Cocke County High School

Chemistry
2025-2026 Syllabus

Part 1: Course Information

Instructor Information

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Course Description

Chemistry is an inquiry based course that examines matter and the changes it undergoes. Experiments and activities are used to introduce concepts including the structure of atoms and chemical compounds, the relationships among the elements on the periodic table, chemical and physical transformations, and the measurement and calculations of chemical quantities. Students who complete this course will develop an understanding of interconnections among the sciences, technology, society, and the environment.

Textbook & Course Materials

Required Text

HMH Modern Chemistry

Chemistry: The Study of the Composition of Matter and the Changes that it Undergoes

Required Course Materials

- 3 Ring Binder
- Pencil
- Calculator

Suggested Course Materials
- Colored Pencils
- Markers/Highlighters

Course Structure

The material will be presented in various formats, ranging from lecture, discussion, experimentation and exploration, and the use of technology. Also, students will at times be expected to work in groups on projects and assignments, do some independent study outside the classroom, and other types of learning models.

Part 2: Student Learning Outcomes

A. Matter properties and change

Chm.1.1 Analyze the structure of atoms and ions.

1.1.1 Analyze the structure of atoms, isotopes, and ions.

1.1.2 Analyze an atom in terms of the location of electrons.

1.1.3 Explain the emission of electromagnetic radiation in spectral form in terms of the Bohr model.

1.1.4 Explain the process of radioactive decay by the use of nuclear equations and half-life.

Chm.1.2 Understand the bonding that occurs in simple compounds in terms of bond

type, strength, and properties.

1.2.1 Compare (qualitatively) the relative strengths of ionic, covalent, and metallic bonds.
1.2.2 Infer the type of bond and chemical formula formed between atoms.
1.2.3 Compare inter- and intra- particle forces.
1.2.4 Interpret the name and formula of compounds using IUPAC convention.
1.2.5 Compare the properties of ionic, covalent, metallic, and network compounds.

Chm.1.3 Understand the physical and chemical properties of atoms based on their position in the Periodic Table.

1.3.1 Classify the components of a periodic table (period, group, metal, metalloid, nonmetal, transition).
1.3.2 Infer the physical properties (atomic radius, metallic and nonmetallic characteristics) of an element based on its position on the Periodic Table.
1.3.3 Infer the atomic size, reactivity, electronegativity, and ionization energy of an element from its position in the Periodic Table.

B. Energy: Conservation and Transfer

Chm.2.1 Understand the relationship among pressure, temperature, volume, and phase.

2.1.1 Explain the energetic nature of phase changes.
2.1.2 Explain heating and cooling curves (heat of fusion, heat of vaporization, heat, melting point, and boiling point).
2.1.3 Interpret the data presented in phase diagrams.
2.1.4 Infer simple calorimetric calculations based on the concepts of heat lost equals heat gained and specific heat.
2.1.5 Explain the relationships between pressure, temperature, volume, and quantity of gas both qualitative and quantitative.

Chm.2.2 Analyze chemical reactions in terms of quantities, product formation, and energy.

2.2.1 Explain the energy content of a chemical reaction.
2.2.2 Analyze the evidence of chemical change.
2.2.3 Analyze the law of conservation of matter and how it applies to various types of chemical equations (synthesis, decomposition, single replacement, double replacement, and combustion).
2.2.4 Analyze the stoichiometric relationships inherent in a chemical reaction.
2.2.5 Analyze quantitatively the composition of a substance (empirical formula, molecular formula, percent composition, and hydrates).

C. Interactions of Energy and Matter

Chm.3.1 Understand the factors affecting rate of reaction and chemical equilibrium.

3.1.1 Explain the factors that affect the rate of a reaction (temperature, concentration, particle size, and presence of a catalyst).
3.1.2 Explain the conditions of a system at equilibrium.
3.1.3 Infer the shift in equilibrium when a stress is applied to a chemical system (Le Chatelier's Principle).

Chm.3.2 Understand solutions and the solution process.

3.2.1 Classify substances using the hydronium and hydroxide ion
3.2.2 Summarize the properties of acids and bases.
3.2.3 Infer the quantitative nature of a solution (molarity, dilution, and titration with a 1:1 molar ratio).
3.2.4 Summarize the properties of solutions.
3.2.5 Interpret solubility diagrams.
3.2.6 Explain the solution process

You will meet the objectives listed above through a combination of the following activities in this course: daily assignments, notebook checks, quizzes, tests, labs, and projects.

