



## Profile Sheet for Transcripts 2011-2012

Mountain Vista Governor's School is a regional program for academically talented and highly motivated 11<sup>th</sup> and 12<sup>th</sup> grade students from the school divisions of 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. Last year Mountain Vista Governor's School had 57 graduates. Of these, 100% 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

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### Lord Fairfax Community College

<p><b>Middletown Campus</b> 173 Skirmisher Lane Middletown, VA 22645</p> <p>540-868-7237 / 540-868-7238 Fax: 540-868-7259</p> <p>LFCC Information Desk: 800-906-5322</p>	<p><b>Warrenton Campus</b> 6480 College Street Warrenton, VA 20187</p> <p>540-347-6237 / 540-347-6238 Fax: 540-347-6215</p> <p>LFCC Information Desk: 540-351-1505</p>
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## Mountain Vista Governor's School Course Descriptions with Coding Number--2011-2012

\*Students completing these courses may earn dual enrollment through Lord Fairfax Community College.

**MVGS Physics 1: Mechanics \* 457019** This 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 II: Electricity and Magnetism\* 457029** Physics II 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 Environmental Science 427009** This is an introductory environmental science course with a particular emphasis on ecology, including human impact on ecosystems. Major units of study include Earth Systems & Resources, Ecosystem Dynamics, Population Ecology, Land & Water Use, Energy Resources, Pollution, and Global Change. Upon successful completion of the course, students will be eligible to take the AP Environmental Science examination.

**1<sup>st</sup> Year MVGS Calculus\* 317719** This is 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.

**2<sup>nd</sup> Year MVGS Calculus with Topics in Multi-Variable\* 317729** 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, elementary 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\* 319209** This course is a study of descriptive and analytical (non-calculus) statistics. Students will learn and apply four broad conceptual themes, which include exploring data, planning a study, anticipating patterns in advance, and statistical inference. Upon successful completion, students will be eligible to take the Statistics AP examination.

**MVGS Linear Algebra with Special Topics\* 319909** This course is a semester of college-level Linear Algebra, followed by a second semester exploration of topics of interest to or needed by the students. Content will include matrices, vector spaces, determinants, solutions of systems of linear equations, basis and dimension, eigenvalues, and eigenvectors. Topics may include number theory, multivariate or vector calculus, statistics and probability, abstract algebra, graph theory.

**MVGS Humanities I: The Power of Thought / English 11\* 119609** Beginning with philosophical systems of thought, this humanities course will engage students in an exploration of the philosophical and historical foundations of science against the broader background of Western thought and classical literature. Upon successful completion of the course, students will be eligible to take the AP English Language and Composition Exam. This course meets the requirement for English 11, including Virginia Standards of Learning requirements.

**MVGS Humanities II: Applying the Power of Persuasion to World Issues / Government \* 244509 (or 231509 for Humanities credit)** With an emphasis on American Government, students will engage in the study of 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 I: Introduction to the Fundamentals of the Research Process\* 151509** 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 Research II: Exploration of Cutting-Edge Science and Technology Fields (Applied Research)\* 461009** Students will apply principles of effective research by engaging in academic and scientific research through quantitative or qualitative studies utilizing laboratory experiments, field studies, interviews, and surveys. Students' individual research projects will include a mentorship component to facilitate meaningful research, assist in explorations of cutting edge trends in science and technology, evaluate career opportunities, and promote meaningful interaction with professionals in the academic, scientific, and technology fields.