



WHS STEM CURRICULUM – ADVANCED ACADEMICS: Math and Science



	8 th Grade	9 th Grade	10 th Grade	11 th Grade	12 th Grade
Math	Honors Accelerated Algebra I/ Geometry	STEM Honors Accelerated Geometry/Algebra II	STEM Honors Accelerated Pre-Calculus	AP Calculus AB or AP Calculus AB/BC	GA Tech Distance Learning or Honors Multivariable Calculus or AP Statistics
Science	Physical Science	STEM AP Biology	STEM Honors Chemistry	STEM AP Physics C: Mechanics	Any AP Science
Lit	8 th Grade Literature	STEM 9 th Lit	STEM 10 th Lit	Honors American Lit or AP Lang	Adv Comp or AP Lit
Social Studies	8th Grade Social Studies	AP Human Geography, Social Studies Elective, or Other Elective	World History (CP, Honors, or AP)	US History (CP, Honors, or AP)	Gov and Econ (CP or AP)
Elective	Some students earn Foreign Lang Credit at WMS or FMS	Foreign Language or Other Elective	Foreign Language or Other Elective	Foreign Language or Other Elective	Foreign Language or Other Elective
Elective	Health/Personal Fitness can be taken online in summer to open elective spot	Health and Personal Fitness	STEM AP Physics 2 or Other Elective	AP Chemistry, AP Statistics or Other Elective	AP Chemistry, AP Statistics or Other Elective

Other Requirements: at least two years of sequential foreign language; active participation in at least one STEM competition group/club; STEM related internship or capstone project in 12th grade; Health and Personal Fitness must be completed prior to graduation – can be taken online in summer to open elective spot



Description: The STEM Advanced Academic track is designed for students who excel in the areas of mathematics and science and want to maximize their high school learning potential in these areas. Instruction in math and science will be customized for these students to integrate both disciplines for a truly unique high school learning experience. Completion of this pathway will leave students with a robust high school transcript and extensive knowledge in math and science transferrable to the collegiate level.

Prerequisites: Students will need to have completed Accelerated Algebra 1/Geometry A and high school Physical Science in 8th grade as well as receive an invitation to take Advanced Placement Biology in 9th grade.

Math Specifics: Students will have the opportunity to earn two Advanced Placement calculus credits through a modified 80-minute course and 30-minute lunch pairing. Woodstock High School has partnered with Georgia Tech to give students an opportunity to take Linear Algebra and Multi-Variable Calculus as seniors via video conferencing equipment. More information on the Georgia Tech Distance Calculus Program can be found at the following link: <http://admission.gatech.edu/dualenrollment/distance-math>