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Part 3: Topic Outline/Schedule

Course Topics in Order:
1. Matter
2. Atomic Structure
3. Electrons
4. Periodic Table
5. Bonding
6. Nomenclature & Formulas
7. Chemical Reactions
8. The Mole/Stoichiometry
9. States of Matter
10. Gases
11. Solutions (Acids/Bases)
12. Thermochemistry
13. Reaction Rates/Equillibrium
14. Nuclear Chemistry

Unit 1: (2 Weeks)
Matter
Atomic Structure
Electrons

Unit 2: (3 Weeks)
Periodic table
Bonding
Nomenclature & Formulas

Unit 3: (3 Weeks)
Chemical Reactions
The Mole/Stoichiometry

Midterm Exam: Units 1-3

Unit 4: (2 Weeks)
States of Matter
Gases

Unit 5: (3 Weeks)
Solutions (Acids/Bases)
Thermochemistry

Unit 6: (3 Weeks)
Reaction Rates/Equilibrium
Nuclear Chemistry

Remainder of Units are included in Text Book

Final Exam: Units 1-6

Part 4: Grading Policy

Late Work Policy

Be sure to pay close attention to deadlines—there will be no make up assignments or quizzes, or late work accepted without instructor approval. If a student is absent they will have 3 days to complete any missing assignments, with 10 points deducted per day. Failure to turn in assignments after 3 days will result in a zero.

Viewing Grades in ASPEN (optional)

Points you receive for graded activities will be posted to the ASPEN Grade Book. Click on the My Grades link on the left navigation to view your points.

Your instructor will update the online grades each time a grading session has been complete—typically 3 days following the completion of an activity. You will see a visual indication of new grades posted on your ASPEN home page under the link to this course.

Letter Grade Assignment **Final grades assigned for this course will be based on the percentage of total points earned and are assigned as follows:**

Letter Grade	Percentage	Performance
A	90-100%	Excellent Work
B	80-89%	Very Good Work
C	70-79%	Above Average Work
D	60-69%	Below Average Work
F	0-59%	Failing Work

Part 5: Course Policies

Attend Class

Students are expected to attend all class sessions as listed on the course calendar. Class participation is expected and part of your grade. You can NOT receive participation is you are absent.

Participate

I will keep track of your attendance, tardies, and leave earlies. If you are tardy, leave early, sleep, cell phone out, out of dress code, or refuse to complete class work disciplinary action will take place.

Build Rapport

If you find that you have any trouble keeping up with assignments or other aspects of the course, make sure you let your instructor know as early as possible. As you will find, building rapport and effective relationships are key to becoming an effective professional. Make sure that you are proactive in informing your instructor when difficulties arise during the semester

so that they can help you find a solution.

Complete Assignments

Assignments must be submitted by the given deadline. Extensions will not be given beyond the next assignment except under extreme circumstances.

Homework will be a central part of this course. All assignments will be due and turned in upon entering the room. It must be turned into the box by the time the tardy bell would ring, or it will automatically lose 10 points.

If you are absent the day an assignment is due, you MUST turn in the assignment the day you return to school. If you miss a test, you have 3 school days to make the test up and it must be taken before or after school.

If you know you are going to be gone you will need to get your work before your absence. This includes school events. If you know you have a deadline for an assignment the day you will be gone for a school activity, the assignment is still due that day. For absences in which you did not expect to be gone, you will need to request all make up work on the day you return. It is your responsibility to request all make up work.

Incomplete Policy

All incomplete or late course assignments must be completed within 3 school days.

Food Policy

No eating will be permitted in the classroom. Students may have a bottle of water if the lid can be closed. All other beverages will be thrown away.

Academic Dishonesty Policy

1. Academic dishonesty includes such things as cheating, inventing false information or citations, plagiarism and helping someone else commit an act of academic dishonesty. It usually involves an attempt by a student to show possession of a level of knowledge or skill that he/she does not possess.
2. Instructors who are convinced by the evidence that a student is guilty of academic dishonesty shall assign an appropriate academic penalty. If the instructors believe that the academic dishonesty reflects on the student's academic performance or the academic integrity in a course, the student's grade should be adversely affected. Suggested guidelines for appropriate actions are: an oral reprimand in cases where there is reasonable doubt that the student knew his/her action constituted academic dishonesty; a failing grade on the particular paper, project or examination where the act of dishonesty was unpremeditated, or where there were significant mitigating circumstances; a failing grade in the course where the dishonesty was premeditated or planned. The instructors will file incident reports with the Vice Presidents for Academic Affairs and for Student Affairs or their designees. These reports shall include a description of the alleged incident of academic dishonesty, any relevant documentation, and any recommendations for action that he/she deems appropriate.

Academic Dishonesty Policy Disciplinary Actions

Such behavior will result in a grade of zero and possible office referral.

Important Note: Any form of academic dishonesty, including cheating and plagiarism, will be reported to the office. Course policies are subject to change. It is the student’s responsibility to check for corrections or updates to the syllabus. Any changes will be posted in the classroom.