Collapse all

Chemistry, Part 2

ATTENTION

Grading at the end of the semester can take 7 school days!
Submit your **last assignment two weeks** before your school's semester ends.

Lab Requirement

In order to satisfy the laboratory requirement for a chemistry lab science course, two components are required. The first is our online course, and the second is the labs. The lab kit has to be purchased separately--SVHS does NOT provide it. **You cannot pass this course without doing the lab portion.**

Lab Kit Requirement
The kit must be purchased from Quality Science Labs (QSL); it will be delivered through the mail. SVHS and QSL have designed this kit to accompany this course. The same kit can be used for Part 1 of this course. Only one kit needs to be purchased for students taking Chemistry Part 1 and Part 2. **Order your lab kit from QSL here**; at checkout, use the customer code **svhs2691-17** to receive a **20% discount.**

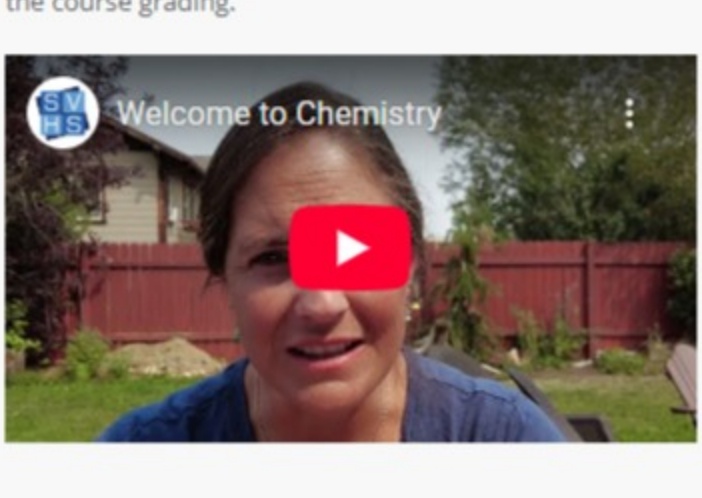
Lab Details and Descriptions
Detailed instructions for the wet labs are provided in the lab kit. You can see a summary description of the **labs covered** in this course. The lab assignments are required to pass this course and come from the labs and materials in the "lab kit" mentioned above.

Unpacking Your Lab Kit

How to Take This Course

Complete all the quizzes and the labs in each unit and the assignment in unit four. Once you have completed the quizzes for a unit, you will have access to the unit test. We recommend that you complete the unit labs before attempting the unit test. There are questions on the unit test related to the labs. You will have access to the final after you have been enrolled in the course for at least 30 days and when all unit tests are completed, and your labs and assignment are graded.

Important: Allow a minimum of 3-4 school days for an assignment to be graded, longer at the end of a semester. Read the full course instructions to understand the course grading.



Course Instructions

How This Course Works & Suggested Timeline

Submitting Your Assignments

PDF is the required file format for lab reports.
TIP: If your PDF is a large file and too big to upload, compress the PDF file using the free tools available at ilovepdf.com or Smallpdf.com. Do not create a user account on these websites; it is not required.

Ask The Teacher

Meet your teacher for this course and ask a question.

Need help with the course? We offer online tutoring; find more details about it here.

MANDATORY QUIZ

You are required to take this quiz before you start the course. To prepare, read the course instructions and the "submitting your assignments" document, watch the video on the how this course works page and review the suggested timeline.

Learning Objectives & Standards Met By This Course

Unit 1: Stoichiometry and Energy

In this unit, you will review writing balanced equations, converting between units, and learn the importance of stoichiometry, the difference between heat and energy, what the enthalpy of a reaction is, and how it is calculated. You will practice the scientific method as you complete the first lab, Enthalpy of Ice, and actually measure the amount of heat required to both melt ice and to raise/lower the temperature of water. You will also explore current forms of energy and some "alternative" types of energy used in our world today.

Unit 1 has ONE lab assignment. To help you prepare, a pre-lab lesson is provided before the lab. The Unit Test contains questions related to the lab. Complete **ALL** the work in Unit 1 before moving to Unit 2.

Note: You will not have access to your Unit 3 Test until your Unit 1 lab has been graded.

Unit 1 Study Guide

This study guide will help you preview the concepts and guide your learning as each new skill or concept is introduced. Use this study guide as the foundation of your notes. You may use it on the unit quizzes, unit tests, and course final.

Click on the link above, and make a copy of the file; it will open in Google Docs. If you don't have access to Google Docs, copy the URL into a new browser window, remove "Copy" at the end of the URL, and replace it with "View". From the File Menu, select Download and choose a format you prefer.

