

SCIENCE

Much of the technological progress made by the peoples of the world, particularly in the United States, has been due to the ability of these peoples to understand and apply the ideas which we call science.

Because trades, industries, agriculture, and other occupational pursuits have been drastically altered by applied science the past few years, we wonder about the future. We can see no reason for any less change in the future. The key to this future seems to be knowledge of science.

Graduation requirement:

Class of 2010	4 credits (2 years) of Science
Class of 2011 and beyond	6 credits (3 years) of Science

Integrated Science – Grade 9

Full Year Requirement

The study of Integrated Science is a combination of life, physical, and earth science. Students will have the opportunity to understand the science of heredity, and explore the inside of the earth. Students will determine the factors that affect our weather and climate and will begin to explore the resources of environmental science.

Introduction to Biology – Grade 10

Full Year Elective

Prerequisite: Integrated Science and Instructor Recommendation

Introduction to Biology is a survey class that covers many biological topics. Students will be introduced to such areas as: the scientific method, cell organization and processes, genetics, relationships among organisms, characteristics of organisms (viruses, bacteria, protists, invertebrates, and vertebrates), and the structures and functions of the systems of the human body. This class is geared toward students who are not interested in taking the General Biology classes that are offered by Storm Lake High School or those who feel they are not ready to enter those classes.

General Biology - Grades 10-11-12

Prerequisite: Integrated Science

Full Year

This is a study of the living condition; the microscope - parts and uses and types; the cell theory and cell structure and plants and animals; the cell and its environment - diffusion and osmosis; cell physiology-cell respiration; biochemistry of organic molecules-atoms-molecules-ions; enzymes and how they function and levels of biological organization.

AP Biology – Grade 12 1 Year

*Prerequisite: Biology and Chemistry- Minimum grade of B
Juniors may take with special permission from instructor.*

Biology is designed to be the equivalent to an introductory college biology course taken by biology majors during their first year of college. AP Biology differs significantly from introductory biology with respect to the textbook, range and depth of topics, kinds of laboratory work, and time and effort expended. Student must be able to apply critical thinking skills to environmental and biosocial concerns. The class will be structured for taking the AP exam in May.

Zoology – Grades 11-12

Prerequisite: General Biology Semester Elective

This course in biology will survey the animal kingdom, which includes animals that lack a backbone. The study includes sponges and coelenterates, worms, mollusks, and echinoderms, and the arthropods. Emphasis is placed on characteristics of each phyla, example, and economic importance to humans. Lab dissection of representative animals, such as ascaris, earthworms, clams, starfish, crayfish, and grasshopper is used to help examine invertebrate characteristics. Vertebrate zoology introduces the most advanced of all animals - those with backbones. Characteristics of the chordates and vertebrates will be examined to show the lines of development. The following classes of vertebrates are studied - three classes of fish, amphibians, reptiles, birds, and mammals. Emphasis is placed on characteristics of each class, representative examples, and their importance.

Human Anatomy – Grades 11-12

Prerequisite: General Biology Semester Elective

Knowing how our bodies function and what we can do to improve our overall wellness is important for leading long and healthy lives. It is through an understanding of the form, function, and importance of each part that we strengthen our minds as well as our bodies. Topics discussed include: body organization, anatomical terminology, tissues, body systems (skeletal, muscular, nervous, endocrine, digestive, respiratory, cardiovascular, lymphatic, urinary, and reproductive), and careers in allied health.

Applied Chemistry - Grades 11-12

Prerequisite: Instructor Approval Full Year Elective

This course is for the student interested in science but not planning to attend a four year college. Topics will include measurement, states of matter, observing and hypothesizing chemical reactions, and more. However, these topics will be related to how the student uses chemistry at home. Approximately 1/5 of the course will be spent in laboratory-oriented experimentation.

Chemistry - Grades 11-12

Full Year Elective

The study of chemistry is generally needed to succeed for any student who desires a career or employment in agriculture, the medical arts, pharmacy, home economics, engineering, mechanics or science. Others need some knowledge of this science to live and work in a world controlled by chemical substances. This two-semester course includes such areas as the techniques in measurement, composition, properties, and reaction of substances, the modern view of atomic structure, and the mole concept. The second semester explores stoichiometry, behaviors and characteristics of the states of matter, concentration, the gas laws, and acids and bases.

Approximately one-fifth of the course is spent in laboratory-oriented experimentation. Students may be required to pay for certain consumable items.

AP Chemistry Gr-12

Prerequisites: Chemistry and Algebra II Full year Elective/ Juniors may take with special permission from Instructor.

This course is designed for students who are interested in pursuing a career in the science field and/ or for completing a science college course their senior year of high school and possibly receiving college credit for chemistry. Students will also develop an understanding of the theories behind the atom, its bonding and properties. The class will be structured for taking the AP exam in May.

Physics - Grades 11-12

Full Year Elective

Prerequisite: C- or above in Algebra I

This course is designed to enable students to explore and better understand the physical world in which they live and the technology they may use in their homes, careers, and during leisure time. Topics included are mechanics, buoyancy, wave theory (sound and optics), electricity, and magnetism.

Physics is especially beneficial for any student who may be interested in a career involving science or technology and will help to keep options open for later career decisions or changes. Students intending to take this class will have several opportunities to participate in various physics competitions such as the Physics Olympics, ISU Rollercoaster Competition, and the cardboard boat race.

It is recommended that each student will have completed or will be enrolled in Geometry. Students may be required to pay for certain consumable items.