

## Course Syllabus

### Course Description

Chemistry B is designed to acquaint students with topics in chemistry, including states of matter, gases, solutions, chemical equilibrium, electrochemistry, acids and bases, nuclear chemistry, organic chemistry, and biochemistry. Class activities will include discussion, problem solving, online lab simulations and other interactive activities, lab reports, and an exploration project.

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### Learning Outcomes

At the completion of Chemistry B, the student will be able to:

- Develop and design scientific experiments and interpret experimental results.
  - Describe how models are developed and used in chemistry.
  - Use the Kinetic Molecular Theory to describe the motion of atoms and molecules.
  - Apply the gas laws to relations between the pressure, temperature, and volume of any amount of an ideal gas or any mixture of ideal gases.
  - Describe the properties of acids, bases, and salt solutions and factors that affect the solubility of different substances.
  - Describe energy transformations that occur during physical changes and chemical reactions.
  - Describe factors that affect reaction rates and chemical equilibrium.
  - Describe the structure of organic compounds.
  - Describe nuclear processes, including radioactive decay, nuclear fission, and nuclear fusion.
  - Discuss the historical development of major ideas and theories in chemistry.
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### Content Standards

Chemistry B is written to the content standards adopted by the California State Board of Education <http://www.cde.ca.gov/re/pn/fd/documents/sci-stnd.pdf> and the National Council of Teachers of Mathematics <http://www.nap.edu/readingroom/books/nses/html/>.

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### Required Text

Publisher: Holt Rinehart & Winston  
Title: Holt Chemistry  
Author(s): Myers and Thomas  
Year Published: 2004  
Student edition: ISBN 0030664624

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### Prerequisites

Biology

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### Course Methodology

- This is an inquiry-based course. Students will generate knowledge through online readings, synchronous chats, and asynchronous discussions with students and their instructor, interactions with online tutorials, online and hands-on simulations, and virtual classroom voice chats.
- A semester project developed by each student will be used to demonstrate

knowledge and understanding of the material in the course.

- The instructor will act as a guide, a facilitator, an events planner, and a resource advisor. He/she will always be available through e-mail.
- The student must actively construct and acquire knowledge by being intrinsically motivated to succeed. To succeed, students must participate and complete all readings and activities. This course requires the student's active participation.
- Both formal and informal assessment methods will be used in the course. Informal assessment will include an evaluation of the quality and timeliness of participation in class activities. Formal assessment may include multiple-choice quizzes, tests, discussion board participation, and written assignments. A final exam will be given at the end of the course.

Unit	Topics	Activities
1	States of Matter	Diagnostic Exam and ChemSpeak Lecture and Discussion - States of Matter Methods: Graphing Online Lab: Phase Diagrams Exploration: Description of Exploration Project Unit 1 Quiz and ChemSpeak
2	Gases	Lecture and Discussion - Gases Methods: Graphing Online Lab: Gas Laws Exploration: Project Planning I Unit 2 Quiz and ChemSpeak
3	Solutions	Lecture and Discussion - Solutions Methods: Graphing Online Lab: Conductivity or Colligative Properties Exploration: Project Planning II Unit 3 Quiz and ChemSpeak
4	Acids and Bases	Lecture and Discussion - Acids and Bases Methods: Graphing Online Lab: pH of Acids and Bases or Acid Base Titration Exploration: Project HotList Unit 4 Quiz and ChemSpeak
5	Reaction Rates, Equilibrium, and Electrochemistry	Lecture and Discussion - Reaction Rates, Equilibrium, and Electrochemistry Methods: Graphing Online Lab: Kinetics and Equilibrium Exploration: Project Background Essay

		Unit 5 Quiz and ChemSpeak
6	Nuclear Chemistry	Lecture and Discussion - Nuclear Chemistry Methods: Graphing Online Lab: Radioactive Decay Exploration: Project Results Analysis Unit 6 Quiz and ChemSpeak
7	Organic Chemistry	Lecture and Discussion - Organic Chemistry Methods: Graphing Online Lab: Isomer Construction Exploration: Project Reflection Unit 7 Quiz and ChemSpeak
8	Biological Chemistry	Lecture and Discussion - Biological Chemistry Methods: Graphing Unit 8 Quiz Exploration: Project Presentation Final Exam

### Assessment

Type of Assessment	Percentage of total grade
Quizzes	27%
Methods Assignments	13%
Discussion Board	13%
Online Lab Assignments	12%
Exploration Project	15%
Final Exam	20%

### Grading Scale

Letter Grade	Percentage Earned
A	90% - 100%
B	80% - 89%
C	70% - 79%
D	60% - 69%
F	59% and lower

### Student's Role and Responsibilities in this Course

Expectations:

Students are expected to conduct themselves in a responsible manner that reflects sound ethics, honor, and good citizenship. It is the student's responsibility to maintain academic honesty and integrity and to manifest their

commitment to the goals of NUVHS through their conduct and behavior. Students are expected to abide by all NUVHS policies and regulations. Any form of academic dishonesty, or inappropriate conduct by students or applicants may result in penalties ranging from warning to dismissal, as deemed appropriate by NUVHS.

Communication:

Throughout this course students will need to be in close contact with their instructor and fellow students. Students are expected to communicate via email and electronic discussion boards. Therefore, students should plan on checking email at least three times a unit and participate in the discussion boards during the units they are live.

Instructors strongly encourage and welcome open communication. Clear, consistent, and proactive communication will ensure a successful experience in this course. It is the student's responsibility to notify the instructor immediately if and when a personal situation occurs that affects his/her performance in this class. Being proactive with communication will result in a quick solution to any problems that may occur.

**Time Required  
For This  
Course**

Students should plan to allocate at least 12-15 hours a unit on assigned readings, assignments, discussions (asynchronous and synchronous), quizzes, and exams. It is highly recommended that students organize themselves around the course schedule.

NUVHS wishes every student great success in their online class. Please contact us at 1.866.366.8847 if any questions arise.

**NUVHS  
Expected  
Schoolwide  
Learning  
Results  
(ESLRs)**

**NUVHS Expected Schoolwide Learning Results (ESLRs):**

It is anticipated that NUVHS students will be:

**Engaged Learners**


1. Demonstrate self-directed learning skills such as time management, and personal responsibility through the completion of course requirements
2. Develop an understanding of their own preferred learning styles to enhance their overall academic potential
3. Incorporate effective and relevant internet and multimedia resources in their learning process to broaden their knowledge base

**Critical Thinkers**

1. Effectively analyze and articulate sound opinions on a variety of complex concepts
2. Illustrate a variety of problem-solving strategies that strengthen college preparation and workforce readiness
3. Formulate a framework for applying a variety of technology and internet-based research to enhance information literacy and collaborative thinking

**Effective Communicators**

1. Demonstrate awareness and sensitivity to tone and voice in multiple forms of communication

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2. Express concepts and ideas in a variety of forms
  3. Enhance communication skills through the use of media rich or other technology resources

**Global Citizens**

1. Appreciate the value of diversity
  2. Understand the range of local and international issues facing today's global community
  3. Demonstrate awareness of the importance of cultural sensitivity and social responsibility in the 21st century
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