

Chemistry A Course Syllabus

Course Description:

Chemistry A is designed to acquaint you with topics in chemistry, including the science of chemistry, matter and energy, atomic structure, the periodic table, ionic and covalent compounds, chemical composition, chemical equations and reactions, and stoichiometry. Class activities will include discussion, problem solving, online lab simulations and other interactive activities, lab reports, and an exploration project.

Learning Outcomes:

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

- Develop and design scientific experiments and interpret experimental results.
- Describe how models are developed and used in chemistry.
- Describe the subatomic structure of atoms,
- Use the periodic table to identify physical and chemical properties of representative elements.
- Describe the differences between physical and chemical changes and provide examples for each.
- Describe the three states of matter (gas, liquid, and solid) at atomic and visible levels.
- Explain the laws of definite proportions, multiple proportions, and conservation of mass.
- Identify products and reactants in a chemical reaction, balance chemical equations, and calculate the mass of products and reactants.
- Describe the formation of ionic, covalent, and metallic bonds.
- Discuss the historical development of major ideas and theories in chemistry.
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Content Standards:

Chemistry A 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/>.

Required Text:

Publisher: Holt Rinehart & Winston

Title: Holt Chemistry

Author(s): Myers and Thomas

Year Published: 2004

Student edition: ISBN 0030664624

Prerequisites:

Biology

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.

Course Outline:

Unit	Topics	Assignments/Activities
1	The Science of Chemistry	Diagnostic Exam The Lecture and Discussion - The Science of Chemistry Methods: Graphing, SI Units, Physical and Chemical Changes Online Lab: Techniques and Safety Exploration: Description of Exploration Project Unit 1 Quiz
2	Matter and Energy	Lecture and Discussion - Matter and Energy Methods: Graphing, SI Figures, Specific Heat Online Lab: Density of Metals Exploration : Project Planning Unit 2 Quiz
3	Atomic Structure	Lecture and Discussion - Atomic Structure Methods: Subatomic Particles, Electron Configuration, and Molar Mass Exploration: Project Planning Unit 3 Quiz

4	The Periodic Table	Lecture and Discussion - The Periodic Table Methods: Graphing Online Lab: Periodic Trends Exploration: Project Hotlist Unit 4 Quiz
5	Ionic and Covalent Compounds	Lecture and Discussion - Ionic and Covalent Compounds Methods: Graphing and Nomenclature Online Lab: Chemical Bonds Exploration: Project Essay Unit 5 Quiz
6	The Mole and Chemical Composition	Lecture and Discussion - The Mole and Chemical Composition Methods: Graphing and Mole Conversions Online Lab: Combustion Analysis Exploration: Project Results and Data Unit 6 Quiz
7	Chemical Equations and Reactions	Lecture and Discussion - Chemical Equations and Reactions Methods: Graphing and Balancing Equations Online Lab: Chemical Reactions of Metals in Solutions Exploration: Project Reflection Unit 7 Quiz
8	Stoichiometry	Lecture and Discussion -Stoichiometry Methods: Graphing and Stoichiometry Problems Online Lab: Stoichiometry Exploration: Project Reflection Unit 8 Quiz Final Exam

Assessment:

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

Grading Scale:

Letter Grade	Percentage Earned
A	95%+
A-	90% - 94.9%
B+	87% - 89.9%
B	84% - 86.9%
B-	80% - 83.9%
C+	77% - 79.9%
C	74% - 76.9%
C-	70% - 73.9%
D+	67% - 69.9%
D	64% - 66.9%
D -	60% - 63.9%
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.

Technical Support:

Tech Support is offered through Spectrum Pacific Learning Company (SPLC). Should a student need any technical assistance, he/she are to email the Help Desk as soon as possible at helpdesk@spectrum-pacific.com or call 1-877-533-4733. SPLC will help resolve technical problems and walk through the solution with students. If a problem persists for more than 48 hours, the student must also notify their teacher and NUVHS.

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 School-wide Learning Results (ESLRs)**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
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