Singapore American School is committed to assisting students in developing a program of study that meets their academic and college goals, offers instruction that will lead to a healthy life-style, and affords ample opportunity for participation in meaningful activities. This guide provides information about the courses typically offered along with information on how to select and complete the online registration process.

This guide also contains information about the minimum SAS graduation requirements, the credits recommended by colleges, and the wide range of academic opportunities available at our school. As students begin choosing courses for next year and beyond, keep in mind that students will perform best when a program is selected that includes courses that are personally interesting and at an appropriate level of challenge.

Current SAS students are asked to choose courses each spring for both semesters of the following school year. Students new to SAS will meet with a counselor to select courses prior to enrollment. All students are responsible for taking the time to fully understand what a course will cover, the prerequisites, and whether or not there are any expectations beyond what might be considered “normal” for a course, such as additional labs, rehearsals, research, or readings. Not all courses are available to all grades.

All members of the SAS faculty are available to assist students and parents as courses are selected for the next academic year. Feel free to contact us.

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Parents,

Thank you for the feedback we’ve received since publishing our 2017-18 program planning guide earlier this semester. The high school team has been working with the superintendent to adjust our implementation timing. Highlights of the changes include the following:

- Delay cancellation of several AP courses scheduled to be eliminated over the next two years, until the 2019-20 school year.
- Run our new AT Computational Physics alongside AP Physics I for two years, phasing AP Physics out over two years. This will provide student choice of physics course options.
- Delay changes to current advanced mathematics courses until 2019-20. Courses that are offered during the 2017-18 school year will also be offered during the 2018-19 school year. In addition, over the next two years, we will move towards creating semester options for our advanced math courses so that we can offer more access, flexibility, and choices to students.

The following highlights the specific details for each of these changes and our course planning for the next three years.

**MATH PATHWAYS**

AP Calculus BC is currently a prerequisite for several of our most advanced math courses. We need to ensure that students who choose to take AP Calculus AB also have pathways that will enable them to continue advanced level study.

In 2017-18, SAS will offer the current AP Calculus BC/Multivariable course AND three new advanced-level courses: Honors Multivariable Calculus/Linear Algebra, AT Post-Euclidian Geometry, and AT Finite Math Modeling. In this year, we will also begin development of a semester-long AP Calculus BC course to follow the year-long AP Calculus AB course, as well as semester-long Honors Multivariable Calculus and semester-long Honors Linear Algebra. This will help us prepare to offer an array of semester-long advanced courses to students beginning in the 2019-20 school year.

In 2018-19, SAS will offer the current AP Calculus BC/Multivariable course AND the same three advanced-level courses offered in 2017-18: Multivariable Calculus/Linear Algebra, AT Post-Euclidian Geometry, and AT Finite Math Modeling. In this year, we will share details about our semester-long AP Calculus BC and the semester-long Honors Multivariable Calculus and Honors Linear Algebra courses. These semester-long courses will be available the following year.

In 2019-20, SAS will offer semester-long AP Calculus BC to follow the year-long AP Calculus AB course, as well as semester-long Honors Multivariable Calculus, semester-long Honors Linear Algebra, AT Post-Euclidian Geometry, and AT Finite Math Modeling. Students will now have greater access to advanced-level math courses as well as additional flexibility and choices.

By engaging in this work over the next few years, students will have the following advanced-level math pathways available to them:
Physics

Our high school science department identified AP Physics I as one of our AP courses most needing improvement. Current trends in science and feedback from alumni indicate that science-oriented computational modeling and thinking is a significant skill and should be included in any contemporary science curriculum. Our science team saw our AT implementation as an opportunity to provide an updated pathway for our students, and set out to design a more relevant physics course that incorporates our desired student learning outcomes and explicitly teaches the skills our students will need for physics in college. The result is the AT Computational Physics course offered for the first time next year.

We also heard our community tell us they want what was in the planning guide when they started planning their student’s high school experience—in this case, AP Physics I. As a result, SAS will continue to offer juniors and seniors AP Physics I in 2017-18, AND AT Computational Physics*, offering students the choice of which course to take. In 2018-19, we will offer AP Physics I to seniors only AND we will offer AT Computational Physics* for juniors or seniors that wish to take it. In 2019-20, SAS will offer AT Computational Physics* only.