- 1.0 Introduction
- 1.1 Stoichiometry
- Quiz 1.1 Stoichiometry
- 1.2 Limiting and Excess Reactants
- Quiz 1.2 Limiting and Excess Reactants
- 1.3 Percentage Yield
- Quiz 1.3 Percentage Yield
- 1.4 Energy and Heat
- Quiz 1.4 Energy and Heat
- 1.5 Enthalpy
- Quiz 1.5 Enthalpy
- 1.6 Prelab - Calorimetry and Enthalpy of Ice
- Quiz 1.6 Prelab - Calorimetry and Enthalpy of Ice
- Unit 1 Lab Assignment: Enthalpy of Ice
- 1.7 Energy in Our World Today and Tomorrow
- Quiz 1.7 Energy in Our World Today and Tomorrow
- Unit 1 Test

Not available unless: The activity **Quiz 1.1 Stoichiometry** is marked complete ... Show more

Unit 2: Solutions and Solubility

Not all matter is in the solid form, and some of the more interesting chemical reactions happen in solutions. This unit discusses the concepts of solutions and solubility—the chemical structure of water, and why water is so essential for life. You will learn why water acts as a wonderful solvent and provides a medium for metabolism. Properties of solutions, including the terminology of solvent and solute, mixtures, and entropy, are all discussed. The factors that affect solubility, as well as interpreting solubility curves and exploring colligative properties, will be learned. The unit discusses saturated, unsaturated, and supersaturated solutions. You will experience making solutions and observing freezing point depression in sugar solutions.

This unit contains two hands-on laboratories. Each lab begins with a pre-lab preparation lesson to help you succeed. A quiz follows one Lab, while the other Lab requires you to write a complete formal lab report. Questions about both laboratories will be on the unit test and final exam. Complete **ALL** the work in Unit 2 before moving to Unit 3.

Note - You will not have access to your Unit 4 Test until your Unit 2 labs are graded.

Unit 2 Study Guide

This study guide will help you preview the concepts and guide your learning as each new skill or concept is introduced. Use this study guide as the foundation of your notes. You may use it on the unit quizzes, unit tests, and course final.

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- 2.1 Water and Life
- Quiz 2.1 Water and Life
- 2.2 Properties of Solutions
- Quiz 2.2 Properties of Solutions
- 2.3 The Dissolving Process
- Quiz 2.3 The Dissolving Process
- 2.4 Solubility and Saturation
- Quiz 2.4 Solubility and Saturation
- 2.5 Molarity and Dilutions
- Quiz 2.5 Molarity and Dilutions
- 2.6 Prelab - Solubility
- Quiz 2.6 Prelab - Solubility
- Unit 2 Lab Assignment - Solubility Product Constant
- 2.7 Colligative Properties
- Quiz 2.7 Colligative Properties
- 2.8 Prelab - Freezing Point Depression
- Quiz 2.8 Prelab - Freezing Point Depression
- 2.8 Hands-on Lab - Freezing Point Depression
- Quiz 2.8 Hands-on Lab - Freezing Point Depression
- Unit 2 Test

Not available unless: The activity **Quiz 2.1 Water and Life** is marked complete ... Show more

Unit 3: Acids & Bases

This unit discusses the general properties of acids and bases. The Arrhenius definitions for acids and bases. Bronsted and Lowry's theory of acids and bases. To distinguish between strong and weak acids and bases in terms of the extent of dissociation, reaction with water, and electrical conductivity. The pH scale and consider the effects of acid deposition on limestone buildings and living things. Examine the chemistry of ocean acidification and understand the nature of a strong acid and a strong base. To solve acid-base titration math problems. What a buffer is, how to make one, and the importance of buffers in our body.

This unit contains two hands-on laboratories. Each lab begins with a pre-lab preparation lesson to help you succeed. A quiz follows one Lab, while the other Lab requires you to write a complete formal lab report. Questions about both laboratories will be on the unit test and final exam. Complete **ALL** the work in Unit 3 before moving to Unit 4.

Note - You will not have access to your Unit 3 Test until your Unit 1 Lab Assignment is graded.

Unit 3 Study Guide

This study guide will help you preview the concepts and guide your learning as each new skill or concept is introduced. Use this study guide as the foundation of your notes. You may use it on the unit quizzes, unit tests, and course final.

