



Science Courses

In our modern technological world, every person is in contact with science and technology in multiple ways and forms each and every day. At Eastview High School we will prepare students to successfully understand and compete in the rapidly changing world of science and technology.

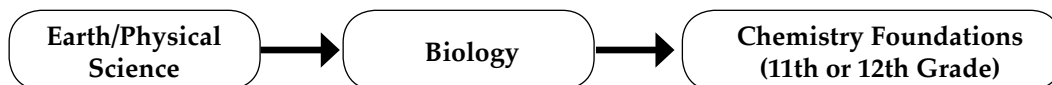
Requirements: Every student is required to take a minimum of 12 quarter courses (3 years). Science credits may be completed in a number of different classes at different levels.

It is **very important** that you register for the science class that best fits your background, skills, scholarly habits and future plans. Changing to a different course partway through the school year can be a very difficult situation, and there is no guarantee that a change could happen. You are advised to register for the course that you are most likely to **learn the most in and complete successfully**, not just "try out". If you are uncertain about correct registration and placement, please see your counselor or current science teacher. Near the end of the school year, re-check your registration and make any necessary changes at that time.

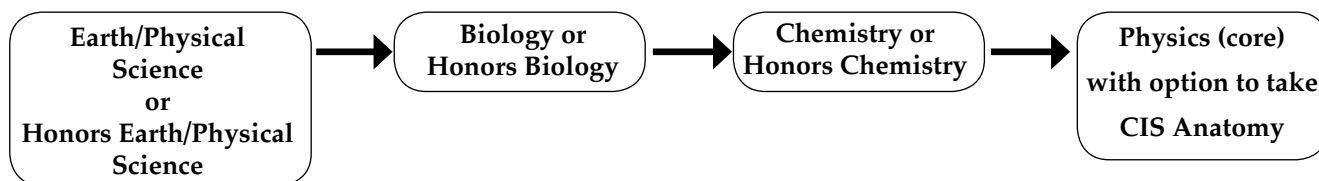
Students interested in honors or advanced placement courses are encouraged to review the "Characteristics of a Student Well-Suited for Honors Courses" on page ii before committing to the rigors of such a class.

The below flowcharts provide three suggested paths of study for science students at EVHS.

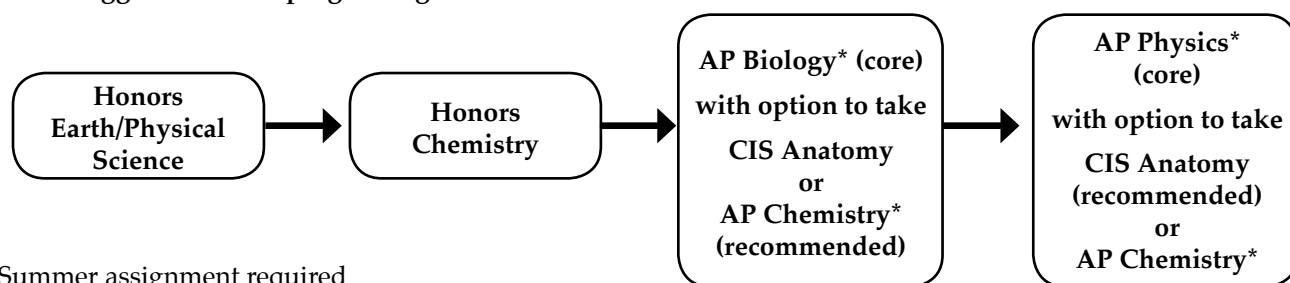
LEVEL 1: Suggested for those students who have experienced difficulty with science and are planning a career immediately after high school.



LEVEL 2: Suggested for those students who desire a standard high school curriculum necessary for entrance to most colleges, universities, and technical institutes. To be successful at this level, a student must have a solid math (for chemistry and physics) background along with good classroom, study and homework skills.



LEVEL 3: This level is suggested for students who desire a challenging science curriculum, and/or are considering a career or major that requires a rigorous science preparation. These are college-preparatory courses. To be successful, students need a strong math background and excellent classroom, study, attendance, and homework habits. **Due to the rigorous nature of the courses at this level, successful completion (generally indicated by a B or better) in each class is suggested before progressing to the next class.**



* Summer assignment required

1001 Earth/Physical Science A	Grade 9
1002 Earth/Physical Science B	Recommendation: None
1003 Earth/Physical Science C	
1004 Earth/Physical Science D	

This is a year-long course required for 9th grade students. This course will be a laboratory-centered approach to studying physics, chemistry, and the earth sciences. Topics studied include earth forces, volcanoes, earthquakes, tectonics, rocks, minerals, the stars and universe, the solar system, the earth-moon system, and the atmosphere and meteorology. These topics will be integrated with concepts from physics and chemistry. Mathematics concepts will be used to further understand and reinforce students' learning.

