



Governor's School for Science, Math and Technology

Profile Sheet for Transcripts

Mountain Vista Governor's School is a regional program for academically talented and highly motivated 10th, 11th and 12th grade students from the school divisions of Clarke County, Culpeper County, Fauquier County, Frederick County, Rappahannock County, Warren County and Winchester City. Students are selected to attend MVGS through a rigorous application/screening process. Less than 2% of the senior class is selected to participate in the Mountain Vista Governor's School. Mountain Vista Governor's School has approximately 70 graduates each year. Of these, 99% are attending a college or university.

Mission Statement: The mission of the Mountain Vista Governor's School is to present a research-based, technology-enhanced, integrated program in mathematics, science, and the humanities. The program will challenge students to reach their full potential as independent thinkers capable of assuming leadership roles in a constantly changing global society.

Curriculum Overview: The interdisciplinary curriculum design of Mountain Vista Governor's School challenges students to construct a highly integrated understanding of mathematics and designated sciences. The development of technology and research skills supports students in solving authentic problems in a scholarly and professional manner. The humanities component requires students to analyze the relationship between the arts and sciences and construct a personal philosophical basis for ethical leadership in applying scientific knowledge to challenging real-world issues. Students are graded on a ten-point scale. The school is housed at two sites of Lord Fairfax Community College.

Mountain Vista Contact Information

Mountain Vista Governor's School Director

Dr. Rosanne Williamson

6480 College Street

Warrenton, VA 20187

rwilliamson@mvgshome.org

540-347-6237

Mountain Vista Governor's School Course Descriptions

All courses are available for college credit through Lord Fairfax Community College.

MVGS Collegiate Chemistry 448009 Collegiate Chemistry is an introductory college chemistry course. The curriculum is laboratory based and includes study in matter and measurement, atoms, molecules, ions, ionic and covalent bonding. Second semester includes study in liquids and solids, solutions, chemical kinetics, chemical equilibrium, and acids and bases. Students will be prepared to take the AP Chemistry examination.

MVGS Physics 1: Mechanics 451019 Physics 1 is a calculus based, first-year course designed to be integrated with MVGS Calculus. Major units of study include Kinematics, Newton's Laws of Motion, Work, Energy & Power, Linear Momentum, Circular Motion & Rotation, Oscillation, and Gravitation; optional units include Thermodynamics and Fluid Mechanics. Students will be prepared to take the AP Physics C (Mechanics) examination.

MVGS Physics 2: Electricity and Magnetism 452029 Physics 2 is a calculus based, second-year physics course. Major units of study include Electrostatics, Electric Potential & Dielectrics, Electric Circuits, Magnetic Field, and Electromagnetism; optional units include Waves & Optics and Modern Physics. Upon successful completion of the course, students will be eligible to take the AP Physics C (Electricity & Magnetism) examination.

MVGS Biology 1: Collegiate Biology 432019 Biology 1 is the equivalent of a two-semester college introductory biology course for biology majors. The curriculum is laboratory based and includes extensive integration of laboratory technology. Major units of study include Cell Processes, Ecology, Evolution and Genetics and Information Transfer. Upon completion of the course, students will be eligible to take the Advanced Placement Biology examination.

Mountain Vista Governor's School Course Descriptions

MVGS Biology 2: Advanced Topics in Biology 432029 Biology 2 is a second-year college biology course which ties together biological principles with social and ethical implications. Students will explore advanced topics in Ecology and Microbiology at varying levels of complexity.

MVGS Math Analysis 316209 Math Analysis develops students' understanding of algebraic, trigonometric, exponential, logarithmic and transcendental functions, parametric and polar equations and vectors. Investigating real world data will enhance the understanding of realistic applications through modeling.

MVGS Calculus 1 317519 A first year, rigorous course in calculus with analytic geometry, topics include concepts and applications of differential and integral calculus and an introduction of elementary differential equations. Upon successful completion, students will be eligible to take the AP Calculus AB examination.