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- 3.1 Properties of Acids and Bases and the Arrhenius Theory
- Quiz 3.1 Properties of Acids and Bases and the Arrhenius Theory
- 3.2 Bronsted-Lowry Theory of Acids and Bases
- Quiz 3.2 Bronsted-Lowry Theory of Acids and Bases
- 3.3 The pH Scale
- Quiz 3.3 The pH Scale
- 3.4 Prelab: pH and pH Indicators
- Quiz 3.4 Prelab: pH and pH Indicators
- 3.4 Hands-on: pH and pH Indicators
- Quiz 3.4 Hands-on: pH and pH Indicators
- 3.5 Strong and Weak Acids and Bases and Ocean Acidification
- Quiz 3.5 Strong and Weak Acids and Bases and Ocean Acidification
- 3.6 Chemical Equilibrium and Ka
- Quiz 3.6 Chemical Equilibrium and Ka
- 3.7 Buffers
- Quiz 3.7 Buffers
- 3.8 Prelab: Buffers
- Quiz 3.8 Prelab: Buffers
- Unit 3 Lab Assignment - Buffers
- Unit 3 Test

Not available unless: The activity **Quiz 3.1 Properties of Acids and Bases and the Arrhenius Theory** is marked complete ... Show more

Unit 4: Gases

Gases behave interestingly and predictably, and this unit discusses the behavior of gases in great detail, including the assumptions behind the Kinetic Molecular Theory and some general properties of gases from a molecular perspective. Avogadro's Law, Boyle's Law, Lussac's Law, and Charles' Law. How the ideal gas equation allows one to find the pressure, volume, temperature, and/or number of moles in a certain situation.

This unit contains a unit assignment and two hands-on laboratories. Each lab begins with a pre-lab preparation lesson to help you succeed. A quiz follows one Lab, while the other Lab requires you to write a complete formal lab report. Questions about both laboratories will be on the unit test and final exam. Complete **ALL** the work in Unit 4 before moving to Unit 5.

Note - You will not have access to your Unit 4 Test until your Unit 2 Lab Assignment is graded.

Unit 4 Study Guide

This study guide will help you preview the concepts and guide your learning as each new skill or concept is introduced. Use this study guide as the foundation of your notes. You may use it on the unit quizzes, unit tests, and course final.

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- 4.1 Kinetic Molecular Theory of Gases
- Quiz 4.1 Kinetic Molecular Theory of Gases
- 4.2 Pressure, Volume, Temperature
- Quiz 4.2 Pressure, Volume, Temperature
- 4.3 Prelab: Boyles Lab
- Quiz 4.3 Prelab: Boyles Lab
- Unit 4 Lab Assignment - Boyle's Law Lab
- 4.4 Ideal Gas Law
- Quiz 4.4 Ideal Gas Law
- 4.5 Ideal Gas Law Problems
- Quiz 4.5 Ideal Gas Law Problems
- 4.6 Prelab: Charles Law
- Quiz 4.6 Prelab: Charles Law
- 4.6 Hands-on Lab: Charles Law
- Quiz 4.6 Hands-on Lab: Charles Law
- 4.7 Gas Law Stoichiometry
- Quiz4.7 Gas Law Stoichiometry
- Unit 4 Assignment: Climate Change
- Unit 4 Test

Not available unless: The activity **Quiz 4.1 Kinetic Molecular Theory of Gases** is marked complete ... Show more

Unit 5: Kinetics

The majority of matter is constantly busy, reacting and changing, and this unit discusses how to measure and consider the rate of a reaction. The connection between concentration and reaction rate in terms of the Law of Mass Action and Rate Laws. The equilibrium constant (K) and how it can be calculated in various reversible reactions. Le Chatelier's Principle and how it predicts changes in concentration when "stressing" reactions at equilibrium.

This unit contains two hands-on laboratories. Each lab begins with a pre-lab preparation lesson to help you succeed. A quiz follows one Lab, while the other Lab requires you to write a complete formal lab report. Questions about both laboratories will be on the unit test and final exam. Complete **ALL** the work in Unit 5 before moving to Unit 6.

Note - You will not have access to your Unit 5 Test until your Unit 3 labs are graded.

Unit 5 Study Guide

This study guide will help you preview the concepts and guide your learning as each new skill or concept is introduced. Use this study guide as the foundation of your notes. You may use it on the unit quizzes, unit tests, and course final.

Click on the link above, and make a copy of the file; it will open in Google Docs. If you don't have access to Google Docs, copy the URL into a new browser window, remove "Copy" at the end of the URL, and replace it with "View". From the File Menu, select Download and choose a format you prefer.