---

<table>
<thead>
<tr>
<th>Courses Offered</th>
<th>2016-17</th>
<th>2017-18</th>
<th>2018-19</th>
<th>2019-20</th>
</tr>
</thead>
<tbody>
<tr>
<td>AP Calculus AB</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
</tr>
<tr>
<td>AP Calculus BC</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
</tr>
<tr>
<td>AP Calculus BC/Multivariable</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
</tr>
<tr>
<td>Multivariable Calculus/Linear Algebra</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
</tr>
<tr>
<td>AP Calculus BC (post-AB semester-length version)</td>
<td>✔️</td>
<td>course development</td>
<td>course refinement &amp; parent ed</td>
<td>✔️</td>
</tr>
<tr>
<td>Multivariable Calculus (semester-length version)</td>
<td>✔️</td>
<td>course development</td>
<td>course refinement &amp; parent ed</td>
<td>✔️</td>
</tr>
<tr>
<td>Linear Algebra (semester-length version)</td>
<td>✔️</td>
<td>course development</td>
<td>course refinement &amp; parent ed</td>
<td>✔️</td>
</tr>
<tr>
<td>AT Post-Euclidian Geometry (semester-length course)</td>
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<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
</tr>
<tr>
<td>AT Finite Math Modeling (semester-length course)</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
</tr>
</tbody>
</table>

*semester-length course

*Students will be able to take the AP Physics 1 exam but will need to complete an out-of-class guided self-study for one unit of material (circuits).
HUMANITIES COURSES

The elimination of AP Literature, AP Human Geography, AP Psychology, and AP World History will be delayed for two years.

In 2017-18 and 2018-19, SAS will offer AP Literature, AP Human Geography, AP Psychology, and AP World History. Advanced topic courses will be in development.

In 2018-19, we will share details about upcoming advanced topic courses, which will be available the following year.

In 2019-20, SAS will offer new advanced topic courses (table below), and AP Literature, AP Human Geography, AP Psychology, and AP World History will be eliminated. AP exam availability for these courses will be determined once we are through the development process.

<table>
<thead>
<tr>
<th>Courses Offered</th>
<th>2016-17</th>
<th>2017-18</th>
<th>2018-19</th>
<th>2019-20</th>
</tr>
</thead>
<tbody>
<tr>
<td>AP Literature</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
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</tr>
<tr>
<td>AT Literature Studies (placeholder)</td>
<td></td>
<td>course development</td>
<td>course refinement &amp; parent ed</td>
<td>✔️</td>
</tr>
<tr>
<td>AP Human Geography</td>
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<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
</tr>
<tr>
<td>AT Human Geography (Placeholder)</td>
<td></td>
<td>course development</td>
<td>course refinement &amp; parent ed</td>
<td>✔️</td>
</tr>
<tr>
<td>AP Psychology</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
</tr>
<tr>
<td>AT Psychology Studies (placeholder)</td>
<td></td>
<td>course development</td>
<td>course refinement &amp; parent ed</td>
<td>✔️</td>
</tr>
<tr>
<td>AP World History</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
</tr>
<tr>
<td>AT World History Studies (placeholder)</td>
<td></td>
<td>course development</td>
<td>course refinement &amp; parent ed</td>
<td>✔️</td>
</tr>
</tbody>
</table>

Thank you for continuing to partner with us in your child’s educational journey. We want to continue hearing from you. Please don’t hesitate to reach out to me or to your child’s counselor with your questions, or to better understand your child’s options.

Warmly,

Dr. Darin Fahrney
High School Principal
NOTEWORTHY IN 2017-2018

The 2017-2018 school year will bring several changes to Singapore American School. We are thrilled to offer new courses, new programs, and additional learning options to students. While details regarding many of these changes are included in other sections of this guide, the following are some of the highlights.

COUNSELING DEPARTMENT RESTRUCTURING

Beginning in 2017-18, we will be restructuring our current comprehensive counseling model into two distinct departments. These departments will include one focused exclusively on personal and academic student needs and another focused exclusively on college counseling. This structure, supported by best practices at reputable schools around the globe, will ensure that each student has a college counselor who is singularly focused on their college selection and application process. It also ensures that each student has a personal and academic counselor as a resource for the emotional and academic needs that they may have.

