

# Science, Technology, Engineering & Mathematics (STEM) @ SU



## PROGRAMS

### STEM MAJORS

- Biology
- Chemistry
- Computer Science
- Earth Science
- Geography
- Mathematics
- Physics

### GRADUATE PROGRAMS

- Applied Biology (M.S.)
- GIS Management (M.S.)
- Mathematics Education (M.S.)
- Teaching (M.A.T.)

### STEM@SU

Salisbury University offers extraordinary opportunities for students interested in science, technology, engineering and mathematics (STEM). The University provides engaging and rigorous STEM majors to students seeking careers in aerospace, biotechnology, bioinformatics, biomedicine, computational science, cybersecurity, environmental science, green technologies, geosciences, mechanical engineering, science and mathematics teaching, technology entrepreneurship, and many other fields. Given that graduates of STEM disciplines are critically needed to keep the United States labor force innovative and competitive, our goal is to produce highly skilled and knowledgeable STEM majors and outstanding educators for science and math teaching.

*241,000: The number of STEM-related jobs Maryland will need to fill by 2018.*



### Why STEM?

- Maryland universities currently produce less than one-third of the STEM teachers and less than two-thirds of the STEM graduates needed by Maryland schools, businesses and industry at the end of the decade.
- Workforce projections for 2014 by the U.S. Department of Labor show that 15 of the 20 fastest growing occupations require significant science or mathematics training to successfully compete for a job.
- According to a recent study, graduates with engineering and science majors tend to earn significantly more than graduates with other college

majors. Additionally, 7 of the top 10 majors with the lowest unemployment rates are STEM-related.

### STEM Programs

#### ■ Biological Sciences:

The curriculum focuses on the development of knowledge and skills that are important for biologists in the 21st century and includes a strong background within the discipline, competency in related sciences, and an in-depth knowledge of modern biological concepts and techniques. Graduates often pursue graduate school or professional programs in health-related fields or directly enter employment as teachers, environmental analysts, researchers, health-care workers and many other fields.

#### ■ Biology/Environmental and Marine Science Dual Degree:

This program is a collaborative four-year course of study offered through SU in cooperation with the Department of Natural Sciences at the University of Maryland Eastern Shore. Upon successful completion, the student receives both a Bachelor of Science in biology from SU and a Bachelor

### CONTACT INFORMATION

For more information about STEM@SU, contact:

Kristen A. Paul,  
STEM Coordinator:  
[kapaul@salisbury.edu](mailto:kapaul@salisbury.edu)  
or [STEM@salisbury.edu](mailto:STEM@salisbury.edu)

of Science in environmental science with a marine concentration from UMES. Graduates work as rangers, refuge managers and research technicians with governmental agencies and non-profit environmental agencies.

- **Chemistry:** Several tracks lead to a B.S. in chemistry, including two that are certified by the American Chemical Society (ACS). These tracks foster development and expression of rational thought and help prepare students for admission to Ph.D. programs in chemistry, related professional fields (such as medicine and pharmacy), and positions in the chemical and related industries.

**Continued on reverse**

[www.salisbury.edu/henson/stem](http://www.salisbury.edu/henson/stem)

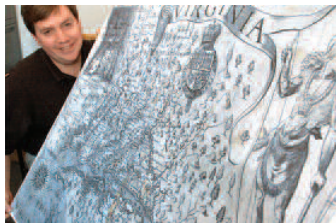
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■ **Computer Science:** Prepares students to become outstanding computer science professionals, with an emphasis at the upper level in software development. Cooperative learning and team experiences are incorporated throughout the program to prepare students for environments they will encounter after graduation.

■ **Earth Science:** Earth science includes the study of the solid earth (the lithosphere), the atmosphere, the hydrosphere and the biosphere. Earth scientists use tools from multiple disciplines to understand how earth systems work. Many earth scientists are involved in finding solutions for waste disposal, providing clean energy, promoting sustainability and coping with hazards such as earthquakes, flooding and erosion. Others study the human influence upon the earth and provide the information needed to establish policies for resource management, environmental protection, and public health safety and welfare. Importantly, earth science students may have careers in secondary science education.

■ **Engineering:** The 3-2 dual-degree pre-engineering program is a cooperative program with the University of Maryland College Park, Old Dominion University and Widener University. Under the program, a student normally



attends SU for three years and one of the cooperating engineering schools for two years. Upon successful completion of the five-year program, a student will be awarded a baccalaureate degree from SU as well as an appropriate engineering degree from the engineering school attended.

■ **Geography:** The geography major emphasizes geographic concepts, techniques, skills and their application to the solution of environmental, land use and public planning problems, with tracks in atmospheric science, environmental/land-use planning, geographic information science, physical geography and general geography. An overwhelming majority of the program's graduates obtain jobs directly related to their degree; many have also gone on to graduate school in geography.

■ **Mathematics:** Majors begin their study with a core of courses in pure mathematics, applied mathematics, computer science and statistics. There are a variety of options including a B.S. in mathematics; a B.S. in mathematics with a

## STEM ACTIVITIES

- Center for Applied Mathematics and Science (CAMS)
- Internships
- Maryland Science Olympiad
- Science Camp
- Science Nights
- STEM Living-Learning Communities (LLCs)
- Supplemental Instruction (SI)
- Teaching Experiences
- Undergraduate Research

concentration in statistics, computer science or actuarial science; and a B.S. in mathematics with secondary education certification. Graduates have a wide variety of opportunities in industry, government and education; employers of recent graduates include Lockheed Martin, the National Security Agency, the Weather Channel, and the Census Bureau.

- **Physics:** Students can pursue a multi-track program of study that provides flexibility to pursue a challenging curriculum. A major in physics prepares students for careers in a variety of high-technology fields, teaching and graduate studies in physics, engineering, medicine, and other fields. Students can complete the physics major in one of four ways: general physics track, microelectronics track, secondary education track, or 3-2 dual-degree engineering program.

### Research Opportunities

Undergraduate research opportunities are important to the advancement of student understanding, allowing the student to experience first-hand the practical applications of current methods and technologies. With close faculty mentoring during the research experience, students gain the skills necessary to organize and communicate experimental results and become successful practitioners of scientific research. SU offers



semester activities as well as two funded summer research programs for undergraduates:

### ■ Bridges for SUCCESS Research Experiences:

Fosters a community of research and engaged learning for students early in their careers, providing mentored research experiences during the summer months between a student's freshman to sophomore or sophomore to junior years. Priority for funding is given to students majoring in chemistry, computer science, earth science, physics and mathematics.

### ■ Guerrieri Summer Research Experiences:

Similar in intent to the NSF Bridges Summer Research Experiences, the Guerrieri Undergraduate Research Summer Program serves all majors in the Henson School and is funded through the generous support of the Guerrieri Family Foundation.

### Bridges for SUCCESS

In 2010, SU was awarded a \$996,303 STEM Talent Enrichment Program (STEP) grant from the National Science Foundation. Through the grant, the Bridges for SUCCESS (SU's Connections to Careers for Every STEM Student) program was created.

The goal of the program is to increase the total number of graduates in selected STEM disciplines (chemistry, physics, mathematics, computer science and earth science) by 75 percent within five years through targeted programs for high school students and undergraduates.

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