



***Department of Teaching & Learning***  
***Parent/Student Course Information***

***Chemistry***

***(SC 4410)***

***Online (SCO 410)***

***One credit, one year***

***Grades 10-12***

*Counselors are available to assist parents and students with course selections and career planning. Parents may arrange to meet with the counselor by calling the school's guidance department.*

**COURSE DESCRIPTION**

Chemistry is the study of the structure, composition, properties and reactions of matter. Laboratory investigations are the primary means for developing problem-solving skills and for developing the major concepts and principles of chemistry. Chemistry provides students with a solid foundation for future study and with an understanding and appreciation for the nature of chemistry, the work of chemists and the interactions of science, technology and society. Students will take the Standards of Learning (SOL) test for Chemistry. Specific dates for the SOL test will be announced by the school.

**COURSE GOALS**

- Develop a foundation of chemical concepts and principles for understanding the structure and properties of matter and for understanding the interrelationships among the basic concepts of modern chemistry
- Develop investigative skills in order to solve real problems
- Apply the processes of rational thought to make responsible decisions about issues resulting from the interactions of science, technology and society
- Explore the application of chemical principles in modern life, in careers and in other areas of interest

**PREREQUISITE**

Algebra II (may be taken concurrently)

**OPTIONS FOR NEXT COURSE**

Physics (Algebra II prerequisite or co-requisite)

Advanced Placement Environmental Science (Biology and Chemistry prerequisites)

Advanced Placement Biology (Biology and Chemistry prerequisites)

Advanced Placement Chemistry (Chemistry prerequisite)

Advanced Placement Physics 1 (Algebra II/Trigonometry prerequisite)

Advanced Placement Physics C: Mechanics (Algebra II/Trigonometry and Calculus prerequisite)

Oceanography (Earth Science prerequisite)

Astronomy (Earth Science prerequisite)

**REQUIRED TEXTBOOK**

*Modern Chemistry*, Davis, Frey, Sarquis, Holt (2009)

**MINIMUM REQUIREMENTS**

- Demonstrate knowledge and understanding of all core objectives through laboratory investigations, issue investigations, oral and written quizzes, tests and reports
- Participate in the core laboratory experiences and adhere to all safety procedures
- Prepare written reports for core laboratory experiences
- Investigate and report on a topic in biochemistry, nuclear chemistry, organic chemistry or environmental chemistry
- Read and share current literature on relevant topics

**The Knowledge, Skills and Attitudes that Comprise the Chemistry Course are Summarized as Follows From the Prescribed Curriculum:**

- SOL CH.1: Investigate and understand that experiments in which variables are measured, analyzed and evaluated produce observations and verifiable data.
- SOL CH.2: Investigate and understand that the placement of elements on the periodic table is a function of their atomic structure.
- SOL CH.3: Investigate and understand how conservation of energy and matter is expressed in chemical formulas and balanced equations.
- SOL CH.4: Investigate and understand that chemical quantities are based on molar relationships.
- SOL CH.5: Investigate and understand that the phases of matter are explained by kinetic theory and forces of attraction between particles.
- SOL CH.6: Investigate and understand how basic chemical properties relate to organic chemistry and biochemistry.

**CORE AREAS FOR LABORATORY SKILLS AND EXPERIENCES**

- Safety
- Laboratory techniques
- Use of instrumentation
- Measurement
- Chemical and physical changes
- Periodicity
- Types of chemical changes
- Use of solubility tables
- Determination of an empirical formula
- Percent composition
- Law of Conservation of Mass
- Mole relationships
- Models for shapes of molecules
- Energy requirements for phase changes
- Mole-volume relationships
- Properties of solutions
- Heat of reaction
- Chemical equilibrium
- Properties of acids, bases and salts
- Acid-base titration

Dr. Aaron C. Spence, Superintendent  
Virginia Beach City Public Schools  
2512 George Mason Drive, Virginia Beach, VA 23456-0038

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For further information please call (757) 263-1070.

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