

## **Southwest Virginia Governor's School Instructional Plan July 2020**



### ***Operational Infrastructure to Support Learning***

Administrators, teachers, and Governing Board members are working collaboratively to plan for the reopening of the Southwest Virginia Governor's School (SWVGS) for the 2020-2021 academic year following the mandated spring school closures stemming from the SARS-CoV-2 (herein referred to as coronavirus) pandemic. With our Governing Board, we have discussed possibilities for the upcoming semester and the considerations that are unique to SWVGS, especially keeping in mind that students attend from 16 high schools from 9 school divisions. Everyone acknowledges the unique challenges ahead in trying to avoid scheduling conflicts as each division creates plans to accommodate their own needs for physical distancing within classrooms and on buses. We also acknowledge that much remains unknown and has the potential to change, particularly the Phase that Virginia might be in at the beginning of the school year and in the subsequent months. Considering this, we have worked to develop a flexible plan that will facilitate high-quality learning opportunities for all students throughout the fall semester and coming academic year.

Each student will have a laptop provided by SWVGS. SWVGS will continue to use Gmail and postal mail to send messages and course materials to all parents, students, and staff members. We will utilize technology options including [Google Apps for Education](#), [Alma](#), [ALEKS](#), [WebAssign](#), [PhET](#), [Visible Body \(or other Anatomy and Physiology electronic simulators\)](#), [Kami](#), [Screencastify](#), [Snag-It](#), and [Jigsaw Interactive](#).

We understand that planning for the 2020-2021 academic year will be challenging for everyone and that it will require ongoing collaboration and adjustments. We have invited school community members to contact Governor's School Administrators (Rebecca Phillips: [rphillips@swvgs.us](mailto:rphillips@swvgs.us) or Sherry Pugh: [spugh@swvgs.us](mailto:spugh@swvgs.us)) at any time with questions, concerns, or suggestions. We are committed to being as flexible as possible as we coordinate with each student, family, and school division.

### ***New Instruction for All Students***

The Southwest Virginia Governing Board voted to begin the 2020-2021 academic year with remote learning from August 10-September 4 (this aligns with New River Community College's plans and NRCC is our primary dual-enrollment partner). We have another Governing Board meeting planned for August 25th; at that time our Governing Board plans to decide on whether to extend remote learning or to transition to in-person instruction for specific groups of students on certain days of the week. SWVGS has established a partnership with the New River Valley Health District Director, Dr. Noelle Bissell, who will provide guidance throughout the academic year. Dr. Bissell is aware of the unique nature of our regional school, is supportive of our initial plan to begin the year with remote learning, and will be consulted as future decisions are made regarding the transition to in-person instruction.

We are steadfastly committed to providing challenging, stimulating, and meaningful learning opportunities and activities to all of our students. We will do so as we use remote learning to begin our school year and as we transition to in-person instruction.

In developing our plans for in-person instruction, we considered the need to reduce student numbers on buses and in classrooms to meet physical distancing requirements. Therefore, our in-person instruction possibilities propose attendance by juniors and seniors on separate days. One of these options also separates students by school division to further reduce group sizes at our school. A summary is included below indicating proposed days and times specific groups of students may attend SWVGS in person when the time comes to transition to in-person instruction. In each of the options below, Pulaski and Montgomery Counties will attend 7:00-10:00 and all other divisions will attend 8:00-11:00.

*Remote Learning Supplemented with Once-A-Week In-Person Instruction, Students Primarily Separated by School Division:*

Juniors – Primarily Separated by School Division					Seniors – Primarily Separated by School Division				
Monday:	Pulaski Juniors	Floyd Juniors	Smyth Juniors (and sophomores)	Radford Juniors	Thursday:	Pulaski Seniors	Smyth Seniors	Wythe Seniors	Radford Seniors
Tuesday:	Montgomery Juniors	Giles Juniors	Wythe Juniors	Carroll & Galax Juniors	Friday:	Montgomery Seniors	Floyd Seniors	Giles Seniors	Carroll & Galax Seniors

*Twice-A Week In-Person Instruction Supplemented with Remote Learning:*

Monday	Tuesday	Wednesday	Thursday	Friday
Juniors	Seniors	Remote	Juniors	Seniors

When in-person instruction is offered, participating school divisions will provide student transportation to and from SWVGS. All in-person instruction will be blended with continued remote learning. As much as possible, we requested that participating school divisions reserve Governor's School students' morning hours for SWVGS instructional time to facilitate both the scheduling of synchronous remote sessions with students in the morning and the return to in-person instruction at our school during morning hours when our school transitions to the blended learning model (in-person instruction with continued remote learning).

