

Review OYO's for Module Two

Go over Review & Practice Problems

Complete Extra Practice Problems

Introduce Module Three Concepts

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**4 Module THREE**

Before Class -

Complete Test for Module Two

Read Module Three

Copy all vocabulary words in your notebook

Read all experiments for Modules 1-3

In Class -

Answer any questions from Module Two

Go over pages 69-92

Early Attempts to Understand Matter

Dalton's Atomic theory

Law of mass Conservation

Molecules

Elements - Basic Building Blocks

Classification

Compounds

Discuss the Labs to be done

**L 1 LAB One - noon - 4:00 pm**

Safety in labs

Completing Lab Reports

1.4 Density of Liquids

2.1 Calibrating Your Thermometer

2.2 Measuring the Specific Heat of a metal

3.1 Conservation of Mass

3.2 Electrical Conductivity

MicroChem # 3 Electrical Conductivity

**5 Module THREE**

Before Class -

Complete OYO's for Module Three

Complete Module Three Review

Complete Module Three Practice Problems

Complete all Lab Reports

In Class -

Go over test from Module Two

Answer questions from Module Three & lab work

Lab Reports

Go over OYO, Review, Practice Problems & Extra Practice Problems

Introduce Module Four Concepts

**6 Module FOUR**

Before Class -

Complete Extra Practice for Module Three if not completed in class last week

Complete Test for Module Three

Read Module Four

Copy all vocabulary words in your notebook

In Class -

Answer any questions from Module Three

Go over pages 99-125

Classifying Matter

Phase Changes

Classifying Changes

Chemical Reactions

Kinetic Theory of Matter

Balancing Equations



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10 **Module SIX**

Before Class -

- Complete Quarterly Test # 1 covering Modules One through Four
- Complete Test for Module Five
- Read Module Six
- Copy all vocabulary words in your notebook

In Class -

- Answer any questions from Module Five
- Review math from Module Five
- Go over pages 163-175
  - Mole relationships in Chemical Equations
  - Limiting Reactant & Excess Components
  - Fully Analyzing Chemical Equations
  - Volume Relationships
- Introduce pages 175-190

11 **Module SIX**

Before Class -

- Review notes from last week
- Do OYO 6.1-6.5
- Attempt OYO 6.6-6.11
- Attempt Module Six Review

In Class -

- Answer questions
- Go over test from Module Five
- Go over OYO 6.1-6.5
- Go over Pages 176-190
  - Mass relationships
  - Using Stoichiometry
  - Empirical & Molecular Formulas
  - More Complicated Experiments
- Discuss upcoming Lab

L 3 **LAB Three**

**Before Lab**

- Complete Review for Module Six
- Complete Practice Problems for Module Six
- Complete Extra Practice Problems

**During lab**

- 5.1 Measuring Width of a Molecule
- 6.1 Limiting Reactants
- MicroChem 7 - Decomposition
- MicroChem 4 - Mole ratios
- Go over OYO, Review, Practice Problems

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**12 Module SEVEN**

Before Class -

- Complete Test for Module Six
- Read Module Seven
- Complete OYO 7.1-7.5 for Module Seven
- Copy all vocabulary words in your notebook

In Class -

- Answer questions
- Go over pages 201-221
  - Historical Overview
  - Electrical Charge
  - Electrical Charge & Atomic Structure
  - Determining Number of Protons & Electrons
  - Determining Number of Neutrons
  - Atomic Structure
  - Nature of Light
  - Electromagnetic Spectrum

**13 Module SEVEN**

Before Class -

- Complete all OYO
- Review Notes from last week
- Complete Module Seven Review
- Complete Module Seven Practice Problems

In Class -

- Go over Test for Module Six
- Answer questions
- Go over pages 221
  - Relationship Between Frequency & Energy
  - Bohr Model
  - Quantum Mechanical Model
  - Building Atoms (Electron Configurations)
  - Abbreviated Electron Configurations
  - Amazing Design of Atoms

**14 Review Modules ONE TO SEVEN, Introduce Module Eight**

Before Class -

- Complete Extra Practice for Module Seven

In Class -

- Review Modules One to Six
- Go over Review, Practice & Extra Practice Module Seven
- Introduce Module Eight

**Lab**

No chemicals are used in these labs so they can be done in a classroom.