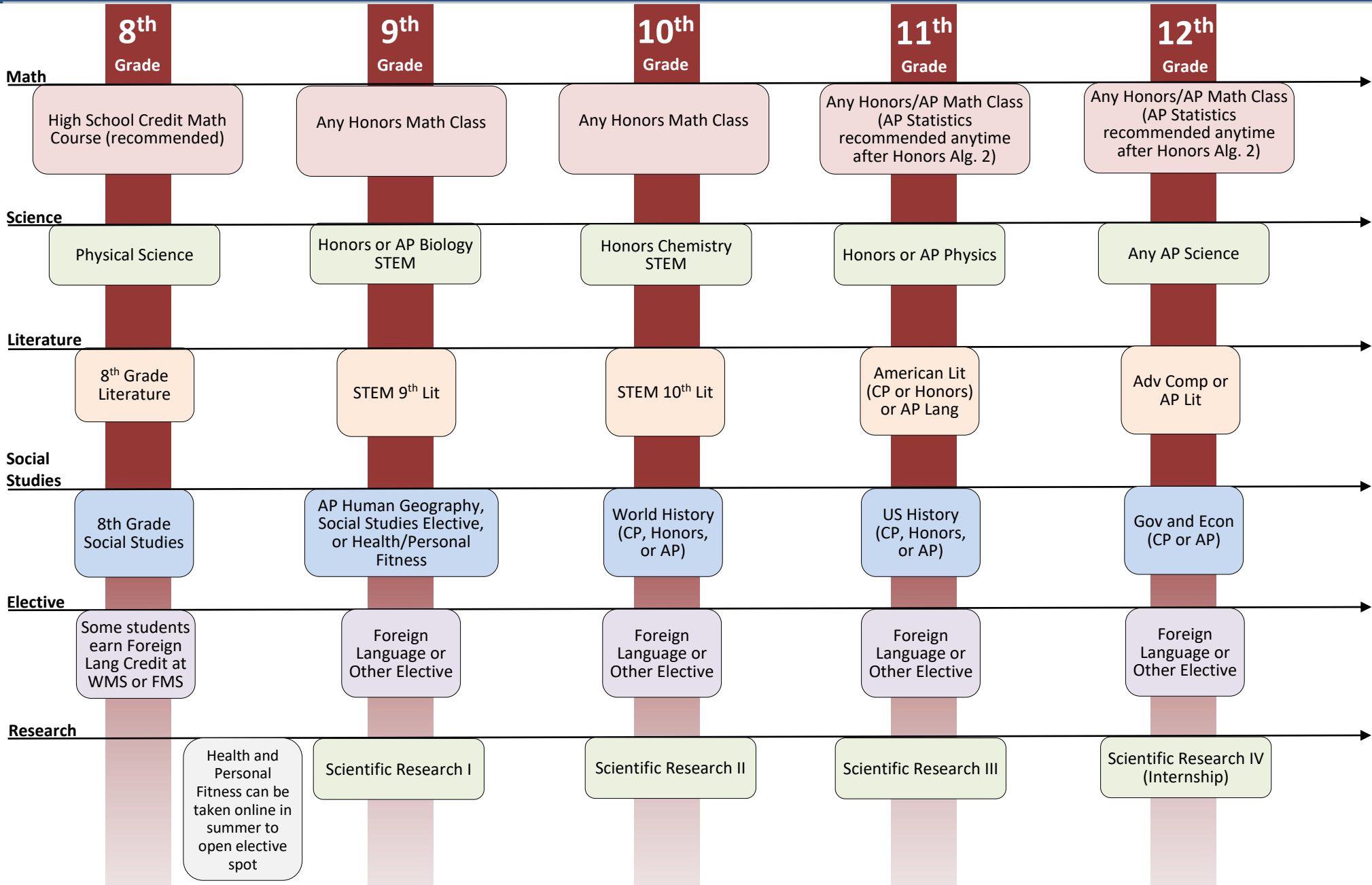
Science Specifics: Students will take the highest level Advanced Placement science courses that are offered at the high school level, earning up to seven Advanced Placement credits in Biology, Chemistry, and Physics, Environmental Science, and Computer Science. Students can take AP Physics 2 in 10th grade if they meet course requirements, but space is limited.

Other Track Requirements:

- Students must complete at least two years of a sequential foreign language. This can be completed by taking Spanish 1 and 2, French 1 and 2, or Latin 1 and 2. Students can continue taking additional levels, but the minimum pathway requirement is through level two.
- Students must actively participate in at least one STEM competition group or club each year during their four years at WHS.
- Graduation requires that students take Health and Personal Fitness. WHS students typically complete this requirement in 9th grade. It is recommended that STEM students complete this requirement during the summer through CCSD summer school or Georgia Virtual School if not planning to take it in 9th grade.
- Students will complete a STEM related senior project.



WHS STEM CURRICULUM – BIOTECHNOLOGY



Other Requirements: at least two years of sequential foreign language; active participation in at least one STEM competition group/club; STEM related internship or capstone project in 12th grade; Health and Personal Fitness must be completed prior to graduation. **AP Statistics is highly recommended.**



WHS STEM CURRICULUM – BIOTECHNOLOGY



Description: The STEM Scientific Research pathway is designed for students with a passion for science and/or engineering and the curiosity to explore uncharted waters. The mission of Woodstock High School's research program is to encourage, support, and promote independent student research in all fields of science and engineering. Students in this pathway will have opportunities to participate in multiple competitions at the state, national, and international levels. Instruction will be customized for these student to integrate disciplines for a truly unique high school learning experience. The capstone course of this pathway is the Scientific Research IV course which requires an internship experience with an expert in the scientific and/or engineering fields outside of WHS.