### ***Identification of Instructional Gaps and Student Needs***

We will continue to utilize a variety of formative assessments to identify learning needs. In all courses, it will be imperative to provide prompt, detailed feedback. Kami will be used to provide detailed written, audio, and video feedback. Snag-It, Screencastify, and other software will be used to create videos with individualized, detailed explanations, especially during remote learning.

Students returning as rising seniors will benefit from the fact that we continued new instruction throughout the spring semester, even during the mandated school closures. The content of each course was taught in full to ensure opportunities for a successful transition to subsequent courses for which enrolled spring courses may have been prerequisites. Even so, course instructors will implement preassessments to check for possible content or skill gaps and adapt course pacing as needed to incorporate review and remediation in core areas.

Throughout their coursework, students will be offered opportunities to individualize their learning experiences as well as how they demonstrate their mastery of concepts. Optional assignments will be offered in all courses; with these students may choose which assignments they would like to complete. This allows students to make personal decisions regarding how much time they would like to invest in exploring a particular topic. The flexible nature of optional assignments allows students seeking chances for additional practice to do so without requiring time investment by those students who are confident in their mastery of the content. Differentiated projects will also be integrated into coursework; many of these offer students opportunities to utilize/integrate skills in art/music/creative writing.

SWVGS will use [WebAssign](#) in Chemistry and Physics courses to allow students to have multiple attempts at problems coupled with immediate feedback and tutorials. WebAssign is an online instructional tool where instructors create assignments for students and transmit them electronically to their classes. Students enter answers to the assignments online. WebAssign automatically grades the assignment and provides immediate feedback. WebAssign is available 24/7, homework is graded automatically, students are instantly aware of the correctness of their response and have access to online tutorials and explanations. Students will be asked to complete homework assignments in WebAssign in the physics and chemistry classes at SWVGS. WebAssign charges a registration fee per student, and this fee is paid by SWVGS. There are a wide variety of question types that coordinate with the textbooks used in each course. Specific numerals within questions are randomized and unique for each student. WebAssign offers customizable assignments and real-time assessment of student progress. Students who prefer to solve chemistry or physics problems on paper will be permitted to do so in lieu of WebAssign.

For assessing math skills, each student will complete an Initial Knowledge Check in [ALEKS](#) (Assessment and LEarning in Knowledge Spaces). ALEKS is a Web-based, artificially intelligent assessment and learning system. Southwest Virginia Governor's School pays for each student's ALEKS account. ALEKS uses adaptive questioning to quickly and accurately determine what a student has already mastered and what they have yet to learn. ALEKS identifies which topics a student is best prepared to learn next and provides tutorials and practice questions to facilitate the development of new math skills while also providing appropriate practice to help students maintain skills in areas already covered. Thus, students require less in-person, teacher-led remediation. ALEKS maintains a list of topics a student is ready to learn. ALEKS will not offer a student a new topic until that student has a 90% chance of mastering the new topic, but grants students the flexibility to select among an up-to-date list of developmentally appropriate topics. ALEKS continually assesses each student to ensure mastery and retention of each topic.

We utilize ALEKS within math courses at the Governor's School and also offer ALEKS access during the summer to provide students opportunities to practice math before the school year begins. All students have been offered access to ALEKS over the current summer and most have already completed their Initial Knowledge Check as well as practice with additional skills. Mrs. Pugh, Assistant Director and Mathematics Instructor coordinates summer ALEKS use and communicates with students frequently over the summer concerning their progress and skill mastery in ALEKS.

Results from Initial Knowledge Checks in ALEKS, skills mastered in ALEKS, and previously completed math courses are considered alongside student course preferences and goals to guide decisions for math course placement each year. Math background and course prerequisite requirements also inform course placement in chemistry and physics courses.

