

Arlington ISD – STEM Endorsement Pathways

A student may earn a STEM endorsement by completing 26 credits, the requirements specified in subsection (e) [requirements in foundation plan plus a fourth credit in mathematics and a fourth credit in science], including Algebra II, chemistry, and physics and:

- A. Engineering** – a coherent sequence of courses for four or more credits in CTE that consists of at least two courses in the same career cluster, including at least one advanced CTE course which is 3rd or higher in a sequence. The final course in the sequence must be obtained from one of the CTE career clusters listed in **Chapter 130, Subchapter O** (relating to STEM).

| Credit 1 | Credit 2 | Credit 3 | Credit 4 | Credit 5 | Career Opportunities |
|---|--------------------------------|--|---|----------|---|
| Possible from 8 th grade: PLTW Gateway to Technology PLTW Introduction to Engineering | PLTW Principles of Engineering | PLTW Digital Engineering PLTW Aerospace Engineering | PLTW Engineering Design & Development Engineering Internship-(to be taken concurrent with a PLTW course) | | Engineer or Engineer Tech: Civil, Mechanical, Electrical, Software, Biomedical, Aerospace, Chemical, Geological, Industrial, Manufacturing, Marine & Ocean, Geographical; Mechanical Designer/Drafter |

- B. Computer Science** – a coherent sequence of four credits in computer science

| Credit 1 | Credit 2 | Credit 3 | Credit 4 | Credit 5 | Career Opportunities |
|---|-----------------------|--|---|----------|--|
| most students would have taken Algebra I in 8th grade and would begin this sequence in 9th grade, as shown below: | PreAP Comp Science I | AP Computer Science A | Advanced Computer Science III Independent Study in Computer Science: Emerging Technologies | | Video Game Programmer/Designer, Mobile App Designer/Developer, Web Designer/Developer, Robotics/Artificial Intelligence, Designing/programming/ implementing software, Software Engineer, Business Analyst, Project Manager, Network Engineer, Systems Administrator Database Administrator, Information Systems Administrator, Information Technology (IT) Consultant |
| PreAP Computer Science I | AP Computer Science A | Advanced Computer Science III | Independent Study in Computer Science: Emerging Technologies | | |
| Digital Design and Media Production | Web Design | Independent Study in Tech Apps (Web Design II) | PreAP Computer Science I | | |

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C. Math – three credits in mathematics by successfully completing Algebra II and two additional mathematics courses for which Algebra is a prerequisite

| Credit 1 | Credit 2* | Credit 3* | Credit 4 | Credit 5 | Career Opportunities |
|---|--------------------------|------------------------------|--------------------------------|-------------------------|---|
| Algebra I | Geometry/PAP Geometry | Algebra II/PAP Algebra II | Precalculus/PAP Precalculus | AP Calculus AB or BC | Architect, Astronomer, Cartographer/Map Maker, Geographer, Geologist, Math Teacher, Meteorologist, Operations Research Analyst, Dentist, Economist, Optometrist, Pharmacist, Physician, Pilot and Flight Engineers, Registered Nurse, Veterinarian |
| Algebra I | Geometry/PAP Geometry | Algebra II/PAP Algebra II | Precalculus/PAP Precalculus | AP Statistics | Biologist, Certified Public Accountant, Forester/Conservation Scientist, Lawyer, Psychologist, Sociologist, Surveyor |
| <i>(PAP Algebra I) 8th Grade</i> | Geometry/PAP Geometry | Algebra II/PAP Algebra II | Precalculus/PAP Precalculus | AP Calculus AB or BC | Actuary, Applied and Pure Mathematician, Architect, Biochemist, Chemist, College Math Professor, Computer Programmer, Computer Systems Analyst, Dentist, Drafter, Engineer, Math Teacher, Optometrist, Pharmacist, Physician, Physicist, Pilot and Flight Engineers, Registered Nurse, Veterinarian |
| <i>(PAP Algebra I) 8th Grade</i> | Geometry/PAP Geometry | Algebra II/PAP Algebra II | Precalculus/PAP Precalculus | AP Statistics | Certified Public Accountant, Economist, Geographer, Loan and Insurance Underwriters, Pilot and Flight Engineers, Registered Nurse, Statistician |

***Students will be allowed to take classes concurrently at these levels. Also, IB classes can be substituted as needed.**

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D. Science – four credits in science by successfully completing chemistry, physics, and two additional science courses

| Credit 1 | Credit 2* | Credit 3* | Credit 4* | Credit 5* | Career Opportunities |
|---------------------|-----------------------------------|----------------------------------|---|---|---|
| Biology/PAP Biology | AP Biology or Chemistry | Chemistry or Physics/PAP Physics | AP Physics I | AP Environmental Systems, any Senior level course | Biologist, Geologist, Forester/Conservation Scientist, Psychologist, Sociologist, Surveyor, Environmentalist, Biomedical Engineer, Molecular Biologist, Biotechnology, Microbiologists, Ecologist, Genomics, Immunologist, Cell Biologist, Cancer research, Computational Biologist, Stem Cell Researcher, Physiologists, Virologist, Environmental Scientists, , Researcher, College Professor, Oceanographer |
| Biology/PAP Biology | PAP Chemistry | AP Chemistry | Physics /PAP Physics/AP Physics I | AP Physics II, AP Physics C, any Senior level course | Actuary, Applied and Pure Mathematician , Architect, Biochemist, Chemist, College Science Professor, Computer Programmer, Computer Systems Analyst, Dentist, Drafter, Engineer, Science Teacher, Optometrist, Pharmacist, Physician, Physicist, Pilot and Flight Engineers, Registered Nurse, Veterinarian, Forensic Scientist (CSI), Chemists, Oncologists, , Researcher, College Professor, Environmental Chemist |
| Chemistry | Physics/PAP Physics/ AP Physics I | AP Physics I/ AP Physics II | AP Physics II/AP Physics C Mechanics and/or Electricity and Magnetism | AP Physics C Mechanics and/or Electricity and Magnetism), any Senior level course | Architect, Astronomer, Meteorologist, Operations Research Analyst, Dentist, Economist, Optometrist, Pharmacist, Physician, Pilot and Flight Engineers, Registered Nurse, Veterinarian, Astronomer, Bioengineering, Biophysicist, Researcher, College Professor, Aerospace Engineer, Naval Researcher |

***Students will be allowed to double sciences classes at these levels. Also, IB classes can be substituted as needed.**

E. In addition to Algebra II, Chemistry, and Physics, a coherent sequence of three additional credits from no more than two of the categories or disciplines represented by subparagraphs (A), (B), (C), and (D) of the paragraph.