- 7.1 Electrical Charge
- 7.2 How the Eye Detects Color

**Over the Christmas Break**

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**Complete Test Module Seven & Mail to Instructor for Grading**

**Read Moduel Eight**

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**Second Semester**

15 **Module EIGHT**

Before Class -

- Complete Lab reports
- Read Module Eight
- Copy all vocabulary words in your notebook
- Complete OYO for Module Eight

In Class -

- Review last semester
- Go over Test from Module Seven
- Cover pages 247-276
  - Electron Configurations & Periodic Table
  - Octet Rule
  - Lewis Structures
  - Handling Exceptions to Ionic Compounds
  - Ionization Potential & Periodic Properties
  - Electronegativity
  - More Lewis Structures

16 **Modules EIGHT & NINE**

Before Class -

- Complete Module Eight Review
- Complete Module Eight Practice Problems
- Complete Module Eight Extra Practice
- Read Module Nine

In Class -

- Go over Review, Practice & Extra Practice Module Eight
- Module Nine**
- Cover Pages 285-308
  - Polyatomic Ions
  - Molecular Geometry: The VSPER Theory
  - Purely Covalent & Polar Covalent Bonds

17 **Module NINE**

Before Class -

- Complete Test for Module Eight
- Complete OYO Module Nine
- Complete Review Module Nine
- Complete Practice Problems for Module Nine
- Copy all vocabulary words in your notebook

In Class -

- Review Module Nine concepts
- Go over OYO, Review & Practice Problems for Module Nine
- Extra Practice Module Nine
- Introduce Module Ten concepts

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**18 Module TEN**

Before Class -

Complete Quarterly Exam #2 covering Modules 5-8

Complete Module Nine Test

Read Module Ten

In Class -

Answer any questions from Modules 8 & 9

Go over Test for Module Eight

Cover pages 319-345

Acids & Bases

Chemical Definitions of Acids & Bases

Recognizing Acids & Bases

Predicting Reactions

Molarity

Dilution Equation

Important of Concentration

Acid/Base Titrations

**19 Module TEN**

Before Class -

Complete OYO for Module Ten

Copy all vocabulary words in your notebook

Complete Review Module Ten

Complete Practice Problems Module Ten

Extra Practice Problems

In Class -

Go over Quarterly Test

Go over Test from Module Nine

Go over OYO, Review, Practice Problems

Discuss upcoming Labs

Introduce Module Eleven concepts

**L 4 LAB Four**

10.1 Examples of Acids & Bases

10.2 Acid/Base Titration

MicroChem 13 - Molar Mass by Titration

MicroChem 12 - A Microscale Titration

MicroChem 14 - A Buffer Solution

**20 Module ELEVEN**

Before Class -

Complete Test for Module Ten

Complete all Lab Reports

Read Module Eleven

Copy all vocabulary words in your notebook

In Class -

Go over Lab Reports

Cover pages 353-375

How Solutes Dissolve in Solvents

Solubility

Energy Changes

Applying Stoichiometry to Solutions

Molarity

Freezing Point Depression

Boiling Point Elevation

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21 **Module ELEVEN**

Before Class -

- Complete OYO Module Eleven
- Complete Review Module Eleven
- Complete Practice Problems Module Eleven

In Class -

- Answer questions from Modules Eight to Eleven if needed.
- OYO Module Eleven
- Go over Review & Practice Problems Module Eleven
- Complete Extra Practice Problems Module Eleven
- Discuss Upcoming Lab
- Introduce Module Twelve concepts

L 5 **LAB Five**

- MicroChem 5 - Double Replacement Reactions
- MicroChem 10 - Solubility Product Constant
- 11.1 Effect of Temperature on Solubility of Solid Solutes
- 11.2 Effect of Temperature on Solubility of a Gas
- 11.3 Investigation of a Solute that Releases Heat
- 11.4 Freezing Point Depression

22 **Module TWELVE**

Before Class -

- Complete Lab Reports
- Complete Module Eleven Exam
- Read Module Twelve
- Copy all vocabulary words in your notebook

In Class -

- Go over Lab Reports
- Cover pages 382-408
  - Definition of Pressure
  - Boyle's Law
  - Charles's Law
  - Combined Gas Law
  - Ideal Gases
  - Daton's Law of Partial Pressures
  - Vapor Pressures
  - An Alternative Statement of Dalton's law
  - Ideal Gas Law

23 **Module TWELVE**

Before Class -

- Complete OYO Module Twelve
- Complete Module Twelve Review
- Complete Module Twelve Practice Problems
- Complete Module Twelve Extra Practice Problems

