STEM: SCIENCE, TECHNOLOGY, ENGINEERING, AND MATHEMATICS

Program Contact
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STEM

The Associate of Science in STEM enables students who are interested in earning a four-year degree to explore STEM, and supports students whose desired STEM transfer major is not directly represented by one of the FCC approved Areas of Concentration in Biology, Chemistry, Engineering, and Mathematics. A STEM A.S. degree program and a STEM Technology A.A.S. degree program are available.

STEM: Science, Technology, Engineering, and Mathematics A.S. Degree

The STEM A.S. degree program trains students how to think analytically, creatively, logically, and scientifically, and how to ask questions and pose solutions to the challenges facing our society. The STEM discipline helps develop the technological, medical, and scientific breakthroughs that drive our economy and prepare us for the future.

This program is designed for students who plan to transfer to a four-year college or university and major in one of the traditional STEM areas (science, technology, engineering, math) with a heavy emphasis on undergraduate mathematics or science. Students wishing to concentrate in one of these areas should consult with an advisor or ARTSYS as early as possible to ensure that all or most of their course credits will transfer to the four-year school of their choice.

Students can choose to major in the STEM: Science, Technology, Engineering, and Mathematics A.S. to explore various disciplines including biology, chemistry, computer aided design, computer & information sciences, engineering, mathematics, physical science, and physics.

Students also have the option to focus on a specific discipline within the STEM A.S. by selecting an Area of Concentration in Biology, Chemistry, Engineering, or Mathematics.

Students interested in courses of study such as pre-medical, pre-dental, pre-veterinary, pre-pharmacy, pre-physician assistant, or other graduate health programs should follow the STEM A.S. Degree: Biology or Chemistry Area of Concentration and meet with an academic advisor.

Learning Outcomes

- Demonstrate analytic thinking and problem solving skills in mathematics and the sciences.
- Effectively communicate mathematical explanations (verbal, graphical, numerical, and symbolic representations) and a basic understanding of the scientific method.
- Demonstrate an understanding of basic concepts in biological, chemical, computer science, physical, mathematics, or engineering disciplines.
- Demonstrate an ability to apply quantitative methods to chemical, computer science, biological, or engineering applications.
- Be prepared to enter transfer institutions in STEM fields.
- Demonstrate the ability to use technology appropriate to mathematical and scientific problem solving.

STEM Technology A.A.S. Degree

The STEM Technology A.A.S. degree program is designed for students who plan to enter a career field. Some students will choose an approved Area of Concentration, others will explore STEM disciplines more generally.

If a student plans to transfer to a four-year college or university and major in one of the traditional STEM areas (science, technology, engineering, math) with a heavy emphasis on undergraduate mathematics or science, it is advised that they consult with an advisor or ARTSYS as early as possible to ensure that all or most of their course credits will transfer to the four-year school of their choice.

Students can choose to major in the STEM Technology A.A.S. to explore various disciplines including biological sciences, biotechnology, building trades, business management, computer aided design, construction management, chemistry, computer & information sciences, engineering, film & video production, graphic design, mathematics, music, physical science, and physics.

Students also have the option to focus on a specific discipline within the STEM Technology A.A.S. by selecting an Area of Concentration in Audio Production Technology, Computer Aided Design Technology, Computer Aided Design (Engineering) Technology, Construction Management Technology, Cybersecurity, Information Technology Specialist, Network Engineering, or Software Engineering.

Learning Outcomes

- Apply technology tools responsibly, appropriately, and effectively.
- Evaluate physical, mathematical, and scientific concepts in career fields.
- Employ contemporary and emerging technology resources in diverse and dynamic environments.
- Analyze technical requirements to determine and recommend resource requirements for organizations.
- Identify and resolve real-world problems/issues utilizing engineered techniques and approaches.
- Apply engineering design processes in developing solutions for business needs.

Internship Program

Internships help students integrate what is taught in the classroom with what is required in the workplace. Students take internships to develop knowledge and skills valued by employers. Students in the Computer Aided Design Technology Area of Concentration within the A.A.S. in STEM Technology program at Frederick Community College (FCC) are eligible to receive credit for internships.

Financial Assistance

FCC provides a tuition payment plan for students who wish to spread payment over several months. Scholarship and loan assistance is available for eligible students. For complete scholarship information, contact Financial Aid at 301.846.2620.

Transfer Note

To find more information about how credits will transfer from FCC to a state four-year institution, visit artsys.usmd.edu or consult a College advisor. Students who plan to transfer should speak with an advisor or program manager from their chosen transfer institution before selecting elective courses. To investigate potential careers related to this degree program, visit frederick.edu/career-communities.

Growth Potential & Estimated Salaries

Between 2021 and 2031, employment in STEM occupations is projected to grow nearly 11 percent. The median annual wage for all STEM occupations was $95,420 in 2021.

Source: Occupational Employment and Wage Statistics program, U.S. Bureau of Labor Statistics (bls.gov)

Science

Employment of life, physical, and social science occupations is projected to grow seven percent from 2021 to 2031, which is expected to result in about 98,700 new jobs. The median annual wage for these occupations was $72,740 in May 2021.

Technology

Employment of computer and information technology occupations is projected to grow 15 percent from 2021 to 2031, which is expected to result in about 682,800 new jobs. The median annual wage for these occupations was $97,430 in May 2021.

Engineering

Employment of architecture and engineering occupations is projected to grow four percent from 2021 to 2031, which is expected to result in about 91,300 new jobs. The median annual wage for these occupations was $79,840 in May 2021.

Mathematics

Employment of mathematicians is projected to grow 29 percent from 2021 to 2031. Businesses will need mathematicians to analyze the increasing volume of digital and electronic data. The median annual wage for mathematicians was $98,680 in May 2021.

Source: Bureau of Labor Statistics Occupational Outlook Handbook (bls.gov/ooh)

For more information:

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View required course listings: **frederick.edu/STEM**