We want to make sure that students are academically prepared and that they are also prepared with many of the soft skills required today. Further, we know that today's students need the emotional support to navigate a broad range of complex challenges in the world today. In this new model, all students will have two counselors in their SAS journey -- one for grades 9-12, and a second counselor in grades 11-12.

ADVANCED TOPIC COURSES

We are pleased to announce that the high school will offer additional Advanced Topic (AT) courses during the 2017-18 school year. These courses are listed under “New Courses for 2017-18” and are described in detail in this guide. Advanced Topic (AT) courses provide more relevant learning options, ensure greater focus on 21st century competencies, and better prepare students for their future aspirations. Teams of educators are using development guidelines that focus on relevancy, skill development, deep exploration, project based learning, and real world applications as they research, develop, and implement novel SAS AT courses. Each new AT course has been created with the assistance of external university and professional experts and was vetted for quality by college admissions representatives.

MAXIMUM NUMBER OF APS

In order to provide greater opportunities for students to take more relevant course options, including the new Advanced Topic courses, SAS will cap the total number AP courses a student can take during their SAS career. Beginning with the graduating class of 2021, all students will be limited to seven year-long equivalent AP credits during their SAS career.

RECOGNITION OPPORTUNITIES AT GRADUATION

As a school committed to standards-based grading, we believe that learning is not a competition and that every student can reach high levels of learning. Our systems for recognizing students' hard work and achievement must reflect that belief.

Last year, the high school's valedictorian/salutatorian recognition model was carefully considered by our department chairs and our faculty. The department chairs were unanimous in recommending a transition to a cum laude system based on Harvard University's recognition model. The Cabinet has approved this transition, and our cum laude system will take effect beginning with the graduating class of 2018.

Within the new system, students will be recognized in three categories based on their grade point averages. Recognition will no longer be based on class rank, and theoretically, it is possible for all students to earn cum laude graduation status.
CUM LAUDE GRADUATES

Students are awarded Cum Laude graduation status based on academic excellence in their first seven semesters of high school. Only letter grades earned at SAS will be taken into consideration.

While the required grade point averages are still being finalized, this system will award three levels of distinction:

- Summa Cum Laude (highest distinction)
- Magna Cum Laude (higher distinction)
- Cum Laude (distinction)

QUEST PROGRAM

We are thrilled that the Quest Program will be graduating its first cohort of students as part of the class of 2017!

Enrollment is open in our innovative year-long program for 2017-2018 seniors to:

- embrace unique experiences and challenges not available in existing course offerings;
- accelerate learning through interdisciplinary and real world applications;
- deep dive into a particular area of interest or passion;
- learn essential skills to prepare them for their future; and
- distinguish themselves when applying to college.

Please see the Quest section of this guide for more information.

DESIRED STUDENT LEARNING OUTCOMES

We continue to work towards our vision: “A World Leader in Education / Cultivating Exceptional Thinkers / Prepared for the Future.” In order to realize this vision, we commit to ensuring every student is progressing towards the Desired Student Learning Outcomes (DSLOs):

- Character
- Cultural Competence
- Creativity
- Critical Thinking
- Collaboration
- Communication
- Core Content

Through our adoption of curricula such as the Common Core State Standards (CCSS), Next Generation Science Standards (NGSS), the C3 framework and ACTFL, and our work with our advisory program, we can help students to understand how the DSLOs are represented within the specific work and thinking of writers, mathematicians, scientists, historians, economists, etc. Rather than treating our curricular standards and the DSLOs as separate sets of learning outcomes, we consider and leverage the significant overlap among these outcomes.

WORLD LANGUAGES

Two years ago High School Chinese aligned our subject names with our practice of teaching for proficiency. In fact, the World Languages schoolwide are now fully proficiency based and with the aligned program, students have a clear curriculum track to follow as their skills develop. As students progress we are opening new levels, and this year we are excited to introduce not only a Chinese: Intermediate High III course, but also Chinese: Advanced course for the first time.