In Class -

- Go over OYO Module Twelve
- Module Twelve Review, Practice Problems, & Extra Practice
- Introduce Module Thirteen Concepts
  - Enthalpy
  - Determining Change in Enthalpy for Chemical Reaction

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24 **Module THIRTEEN**

Before Class -

- Complete Module Twelve test
- Read Module Thirteen
- Copy all vocabulary words in your notebook

In Class -

- Answer any questions from Module Twelve
- Cover Pages 417-449
  - Enthalpy
  - Determining Change in Enthalpy for Chemical Reaction
  - Hess's Law
  - Applying Enthalpy to Stoichiometry
  - Energy Diagrams
  - Second Law of Thermodynamics

25 **Module THIRTEEN**

Before Class -

- Complete Quarterly Test 3 covering Modules Nine to Twelve
- Complete OYO Module Thirteen
- Complete Module Thirteen Review
- Complete Module Thirteen Practice Problems

In Class -

- Go over Module Twelve Test
- Module Thirteen OYO's, Review, Practice Problems
- Complete Module Thirteen Extra Practice Problems
- Intro Module Fourteen Concepts
- Discuss Upcoming lab

L 6 **LAB Six**

- 12.1 Using Ideal Gas Equation
- MicroChem 8 - Boyle's Law
- MicroChem 9 - Charles's law
- 13.1 Determining Change in Enthalpy for Chemical Reaction
- MicroChem 15 - Reactions Rate: The Effect of Concentration

26 **Module FOURTEEN**

Before Class -

- Complete Lab Reports
- Complete Module Thirteen Test
- Read Module Fourteen
- Copy all vocabulary words in your notebook

In Class -

- Go over Lab Reports
- Cover Pages 359-384
  - Reactions Kinetics
  - The Rate Equation
  - Using Rate Equations
  - Temperature Dependence in the Rate Equation
  - Catalysts & Reactions Rate

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**27 Module FOURTEEN**

Before Class -

- Complete OYO Module Fourteen
- Complete Module Fourteen Review
- Complete Module Fourteen Practice Problems
- Complete Module Fourteen Extra Practice Problems

In Class -

- Go over Module Thirteen Test
- OYO's Module Fourteen
- Module Fourteen Review, Practice Problems, Extra Practice
- Review any math that students are struggling with
- Introduce Module Fifteen Concepts

**28 Module FIFTEEN**

Before Class -

- Complete Module Fourteen Test
- Read Module Fifteen
- Copy all vocabulary words in your notebook

In Class -

- Answer any questions from Modules Thirteen & Fouteen
- Cover pages 491-518
  - Definitation of Chemical Equilibrium      Acid/Base Equilibrium
  - The Equilibrium Constant                      The pH Scale
  - La Chatelier's Principle                      Acid Rain
- Discuss Upcoming lab

**L 7 LAB Seven**

- 14.1 Factors that Affect Chemical Reaction Rates
- 14.2 Effect of a Catalyst on Decomposition of H<sub>2</sub>O<sub>2</sub>
- MicroChem 16 - Reaction Rates: Effect of Temperature
- 15.1 Demonstration of Equilibrium
- 15.2 Temperature & Le Chatelier's Principle
- MicrocChem 11 - pH & pH Indicators
- 16.1 Invisible Writing

**29 Module FIFTEEN**

Before Class -

- Complete OYO Module Fifteen
- Complete Module Fifteen Review
- Complete Module Fifteen Practice Problems

In Class -

- Go over Module Fourteen Test
- Go over Lab Reports
- Go over OYO, Review, Practice Problems
- Complete Module Fifteen Extra Practice Problems

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Introduce Module Sixteen concepts  
Begin Review using SAT Subject review book

**30 Module SIXTEEN**

Before Class -

Complete Module Fifteen Test

Read Module Sixteen

Copy all vocabulary words in your notebook

In Class -

Cover pages 525-545

Oxidation Numbers

Recognizing Reduction/Oxidation Reactions

How Batteries Work

Real Batteries

Corrosion

SAT Subject Review

**31 Module SIXTEEN**

Before Class -

Complete OYO Module Sixteen

Complete Module Sixteen Review

Complete Module Sixteen Practice Problems

In Class -

Go over Module Fifteen Test

Go over OYO, Review, Practice Problems

Complete Module Sixteen Extra Practice Problems

SAT Subject Review

**32 Before this date:**

Complete test for Module Sixteen

Complete Quarterly Exam #4 covering Modules Thirteen to Sixteen

Mail both to Instructor for grading