

Chemistry Syllabus 2024-25
Knob Noster High School/UCM Dual Credit
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Chemistry is the study of the structure and properties of matter and the changes it undergoes. This is a rigorous course, and it is suggested that students be enrolled in or have completed Algebra I. There is a very strong correlation between student's ability to do well in Algebra and their performance in Chemistry. Mathematics is the foundation of all the physical sciences, including Chemistry.

Chemistry is a 2-semester class weighted at 1.33; therefore, you must be willing to work inside and outside of class.

Dual Credit Opportunity: This course has the potential for up to four (4) hours of college credit from the University of Central Missouri (UCM) upon completion. CHEM 1104 Introduction to the Sciences – Chemistry (Spring Semester). Sophomore students must have at least a 3.0 GPA and will need a signed letter of recommendation from the Principal AND Counselor. No minimum ACT score is required. The areas we will cover this year include:

First Semester

Unit 1 – Introduction to Chemistry

- Dimensional Analysis
- Scientific Notation
- Basic terms
- Lab Safety
- Significant Figures
- Chemical & Physical Properties

Unit 2 – Components of Matter

- Laws of Matter
- Discovery of Atom
- Using the Periodic Table
- Mass Spectrometry
- Coulomb's Law
- Naming Ionic Compounds
- Naming Binary Covalent Compounds

Unit Unit 3 – Stoichiometry

- Balancing Chemical Equations
- Types of Chemical Reactions
- The Mole and Molar Mass
- Converting to/from Moles
- Empirical Formulas
- Mole to Mole Ratios
- Limiting Reactants
- Percent Yield

Unit 4 – Introduction to Solutions

- Solution Vocabulary
- Concentration
- Solution Stoichiometry
- Making Solutions
- Beer's Law
- Behavior of compounds in water
- Intro to solubility
- Phase Diagrams
- Colligative Properties
- Writing Net Ionic Equations

Second Semester

Unit 5- Major Classes of Reactions

- Writing Precipitation Reactions (Net-ionic)
- Solubility Rules
- Acid-Bases Intro., pH, pOH
- Writing Acid-Base Reactions (Net-ionic)
- Acid-Base Titrations
- Oxidation Numbers
- Writing half-reactions
- Balancing Redox Reactions

Unit 6 – Gases

- Units of Pressure
- Manometers
- Boyle's, Charles's, Gay-Lussac's, Avogadro's, Combined Gas Laws
- Ideal Gas Law
- Gas Laws w/ Stoichiometry
- Dalton's Law of Partial Pressures
- Vapor Pressure
- Kinetic Molecular Theory
- Root Mean Square Speed and Graham's Law
- Deviations from Ideal Behavior

Unit 7 – Quantum Theory, Electron Configuration & Periodicity

- Electromagnetic Spectrum
- Calculating frequency, wavelength, energy, etc
- Quantum Theory
- Quantum Numbers
- Electron Configurations & Orbital Diagrams
- Effective Nuclear Charge & Shielding
- Periodic Trends
- Photoelectron Spectroscopy
- Periodic Properties

Unit 8 – Bonding & Molecular Geometry

- Drawing Lewis Structures
- Formal Charge
- Bond Energy, Length, and Strength
- Resonance
- VSEPR Theory & Molecular Shapes
- Bond vs Molecular Polarity

COMMUNICATION

All communications, email, discussions, etc., must remain professional, respectful, grammatically correct, and practice good online etiquette.

GRADING:

Your grade for each quarter will be determined by weighted calculations. Homework – 10%, Classwork - 10%, Exams – 40%, Quizzes – 20%, Labs - 10%, Final – 10%. Your grade will be recorded in the student information system, and you are expected to keep track of your assignments and grades. If late work is accepted, it will be put into the grade book at the instructor's convenience. To earn credit for accepted late work, you must give back some of your own time after school to check for understanding. The instructor reserves the right to assign academic detentions for late or missing work. The following scale will be used to report your grade:

A	95-100	C	73-76
A-	90-94	C-	70-72
B+	87-89	D+	67-69
B	83-86	D	63-66
B-	80-82	D-	60-63
C+	77-79	F	< 60

ASSIGNMENTS:

Assignments are to be completed in class, unless otherwise assigned as homework by due time and due date. I reserve the right to change assignment values. If there is more than one page, they must be stapled together. Assignments will have a proper MLA heading upon submission. All work shall be legible and stapled together neatly. Assignments must have the following in the top right corner of the paper:

First and Last Name

Date

Period

Page and/or problem numbers

LATE WORK

- In the case of excused absences, school policy will be followed for timely acceptance of absent work.
- All late video assignments require an after school attendance to check notes, and evaluate understanding in order to receive credit for the missing assignment.
- No name or illegible name on assignment is considered late work.
- In all cases, late work, if accepted, will be entered into the grade book at the end of the grading period or at the instructor's first opportunity.

ANSWERS:

Answers on homework, quizzes, tests, labs, etc. must be thorough and completely answer the question before credit will be given – this normally consists of a number, a unit, and the species. Numerical answers must always contain the correct significant figures unless indicated otherwise by the instructor. All work is expected to be shown on all assignments.

TESTS:

Tests will be thorough and if you wait until the end of the unit to begin studying, you will not accomplish all you are capable of doing. I will usually give you approximately 1 week's notice before a test and we will often have an after-school review session before the test. Tests are not graded on a "curve" to the highest score. You will be allowed to use your calculator on most tests, but you may not share calculators with a neighbor! A Final Exam exemption is possible according to policy if class grade calculates to an A.

