

# SCIENCE

COURSE #	COURSE	SEM/YEAR	GRADE	CREDITS	TYPE
5640	Biology <b>OR</b>	Y	9,10, 11,12	1.0	S
5642	Biology (Sheltered) <b>ELL</b> <b>OR</b>	Y	9,10, 11,12	1.0	S
5644	Honors Biology	Y	9,10,11,12	1.0	S
5645	Advanced Placement Biology	Y	11,12	1.0	S
5577	Earth and Space Science 1	S	9,10,11,12	.5	S
5578	Earth and Space Science 2	S	9,10,11,12	.5	S
5671	Physical Science 1 <b>OR</b>	S	9,10,11,12	.5	S
5675	Physical Science 1 (Sheltered) <b>ELL</b>	S	9,10,11,12	.5	S
5672	Physical Science 2 <b>OR</b>	S	9,10,11,12	.5	S
5676	Physical Science 2 (Sheltered) <b>ELL</b>	S	9,10,11,12	.5	S
5674	Advanced Physical Science	Y	11,12	1.0	E
5631	Horticulture 1	S	11, 12	.5	E
5632	Horticulture 2	S	11, 12	.5	E
5651	Zoology 1	S	10,11,12	.5	E
5652	Zoology 2	S	10,11,12	.5	E
5650	Human Anatomy & Physiology	Y	10,11,12	1.0	S
5710	Ecology	S	10,11,12	.5	S
5700	Astronomy	S	11,12	.5	E
5680	Chemistry	Y	10,11,12	1.0	S
5685	Advanced Placement Chemistry	Y	11,12	1.0	S
5690	Physics	Y	11,12	1.0	S
5688	Advanced Placement Physics 1	Y	11,12	1.0	E
5660	Advanced Placement Environmental Science 	Y	11, 12	1.0	E

**5640 BIOLOGY** (Y) 9, 10, 11, 12

This course involves the study of living things. The processes and methods of science are emphasized with laboratory work. Topics include characteristics of life, cell structure and function, genetics and cell division, plant and animal structure and function, ecological relationships. (CCHS, HPHS, HSA, THS, TWHS) *Standard*

**5642 BIOLOGY (SHELTERED)** (Y) 9, 10, 11, 12 **ELL**

**Prerequisite: Placement**

This course is for the ELL student and involves the study of living things. The processes and methods of science are emphasized with laboratory work. Topics include characteristics of life, cell structure and function, genetics and cell division, plant and animal structure and function, ecological relationships. (THS) *Optional*

- 5644 HONORS BIOLOGY (Y)** 9, 10, 11, 12  
 This course provides students who are college-bound or who have a special interest in biology with an in-depth look at biology. Topics include the scientific method, cellular and molecular biology, microbiology, genetics, plants, animals, human anatomy and physiology, and ecology. (HPS, THS, TWHS) *Standard*
- 5645 ADVANCED PLACEMENT BIOLOGY (Y)** 11, 12      **Prerequisite: Biology (5640) or Honors Biology (5644) and Chemistry (5680) or Advanced Placement Chemistry (5685)**  
 This college level class with lecture and laboratory instruction expands topics presented in Biology and Honors Biology with an emphasis on biochemical processes. At the conclusion of the course, students have the option of taking the Advanced Placement Biology Examination for college credit. This college-level course may be taken for dual high school and college credit. The college credit will be granted by Washburn University, which charges a reduced tuition fee for each credit hour. (HPS, THS, TWHS) *Standard*
- 5577 EARTH AND SPACE SCIENCE 1(S)** 9, 10, 11, 12  
 This course involves the study of geology, astronomy, meteorology, and oceanography. Some of the topics covered are: deposition and erosion, plate tectonics, natural cycles, gravity, stellar evolution, the solar system, space exploration and movement of the atmosphere. The processes and methods of science are emphasized. Laboratory work involves the use of the scientific method to solve problems and answer questions. (HPS, HSA, THS, TWHS) *Standard*
- 5578 EARTH AND SPACE SCIENCE 2 (S)** 9, 10, 11, 12  
 This course involves the study of the space, its characteristics and changes. Some of the topics covered are: gravity, stellar evolution, the solar system, structure and evolution of the universe, and space exploration. The processes and methods of science are emphasized. Laboratory work involves the use of the scientific method to solve problems and answer questions. (CCHS, HPS, HSA, THS, TWHS) *Standard*
- 5671 PHYSICAL SCIENCE 1 (S)** 9, 10, 11, 12  
 This course is designed to develop an understanding of the processes and methods of science with an emphasis on laboratory work covering the concepts related to matter and energy basic to Chemistry. The course topics include: Laws of thermodynamics and heat, states of matter, atomic structure, periodic table properties and trends, isotopes, ionic and covalent bonding, Law of Conservation of mass and energy, and types of chemical reactions. (CCHS, HPS, HSA, THS, TWHS) *Standard*
- 5675 PHYSICAL SCIENCE 1 (SHELTERED) (S)** 9, 10, 11, 12      **Prerequisite: Placement**  
 This course a course for the ELL student and is designed to develop an understanding of the processes and methods of science with an emphasis on laboratory work covering the concepts related to matter and energy basic to Chemistry. The course topics include: Laws of thermodynamics and heat, states of matter, atomic structure, periodic table properties and trends, isotopes, ionic and covalent bonding, Law of Conservation of mass and energy, and types of chemical reactions. (THS) *Optional*
- 5672 PHYSICAL SCIENCE 2 (S)** 9, 10, 11, 12      **Prerequisite: Biology (5640) or Honors Biology (5644) and Algebra 1A/Algebra 1B (5102) or Algebra 1 (5110) or Honors Algebra 1 (5114)**  
 This course is designed to develop an understanding of the processes and methods of science with an emphasis on laboratory work covering the concepts related to basic introductory physics. The course topics include: motion, forces, Newton's Laws, gravity, work and energy, conservation of energy, momentum, and mechanical waves. (CCHS, HPS, HSA, THS, TWHS) *Standard*
- 5676 PHYSICAL SCIENCE 2 (SHELTERED) (S)** 9, 10, 11, 12      **Prerequisite: Placement**  
 This course is for the ELL student and is designed to develop an understanding of the processes and methods of science with an emphasis on laboratory work covering the concepts related to basic introductory physics. The course topics include: motion, forces, Newton's Laws, gravity, work and energy, conservation of energy, momentum, and mechanical waves. (THS) *Standard*



