VAMPY Chemistry Syllabus

Welcome to Chemistry! I am Jennifer Davis and I wear many hats in my profession. With over 22 years of teaching experience, I've taught everything from Integrated Science to Chemistry to Robotics. I graduated from Western Kentucky University with a Bachelor of Science in Chemistry and Psychology. I returned to the hill to earn my Master's in Chemistry Education. In 2022, I earned my Rank 1 in STEM Teaching Leadership from the NASA Endeavor STEM Teaching Program.

My classroom is a place where knowledge and curiosity thrive, and I strive to ignite my students' fascination with the world of science. As the science department head, I take pride in fostering innovation and collaboration, driving our department to reach new heights of excellence.

Beyond the classroom, I'm a passionate advocate for STEAM education. I work to champion the importance of science, technology, engineering, art, and mathematics, inspiring young minds through the BC STEAM bus at community events and local schools. I also pour my creativity into the school's yearbook, capturing precious memories for generations to come. On the trail, I coach cross country, teaching my athletes discipline, perseverance, and the importance of never giving up.

COURSE OVERVIEW:

In this course, you will learn about the composition of substances and their effects on one another. You will find this course challenging and enlightening. As we work through the material it is important that you view Chemistry as being more than atoms, molecules, and reactions. You will be asked to solve many problems, think creatively, and work both independently and as a team. In addition to learning about the nuts and bolts of chemistry, we must also concern ourselves with environmental and social issues. Chemistry does not happen just in the laboratory, it is taking place all around us at all times.

CHEMISTRY OBSERVATION NOTEBOOK:

This ongoing assignment serves as a personal log of chemical observations and experiments. Students will record the date, time, location, and detailed descriptions of each observation or experiment. Certain entries will be required, such as in-class demonstrations and experiments, while others will involve independent exploration of chemistry in daily life (e.g., observing chemical reactions in cooking or weather phenomena).

PROJECTS AND LABS:

Students will engage in a variety of hands-on and research-oriented chemistry activities. These may include laboratory experiments, model building (e.g., molecular structures), detailed reports, computerized chemical simulations, and internet-based research. Projects will challenge students to apply chemistry concepts to real-world scenarios and creative problem-solving tasks.

DAILY PARTICIPATION:

Active participation is essential and will be graded weekly. Participation includes taking notes during lectures, contributing to class discussions, solving practice problems, engaging in group work, and completing lab exercises. Students are expected to approach every activity with curiosity, collaboration, and a commitment to learning.

TEXT:

Kean, Sam. The Disappearing Spoon: And Other True Tales of Madness, Love, and the History of the World from the Periodic Table of the Elements. Little, Brown and Company, 2010.

Hager, Thomas. The Demon Under the Microscope: From Battlefield Hospitals to Nazi Labs, One Doctor's Heroic Search for the World's First Miracle Drug. Harmony Books, 2006.

OpenStax *Chemistry: Atoms First 2e*. OpenStax, 2019, https://openstax.org/details/books/chemistry-atoms-first-2e?Student%20resources

OpenStax *Organic Chemistry*. OpenStax, 2023, https://openstax.org/details/books/organic-chemistry?Student%20resources

COURSE CONCEPTS:

- Experimental vs Engineering design
- Atomic theory
- Nomenclature
- Stoichiometry
- Gas laws
- Solutions
- Acids and bases
- Nuclear chemistry
- Introduction to inorganic and organic chemistry, and more.

Beyond traditional lectures and lab experiments, this course brings chemistry to life through hands-on engineering challenges, real-world phenomena, and a thrilling chemistry magic show for the community. Students will investigate how chemistry shapes the world around us, solve creative problems, and develop critical thinking skills in a fun and engaging environment. Bring your scientific calculator—and get ready to experiment, innovate, and inspire!