1005 Honors Earth/Physical Science A	Grade 9
1006 Honors Earth/Physical Science B	Recommendation: "A" grades in middle school science.
1007 Honors Earth/Physical Science C	
1008 Honors Earth/Physical Science D	

This is a year-long course for advanced science students. Students are expected to be independent thinkers and workers. This is a coordinated science course with physics, chemistry and earth science. Incorporating these three scientific themes allows students to revisit fundamental scientific principles throughout the course as they transfer and apply their learning in new contexts. Additionally, the course is designed to implement mathematics (algebraic expressions, equations, dimensional analysis and graphs) as a means to understand the world. There will be an emphasis on problem solving, application, analysis and synthesis of data as a method of reinforcing the learning.

1026 Biology A	Grades 10, (11, 12 by instructor recommendation)
1027 Biology B	Recommendation: Earth/Physical Science
1028 Biology C	
1029 Biology D	

This year-long course will focus on a more in-depth study of biology. This course provides students with an advanced understanding of the fundamental processes of all living things. Students are expected to take active roles in class discussions as well as demonstrate creative thinking in conducting their own investigations. Students with excellent reading and analysis skills and those who are proficient test takers will excel in this course. Students will work in groups and independently on numerous laboratory and research projects. Specific skills focused on within this course are experimental design, research, scientific writing, and data analysis. Topics include scientific method, ecology, biochemistry, cell biology, photosynthesis, respiration, cell reproduction, genetics, biotechnology, evolution, classification, microbiology, mycology, plant and animal study and comparative human anatomy with fetal pig dissection. **Students may help by supporting a Lab Consumable Materials Fund to enhance their lab experience beyond the required curriculum (chemical and specimen costs).**

1030 Honors Biology A	Grades 10, (11, 12 by instructor Recommendation)
1031 Honors Biology B	Recommendation: A grades in Earth/Physical Science
1032 Honors Biology C	or Bs or better in Honors Earth/Physical Science
1033 Honors Biology D	

This year-long course will focus on a more in-depth study of biology. This course provides students with an advanced understanding of the fundamental processes of all living things. Students are expected to be self-reliant learners who take active roles in class discussions, possess excellent reading and study skills, complete their homework in a timely manner, and who demonstrate strong self-advocacy skills. The Honors Biology grade is weighted to reflect 80% of their quarter grade be based on assessments. Therefore, students entering this course need to be excellent test takers if they are intending to earn an A or B for the quarter. Students should enjoy science content and have a strong desire to demonstrate well-developed critical thinking, analysis, and evaluation skills that will be used to deeply explore the course content. Students will be expected to learn proficiently from complex reading assignments, classroom discussions, and while working in groups and independently on laboratory and research projects. Topics include the nature of science, ecology, biochemistry, cell biology, photosynthesis, respiration, cell reproduction, genetics, biotechnology, evolution, classification, microbiology, and comparative human anatomy with fetal pig dissection. **Students may help by supporting a Lab**

Consumable Materials Fund to enhance their lab experience beyond the required curriculum (chemical and specimen costs).

1051 Chemistry Foundations A	Grades 11, 12
1052 Chemistry Foundations B	Recommendation: Concurrent registration in Algebra 2 Concepts
1053 Chemistry Foundations C	
1054 Chemistry Foundations D	

This is a yearlong science course. Chemistry is a sequential course investigating matter. This course is considered a less math intensive class than Chemistry that emphasizes real world examples for deep understanding of the basics chemistry concepts Including; solving chemical problems, writing chemical formulas, balance equations, learn the mole concept, develop Periodic table relationships, gas laws, discuss quantum mechanics of the atom, acid base relationships, chemical bonding, and solutions. Laboratory experiments will be an integral part of this class. **Students may help by supporting a Lab Consumable Materials Fund to enhance their lab experience beyond the required curriculum (chemical and lab notebook costs). This course is NOT an NCAA Approved Core Course. A scientific calculator is required. Any TI-30X or TI-30X II Series is recommended.**

1055 Chemistry A	Grades 11, 12
1056 Chemistry B	Recommendation: C or better grades in Biology and concurrently enrolled in Algebra 2 or above.
1057 Chemistry C	
1058 Chemistry D	

This is a year-long **college preparatory** course. Chemistry is a sequential course investigating matter. Students will learn mathematical tools for solving chemical problems, write chemical formulas, balance equations, learn the mole concept, develop Periodic table relationships, gas laws, discuss quantum mechanics of the atom, acid base relationships, redox reactions, chemical bonding, solutions, and nuclear chemistry. Laboratory experiments will be an integral part of this class. **Students may help by supporting a Lab Consumable Materials Fund to enhance their lab experience beyond the required curriculum (chemical and lab notebook). A scientific calculator is required. Any TI-30X or TI-30X II Series is recommended.**

1059 Honors Chemistry A	Grades 11, 12 (10 th with teacher recommendation)
1060 Honors Chemistry B	Recommendation: Grades of B or above in Honors Biology and Honors Algebra 2 or above.
1061 Honors Chemistry C	
1062 Honors Chemistry D	

