

SCIENCE, TECHNOLOGY, ENGINEERING, AND MATH (STEM)

 Frederick Community College



Program Contact:

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Science, Technology, Engineering, & Math (STEM)

The Program

Designed for students who plan to go on to a four-year school and major in one of the traditional STEM areas (science, technology, engineering, and 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 institution of their choice.

Growth Potential & Estimated Salaries

Between 2014 and 2024, STEM jobs in the United States will grow by 16 percent. Median earnings in United States STEM jobs are \$37.44 per hour.* For information on salaries, minimum educational requirements, and growth rates for specific jobs search the U.S. Bureau of Labor Statistics Occupational Outlook Handbook at www.bls.gov/ooh.

Science

Employment of life, physical, and social science occupations is projected to grow 7 percent from 2014 to 2024, which will result in about 97,600 new jobs. The median annual wage for these occupations was \$61,450 in May 2014.**

Technology

Employment of computer and information technology occupations is projected to grow 12 percent from 2014 to 2024 adding about 488,500 new jobs. This growth is due in part to a greater emphasis on cloud computing, the collection and storage of big data, more everyday items becoming connected to the Internet, and the continued demand for mobile computing. The median annual wage for computer and information technology occupations was \$79,390 in May 2014.**

Engineering

Employment of architecture and engineering occupations is projected to grow 3 percent from 2014 to 2024, adding about 67,200 new jobs. The median annual wage for these occupations was \$75,780 in May 2014.**

Mathematics

Employment of mathematicians is projected to grow 21 percent from 2014 to 2024. Businesses will need mathematicians to analyze the increasing volume of digital and electronic data. The median annual wage for mathematicians was \$103,720 in May 2014.**

**Source: Economic Modeling Specialists International, February 2015.*

***Source: Bureau of Labor Statistics, U.S. Department of Labor, Occupational Outlook Handbook, 2016-17 Edition*

STEM Learning Center

The STEM Learning Center helps students succeed in their science, engineering and math courses. Students can drop-in for tutoring, for a quiet place to study, to ask questions, get help with calculators, or use supplemental resources.

The Center is staffed with faculty and tutors, as well as STEM learning assistants who are experienced FCC Science, Engineering and Math students who can help you with beginning Algebra through Calculus, Statistics, Chemistry, and Physics.

The Center is open 8:30 a.m. to 8:30 p.m., Monday through Thursday during the fall and spring semesters. More information is available on the STEM Learning Center webpage.

Faculty

In addition to highly qualified full-time faculty, the program utilizes local business professionals who teach on an adjunct basis in their area of education and expertise.

Transfer Note

The Career & Transfer Center has a variety of print and electronic resources available to help with transfer planning. ARTSYS, a computerized articulation system created especially to help community college students transfer to Maryland four-year institutions is available, as well as College Source and College Board. College Source also allows students to view college catalogs from across the nation.

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 the Financial Aid office.

SCIENCE, TECHNOLOGY, ENGINEERING AND MATH (STEM)

A.S. Degree (Transfer)

<i>Course</i>	<i>Credits</i>
English	
EN 101 English Composition	3
Mathematics	
MA 210 Calculus I	4
Social & Behavioral Sciences	
Two courses selected from different disciplines	6
Arts & Humanities	
Arts Elective (GenEd course list)	3
Humanities Elective (GenEd course list)	3
Communications Elective (GenEd course list).....	3
Biological & Physical Sciences	
CH 101 General Chemistry	4
Biological & Physical Sciences Lab course (GenEd course list).....	4
General Education STEM Elective	4
PE/Health Requirement	1/3
Departmental Requirements	
STEM Electives (Lab Science/Technology/Engineering/Mathematics)	25

The following are STEM Options under the Associate of Science Degree. Students interested in the following majors should consult the online curriculum pathway before selecting elective.

BIOLOGY

BI 101	General Biology
BI 102	General Biology
BI 103	Anatomy & Physiology
BI 104	Anatomy & Physiology
BI 120	Microbiology for Allied Health
BI 203	Elements of Microbiology

CHEMISTRY

CH 102	General Chemistry
CH 105	Essentials of Organic Chemistry
CH 201	Organic Chemistry
CH 202	Organic Chemistry

ENGINEERING

EG 100	Introductory Engineering Science
EG 110	Engineering Statics
EG 210	Mechanics of Materials
EG 211	Engineering Dynamics
EG 214	Engineering Thermodynamics

MATHEMATICS

MA 111	Pre-calculus
MA 130	College Algebra
MA 131	Trigonometry with Analytic Geometry
MA 202	Introduction to Discrete Mathematics
MA 207	Elementary Statistics with Probability
MA 211	Calculus II
MA 212	Calculus III
MA 213	Differential Equations
MA 214	Introduction to MatLab
MA 218	Linear Algebra

PHYSICS

PY 101	Survey of Physics
PY 201	Fundamentals of Physics
PY 202	Fundamentals of Physics
PY 203	Introductory Physics I
PY 204	Introductory Physics II
PY 205	Modern Physics

COMPUTER AND INFORMATION SYSTEMS

CIS 101	Information Systems and Technology
CIS 106	Introduction to Object Design and Programming
CIS 111L	Microcomputer Software Applications: Open Operating Systems
CIS 111M	Personal Computer Operating Systems Concepts
CIS 140	Introduction to Object-Oriented Programming in Java
CIS 170	Security Fundamentals
CIS 179	Cybersecurity Fundamentals
CIS 180	Networking Fundamentals
Any 200-level CIS course	

ACADEMIC AND CAREER ENGAGEMENT

ACE 100	Learning Strategies
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For more information about our graduation rates, the median debt of students who completed the program, and other important information, please visit our website at www.frederick.edu/gainfulemployment.

Frederick Community College prohibits discrimination against any person on the basis of age, ancestry, citizenship status, color, creed, ethnicity, gender identity and expression, genetic information, marital status, mental or physical disability, national origin, race, religious affiliation, sex, sexual orientation, or veteran status in its activities, admissions, educational programs, and employment. Frederick Community College makes every effort to accommodate individuals with disabilities. If you have accommodation needs, please call 301.846.2408. To request a sign language interpreter, please call 240.629.7939 or 301.846.2408 (Voice) or email Interpreting@frederick.edu. Requests for any accommodation should be made at least five working days prior to attending a scheduled event.