

**ORHS SCIENCE  
COURSE PATHWAYS  
2022-23**

**EARTH & SPACE  
SCIENCE**

**BIOLOGY**  
*Concurrent w/  
Geometry*

**ADVANCED CHEMISTRY**  
*Concurrent w/ Adv Alg 2*

AP CHEMISTRY  
AP BIOLOGY  
PHYSICS  
AP PHYSICS (w/ Calc)  
ENV SCIENCE  
AP ENV SCIENCE  
HUMAN PHYSIOLOGY

**CHEMISTRY**  
*Concurrent w/ Alg 2*

AP CHEMISTRY  
AP BIOLOGY  
PHYSICS  
AP PHYSICS (w/ Calc)  
ENV SCIENCE  
AP ENV SCIENCE  
HUMAN PHYSIOLOGY

**PHYSICS**  
*Concurrent w/ Alg 2*

ENV SCIENCE  
CHEMISTRY  
ADVANCED CHEM

**ENVIRONMENTAL  
SCIENCE**  
*Concurrent w/ Alg 2*

PHYSICS  
AP PHYSICS (w/ Calc)  
CHEMISTRY  
ADVANCED CHEM  
HUMAN PHYSIOLOGY

**ADVANCED PLACEMENT  
CALCULUS AB (Y) #0230AP**

<b>PREREQUISITE:</b> Grade C or better in Advanced Pre-Calculus and teacher recommendation.		
<b>SCHOOL</b> EDHS ORHS PHS Virtual Academy	<b>GRADES</b> 11-12	<b>CREDIT</b> 5 units per semester
<i>Meets UC Requirement: "c"</i>		

This is an advanced high school math course for the student who wishes to complete the equivalent of the first-level college and calculus course. The course is preparation for the second-level college calculus course and Calculus AB Advanced Placement Exam.

**ADVANCED PLACEMENT  
CALCULUS BC (Y) #0231AP**

<b>PREREQUISITE:</b> Grade C or better AP Calculus AB or teacher recommendation.		
<b>SCHOOL</b> EDHS ORHS PHS UMHS	<b>GRADES</b> 11-12	<b>CREDIT</b> 5 units per semester
<i>Meets UC Requirement: "c"</i>		

This is an advanced high school math course for the student who wishes to complete the equivalent of the first two levels of the college calculus series. The course is preparation for the third-level college calculus course and the Calculus BC Advanced Placement Exam.

**SCIENCE****EARTH AND SPACE SCIENCE (Y) #0305**

<b>SCHOOL</b> EDHS ORHS PHS UMHS IHS Virtual Academy	<b>GRADES</b> 9-12	<b>CREDIT</b> 5 units per semester
<i>Meets UC Requirements: "g"</i>		

Students will investigate the various areas of earth and space science. This is an introduction to equipment and techniques that will be applied in biology, chemistry, and physics. Satisfies Earth and Space graduation requirement.

**BIOLOGY (Y) #0311**

<b>PREREQUISITE:</b> Successful completion of Earth and Space Science course and/or completion of Algebra 1.		
<b>SCHOOL</b> EDHS ORHS PHS UMHS IHS Virtual Academy	<b>GRADES</b> 9-12	<b>CREDIT</b> 5 units per semester
<i>Meets UC Requirement: "d"</i>		

Biology is the study of living systems. Those concepts fundamental to the understanding of all life include: biological molecules, energy transfer through photosynthesis, cell respiration and fermentation, cell structure and function, classification, DNA structure and function, protein synthesis, genetics, evolution, and ecology.

**CHEMISTRY (Y) #0318**

<b>PREREQUISITE:</b> Grade C or better in Algebra 1 and Biology. Completion of Geometry and/or concurrent enrollment in Algebra 2 is recommended. Otherwise instructor approval is required.		
ORHS and PHS students must be concurrently enrolled in Algebra 2 or Advanced Algebra 2.		
<b>SCHOOL</b> EDHS ORHS PHS UMHS	<b>GRADES</b> 10-12	<b>CREDIT</b> 5 units per semester
<i>Meets UC Requirement: "d"</i>		

Chemical principals will be applied to inquiry, investigation, and application to real-world and global challenges.

