

# The Commonwealth Governor's School

## 2017-2018 Profile

Serving the counties of Caroline, King George, Spotsylvania, and Stafford  
*Celebrating twenty years of Excellence!*

---

12301 Spotswood Furnace Road · Fredericksburg, Virginia, 22407 · 540.548.1278 · Fax 540.548.1736

---

### School, Community, and Curriculum Overview

#### Administrators

Dr. Robert Benson, Executive Superintendent  
Dr. Merri Kae VanderPloeg, Director

#### Students

Grades 9-12: 587 enrolled  
Seniors (Class of 2018): 118 enrolled

#### Mission

To provide gifted and highly motivated high school students a challenging, differentiated, and interdisciplinary academic program of study in the core subject areas of English, mathematics, science, and social studies using non-traditional activities supported by technology at their home school sites.

#### School and Community

Established in 1998, The Commonwealth Governor's School (CGS) is an academic year governor's school that provides gifted and highly motivated high school students with challenging academic courses. Based on a school-within-a-school model, this half-day program utilizes real-time interactive audio/visual technology, field experiences, and team teaching to create a regional community of learners. Caroline, King George, Spotsylvania, and Stafford students are offered a rigorous program of study that emphasizes interaction with other talented students in the region. Students from twelve participating high schools attend one of the six CGS sites.

#### Student Selection

Students are selected to attend CGS in a competitive process that evaluates grades, academic achievement, personal essays, teacher recommendations, an interview, and self-reported interests and activities. Applications are reviewed by independent selection committees from each participating division.

#### Partnerships

The three CGS community strands of environment, development, and service are key components of the CGS curriculum. CGS has formed partnerships with the Battelle Memorial Institute, Fredericksburg Area Business Education Foundation; Fredericksburg Regional Summer Governor's School; Friends of the Rappahannock; Germanna Community College; University of Mary Washington; Naval Surface Warfare Command Division, Dahlgren, Virginia; The Chesapeake Bay Foundation; George Washington's Fredericksburg Foundation; Tandberg, and Verizon. These partnerships enhance the CGS program by providing enhanced instructional technology, guest speakers, mentors and mentorships, field experiences, opportunities for summer enrichment, community service, Envirothon competition, and *FIRST* Robotics Team and LEGO League competition.

#### Curriculum

The CGS curriculum is designed to challenge students through problem-based instruction. High-speed Internet access, desktop videoconferencing, and e-mail enable students to reach worldwide resources for special interest projects and in-depth research. All courses are honors level and above with **Advanced Placement** exam options available to students in:

##### 9<sup>th</sup> Grade

Environmental Science  
European History

##### 10<sup>th</sup> Grade

Biology  
U.S. Government

##### 11<sup>th</sup> Grade

Calculus AB/BC  
\*DE Chemistry  
English Language & Composition  
U.S. History

##### 12<sup>th</sup> Grade

Calculus AB/BC  
English Literature & Composition  
Human Geography  
Physics  
Statistics

\*11<sup>th</sup> grade students receive four Dual Enrollment Chemistry credits.

CGS 9<sup>th</sup>-12<sup>th</sup> grade students sat for a total of 1181 Advanced Placement exams in 12 subject areas in the spring of 2017. 80% of CGS candidate scores were three or above. 48% of CGS candidate scores were 4 or 5.

The student's home-based high school scale is used for computing grade point average and class rank. The Class of 2017 had 141 graduates, 6 were Valedictorians and 5 were Salutatorians. 100% of these graduates are currently enrolled in higher education for 2017-18. Scholarships awarded totaled \$8,368,618.

# Course Descriptions

## English

**ENGLISH 9: Honors English 9 (Course #1131G)** Foundations of Community introduces students to the critical analysis of literature through challenging reading, writing and discussion. Students study the defining characteristics of the forms and levels of discourse, both imaginative and expository. Students apply their skills to timeless problems of communities, their environment, and their development.

**ENGLISH 10: Honors English 10 (Course #1141G)** Basic concepts learned in the ninth grade course are applied to literary works of increasing complexity. Special attention is given to the relationship between and among individuals, their society, and their environment. Written and oral work increasingly emphasizes persuasive forms appropriate to public discourses and to problem solving in human communities.

**ENGLISH 11: AP English Language and Composition (Course #1196G)** The American Experience in a Global Context examines the American cultural experience and its connections to the world in coordination with eleventh-grade social studies. Students will extend and refine their skills in critical reading and writing. Upon course completion, students will take the Standards of Learning English 11 test and be eligible to take the AP English Language and Composition exam.

**ENGLISH 12: AP English Literature and Composition (Course #1195G)** In this course students will apply their critical skills to imaginative literature from the Anglo-American canon. Students will prepare to meet the demands of the AP English Literature and Composition test and the 12<sup>th</sup> grade Standards of Learning. They will also enrich their understanding of global issues through a study of major cultural developments.

## Mathematics

**MATHEMATICS 9: Honors Algebra II (Course #3135G)** *Prerequisite(s): Algebra I* This course presents an in-depth study of algebra topics, including the study of linear and quadratic equations, functions and systems, irrational and complex numbers, matrix theory, conic sections, polynomials; sequences and series; and probability. Students will take the Standards of Learning Algebra II test.

**MATHEMATICS 10: Honors Geometry with Trigonometry (Course #3143G)** *Prerequisite(s): Algebra I, Algebra II.* This course will consist of a range of geometry and trigonometry topics including logic and deductive reasoning, angles, parallel lines, congruence and similarity, triangles, quadrilaterals, polygons, circles, trigonometric functions, trigonometric identities, applications of trigonometry, areas and volumes, 3-D modeling through the use of 2-D views and constructions. Students will take the Standards of Learning Geometry test.