NEW COURSES FOR 2017-18

- AT Computer Science: Data Structures
- AT Computational Physics
- AT Entrepreneurship
- AT Environmental Science & Field Research
- AT Finite Math Modeling
• AT Post-Euclidean Geometry
• AT Research & Catalyst
• AT Seminar
• AT Urban Studies
• Algebra I Math Lab
• Chinese: Intermediate High III
• Chinese: Advanced
• Multivariable Calculus & Linear Algebra

**CHANGED COURSES FOR 2017-18**

• Algebra 1B will be offered for the last time in 2017-18 to allow students who completed Algebra 1A in 2016-17 to complete their Algebra 1 sequence. Beginning in 2017-18, students who need additional support with Algebra I will receive this in Algebra 1 Math Lab. Algebra 1 Math Lab aims to assist identified students with the development of mathematical skills, knowledge, and confidence, and the course will maintain a low student-to-teacher ratio.

• The current AP Calculus BC/Multivariable Calculus course will be offered for the last time in 2018-19. (The stand-alone AP Calculus BC course will continue to be offered.) We are developing semester-long AP Calculus BC, Honors Multivariable Calculus and Honors Linear Algebra courses that will be available in 2019-20.

• Several AP courses will be offered for the last time in 2018-19. AT courses in these subject areas are currently being developed to provide more relevant learning options. These courses include AP Literature, AP Human Geography, AP Psychology, AP World History.

• AP Seminar and AP Research are now called AT Seminar and AT Research & Catalyst. These courses fully align to our Advanced Topic development criteria and therefore are deserving of the AT label. Students taking these courses will fulfill the Catalyst graduation requirement.

• Nutrition and Physical Health is now named Body and Mind Wellness. The course provides students with an opportunity to learn, discuss and explore topics and current events that are extremely relevant to SAS students and their overall wellbeing.

• AP Environmental Science / AT Tropical Ecology is now named AT Environmental Science & Field Research. Students will be prepared for the AP exam.

• Discrete Mathematics has been redeveloped as an introduction to a variety of contemporary topics that are useful in various fields such as business and social sciences, as well as the physical and computer sciences. This course is designed for the student who wants to continue on in mathematics, but who might not intend to pursue calculus-level classes.

• AP Statistics and AP Computer Science are year-long courses at SAS. As they are considered semester-equivalent courses by the College Board, these course will receive an additional weighting of 0.25 (rather than 0.5) beginning in 2017-18.
Please select courses carefully! Since returning students have opportunities in the spring to select and adjust their course requests, in August students must remain in their assigned courses for the first two days of the school year. This allows counselors to focus on assisting students who are new to SAS. Following this two-day moratorium, students who have a schedule problem are allowed to meet with a counselor and request changes. The add/drop period ends after the eighth school day. All requests must be for educationally sound reasons and approved by a counselor. Requests for changes must move a student from a larger section of a course to a smaller one. Students are also required to speak with their parents about proposed changes. At the beginning of the second semester, except for newly arriving students, no schedule changes can be made on the first day back in January. The add/drop period for second semester courses concludes on the fourth day of the semester.

Seniors must list their courses for the entire senior year when they apply to colleges. Should a change in a second semester course be made, colleges must be notified of the change. Should it appear that a student is choosing an easier load in the final semester, it can reduce the chances of admission. Seniors are advised to select their courses carefully for the entire school year and plan to remain in them. The Student Handbook has a full explanation of SAS drop/add policies.

<table>
<thead>
<tr>
<th>TIME</th>
<th>CLASS/ACTIVITY</th>
</tr>
</thead>
<tbody>
<tr>
<td>8:00 - 8:30 AM</td>
<td>See table below</td>
</tr>
<tr>
<td>8:35 - 9:55 AM</td>
<td>Block 1</td>
</tr>
<tr>
<td>9:55 - 10:15 AM</td>
<td>Break</td>
</tr>
<tr>
<td>10:15 - 11:35 AM</td>
<td>Block 2</td>
</tr>
<tr>
<td>11:35 AM - 12:10 PM</td>
<td>Lunch</td>
</tr>
<tr>
<td>12:10 - 1:30 PM</td>
<td>Block 3</td>
</tr>
<tr>
<td>1:30 - 1:40 PM</td>
<td>Break</td>
</tr>
<tr>
<td>1:40 - 3:00 PM</td>
<td>Block 4</td>
</tr>
</tbody>
</table>