In addition to the use of ALEKS to assess and build math skills over the summer, instructors of our precalculus courses always take time to review skills such as order of operations, operations on fractions, factoring, operations on rational expressions, and solving different types of equations before moving into the "precalculus" part of the course. This allows the instructor to evaluate each student's mastery of the skills that will be needed to succeed in precalculus. In addition to required written homework assignments for practice on these skills, students are offered multiple optional assignments both on paper and in ALEKS for extra practice. Based on their individual needs, students choose which of these optional assignments to complete. Optional assignments in ALEKS are set up so that students have multiple attempts (often unlimited attempts) to receive a perfect score. Students are encouraged to ask for help as they complete these assignments or if they want the instructor to work through any of the problems they missed before their next attempt at the assignment. While grading a required homework assignment, if it becomes evident that the majority of students have not mastered a certain skill, the instructor will spend part, if not all, of another class period discussing that skill again (working more problems, having students work problems while walking around the room and helping as needed). Recitation time is also used to work individually or with groups of students who are still lacking proficiency in a particular skill.

We recognize that some, if not, most of the students who will be enrolled in precalculus beginning August 2020 were taking Algebra II when the mandated school closure took effect and they may not have received new instruction after

the school closure. A few students have emailed to express their own concerns with this. In a “normal” year, students in this class often begin the year with fairly weak algebra skills and a calculator dependency; we recognize that this may be exacerbated this year. Therefore, the precalculus instructors will modify course pacing and spend even more time reviewing the skills noted above along with making available more optional ALEKS assignments than usual. During remote learning, it will be important to find ways for students to receive the same one-on-one help that would be offered during in-person classes or recitations (by walking around the room to observe student work and answering questions or by having a student come sit with the instructor and working together on problem areas). Instructors will offer “office hours” convenient to the students’ schedules; the Jigsaw virtual classroom will be helpful for this as it will allow instructors to observe students working problems on the integrated whiteboard and to help guide them to the correct procedures. This will be vital in helping students to improve both their mastery of skills and their overall confidence in math.

Students enrolled in Applied Calculus will have the same instructor as they did for precalculus class the year before so the instructor will have prior knowledge of student strengths before the first day of class. In last year’s precalculus class, all of the material needed for Applied Calculus was covered before the school closure. The instructor is accustomed to linking to previous content by saying “remember last year when we....” followed by review of a foundational skill from precalculus. Before covering a particular calculus topic, optional ALEKS assignments are posted so that students can review on their own, especially when it is anticipated that the majority of students are proficient in the prerequisite skill(s). If, based on experience from the precalculus class, it is anticipated that most students will benefit from in-class review, the instructor will do that along with the optional practice in ALEKS. Students in Applied Calculus historically are also much more comfortable with communicating a desire to review a particular skill to support understanding of an upcoming calculus topic; students influence what kind of and how much review is needed. On occasion, there is a senior student in this class who did not attend SWVGS as a junior and therefore did not take precalculus with the same instructor. In all of the “remember last year when we....” moments, the instructor makes a point to ask the new senior what they know about .... or if they had studied.... in the past. The instructor then will plan a time, either during recitation or while other students are working on an assignment, to sit with the new senior and have a one-on-one lesson/work session to be sure they understand....before that skill needs to be applied to new material; similar arrangements will be made using Jigsaw during remote learning.

The fall semester Calculus I course is generally made up of a mix of students who took precalculus at SWVGS the year before as well as new incoming juniors who took a variety of math courses at their home high schools. The instructor will be familiar with strengths of returning students and for the new juniors will gain some insight through their progress in ALEKS during the summer along with email communications.

