

SCIENCE DEPARTMENT

Title: *ENVIRONMENTAL EARTH SCIENCE*

Grade Level: 9, 10, 11, 12 **Credit:** One

Length of

Course: One year

Content: A general survey studying the impact of environmental factors on organisms and the land. Topics may include mapping, geology, meteorology, ecology and environmental issues and society.

Activities: Laboratory investigations, field analysis of data, lectures, group work, movies, projects, research reports

Out of Class Time Required: Two to three hours per week

Evaluation: Completion of tests and of work assigned, lab reports, research reports, quizzes, and projects.

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Title: *ACCELERATED BIOLOGY*

Grade Level: 9

Credit: One

Length of Course: One

year

Prerequisite: Teacher Recommendation from Eighth grade teacher. This is the first course in the Accelerated Science Sequence.

Content: An accelerated biological/environmental course designed to help prepare students for AP courses and other science courses. Topics include cellular studies, genetics, anatomy and physiology, survey of existing groups and environmental units.

Activities: Laboratory investigations, dissections, lectures, group work, movies, projects, and student reports

Out of Class Time Required: Minimum of three hours per week.

Evaluation: Completion of tests and work assigned, notebooks, lab reports, and quizzes

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Title: *BIOLOGY*

Grade Level: 9, 10, 11, 12

Credit: One

Length of Course:

One year

Content: General survey studying the diversity and interrelationships of living things, population growth, anatomy, physiology, genetics, evolutionary theory, cell biology, and other life science topics.

Activities: Laboratory investigations, dissections, lectures, group work, movies, projects, and student reports.

Out of Class Time Required: Two to three hours per week, minimum

Evaluation: Completion of tests and of work assigned, lab reports, research reports, quizzes, projects

Title: *PHYSICAL SCIENCE*

Grade Level: 10, 11, 12

Credit: One

Length of Course:

One year

Prerequisite: Completed or be currently enrolled in Algebra 1; Cannot take if previously passed Chemistry or Physics.

Content: Physical Science is a full year laboratory course that deals primarily with topics of basic

chemistry and physics. It is offered for better than average students who plan later to enroll in one or more of the advanced science courses of Advanced Life Science, Chemistry, or Physics.

Activities: Classroom presentations, conducting experiments, demonstrations, problem solving, and class discussion.

Out of Class Time Required: Minimum of two hours per week.

Evaluation: Lab reports, tests, quizzes, projects, and homework assignments.

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Title: *CHEMISTRY*

Grade Level: 10, 11, 12

Credit: One

Length of Course:

One year

Prerequisite: Algebra 1, Physical Science or a B or above in Biology.

Content: Chemistry is concerned with all of the substances that make up our environment and with the changes that take place in these substances. Lab experiences provide the technical and manipulatory skills that are a prerequisite for many professions. The importance of chemistry to the consumer and its role in protecting the environment is integrated within the course. Some of the major topics covered are measurement, atomic theory, gases, equations, chemical calculations, mole

concept, equilibrium, bonding, acids and bases.

Activities: Demonstrations, lab investigations, a variety of models and simulations, and class discussions.

Out of Class Time Required: Minimum of two to three hours per week

Evaluation: Performance on tests, quizzes, lab reports, and out-of-class assignments.

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Title: ACCELERATED CHEMISTRY

Grade Level: 10

Credit: One

Length of Course:

One year

Prerequisite: Algebra 1

Content: This is the second course in the Science Accelerated sequence. Content similar to

regular Chemistry course with appropriate adjustments for high ability students.

Activities: Demonstrations, lab investigations, a variety of models and simulations, and class discussion.

Out of Class Time Required: Minimum of two to three hours per week

Evaluation: Performance on tests, quizzes, lab reports, and out-of-class assignments.

UPPER LEVEL SCIENCE COURSES: It is the philosophy of the Science Department that all students have a well rounded background in the natural and physical sciences.

We recommend that students should have a year each of Biology, Chemistry, and Physics in their course plans before they repeat any of the disciplines—AP Biology, Chemistry 2 or AP Chemistry .

Title: PHYSICS (Dual Enrollment – PSY 175)

Grade Level: 11, 12

Credit: One (SHS)

Length of Course:

One year

Prerequisite: Algebra 2 & Geometry Four (SVCC)

Content: Study of the concepts of motion, force, energy, heat, light, sound, electricity, magnetism, nuclear and modern physics. This course is highly recommended for students who plan to major in any area of science. Students in this class have the option of earning dual enrollment credit through Sauk Valley Community College.

Activities: Classroom discussions, laboratory investigations, and application of mathematics to the solving of problems.

Out of Class Time Required: Minimum of two hours per week.

Evaluation: Performance on quizzes, lab reports, homework, and tests.

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Title: *CHEMISTRY 2 (Dual Enrollment – CHE 103)*

Grade Level: 11, 12

Credit: One (SHS)

Length of Course:

One year

Four (SVCC)

Prerequisite: One year of Chemistry & Algebra 2 or concurrent Algebra 2

Content: Chemistry 2 is a college level, second course in chemistry in which the principles of structure and reaction are emphasized. This course is directed towards the student who wants to prepare himself by studying content at the college level, but does not want to approach it at the rate it would be taught in the AP Chemistry class. Students in this class have the option of earning dual enrollment credit through Sauk Valley Community College.

Activities: Laboratory work is extensive and includes volumetric and gravimetric determinations as well as instrumental analyses.

Out of Class Time Required: Minimum two to three hours per week

Evaluation: Performance on homework, quizzes, lab reports, and tests

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Title: *ADVANCED PLACEMENT CHEMISTRY*

Grade Level: 11, 12

Credit: One (weighted)

Length of Course:

One year

Prerequisite: One year of Chemistry, Biology & Algebra 2 or concurrent Algebra 2

Content: AP Chemistry is a course designed to be the equivalent of the general chemistry course usually taken during the first college year. Students may be granted college credit depending on the score they receive on the AP exam given in the spring and the policy of the university in which they enroll.

Activities: Laboratory work, discussions, problem solving activities.

Out of Class Time Required: It is assumed that the student will spend at least five hours a week

in unsupervised individual study during the school year and will prepare themselves during the

summer prior to taking the course by completing the pre-course assignments.

Evaluation: Performance on homework, quizzes, lab reports, and tests.

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Title: *ADVANCED PLACEMENT BIOLOGY*

Grade Level: 11, 12 **Credit:** One (weighted) **Length of Course:**
One year

Prerequisite: One year of Chemistry, Biology & Algebra 2 or Concurrent Algebra 2.

Content: AP Biology is a course designed to be the equivalent of the general biology course usually taken during the first college year. Students may be granted college credit depending on the score they receive on the AP exam given in the spring and the policy of the university in which they enroll.

Activities: Laboratory work, discussions, problem solving activities.

Out of Class Time Required: It is assumed that the student will spend at least five hours a week

in unsupervised individual study during the school year and will prepare themselves during the summer prior to taking the course by completing the pre-course assignments.

Evaluation: Performance on homework, quizzes, lab reports, and tests.