**WHAT HAPPENS FROM 8:00 TO 8:30**

<table>
<thead>
<tr>
<th>DAY</th>
<th>TEACHERS</th>
<th>STUDENTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mon</td>
<td>Advisory Plans</td>
<td>Flex: Clubs, Tutoring, etc.</td>
</tr>
<tr>
<td>Tues</td>
<td>Advisory Meets</td>
<td>Advisory</td>
</tr>
<tr>
<td>Wed</td>
<td>PLC</td>
<td>Flex &amp; Assemblies</td>
</tr>
<tr>
<td>Thur</td>
<td>Advisory Meets</td>
<td>Advisory</td>
</tr>
<tr>
<td>Fri</td>
<td>PLC</td>
<td>Flex: Clubs, Tutoring, etc.</td>
</tr>
</tbody>
</table>

**GRADUATION REQUIREMENTS**

**Required Courses in Specific Academic Areas**

<table>
<thead>
<tr>
<th>Subject</th>
<th>Minimum Credits</th>
<th>Recommended for College</th>
</tr>
</thead>
<tbody>
<tr>
<td>English</td>
<td>4.0</td>
<td>4</td>
</tr>
<tr>
<td>Mathematics</td>
<td>2.0</td>
<td>4</td>
</tr>
<tr>
<td>Science</td>
<td>2.0</td>
<td>3-4</td>
</tr>
<tr>
<td>Social Studies*</td>
<td>2.0</td>
<td>3-4</td>
</tr>
<tr>
<td>Language (level requirement)**</td>
<td>Intermediate**</td>
<td>3-4</td>
</tr>
<tr>
<td>Visual/Performing Arts</td>
<td>1.0</td>
<td>1</td>
</tr>
<tr>
<td>Physical Education</td>
<td>1.5</td>
<td></td>
</tr>
<tr>
<td>Health Education</td>
<td>0.5</td>
<td></td>
</tr>
<tr>
<td>Catalyst Project (Begins with Class of 2018)</td>
<td>0.5</td>
<td></td>
</tr>
<tr>
<td>Minimum Total Credits***</td>
<td>24.0</td>
<td></td>
</tr>
</tbody>
</table>

*Clarifying Details*

**Social Studies**: US citizens (not dual citizens) are required to earn one credit in U.S. History. **Language**: Two years of study of the same foreign language (e.g., Chinese, French, or Spanish at the Novice, Intermediate level) or an equivalent proficiency in another language is required. **Minimum credits**: The minimum credits listed above are the absolute minimum number required to earn an SAS diploma. Completing the minimum credits would not be sufficient for admission to university. Focus should be on the “Recommended for College” column.

Interim: Students must participate in an Interim Semester course each year they are at SAS - one of which must be a service course. One Interim service course (0.25 credit) is required.
Our advisory program was established in 2015, and in 2016, we rolled out our three advisory houses: Andor, Aquila and Ethon.

Advisory and house seek to ensure that every student is known, cared for and guided; make our big school feel small; support students with solving real-world problems; strengthen students’ sense of identity and belonging; and recognize students’ individual learning experiences and talents.

Each advisory is composed of 10 to 12 students in the same grade who are assigned to a faculty advisor during their first year at SAS. In most cases, students will stay with the same advisor until they leave SAS. Advisory groups meet every Tuesday and Thursday morning from 8:00 to 8:30 AM. Each advisory is also assigned to a house that includes approximately ten advisories per grade level. Houses are student-led and house representatives from each grade level form the student government. These students serve as an important voice of the student body, and their duties include but are not limited to organizing house assemblies, all-school pep rallies, spirit activities, and student forums with faculty and administration.

Advisory and house focus on improving students’ interpersonal and intrapersonal skills, their cultural competence and their character. These meetings are structured around the content and behaviors needed to: 1) best ensure the social/emotional health of all students; 2) improve academic success; and 3) prepare students for the inevitability of change in their lives, including the transitions to HS, college, and adulthood.

The advisory program strives to create an atmosphere of trust where students feel safe to discuss a wide range of academic and personal matters in a setting that helps to balance the rigorous academic demands of the SAS experience.