- 5.1 Rates of Reaction
- Quiz 5.1 Rates of Reaction
- 5.2 Reaction Order
- Quiz 5.2 Reaction Order
- 5.3 Catalysts and Reaction Rate
- Quiz 5.3 Catalysts and Reaction Rate
- 5.4 Prelab: Rates of Reaction - Concentration
- Quiz 5.4 Prelab: Rates of Reaction - Concentration
- Unit 5 Lab Assignment - Rates of Reaction - Concentration
- 5.5 Equilibrium Constant
- Quiz 5.5 Equilibrium Constant
- 5.6 LeChatelier's Principle
- Quiz 5.6 LeChatelier's Principle
- 5.7 Prelab: Rate of Reaction - Temperature
- Quiz 5.7 Prelab: Rate of Reaction - Temperature
- 5.7 Hands-on Lab: Rate of Reaction - Temperature
- Quiz 5.7 Hands-on Lab: Rate of Reaction - Temperature
- Unit 5 Test

Not available unless: The activity **Quiz 5.1 Rates of Reaction** is marked complete ... Show more

Unit 6: Nuclear and Organic Chemistry

In this unit, we will learn about nuclear structure and stability, radioactive decay, and nuclear energy. We will focus on the biological effects of radiation as well as technology related to energy, medicine, geology, and other areas. Then, we will turn our focus to organic chemistry. You will examine why the element carbon results in such a variety of compounds, how those compounds are classified, and the role of organic compounds in biology and industry.

This unit contains one hands-on laboratory. **Note** - You will not have access to your Unit 6 Test until your Unit 4 Lab and Assignment are graded.

Unit 6 Study Guide

This study guide will help you preview the concepts and guide your learning as each new skill or concept is introduced. Use this study guide as the foundation of your notes. You may use it on the unit quizzes, unit tests, and course final.

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- 6.1 Introduction to Nuclear Chemistry
- Quiz 6.1 Introduction to Nuclear Chemistry
- 6.2 Radioactive Decay and Half-Life
- Quiz 6.2 Radioactive Decay and Half-Life
- 6.3 Uses of Radioisotopes and the Effects of Radiation
- Quiz 6.3 Uses of Radioisotopes and the Effects of Radiation
- 6.4 Introduction to Organic Chemistry
- Quiz 6.4 Introduction to Organic Chemistry
- 6.5 Organic Chemistry and Biology
- Quiz 6.5 Organic Chemistry and Biology
- 6.6 Organic Chemistry in Everyday Life
- Quiz 6.6 Organic Chemistry in Everyday Life
- 6.7 Careers in Chemistry
- Quiz 6.7 Careers in Chemistry
- Unit 6 Lab Assignment - Design Your Own ORGANIC Chemistry Experiment
- Unit 6 Test

Not available unless: The activity **Quiz 6.1 Introduction to Nuclear Chemistry** is marked complete ... Show more

Final Exam

You will have access to the final after you have been enrolled in the course for at least 30 days and when all unit tests are completed, and all your labs and assignments are graded.

Warning: You have only ONE attempt at the final. Are you ready to take the final? We highly recommend you take the practice final first, and if you are weak in any area, review the relevant course material again. You have unlimited attempts at the practice final; it will help you to prepare.

Remember, if you want to improve your grade in this course, you need to do that BEFORE you take the final exam.

Good Luck!!

Reattempt up to 2 Unit Tests

Review your grade book and decide if you want to reattempt up to two unit tests BEFORE you take the Final. Once you complete the Final, the course is over, and this option will no longer be available.

Not available unless: The activity **Unit 1 Test** is marked complete ... Show more

Practice Final

Important: Lab questions make up a significant portion of your final exam grade. Before taking the final, thoroughly review both your lab notes and course notes. Use this practice final to assess your preparation and identify any areas that need additional study.

Final Exam

Not available unless: The activity **Unit 1 Test** is marked complete ... Show more

Course Completion & Requesting a Transcript

Warning - If you are waiting for a resubmitted assignment to be graded, do NOT generate any course completion record until the teacher has graded it.

Transcript - Send a transcript to your school to report the credits you earned. A transcript will list all the courses you have taken with us, including those still in progress.

Course Certificate - This link cannot be accessed until you have completed the final. Upon satisfying this requirement, the link will become active.

Feedback - Before you go, we would appreciate your opinion on the course; please take 1 minute to complete the feedback form. We hope you enjoyed this course!

Course Feedback

Thank you for taking this course! Let us know what you think about it.

Request a Transcript

Notify your school that you have completed your course. Send them a transcript by email or mail. A transcript will list all the courses you have completed and those in progress.

Certificate of Completion

Not available unless: The activity **Final Exam** is marked complete