**ADVANCED CHEMISTRY (Y) #0320**

<b>PREREQUISITE:</b> Grade C or better in Algebra 1, Geometry, and Biology. Concurrent enrollment in Algebra 2 or Advanced Algebra 2 is recommended.		
<b>SCHOOL</b> EDHS ORHS PHS UMHS Virtual Academy	<b>GRADES</b> 10-12	<b>CREDIT</b> 5 units per semester
<i>Meets UC Requirement: "d"</i>		

Students in this laboratory science course study the natural elements and the changes they undergo. This course will develop the capacity to reason and provide students with a sound base from which students can pursue a career in one of the health fields or sciences. This course satisfies Earth and Space Science graduation requirement. This course is suitable for all college-bound students with strong math skills and an interest in a science or technology career.

**PHYSICS (Y) #0330**

<b>PREREQUISITE:</b> Grade B or better in Geometry; current enrollment in Algebra 2 or Advanced Algebra 2 required; completion of Chemistry highly recommended.		
<b>SCHOOL</b> EDHS ORHS PHS UMHS Virtual Academy	<b>GRADES</b> 11-12	<b>CREDIT</b> 5 units per semester
<i>Meets UC Requirement: "d"</i>		

This course is designed for students who wish to understand the functions and applications of such areas as forces, motion, energy, heat, light, sound, electricity, and electronics. This course satisfies the Earth and Space Science graduation requirement.

**SCIENCE ELECTIVE COURSES****ENVIRONMENTAL SCIENCE (Y) #0303**

<b>PREREQUISITE:</b> Grade C or better in Biological Science and Earth and Space Science.		
ORHS Students must successfully complete Biology with C grade or better.		
<b>SCHOOL</b> PHS Virtual Academy	<b>GRADES</b> 11-12	<b>CREDIT</b> 5 units per semester
<i>Meets UC Requirement: "g"</i>		

Environmental principals will be applied to inquiry, investigation, and application to real-world and global challenges.

**ORGANISM DIVERSITY AND  
STRUCTURE (Y) #0333**

<b>PREREQUISITE:</b> Grade C or better in Chemistry or Advanced Chemistry.		
<b>SCHOOL</b> UMHS	<b>GRADES</b> 11-12	<b>CREDIT</b> 5 units per semester
<i>Meets UC Requirement: "d" This course may be offered alternate years. Check with your Counselor.</i>		

This challenging course focuses on the biochemistry, anatomy, and physiology of all life with an emphasis on plants and animals, looking at cells, tissues, and organ systems. A systematic study will be made of a variety of organisms, comparing their evolutionary relationships. Some dissection is expected. This course is conducted at a college level.

**HUMAN PHYSIOLOGY (Y) #0313**

**PREREQUISITE:** Grade B or better in Biology, and grade C or better in Chemistry or Advanced Chemistry is highly recommended.

SCHOOL	GRADES	CREDIT
EDHS ORHS	11-12	5 units per semester

Meets UC Requirement: "d"

This course focuses on the biochemistry, anatomy, and physiology of the human body. Cells, tissues, organs, and organ systems will be studied, with an emphasis on the medical field. Some dissection is expected.

**HONORS PHYSIOLOGY (Y) #0314**

**PREREQUISITE:** Grade B or better in Biology, and grade C or better in Chemistry or Advanced Chemistry, Grade C or better in Algebra 2 or Advanced Algebra 2, or teacher recommendation.

SCHOOL	GRADES	CREDIT
EDHS PHS UMHS	11-12	5 units per semester

Meets UC Requirement: "d"

This course focuses on the biochemistry, anatomy, and physiology of the human body. Cells, tissues, organs, and organ systems will be studied. Some dissection is expected as well as use of simulations, lab demonstrations, pathologies, and activities that require students to use mathematical and computational thinking, asking and defining problems, developing and using models, analyzing and interpreting data to construct explanations and design solutions. Students will engage in argument from evidence, and obtain, evaluate, and communicate information.