THE SAS CATALYST PROJECT

Catalyst is a culminating experience where students apply their academic knowledge to real situations that are personally applicable to them. This entails using different skills than are sometimes required in regular academic courses at SAS. Catalyst is deliberately designed for students of all abilities and interests, and it is customized for all students to experience a successful project process. Further, grading is based on process and not product, so what they choose for their project is less important than how they conduct their work. Beginning with the class of 2018, the successful completion of the Catalyst project is a graduation requirement. It ensures that every SAS graduate will leave our school having immersed themselves in a personalized, experiential, educational experience that is essential for the their future.

RATIONAL FOR REQUIRING THE SAS CATALYST PROJECT

- Fosters development of our Desired Student Learning Outcomes (DSLOs) including communication, collaboration, critical thinking, and creativity.
- A focus on inquiry versus direct instruction, depth of understanding over breadth of topics covered, and production over consumption of information.
- Students are encouraged to think critically, be self-sufficient, develop professional communication and collaboration skills, i.e., skills that will help prepare them for college, modern careers, and adult life.
- Learners grapple with complex, and challenging real-world situations. Mistakes (and sometimes failures) are seen as an opportunity for growth.
- Additional resources and time for students to pursue academic pursuits such as online courses, off campus classes, coaching, etc.
- Greater flexibility in scheduling so students can explore experiential, hands-on learning opportunities like apprenticeships and internships.
- Students demonstrate their proficiency with the skills they have gained at SAS and can include this information on their applications to colleges and universities.
FREQUENTLY ASKED QUESTIONS

How can I fulfill my Catalyst project graduation requirement?

There are three ways that students can fulfill their Catalyst graduation requirement, see table below. Regardless of the path chosen, in completing their requirement, students will:

- receive explicit instruction and feedback on our desired student learning outcomes (DSLOs);
- explore, innovate, encounter real-life challenges, learn from occasional failures or setback, devise solutions, and reflect deeply on who they are as learners;
- learn valuable skills on how to build professional networks and collaborate with mentors;
- manage time to see a project through from start to finish;
- feel better prepared to be successful in college, career, and civic life.

THREE WAYS TO FULFILL THE CATALYST GRADUATION REQUIREMENT

<table>
<thead>
<tr>
<th>SAS Catalyst Project</th>
<th>AT Research &amp; Catalyst</th>
<th>Quest</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Students earn their graduation requirement through this personalized course (one semester is the minimum requirement)</td>
<td>• Students earn their Catalyst graduation requirement through this year-long AT course</td>
<td>• Students earn their Catalyst graduation requirement through their fully personalized, all-day, year-long participation in the Quest program</td>
</tr>
<tr>
<td>• Prerequisite: None. This course is accessible to everyone in their junior or senior year.</td>
<td>• Prerequisite: Students need to successfully complete AT Seminar to complete their Catalyst requirement through AT Research &amp; Catalyst</td>
<td>• Prerequisite: Enrolment to the Quest program via application</td>
</tr>
<tr>
<td>• Note: Optionally, students may extend their Catalyst experience by taking the course for a second semester or by enrolling in a hyper-Catalyst (hyper-Catalyst is by application)</td>
<td>• Note: In addition to fulfilling their Catalyst requirement, students who successfully complete AT Seminar and AT Research &amp; Catalyst are eligible to earn the AP Capstone Diploma</td>
<td>• Note: Quest is an immersive program; students earn credits by pursuing interdisciplinary projects that are personalized to their interests</td>
</tr>
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</table>
AP Capstone, Quest and the SAS Catalyst Program. How are these different?

Although all three fulfill the Catalyst graduation requirement, there are some significant differences.

**Quest**

Quest is a full-year, all-day, fully immersive program that supports students in pursuing their curiosity and passion. Instead of taking traditional courses, students earn six credits through interdisciplinary projects that are personalized to their interests. The year culminates with the senior project thesis paper, thesis talk, and thesis defense; successful completion of which fulfills the Catalyst graduation requirement.