- 5685**     **ADVANCED PLACEMENT CHEMISTRY** (Y) 11, 12     **Prerequisite: Algebra 2 (5130) and Physics (5690) or Chemistry (5680) Recommended**
- The AP Chemistry course is designed to be the equivalent of a general chemistry course usually taken during the first year of college. The course develops the students' abilities to think clearly and to express their ideas, orally and in writing, with clarity and logic. Topics explored include: atomic structure and radioactivity, stoichiometry, chemical bonding and the properties of compounds, chemical thermodynamics (energy changes), properties of gases, liquids and solids, properties of solutions, rate (speed) of reactions, chemical equilibrium, reactions of acids and bases, and oxidation/reduction reactions. Emphasis is placed on experimental data collection and analysis, completing chemical calculations, and modeling chemical systems using mathematical and graphical principles. At the end of the course, students may take the AP chemistry exam, and possibly qualify to receive college credit. (HPHS, THS, TWHS) *Standard*
- 5690**     **PHYSICS** (Y) 11, 12     **Prerequisite: Algebra 2 (5130) or concurrently Honors Algebra 2 (5124)**
- This course is a study of the continuing processes and changes within the physical world. Laboratory experiments are used extensively to introduce and reinforce the theoretical aspects of the subject. Topics include rectilinear, circular and projectile motions and forces, electricity and magnetism, optics and waves, kinetic theory and heat, and matter and atomic structure. Special projects will be incorporated throughout the year including rocket launches, egg drop competitions, air track experiments, superconductivity demonstrations, Millikan oil drop experiment, and radioactivity labs. (HPHS, THS, TWHS) *Standard*
- 5688**     **ADVANCED PLACEMENT PHYSICS 1** (Y) 11, 12     **Prerequisite: Algebra 2 (5130) and Chemistry (5680) or Physics (5690)**
- This course is the equivalent of the first semester of a traditional college-level introductory course in algebra-based physics. The goal is to provide a comprehensive introduction to physics while using classroom and lab techniques that will enhance the appreciation and understanding of science and its methods including motion and mechanics. At the conclusion of the course, student have the option of taking the Advance Placement Physics I examination for college credit. (THS, TWHS) *Enrollment based*
- 5660**     **ADVANCED PLACEMENT ENVIRONMENTAL SCIENCE** (Y) 11, 12     **Prerequisite: Biology (5640) or Honors Biology (5644), and Chemistry (5680) or AP Chemistry (5685)**
- This course is a study of current environmental conditions, issues, and problems. Students will study the different types of ecosystems, the use and availability of natural resources, population dynamics, and environmental risks. Students will also explore possible solutions to such environmental issues, population dynamics and environmental risks. Students will also explore possible solutions to such environmental issues as global warming, acid rain, extinction of species, and energy waste by examining current scientific and political thought. This course covers lab procedures that are commonly used to determine the quality of our environment. Students will analyze air, water, food, and soil quality using both qualitative and quantitative methods. This class is especially designed for students who enjoy the outdoors, ecology, and investigating how humans affect the environment. (THS) *Enrollment based*