Middle School Prerequisites: Students will need to have completed high school Physical Science in 8th grade as well as receive a recommendation for Honors Biology or Advanced Placement Biology in 9th grade. Students must also be recommended for Honors 9th Lit and any honor math course in 9th grade. It is recommended that students have completed a high school credit math course in 8th grade as well.

Math and Science Specifics: Students will have the opportunity to take Advanced Placement Statistics or Advanced Placement Calculus in 12th grade, providing a mathematical foundation to assist students in quantitative research. Completion of Honors or Advanced Placement Biology, Honors Chemistry, and multiple Advanced Placement Science courses will give students a variety of scientific and engineering experiences in which to base their independent research.

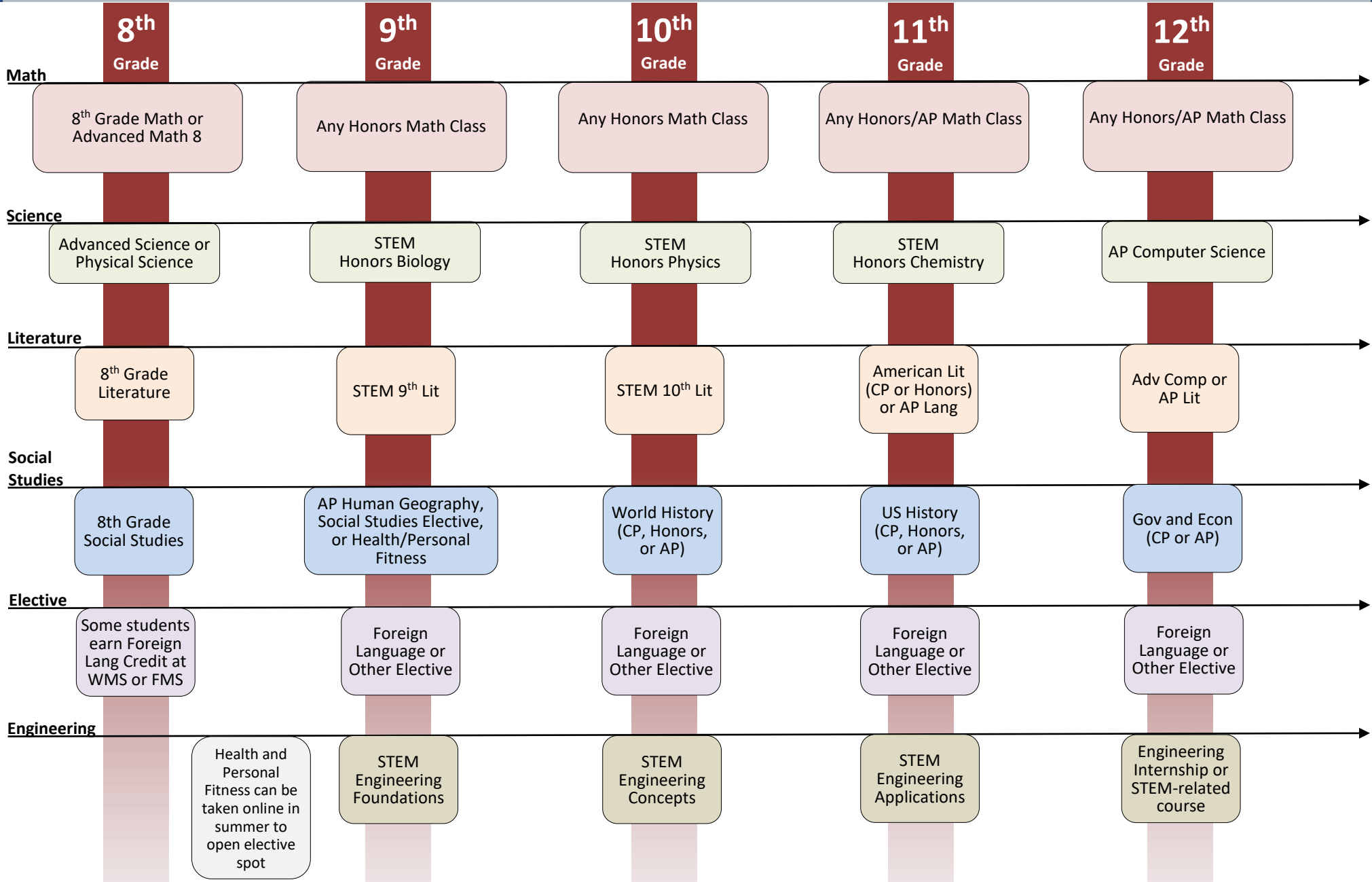
Research Specifics: Students will take research courses all four years of high school. Scientific Research I and II will build the foundation of independent research and writing a research proposal. Scientific Research III and IV will give students the opportunity to work with experts outside of the classroom and collaborate with our partner scientists at Kennesaw State University in the completion of independent research. The WHS research lab is biosafety level two (BSL-2), allowing for experimental research not possible at a typical high school. Students requiring a higher level of equipment have the opportunity to apply to work at the KSU labs.

