



SMR STEM 100

Full inclusion.

All of our students are STEM 100 students.



What is STEM and SMR STEM 100?

STEM - the acronym for Science, Technology, Engineering and Math - is a program to prepare students for careers in high-tech areas by introducing them to hands-on experiences in the natural sciences and engineering before college. The hope is that the STEM program will encourage students to pursue an education in engineering and technology, and to motivate students to stay engaged in engineering and the sciences throughout their lives.

SMR STEM 100 means that 100% of St. Mary's Ryken students will participate in the STEM programs offered here at SMR.

Internships

Internships during the school year and summer employment opportunities are available through the Naval Air Station (NAS) Pax River Education Partnership Program.



Accelerated Science Program for Incoming Freshmen

In addition to all SMR students participating in all STEM programming, there is a program for students with an elevated interest in science and math.

Students are automatically placed into the honors chemistry class their freshman year, and will work with the faculty to follow a customized course of math and science placement for the remainder of their four years.

Selection to this program is determined by the student's placement test results. Placement tests are given in the spring of the 8th grade year.

What type of STEM activities are offered to students?

A sampling of SMR STEM 100 events that have occurred this academic year (2008-09):

- AP Physics, Honors Calculus, and AP Calculus classes visited the NAS Pax Research Labs for a presentation about the catapult and the horizontal accelerator.
- All levels of the Environmental Science classes - AP, honors, and college-preparatory - heard from a local expert about alternative fuels and their viability.
- Scientists and engineers from the Pax Navy Base are available to serve and have served as mentors for science research projects. Senior Mark Ragland did this for his science fair project and won the Grand Prize at the St. Mary's

St. Mary's Ryken is the pilot high school for the Office of Naval Research-sponsored robotics program in the state of Maryland.

- County Science Fair this year (January 2009).
- The Office of Naval Research is sponsoring the World Material Modules and kits for the Honors Physics class. The students began the design and development of their robots and will put the robots through a variety of challenges in a competition with several local schools. Programming and training is provided by Dr. Ray Gamache and associates.
- The Girls Who Dare to be Geeks Club had guest speakers from the fields of industrial, civil, mechanical and electrical engineering.
- Juniors and seniors heard a presentation about internships and job opportunities at the Pax Navy Base.
- The Robotics Club participates in competitions with other local high schools throughout the academic year and is open to all students.

The Math Program

St. Mary's Ryken prides itself on its diverse offerings in the math department. Below are the current math courses which are offered at college preparatory, honors, and AP levels. Three math credits required for graduation.

Algebra 1, Honors Algebra 1
Geometry, Honors Geometry
Algebra 2, Honors Algebra 2
Trigonometry, Honors Trig*
Pre-Calculus*, Honors Pre-Calculus*
Honors Calculus*
AP Calculus AB*, AP Calculus BC*
Statistics*
Introduction to Business*

** elective math courses*

Based on the results of his/her placement test, a freshman student can be placed into Algebra 1, Geometry or Algebra 2.



Ms. Nancy Riestler, chair of the math

department, has been teaching all levels of math from Algebra 1 to AP Calculus for 11 years at SMR. Ms. Riestler has a bachelor's of science in physics. She and her husband Peter have two sons, both of whom graduated from SMR. One is a graduate of the United States Naval Academy and the other, is a graduate of Villanova University.

The Science Program

The majority of students are required to take Conceptual Physics in ninth grade, Chemistry in tenth grade, and Biology in eleventh or twelfth grade. A fourth science course can be chosen and can also be selected for electives.



If freshman students begin with the Honors Chemistry class, they then have the option to take Environmental Science (college preparatory or honors), Anatomy or Physics (college preparatory or honors). There is also a new Forensic Science class.

St. Mary's Ryken currently offers the following accelerated science programs:

AP Biology
AP Chemistry
AP Environmental Science
AP Physics
Independent Science Research

Ms. Elizabeth A. Schuck, chair of the science

department, received her bachelor's in mechanical engineering from Drexel University and her master's in systems engineering from the University of Pennsylvania. She has worked as a machine design engineer and as a test engineer. After earning her master's in Leadership in Teaching from the College of Notre Dame of Maryland, Ms. Schuck joined the faculty of SMR and has been a member of the SMR Science Department and the Science Department Chairperson since 1999.



St. Mary's Ryken offers a rigorous and challenging college preparatory curriculum. Our values-centered curriculum is structured to emphasize the correlation between academic subjects, to give attention to student learning styles, and to build the knowledge and skills needed for problem solving and learning strategies.

Upon completion of four years of study at St. Mary's Ryken, a student will have received the strongest possible preparation for future academic study.

St. Mary's Ryken is fully accredited by the Middle States Association of Colleges and Secondary Schools, the Archdiocese of Washington and the Maryland State Department of Education.

Our graduates have said they are fully prepared for the rigors of college study and have gone on to graduate from many of the finest higher education institutions including:

Brown University
Columbia University
Dartmouth College
Duke University
Embry-Riddle Aeronautical University
Georgia Tech
Harvard University
Johns Hopkins University
MIT
NYU (New York University)
Rochester Institute of Technology
United States Air Force Academy
United States Naval Academy
University of Chicago
University of Notre Dame
University of Pennsylvania
Virginia Tech



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