MVGS Calculus 2/3 317809 The second year course is a continuation of calculus topics from the first year course and an introduction to multivariable calculus. Topics include sequences and series, differential equations, three-dimensional analytical geometry, vector analysis, partial derivatives, optimization, double and triple integrals. Upon successful completion, students will be eligible to take the AP Calculus BC examination.

MVGS Statistics 319009 A study of descriptive and analytical (non-calculus) statistics, students will learn and apply four broad conceptual themes which include exploring data, sampling and experimentation, anticipating patterns in advance, and statistical inference. Upon successful completion, students will be eligible to take the AP Statistics examination.

MVGS Humanities 10: The Power of Thought / English 10 114009 Beginning with philosophical systems of thought, students will engage in an exploration of the philosophical and historical foundations of knowledge against the broader background of Western thought as it applies to classical and modern literature, science, and mathematics. Students will earn one English credit, which will meet the requirement for English 10.

MVGS Humanities 11: The Search for Identity/English 11 115009 Engaging in an exploration of the human drive for individual identity across cultures and time, students will develop an understanding of the concepts of self, maturity, citizenship, and the questionable attainment of perfection. Emphasis is on the themes found in literature, psychology, philosophy, and science which establish our identities within the broader context of human experience. Upon successful completion of the course, students will be eligible to take the AP English Language and Composition Exam. Students will earn one English credit, which will meet the requirement for English 11.

MVGS Humanities 12 / Government 244009 (or 231509 for Humanities credit) With an emphasis on American Government, students will study rhetoric, oratory, political philosophy and ethics and their relationship to current problems and controversies. Upon successful completion of the course, students will be eligible to take the AP US Government Exam. This course meets the requirement for US Government.

MVGS Research 1: Introduction to Research 011519 The students' review of literature, analysis of arguments, and evaluation of experiment designs will enable them to explore basic research components; understand concepts such as validity, reliability, and integrity of research; and develop the skills to design, evaluate using statistics, and assess their own and others' academic and scientific research. Extended project integration with math, physics, and humanities will enable students to engage in meaningful background research, link hypothesis development with experiment and study design, and develop quality methods of data collection.

MVGS Psychology/Research 2 or 3 290809/290819 Students are introduced to the systematic study of the behavior and mental processes of human beings and other animals. The course will prepare students for the Advanced Placement Psychology Exam. The MVGS Independent Research Project (Research 2) is included in the psychology elective for juniors. The MVGS Capstone Project (Research 3) is included in the psychology elective for seniors.

MVGS Economics/Research 2 or 3 280809/280819 Students develop critical thinking skills through the understanding, application, and analysis of macroeconomic concepts and structures. The course will prepare student for the Advanced Placement Macroeconomics Exam and may be used to meet the Economics and Personal Finance diploma requirement. The MVGS Independent Research Project (Research 2) is included in the economics elective for juniors. The MVGS Capstone Project (Research 3) is included in the economics elective for seniors.

MVGS Computer Science 1/ Research 2 or 3 318609/318619 Computer Science introduces students to the fundamental topics of computing, including problem solving, designing strategies and methods, creating data structures, designing algorithms, analyzing possible solutions, and exploring ethical and social implications of computing. Upon successful completion, students will be eligible to take the Computer Science A Advanced Placement examination. The MVGS Independent Research Project (Research 2) is included in the CS elective for juniors. The MVGS Capstone Project (Research 3) is included in the CS elective for seniors.

MVGS Computer Science 2: Topics in Computing/ Research 2 or 3 318629/318639 Covers data structures (including sets, strings, stacks, queues, arrays, records, files, linked lists, and trees), abstract data types, algorithm analysis (including searching and sorting methods), and objects. It also examines the hierarchical structure of computer architecture. The MVGS Independent Research Project (Research 2) is included in the CS elective for juniors. The MVGS Capstone Project (Research 3) is included in the CS for seniors.