OR

**Honors Math Analysis with Discrete Topics (Course #3162G)** *Prerequisite(s): Geometry, Algebra II.* This course will study functions and their properties including: exponential, logarithmic, rational, polar, and trigonometric (triangular and circular), trigonometric identities, and applications of trigonometry. Also included will be parametric equations, vectors, sequences, series, and limits. Discrete topics will include the mathematics of choice, management science, and growth and symmetry.

**MATHEMATICS 11: AP Calculus BC (Course #3178G)** This course includes concepts and applications of differential and integral calculus; sequences and series; and elementary differential equations. Experiences with graphing calculators are included. Students will be eligible to take the AP Calculus AB or BC exam.

OR

**Honors Math Analysis with Discrete Topics (Course #3162G)** This course will study functions and their properties including: exponential, logarithmic, rational, polar, trigonometric (triangular and circular), trigonometric identities, and applications of trigonometry. Also included will be parametric equations, vectors, sequences, series, and limits. Discrete topics will include the mathematics of choice, management science, and growth and symmetry.

**MATHEMATICS 12: AP Statistics (Course #3192G)** Students study problems of statistics in society. Topics include exploratory data analysis, sampling, probability, simulations, and hypothesis testing. Emphasis is placed on problem solving and applications through research. Experiences with appropriate micro-computer software, graphing calculators, and projects are included. Upon completing the course, students will be eligible to take the AP Statistics exam.

OR

**AP Calculus BC (Course #3178G)** This course includes concepts and applications of differential and integral calculus; sequences and series; and elementary differential equations. Experiences with graphing calculators are included. Students will be eligible to take the AP Calculus AB or BC exam.

## Science

**SCIENCE 9: AP Environmental Science (Course #4270G)** AP Environmental Science is designed to be the equivalent of a one-semester, introductory college course. Scientific principles and analysis are stressed and a laboratory component is included. AP Environmental Science is designed to provide students with the scientific principles, concepts, and methodologies required to understand the interrelationships of the natural world, to identify and analyze environmental problems both natural and human-made, to evaluate the relative risks associated with these problems, and to examine alternative solutions for resolving and/or preventing them. The course is intended to enable students to undertake as first-year college students, a more advanced study of topics in environmental science. Upon course completion, students will be prepared to take the AP Environmental Science exam.

**SCIENCE 10: AP Biology (Course #4370G)** This course is the equivalent of a two-semester college introductory biology course. The course follows the AP College Board criteria addressing three general areas of study: molecules and cells, heredity and evolution, and organism and populations. The two main goals of AP Biology are to help students develop a conceptual framework for modern biology and help students gain an appreciation of science as a process. Primary emphasis in an AP Biology course will be on developing an understanding of concepts rather than memorizing terms and technical details. Essential to this conceptual understanding are the following: a grasp of science as a process rather than as an accumulation of facts; personal experience in scientific inquiry; recognition of unifying themes that integrate the major topics of biology; and application the application of mathematics and critical thinking skills to better understand biological knowledge. Upon course completion, students will be prepared to take the AP Biology exam.

**SCIENCE 11: DE Chemistry (Course #4420G)** This course will be a college level chemistry course with a dual enrollment option. Students electing the dual enrollment option will be expected to complete college level course work with academic standards equivalent to other college courses.

**SCIENCE 12: AP Physics 1 (Course #4570G)** This is equivalent to a first-semester college course in algebra-based physics. The course covers Newtonian mechanics, including rotational dynamics and angular momentum; work, energy, and power; and mechanical waves and sound. It will also introduce electric circuits, while giving students the option to take the AP Physics 1 exam.

## Social Studies

**SOCIAL STUDIES 9: AP European History (Course #2399G)** AP European History is a western civilization course designed to emphasize higher cognitive and critical thinking skills. Problem-solving strategies are utilized to teach basic social science skills such as map reading, research, comparison making, and assessing cause and effect. Through independent study and interdisciplinary projects, students study the most important trends, events, and personalities in European history from the Renaissance to the present. Students will be prepared for the Standards of Learning World History from 1000 AD to the present. Students will have met the requirements for World History and will be eligible to take the AP European History exam.

**SOCIAL STUDIES 10: AP U.S. Government (Course #2445G)** This government course is designed to enable students to identify and analyze political theory while examining the institutions, political process, and practices of local, state and national governments. Students identify topics of community, national, and international concern, gather data, and research possible solutions. Students will have met the requirements for U.S. Government and will be eligible to take the AP U.S. Government exam.

**SOCIAL STUDIES 11: AP U.S. History (Course #2319G)** The U. S. History course is designed to present U. S. History within a global perspective. Emphasis will be on critical reading and writing. Students will gain an in-depth understanding of American history through selection and effective use of knowledge. Students will take the Standards of Learning U. S. History test, and be eligible to take the AP U. S. History exam.

**SOCIAL STUDIES 12: AP Human Geography (Course #2211G)** This course provides students with the opportunity to identify and analyze contemporary concerns and problems from local, national, and global perspectives. Using geographical tools and skills, they will consider issues pertaining to population distribution and composition, cultural patterns and processes, political organization, land use, industrialization and economic development, and urbanization. Students will take the World Geography Standards of Learning test and be eligible to take the AP Human Geography exam.