For the new SWVGS students taking Calculus I, our prior knowledge of what math class these students took last year (or whether they actually finished the content of that class after the mandated school closure) will be limited. Students may not be as familiar with trigonometry as typically anticipated for enrollment in Calculus. To gain a better understanding of initial skill levels the instructor plans to develop a preassessment. After evaluating the preassessment results, ALEKS progress, and getting to know the students more, the instructor will spend some course time reviewing trigonometry but will also create videos on a variety of trig topics, along with associated optional assignments. Students will have ample time to view/study these videos before most of the topics will be used in the calculus material. As with the precalculus class, it will be very important to have “office hours” available so that students can get individual help on “review” topics as well as new material. Students in this class will accomplish algebra review by working through the relevant wedges of the ALEKS pie. Throughout the year when a particular skill from precalculus or trig will be needed for an upcoming calculus topic, optional assignments will be posted in ALEKS for students to complete ahead of time if they want. Class time will be invested in reviewing exponential and logarithmic functions as many students seem to have trouble with those. Also, throughout the year, students will be asked to work with the instructor individually during recitation time to support skill development and topic mastery. Calculus is a difficult class and is often the first time students are exposed to theory and proofs in a math class. In a normal year, students can become frustrated that this material does not come as easily to them as in previous years. This year’s students will likely need more support than usual. In addition to using “office hours” for working on problems or review, it will be helpful just to have time to talk

with students and address their concerns about adjusting to remote learning along with adjusting to Governor's School in general (for any class not just calculus).

Our math instructors may also work collaboratively to offer shared review and practice in Jigsaw to address common issues such as factoring, graphing, working with fractions, etc. In previous years, students have found this type of "math bootcamp" very beneficial and instructors have also noticed that it decreased the time needed for review of these items later. One possible option would be to utilize Jigsaw to implement a similar program virtually. This approach may be especially helpful for new juniors who had varying types of instruction in Spring 2020.

In our statistics course, most of the prior skills will be algebra based. We often find that while many students have seen averages and graphing repeatedly, related student language and technical skills benefit from new instruction. The initial lessons are designed to review those skill sets, while simultaneously developing a mindset for using the appropriate language and symbols common to the practice of statistics. Since statistics is an applications-based course the instructor is able to integrate other specific skills as part of a process used to accomplish specific statistical comparisons and interpretations. Skills are demonstrated and practiced in class and further explored via homework problem sets requiring the same manipulation. During remote learning, instruction will be achieved via virtual classroom sessions, recorded lessons, practice work, and individual follow-up with students using Kami, screencasts, and virtual office hours.

Our courses in General Biology, Human Anatomy and Physiology, Human Heredity, and Biological Problems in Contemporary Society do not have required prerequisites and therefore are not largely dependent on previous course content. Instruction in foundational topics such as molecular biology, cell physiology, as well as basic themes of evolution, information transfer, and energy transfer are integrated within each course to ensure each student has opportunities to develop proficiency important for success in the applicable course. The breadth and depth of these courses necessitate consistent, effective study habits; these are crucial in helping students keep pace. To encourage development and adherence to efficient and effective academic habits and skills, a consistent structure is implemented to establish the importance of daily reading, practice, and topic review. Students are encouraged to complete reading assignments before class to develop familiarity with the vocabulary and subject matter before it is covered in detail during lecture. Daily assignments are designed to review specific points that often require more in-depth study, practice, and review. Many of these assignments are required and must be completed by all students. Others are optional and may be completed at the discretion of the student as he or she makes decisions as to what they need to practice further. Proficiency with topics related to the biochemistry of biology facilitate a greater ease of understanding and ability to relate to and reason through many subsequent topics such as enzyme dynamics, cellular metabolism, protein synthesis, and signal transduction. Therefore, additional, individualized instruction, and practice is provided as needed in these areas. Slide decks, labeled figures, animations of processes, structural models, hands-on manipulatives, simulations, descriptive videos, sequencing activities, and laboratory experiments are utilized throughout these courses. The approaches will be adapted for remote learning, and materials typically used for in-person instruction will be adapted and provided for individual use at home when safely and logically possible. Virtual classroom sessions, recorded lessons, practice work, and individual follow-up with students using Kami, screencasts, and virtual office hours will all be utilized.

