Science Requirements

Regents Diploma

In order to obtain a Regents Diploma, a student must earn 3 units of science credit plus a grade of 65% on at least one science Regents examination. (Usually Earth Science or Living Environment)

Advanced Regents Diploma

In order to obtain an Advanced Regents Diploma, a student must earn 3 units of science credit and a grade of at least 65% on three science Regents examinations. One credit must be a life science credit and one credit must be a physical science credit.

The traditional pathway is as follows:

- Earth Science
- Living Environment
- Chemistry and/or Physics

Typical Science Progressions

Note:

These are typical progressions in science used at WAJ; however, students may customize progressions to their desired Program of Study—pending administrative approval.

Program	Grade 9	Grade 10	Grade 11	Grade 12
Regents Science	Earth Science	Living Environment	Environmental Science or CTE Science	Science Elective or CTE Science
Regents Science	Earth Science	Living Environment	Chemistry (and Physics or College Bio w/ approval)	Physics, College Biology, Geology or Forensics
Advanced Science	Earth Science	Living Environment	College Chemistry (and Physics or AP Biology)	Pre-Calculus and/or AP or College Statistics
Accelerated Science	Living Environment (Earth Science in 8th Grade)	Chemistry	Physics or AP Biology	AP Biology or Physics

Chemistry

Credit: 1
Weighting: 0

Course Description

This is a one year Chemistry course that includes a 1200 minute laboratory component. This laboratory component is a requirement for the Regents exam given in June. Some of the major topics covered are: Atomic structure and Chemical Bonding, Mathematics of Chemistry, Physical Behavior of Matter, The Periodic Table, Acids and Bases, Oxidation and Reduction, Kinetics, Organic Chemistry and Nuclear Chemistry.

Course Requirements

Algebra, Earth Science, Living Environment; 80% average in previous science content (exceptions to be approved by HS counselor and chemistry teacher)

Forensic Science 141

Credit: 1
Weighting: 4

Course Description

For the non-science major, an introduction to the basic scientific theory and techniques used in criminal investigation. Topics include proper handling and preservation of crime-scene evidence; glass, soil, fingerprint, drug and paint chip examination, hair analysis; cloth, fiber, the uses of spectrophotometry, chromatography, and other instrumental methods in evidence analysis. Also, the description of serological techniques, DNA profiling, and toxicological techniques. Course covers sufficient inorganic and organic chemical concepts for students to gain an elementary understanding of the various analytical techniques.

Course Requirements

Prerequisite: 80% GPA in the science content area.

Earth Science

Credit: 1
Weighting: 0

Course Description

This is a one year Earth Science course that includes a 1200 minute laboratory component. This laboratory component is a requirement for the Regents exam given in June. Some of the major topics covered are: Rocks and Minerals, Plate Tectonics, Earth's History, Meteorology, Climate, and Astronomy.

Course Requirements

None

Environmental Science

Credit: 1
Weighting: 0

Course Description

Environmental Science is a year-long course designed to show thematic connections between science, technology, and society. Students will gain an understanding of the basic causes of major environmental issues and examine them from ethical and economic standpoints. Students will apply prior scientific knowledge to current environmental issues and will become better-informed citizens and decision-makers.

Course Requirements

None

Forensics

Credit: 1
Weighting: 0

Course Description

Forensics is available as an upper level science elective; this course provides an introduction to the basic scientific theory and techniques used in criminal investigation. Course topics include: proper handling and preservation of crime scene evidence including glass, soil, fingerprints hair, fibers, blood and paint. The course is designed for the high school student to develop an understanding of the methods used by forensic scientists including observation, measurement, data collection, hypothesis development and evaluation of evidence.

Course Requirements

None

General Biology 101

Credit: .5 (4 college credits)
Weighting: 4

Course Description

This course provides an introduction to the basic foundations and concepts of biology, including the nature of life; the cell, energy, and the chemical phenomena that life depends on. Biology 101, in conjunction with its second semester companion course, gives an overview of the whole field of biology and is the first course for students who want to major in the life sciences. Laboratory exercises provide opportunity for reinforcing major themes discussed in class, as well as an opportunity to conduct inquiry-based investigations.

Course Requirements

Prerequisite: 80% or higher in prior science coursework and Earth Science and Living Environment Regents

General Biology 102

Credit: .5 (4 college credits)
Weighting: 4

Course Description

This course is a continuation of BI 101 and provides an introduction to the basic foundations and concepts of biology, including zoology, genetics, and evolution. Students entering the course must be trained in the use of a compound microscope and be familiar with the concepts of cell anatomy, cell division, protein synthesis and animal reproduction. Laboratory exercises provide opportunity for reinforcing major themes discussed in class, as well as an opportunity to conduct inquiry-based investigations. NOTE: Lab includes animal dissection

Course Requirements

Prerequisite: 80% or higher in prior science coursework and Earth Science and Living Environment Regents

General Chemistry 101

Credit: .5 (4 college credits)
Weighting: 4

Course Description

A comprehensive introduction to chemical theories. Major topics include dimensional analysis, atomic structure, chemical formulas, names and equations, stoichiometry, ideal gas laws, periodic properties of elements, chemical bonding, and molecular geometry

Course Requirements

Completion of Algebra II with a grade of 75% or better or completion of MA 110 (College Algebra); 80% GPA in science content overall

General Chemistry 102

Credit: .5 (4 college credits)
Weighting: 4

Course Description

A continuation of General Chemistry with emphasis on systems at equilibrium. Major topics include properties of solid, liquid, and gaseous matter, phase changes, solution characteristics, chemical kinetics, chemical equilibrium, acid-base equilibria, thermodynamics, and electrochemistry.

Course Requirements

Prerequisite: CH 101 with a grade of C or better; 80% in science content area overall

Living Environment

Credit: 1
Weighting: 0

Course Description

The Living Environment is a high school level biology course which includes a 1200 minute laboratory component. Curriculum follows the New York State P-12 science learning standards. This course is specifically designed to prepare students for the Living Environment Regents Exam. Topics covered in this course include: scientific inquiry, cell structure/function, genetics, growth and reproduction, the human body, and ecosystem dynamics.

Course Requirements

None

Physics

Credit: 1
Weighting: 0 (or 2 if taken as an "Upper Level Academic," 4th year science course)

Course Description

This is a one year Physics course that includes a 1200 minute laboratory component. This laboratory component is a requirement for the Regents exam given in June. Some of the major topics covered are: Mechanics, Energy, Electricity and Magnetism, Wave Theory, and Modern Physics. This course relies heavily on math skills and a solid understanding of scientific measurement.

Course Requirements

Algebra and Geometry

AP Biology

Credit: 1
Weighting: 5

AP Biology is the equivalent of a two-semester college introductory biology course normally taken by science majors during their first year of college. AP Biology is designed to be taken by students after successful completion of high school biology and chemistry**.** If the student has not yet taken chemistry, then it must be taken concurrently with AP biology. The course goal is to provide students with the conceptual framework, factual knowledge, and analytical skills necessary to deal critically with the rapidly changing science of biology. Primary emphasis will be on developing an understanding of biological concepts such as science as a process, personal experience in scientific inquiry, and recognition of unifying themes that integrate the major topics of biology. AP Biology differs from regular high school biology through the use of a college-level text, a greater range and depth of topics covered, a faster pace of instruction, and more sophisticated laboratory work.

Course Requirements

Biology and Chemistry