Other Pathway Requirements:

- Students must complete at least two years of a sequential foreign language. This can be completed by taking Spanish 1 and 2, French 1 and 2, or Latin 1 and 2. Students can continue taking additional levels, but the minimum pathway requirement is through level two.
- Student must actively participate in at least one STEM competition group or club during their four years at WHS. Research students automatically fulfill this requirement as part of the course.
- Graduation requires that students take Health and Personal Fitness. WHS students typically complete this requirement in 9th grade. It is recommended that STEM students complete this requirement during the summer through CCSD summer school or Georgia Virtual School if not planning to take it in 9th grade.
- Students will complete a STEM related senior project.



WHS STEM CURRICULUM – ENGINEERING



Other Requirements: at least two years of sequential foreign language; active participation in at least one STEM competition group/club; STEM related internship or capstone project in 12th grade; Health and Personal Fitness must be completed prior to graduation



WHS STEM CURRICULUM – ENGINEERING



Description: The STEM Engineering Pathway is designed for students with an interest in the area of engineering. Instruction in math and science will be integrated with engineering for a truly unique high school learning experience. The capstone courses for this pathway are Engineering Applications in 11th grade, Engineering Internship in 12th grade, and Advanced Placement Computer Science in 12th grade.

Middle School Prerequisites: Students should be in advanced math and science courses.

Math and Science Specifics: Students will be required to begin with a minimum of Honors Algebra I in 9th grade and progress through Honors/AP math courses accordingly. The Advanced Placement Computer Science course will serve as the fourth year of science for STEM engineering students. Unique to this pathway, students will take STEM Honors Physics in 10th grade to align with the Engineering Concepts course and STEM Honors Chemistry in 11th grade to align with the Engineering Applications course. Typical WHS students take Chemistry in 10th and Physics in 11th.

Engineering Specifics: Students will complete the CTAE Engineering pathway by taking all three engineering courses in 9th – 11th grades. In 12th grade students will participate in an Engineering Internship (or a STEM related course approved by the Engineering teacher) and the AP Computer Science course.

Other Pathway Requirements:

- Students must complete at least two years of a sequential foreign language. This can be completed by taking Spanish 1 and 2, French 1 and 2, or Latin 1 and 2. Students can continue taking additional levels, but the minimum pathway requirement is through level two.
- Student must actively participate in at least one STEM competition group or club during their four years at WHS. Engineering students typically fulfill this requirement as part of the course as participating members of the Technology Student Association.
- Graduation requires that students take Health and Personal Fitness. WHS students typically complete this requirement in 9th grade. It is recommended that STEM students complete this requirement during the summer through CCSD summer school or Georgia Virtual School if not planning to take it in 9th grade.
- Students will complete a STEM related senior project.