Most students enrolled in our College Chemistry course have never taken a chemistry course before so the instructor always implements a plan to teach all the skills and subject matter the students need to learn. This plan includes differentiating for the small number of students who may have an incoming knowledge base such as a high school chemistry course. Typically, the only material students are presumed to have a basic understanding of at the beginning of the course is a knowledge of algebra. Understanding that many students were not able to complete spring semester courses at their home high schools, this year the instructor will not assume all students have a strong background in basic algebra. Since student math backgrounds may be inconsistent, the instructor will incorporate math questions into a series of short preassessments to aid in identification of knowledge gaps more effectively. After gaps are identified, relevant topics and skills will be addressed during remote learning in virtual classroom sessions, videos demonstrating

methods for solving problems, optional practice problem sets, individualized explanations created using Kami and screencasts, and virtual office hours.

Incoming chemistry students usually need support in learning rules for significant figures. Instruction for use of significant figures is accomplished via a slide presentation in class coupled with several group work example problems. To aid in learning and to determine if student proficiency has been achieved students complete a WebAssign homework on significant figures and the first lab covers significant figures. To supplement development and to aid in mastery of significant figures optional assignments are made available. Following this practice work, an assessment on significant figures is used as another metric to evaluate student learning before proceeding to significant figure use in future chemistry problems. During remote learning, virtual classroom meetings using Jigsaw will facilitate instruction, practice, class group work, and individual help.

Generally, very few incoming chemistry students are familiar with dimensional analysis, so the instructor will teach the process of converting units using dimensional analysis using a slide presentation in class coupled with several group work example problems. To aid in learning and to assess student skill development in units and dimensional analysis WebAssign and optional assignments will be utilized. To supplement development and to aid in mastery a lab will be devoted to dimensional analysis. Possible gaps in terms of algebra skills relevant to dimensional analysis are anticipated. Thus, more time will be devoted to solving for a variable as well as how to solve for the equation of a line. As with significant figures, during remote learning, the instructor will use Jigsaw virtual breakout rooms to replace the in-class group work and practice on dimensional analysis. Furthermore, more optional practice on dimensional analysis will be offered to reinforce and aid student learning where indicated by work submitted on the required worksheets, WebAssign, or lab. During remote learning, methods for conducting labs as well as analysis of experimental results will be demonstrated via video recordings. Additional individual follow-up with students will be completed as needed.

For physics skills that are necessary and sometimes require development involve solving systems of equations, algebraic manipulation involving exponents and roots, unit manipulation and conversion, and trigonometric ratios used in working with vectors. Other skills tend to fall under prerequisites or are planned to be covered as they arise. For most students (usually seniors), review is sufficient to refresh their prior learning. When juniors are enrolled in physics, additional time is taken to instruct on these skills assuming that they may see the material for the first time in the physics course. Generally, the initial classes, lab assignments, and homework are used to review and assess these skills. Assignments are given prior to the lab/next class to be worked on alone, followed by classroom discussion of student questions paired with skill review and demonstration of solving the problems. The goal is to ensure that all students have a minimum basic set of skills, and to establish a shared understanding of those skills in the context of the physics course. For example, to prepare for the kinematics material, the instructor reviews solving systems of equations by elimination/back-substitution and by Gaussian elimination operations. Other methods that students might have studied, such as matrix operations are not discussed initially in the context of the physics course, instead focus is placed on the basic skill that works for solving problems with kinematics. The instructor works individually with students who have difficulty with a particular skill or who are seeing it for the first time to ensure they receive additional, focused instruction and practice; their skill development is further supported by more in-depth instruction and progress in their math courses. Time during the first week or more of remote learning will be used to review the skills described above along with incorporation of a review of trigonometry review to introduce vectors. Time will be invested in instructing these skills as well as applying them with vectors and kinematics. Additional remote “recitation time or office hours” will be arranged to help and instruct students individually or in small groups using Jigsaw virtual classroom as needed.

In a “normal” year all new students experience a period of adjustment as they become accustomed to attending our Governor’s School. It takes time for students to establish a “new normal” as they become familiar with the travel to and from our school, build relationships with new teachers and new peers, adjust to the pace of college courses, and learn to balance the expectations of Governor’s School, their home high school, and extracurricular activities. We recognize that the adjustment period may be somewhat more difficult this year as students also adjust to remote learning and continue to cope with other changes resulting from the pandemic. We plan to host “meet and greet” or “get to know each other” virtual classroom sessions using Jigsaw before beginning course instruction. In these sessions, we plan to

just talk and introduce ourselves to each other. These meet and greet sessions will be especially valuable because we missed some of the typical initial interaction we usually experience with new students in the spring and early summer. Investing virtual classroom time to interact with students before proceeding with course content will help us establish rapport and positive relationships with students so that they feel at ease asking questions, emailing, etc.