**SCIENCE ADVANCED PLACEMENT COURSES****ADVANCED PLACEMENT ENVIRONMENTAL SCIENCE (Y) #0303AP**

**PREREQUISITE:** Grade B or better in Biology, and concurrent enrollment in Chemistry or Advanced Chemistry.

SCHOOL	GRADES	CREDIT
EDHS ORHS PHS UMHS	11-12	5 units per semester

Meets UC Requirement: "d"

This Advanced Placement course is equivalent to a first-year college-level course in Environmental Science. It provides a stimulating and challenging experience for able students, preparing them for the Advanced Placement Environmental Science Exam.

**ADVANCED PLACEMENT PHYSICS 1 (Y) #0326AP**

**PREREQUISITE:** Chemistry (B or better), Algebra II (B or better), concurrent enrollment in Math Analysis or higher.

SCHOOL	GRADES	CREDIT
PHS ORHS	11-12	5 units per semester

This course provides an introduction to college level physics. The curriculum includes motion in one and two dimensions, forces, energy and momentum, rotational motion and torque, oscillation and waves, electrostatics, and DC circuits. There are rigorous mathematical and laboratory components, preparing students for the Advanced Placement Physics 1 Exam.

**ADVANCED PLACEMENT PHYSICS 2 (Y) #0327AP**

**PREREQUISITE:** Completion of Physics or AP Physics 1 with a B or better, concurrent enrollment in Math Analysis or higher

SCHOOL	GRADES	CREDIT
PHS ORHS	11-12	5 units per semester

This is a second year physics course, designed to deepen students' understanding of more advanced physical phenomena. The curriculum includes electricity and magnetism, optics, quantum theory, nuclear physics, thermodynamics, and fluid statics and dynamics. There are rigorous mathematical and laboratory components, preparing students for the Advanced Placement Physics 2 Exam.

**ADVANCED PLACEMENT BIOLOGY (Y) #0311AP**

**PREREQUISITE:** Grade B or better in Biology and Chemistry, or teacher recommendation.

SCHOOL	GRADES	CREDIT
EDHS ORHS PHS UMHS Virtual Academy	11-12	5 units per semester

Meets UC Requirement: "d"

Equivalent to first-year college biology course. This course is designed to be taken by students after the successful completion of a first course in high school biology and high school chemistry. It aims to provide students with the conceptual framework, factual knowledge, and analytical skills necessary to deal critically with the rapidly changing science of biology. Prepares student for AP Biology exam. This course is conducted at college level.

**ADVANCED PLACEMENT CHEMISTRY (Y) #0320AP**

**PREREQUISITE:** B in Advanced Chemistry or an A in Chemistry, B or better in Algebra 2.

SCHOOL	GRADES	CREDIT
ORHS UMHS	11-12	5 units per semester

Meets UC Requirement: "d"

This AP Chemistry course provides students with a college-level foundation to support future advanced coursework in chemistry. This class will review basic chemistry concepts learned in the first year chemistry, go more in-depth for the topics of acids/bases, buffers, electrochemistry, thermodynamics, solubility, equilibrium.

**SOCIAL SCIENCE****WORLD HISTORY (Y) #0174**

**PREREQUISITE:** None.

SCHOOL	GRADES	CREDIT
EDHS ORHS PHS UMHS IHS Virtual Academy	10	5 units per semester

Meets UC Requirement: "a"

This is a required survey course that covers world history, geography and culture in the modern world. This course is designed to give students an appreciation of the many cultures and civilizations which have contributed to the development of the world today.

**U.S. HISTORY/GEOGRAPHY (Y) #0163**

**PREREQUISITE:** None.

SCHOOL	GRADES	CREDIT
EDHS ORHS PHS UMHS IHS Virtual Academy	11	5 units per semester

Meets UC Requirement: "a"

This is a required course for all 11th grade students. This course meets the state requirement for United States History. It is a survey course offering a multidisciplinary approach to the study of the history of our nation. It will enable the student to develop and practice a variety of intellectual activities and work skills appropriate to the social sciences.