



# Chemistry - Course Syllabus

2016-17

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**Textbook:** *Chemistry in the Community (ChemCom) Fourth Ed., American Chemical Society, W.H. Freeman, 2002.* The text will be supplemented by current articles & educational resources for teaching chemistry. The textbooks will primarily be used in class but students may check one out if they have missed class and need to catch up.

## Parent/Student Resources:

Synergy web address for parents to login:

<http://vue.district6.org/>

To track grade & attendance

## Course Overview:

Chemistry is the study of the composition, structure, and properties of matter and the changes it undergoes. (See "Schedule of Topics" below). Skills taught include measurement and units, observation, data presentation, scientific inquiry, laboratory techniques, drawing conclusions, and group work. Students will learn to read a variety of texts and receive instruction about writing using a scientific approach. The Chemistry curriculum is designed to provide students with the skills and knowledge to be successful in higher education and a variety of work places; from health care to auto mechanics to cosmetology.

In this course, we will explore a variety of everyday applications of chemistry with a particular focus on the environment and societal impacts.

## Content Covered/Course Learning Targets

*Students Will \_\_\_\_\_:*

### Unit 1 Water: Exploring Solutions

- Demonstrate competence and safety in the chemistry laboratory and learn measurement skills.
- Explore and analyze the interconnections between science, society and public policy.
- Classify samples of matter in terms of elements, compounds, and mixtures.
- Write the formula and name of ionic compounds.
- Recognize and distinguish the structure of atoms.
- Quantitatively describe and predict the effect of solution variables (concentration, solubility, etc.)
- Compare natural and municipal water purification.

### Unit 2 Water: Materials Structure and Uses

- Use the periodic table to predict properties of elements.
- Explain how an element's chemical and physical properties are associated with the number of and arrangement of electrons in its atoms.
- Distinguish between chemical and physical properties and between chemical and physical changes.
- State and apply the law of conservation of matter.
- Apply algebra to solve problems that relate to quantities, balance chemical equations, and analyze data.
- Define, identify and distinguish oxidation and reduction processes using chemical equations and electron dot structures.
- Illustrate how alloys and their constituent elements differ in their chemical and physical properties.

### Unit 3 Petroleum: Breaking and Making Bonds

- Define the chemical makeup of petroleum and how it is refined.
- Represent covalent bonding in selected hydrocarbons with electron-dot, structural, and molecular formulas.
- Explain endothermic and exothermic reactions in terms of total energy involved in bond breaking and bond making.
- Explain how molecular structure affects physical properties of a polymer.
- Describe and evaluate potential alternative sources of fuels and builder molecules.
- Engage in scientific inquiries and improve expository writing skill

### Unit 4 Air: Chemistry and the Atmosphere

- Explain the implications of the kinetic molecular theory.
- Describe the behavior of an ideal gas.
- Use the ideal gas law in problems involving gases.
- Describe the relation between electromagnetic radiation's energy, frequency, and wavelength.
- Explain how the greenhouse effect works.
- Describe how certain gases can contribute to acid rain.
- Describe personal and global strategies that may help reduce air pollution.

### Unit 5 Atoms: Nuclear Interactions

- Define and describe radioactivity, background radiation and ionizing radiation.
- Distinguish among alpha, beta, and gamma radiation and their effects on living tissue.
- Write, complete and balance nuclear transmutation equations.
- List and describe types of nuclear waste, including their sources.

### Grading

<b>60% of Grade (weighted) – “Mastery of Learning Targets”</b> as demonstrated by:	<b>40% of Grade (weighted)- “Application of Learning”</b> as demonstrated by:
<b>Unit Tests</b>	Labs / Performance Tasks
<b>Quizzes or check-ins;</b> <b>Essential assignments</b> are required tasks that show mastery. These assignments must be completed satisfactorily to receive a passing grade in the class.	Activities that show student’s ability to apply their new knowledge (Putting it all together assignments, Socratic seminars)
<b>Targeted Assignments*</b> : Graded assignments that help demonstrate student’s current level of understanding/ progress towards mastery of learning targets	

\*NOTE: Some assignments will NOT be graded, but are essential for mastery of learning targets. These assignments will be called “skills practice assignments”. Students **may not retake unit tests**, however essential assignments may be revised and quizzes may be retaken at least once.