TEST RETAKES

- You are allowed a test retake under the following conditions:
 - All assignments must be complete before retake is allowed.
 - Retake must be taken within 1 week of grade posting or at a date determined by the instructor.
 - Final recorded score will be the average of the initial test score and the retake score (unless retake score is lower - your initial score will remain).
 - It is preferred to have students retake tests after school as more time is allowed to complete the test.

QUIZES:

Quizzes may be from 5 to 30 points and may be announced OR unannounced.

LABS:

Labs are designed to provide you with an opportunity to apply what you have learned in class. You are required to follow laboratory rules at all times. Failure to do so may result in the loss of lab privileges. You will be held financially responsible for any lab equipment assigned to you. Lab work is usually completed in pairs. Lab cabinet assessments will be made at least twice a month. These assessments will be a part of your grade.

ACADEMIC INTEGRITY

Academic Integrity WILL BE ENFORCED. Cheating, plagiarism, and other acts of academic dishonesty are held as serious offenses. Penalties will result in loss of points and office referral.

ATTENDANCE:

You will make arrangements for missed work according to the school policy. You are responsible for work that you have missed. Make-up work will be assessed at the end of each quarter and may be excused from the quarter point total. Students are encouraged to come to after-school tutoring and/or Panther Hour to receive any missed work - do NOT expect Mrs. Forest to take time away from guided instruction to get you caught up.

When you return from an absence you should:

1. Check Google Classroom for missed work.
2. Ask someone in class for notes you might have missed.
3. Outside of class time, obtain the materials from the absentee folder just inside the doorway. It could be labeled with your name on the assignment.
4. Make arrangements to make up quizzes, tests or labs with me outside of class.
5. Give completed make-up work to me before the due date.

OUTSIDE HELP:

If you need extra help, I will be available during Panther Period and after school on Monday, Tuesday, and Friday.

WEBSITES:

Independent practice and other resources can be found at my website:

ForestChemistry.Weebly.com – The website is arranged to follow the sequence of the course. At this website, you will find extra videos, games, practice, pictures, simulations, and all course material. Since this is a flipped class, I also assign videos through the EdPuzzle Website. You will be invited or given a code through Google Classroom to obtain these assignments. All regularly assigned videos will be due by 8:00 AM.

BOOK:

Notes for each unit are found on my Weebly website – ForestChemistry.Weebly.com and will be considered our “textbook” in this class. The Notes are to be downloaded before each unit begins and studied on your own. We seldom use PowerPoint notes in class. Students are responsible for the content in the notes and are encouraged to add them to class and video written notes.

BRING TO CLASS:

In order to be successful, you must be prepared. Come to class ready to learn and try to do your best. Remember, to be successful, **Chem is try!** Bring the following to class everyday: Writing utensil, paper, notebook containing all notes, scientific calculator, (TI-30XS Multi-View recommended), laptop, ear buds or headphones, completed homework and a good attitude. This class requires a scientific calculator. Graphing calculators are permitted (TI-84 Plus CE recommended). If you cannot afford a calculator, please see me. Please use only blue or black pen or a pencil.

ELECTRONIC DEVICES:

All student electronic devices are strictly forbidden. Cell phones are to be turned off and left in the locker or backpack. No cell phones, iPads, iPods, earbuds, etc, will be allowed in class at any time without instructor permission. School-issued laptop computers are to be used only during specific times at the direction of the instructor.

CLASSROOM BEHAVIOR EXPECTATIONS:

Mrs. Forest's classroom behavior policy is simple: Follow the rules and be respectful of others.

- All students are to be IN their assigned seats and quietly working PRIOR to the beginning of the tardy bell ringing or they will be given a tardy.
- All students are to have all course materials with them daily.
- Students are NOT to touch any supplies or equipment in the room unless they are asked to do so by the teacher, and the lab is off limits until given permission to enter.
- Assignments are due on the date given in class. Late assignments are only accepted if made up after school so the instructor can check for understanding.
- Cheating on any assignment will result in a "0" for the assignment involved. This includes the person who may provide his/her assignment for cheating.
- Physical abuse of classroom furniture will result in referral to the principal.
- Verbal and nonverbal obscenities/swearing will result in referral to the principal.
- Students are expected to behave courteously to classmates and teachers, keep your feet and hands to yourself and do not touch others belongings/desk, etc.
- During laboratory activities students will follow safety guidelines and general classroom rules. Failure to do so may result in removal from the lab setting and a score of zero for the lab. It may also result in a total loss of lab privileges.
- If you need to leave the classroom, you must have permission and follow pass procedure referenced later in this document.
- Students must use the time between classes to use the restroom and get water.
- Please ask before adjusting windows, blinds, etc.
- Students are expected to remain seated until the bell sounds and to wait for the dismissal by the teacher, NOT the bell.

DISCIPLINARY ACTION:

In the event that a student is unable to abide by the classroom behavior expectations, disciplinary actions are as follows:

- 1st - Name on Board
- 2nd - Contact Parents & Classroom Detention
- 3rd - Office Referral

HALL PASSES

- Please wait until AFTER guided instruction to ask to use the restroom so as to not disrupt your classmates' learning.
- First, ask the instructor for permission to leave the room. If given permission, you MUST sign in & out on your computer using the Hall Pass Form in Google Classroom. Leave your cell phone in the hall pass box, take a hall pass which you will replace when you return. Upon return, sign back in using the Google Form.
- Please use your time wisely between classes.

DISCLAIMER:

Information posted within this syllabus may be subject to change, as deemed necessary by your instructor. In the event of any necessary changes, students will be notified as soon as possible.