Students with a high interest and ability in science and mathematics should consider taking this yearlong course. The approach is math intensive, and the topics are similar to those in chemistry but are studied in more depth. The course will also use labs extensively to illustrate theory. Independent student work will be required. Units covered include measurement and calculations, the atomic theory - Democritus through the quantum theory, periodicity, chemical bonding and chemical formulas, chemical stoichiometry, writing, balancing and predicting chemical equations, gas laws, solutions and their behaviors, thermodynamics, reaction rates, reaction mechanisms chemical equilibrium, acid/base reactions, titrations, organic chemistry, electrochemistry, and qualitative analysis. **Students may help by supporting a Lab Consumable Materials Fund to enhance their lab experience beyond the required curriculum (chemical and lab notebook). A scientific calculator is required. Any TI-30X or TI-30X II Series is recommended.**

1071 Advanced Placement Biology A	Grades 11, 12
1072 Advanced Placement Biology B	Recommendation: Honors Chemistry or Instructor Recommendation
1073 Advanced Placement Biology C	
1074 Advanced Placement Biology D	

The AP Biology course is designed to be the equivalent of a two-semester college introductory biology course usually taken by biology majors during their first year of college. Students will develop a conceptual framework for modern biology and an appreciation of science as a process. Bioinformatics (the application of statistics and computer science to molecular biology) will be used to analyze biological data throughout the course. Topics covered in this course are chemistry and life, cells, cellular energetic, Heredity, molecular genetics, evolutionary biology, diversity of organisms, structure and function of plants and animals, and ecology. This is a rigorous college level course that requires advanced reading and study skills. One goal of this course is to prepare students to

take the Advanced Placement exam in May. **Students may help by supporting a Lab Consumable Materials Fund to enhance their lab experience beyond the required curriculum (chemical and specimen costs). A summer assignment is required for this course.**

1063 Physics A

Grades 11, 12

1064 Physics B

Recommendation: Algebra 2 and Chemistry

1065 Physics C

1066 Physics D

Physics, a year-long **college preparatory** course, is the study of how things work in the physical world and in the universe using mathematics. Topics covered will be one and two-dimensional motion, Newton's laws, forces, momentum and energy, waves, sound and light, electricity and relativity (Einstein and the ideas behind time travel). **Students may help by supporting a Lab Consumable Materials Fund to enhance their lab experience beyond the required curriculum. A scientific calculator is required. Any TI-30X or TI-30X II Series is recommended.**

1067 CIS Anatomy and Physiology A

Grades 11, 12

1068 CIS Anatomy and Physiology B

Recommendations:

1069 CIS Anatomy and Physiology C

Seniors: Chemistry with a B average or above each quarter

1070 CIS Anatomy and Physiology D

Juniors: Honors Biology with a B average or above each quarter or Instructor Recommendation

CIS Anatomy and Physiology is a four credit college course (**PsTL 1135**) offered through the University of Minnesota's College in the Schools Program. The course examines specific topics in Human Anatomy and Physiology such as fitness and disease and body systems such as the respiratory, muscular, and cardiovascular systems. Students engage in a wide variety of learning activities, such as cooperative learning groups, computer enhanced learning, anatomical model building and enquiry-based lab activities. The rules and expectations of the University of Minnesota govern the course. Students must be highly self-motivated learners who work well both independently and in cooperative groups. This course is recommended for students who have an interest in pursuing a career in the health sciences. **Students may help by supporting a Lab Consumable Materials Fund to enhance their lab experience beyond the required curriculum.**

1090 Advanced Placement Chemistry A

Grade 12

1091 Advanced Placement Chemistry B

Recommendation: B or better in Honors Chemistry or
Instructor Recommendation

1092 Advanced Placement Chemistry C

1093 Advanced Placement Chemistry D

This course is designed for students who have taken a year of Honors chemistry and would like to further their depth in this area. This **math intensive** course includes stoichiometry, gas laws, kinetics, rate laws, equilibrium and organic chemistry, chemical bonding, physical chemistry, equilibrium, acid/base, titration's, qualitative analysis and quantitative analysis. **Students will prepare to take the Advanced Placement Exam in Chemistry for college credit. A scientific calculator is required. Any TI-30X or TI-30X II Series is recommended. A summer assignment is required for this course.**

1094 Advanced Placement Physics A

Grade 12

1095 Advanced Placement Physics B

Recommendation: A grade of B or better in Honors Chemistry
or Instructor Recommendation

1096 Advanced Placement Physics C

1097 Advanced Placement Physics D

Advanced Placement Physics is a yearlong **math intensive** course. This course will include a rigorous combination of homework, lab work and research. At the conclusion of this sequence, students will be prepared to take the AP Physics B exam for college placement or credit. Topics covered in the first semester include one and two-dimensional motion, Newton's laws of motion and universal gravitation, momentum, heat and energy, and wave motion. During the second semester students will cover, light, optics, static and current electricity, electric circuits, magnetism, relativity. **Students will prepare to take the Advanced Placement Exam in Physics for college credit. A scientific calculator is required. Any TI-30X or TI-30X II Series is recommended. A summer assignment is required for this course.**