A = 90% and above

B = 80%- 89%

C= 70%-79%

D= 60%-69%

F= 59% and below

## STUDENT'S RESPONSIBILITIES

Mastering the learning targets in Chemistry requires students to **actively think** about what they know and to relate that to new ideas to be learned. To be successful, students must:

1. Be **actively involved** in class, **ask questions, contribute** to discussions
2. **Complete or attempt all assignments and labs.** All assignments are designed to help you learn. They are not busy work.
3. **Ask for help and ask questions** of fellow students (when appropriate) and the teacher (when appropriate) when you are confused or don't understand.
4. **Do your homework on time** so that you are prepared for the next learning target.
5. **Prepare in advance** for tests and quizzes and group learning activities like Socratic Seminars. Review notes, re-read material and study guides completed in class, find someone that you can verbally explain concepts to ahead of the test (if you can explain it well to someone, you know it).
6. **Do not distract** self and/or others students from the opportunity to learn.
7. **Follow the guidelines** set by the school and the district student behavior code. Come to class **on time and prepared** with materials
8. **In group-work, use the 95 / 5 rule...** (95% chemistry / 5% social, only after the biology is done!)
9. Remember that **cell phones** and other electronic devices **should be OFF & out of sight** unless explicitly teacher approved for a given activity & then it must only be used in the manner approved. If such devices are out or disrupt class by ringing, a cell phone referral will be issued as per CAHPS discipline policy.
10. **Be safe** and follow all lab safety rules at all times
11. **Be respectful** to the teacher, fellow classmates, and any guests to our classroom (guest speakers, substitute teachers, student teachers, etc.)

### Additional Required Materials

- graph-ruled composition book, or spiral college-ruled notebook for your Chemistry Journal
- ½- inch binder; or space in a larger binder for handouts and lab reports
- calculator (Scientific preferred but not required).

**Attendance** (Follow school & District policies):

Attendance and participation are **vital to your success** in Chemistry. We will be doing a lot of lab activities which are difficult to make up. Labs and other learning activities are most valuable when done in class with the teacher and other students to enhance learning. Without good attendance and active learning, acquiring the knowledge and skills of high school biology is nearly impossible. If you do miss a lab, **you must make arrangements with your teacher to come in to make-up the lab within a timely manner.** Many chemistry labs have consumable supplies that are only available for a short period of time.

## PARENTS

**If you need to contact your student for an emergency** or other reason during the school day, outside of our lunch period; PLEASE call the school phone number (541) 494-5260 and your student will be contacted. Please **do not** call or text your student's cell number during class because it causes disruption to your and other students learning.

**The simplest way to reach me** is by email (*mike.rooney@district 6.org*); times that I am most available for parents are before school between 8:00 -8:50 AM, and during my second period prep. I can usually respond to your email within 3 working days. For student help outside of class, I am available for help most days before school (8:00-8:45 AM) After school my office hours are Monday and Wednesday from 3:45 to 4:30 PM. Specific conference hours will be posted outside Room 204.

## CHEMISTRY SYLLABUS ACKNOWLEDGEMENT FORM (Rooney)

**Note:** Please read this syllabus carefully and sign it, have your parents/guardians read it and sign it, and return this portion to me by \_\_\_\_\_. Be sure to place the rest of this document into your binder for Chemistry.

I have read and understand the course expectations and policies:

\_\_\_\_\_

\_\_\_\_\_

*Print Student Name (Please print neatly)*

*Student Signature*

You, your daughter/son, and I are partners in your students' education. You can help him/her succeed by checking with them as often as possible about their progress and looking with them at their assignment completion and/or needs. Please also plan on attending parent/student teacher conferences Nov. 23<sup>th</sup> & 24<sup>th</sup>. Contact me any time with questions or concerns.

\_\_\_\_\_

\_\_\_\_\_

*Parent/Guardian Signature*

*Parent/Guardian Email – please print neatly*

Best Phone Number(s) to reach you

First preference: \_\_\_\_\_

Second option (if available): \_\_\_\_\_

It is often easiest to call during the day. Is it okay to call you at work if there is something I would like or need to talk to you about your student?

Yes

No

If yes, work number: \_\_\_\_\_