SWVGS employs a full-time school counselor who also teaches courses in Study Skills and Career Education. The Study Skills course is intended to assist students in their transition to Governor's School. Study Skills is a required course for all of our students as juniors. The instruction and experiences of this course will assist students in planning strategies to overcome nonproductive study habits and in implementing positive study behaviors. Course content includes time management, memory improvement, note-taking, test-taking, as well as social-emotional topics including the importance of maintaining a growth mindset. Our school counselor will come to know each new student well through the Study Skills course and will be available to talk with and assist all students throughout their tenure at our school. Our counselor will act as a liaison for students in coordinating with home high schools and will be available to counsel students as needed.

SWVGS will continue to utilize a teacher-student, mentor-mentee program to follow student progress. About once a month, a class period will be reserved for mentor meetings. Prior to the mentor meetings, teachers will provide students with individualized feedback in the form of written comments and selections on a checklist of skills and habits associated with strong academic performance. That information will be reviewed during mentor meetings. During the mentor meetings, each teacher will meet individually with each of his/her mentees to review academic progress, check feedback from the student's teachers, and advise on successful academic habits and skills to implement in the coming weeks. Following mentor meetings, teachers will meet with administrators to review student progress in their classes as well as to provide updates on their mentees.

### ***Remote Learning***

From March 16-May 14, during the mandated school closure, we continued our courses in an online format and delivered new instruction each week. We were impressed by the willingness of students to communicate with teachers, student flexibility in adjusting to the new format of their courses as well as individual self-motivation and self-pacing. We are proud of how our school community collaborated and adapted to ensure everyone experienced a successful end to the school year despite the unexpected circumstances. We will build on experiences from the remote learning we implemented in spring 2020 and continually improve our online instruction.

For remote learning during the 2020-2021 school year, we will offer a complement of recorded lessons and synchronous, live virtual classroom meetings. Teachers will offer students flexibility in selecting assignment types. Optional assignments will be available to allow students to select specific topics for additional practice and exploration. Teachers will be available to answer questions and offer assistance through a variety of means including email, individualized screencast recordings, phone calls, annotated computer documents, and live video conferencing. Teachers will consistently provide prompt, detailed, individualized feedback on student work. Students and parents will have online access to grades. We recognize that flexibility and willingness to adapt will be key as everyone navigates new schedules and expectations at their local high schools. We plan to distribute course materials such as handouts, notes, assignments, and other items printed on paper by postal mail to students prior to the week in which they will be utilized so that students have the applicable materials in hand; electronic versions will also be shared. We will utilize suggested due dates and encourage students to stay current with the topics and assignments while also allowing for flexibility given the circumstances.

Each student will have a laptop provided by our school, and in case students do not have printers, we will mail paper copies of class handouts prior to each week so that students will have easy access to the paper version of everything in addition to the documents that are sent electronically. Also, for any students who may not have reliable internet access, we will mail DVDs or flash drives with the recordings of the teachers' lessons (we will also provide these to any students

who prefer to access the recordings in that format over the online access). If needed, we will work with participating school divisions and contacts within the VDOE to facilitate improved internet access for individual students when possible. For students who prefer to submit their work on paper, we will offer addressed, stamped envelopes so that they may mail their work to us.

Our school counselor will contact students and parents to check in on progress and to see if they have suggestions for additional support they would like to receive from us. Our school counselor will incorporate strategies for effective remote learning in the Study Skills course in which juniors are enrolled. Instructors will encourage appropriate motivation and pacing within courses and our school counselor will provide additional support in these areas to ensure student success. Our school counselor will work with course instructors to incorporate opportunities to develop interactions among students so that students benefit from learning with their Governor's School peers even during remote learning; focused initiatives in this area will ensure students sense that they are part of a community of learners while taking part in coursework from home.

#### ***Future Modifications***

Due to the dynamic nature of the pandemic and the continually evolving associated guidance, this plan may be continually updated and modified.