**AT Seminar and AT Research & Catalyst (AP Capstone)**

AT Seminar and AT Research & Catalyst are both required to complete the AP Capstone. AT Seminar is a year-long, inquiry-driven course that engages students in cross-curricular conversations that explore real-world topics and issues from multiple perspectives. After successfully completing AT Seminar, most of our students enroll in the year-long AT Research & Catalyst. AT Research & Catalyst asks students to deeply explore an academic topic, problem, or issue of individual interest with the expectation of producing both a university level research paper and a meaningful Catalyst project. As these courses have fully adopted the AP Capstone curriculum, students will be eligible to take the AP Seminar and AP Research exams. (Note: Students who do not wish to enroll in AT Research & Catalyst after AT Seminar would enroll in the SAS Catalyst Project semester-length course to fulfill their Catalyst graduation requirement, and therefore, they are not eligible for the AP Capstone Diploma.)

What is the AP Capstone Diploma?

To receive the AP Capstone Diploma, students must successfully complete both AT Seminar and AT Research & Catalyst. In addition, they must earn a score of 3 or higher on both the AP Seminar and AP Research exam, and earn a score of 3 or higher on four additional AP exams of their choosing. Students typically take AT Seminar in their sophomore or junior year, followed by AT Research & Catalyst.

The SAS Catalyst Project

The Catalyst Project is a personalized course where students work with teachers who act as “guides on the side” as students design, plan, and complete interest-based projects. Students focus on producing a meaningful outcome and are encouraged to dive deep into relevant content and knowledge. This course is for everyone --- the program is built to inspire and assist students regardless if they already have a project idea or not. Optionally, the Catalyst project can be extended into a second semester, or become a “hyper-Catalyst” because the student's project requires greater resources and time.
College Preparation

SAS students are assisted in the process of selecting and applying to colleges and universities by an experienced team of SAS counselors. Our counselors are highly regarded in the college admission community, have visited hundreds of campuses, have held leadership positions in international admission organizations, have received international awards, and are invited speakers at college admission conferences.

With nearly 300 college admission officers visiting SAS each year, the counselors are well versed on what students need to do to maximize their chances of admission. A sequential plan of activities has been put in place to help both parents and students to navigate the selection and application process.

Colleges want to admit students who are happy and successful in high school because that predicts they will be equally happy and successful when they arrive on campus. To improve the chances of college admission, high school students should focus on having a great high school experience.

U.S. Colleges & Universities

A U.S. university admission officer reviews an application in this order: They look at grades first, then rigor, then test scores, and then personal characteristics, leadership and any other factors they deem important. High school grades in academic subjects predict college success better than SAT/ACT scores, recommendations, essays, and everything else. The more successful a student has been in high school, the more likely the student will be admitted.

Each successive academic year is seen as more predictive of college success than the previous one. Grades from the junior and first half of the senior year are most predictive because those courses are more similar to college level courses. Colleges look at the entire transcript considering both the student's performance and course rigor.

When choosing high school courses it is important to take a challenging academic program but more importantly, one in which high grades can be earned. The level of academic challenge will vary from one student to another and from one subject to another. Students shouldn’t choose courses because friends did, nor should courses be chosen simply because someone says that the name will “look good” on a transcript. Grades trump rigor. Choose courses based on what is best for the student.

When taking courses next year that are more challenging than the courses this year, additional homework time will be required each day. Taking more difficult courses while not increasing homework time means grades will drop. To earn higher grades while taking harder classes students must plan on dedicating significantly more time each day. Students must be realistic about what they can and will do.

Finally, remember that U.S. university admission officers are looking for students who contribute to their school or community and do something besides just study. Students should choose a set of courses that will allow time to be involved in one or more aspects of the high school community.

Non-U.S. University Admission

Each year about 20% of SAS graduates choose to apply to colleges in locations such as Canada, the UK, Australia, Singapore, Korea, Japan, and New Zealand. Each of these countries reviews applications differently. There is information on the SAS High School Counseling website about these countries and the information they use in their admission review.

Applying for admission to UK universities is very different than the process used in the US. One major difference is that students are required to be certain of their course of study at the time of application. Unlike in the U.S. where students can apply as “undecided,” there is no such thing as “undecided” in the UK. Students must be prepared to launch into a quite specific course of study, and to stay with it for three years or until the degree is completed.

For students applying to the UK, it is important that an early decision be made on the course of study and relevant Advanced Topic (AT) and Advanced Placement (AP) courses (with high scores) are completed. AP exams and standardized tests related to the proposed course of study are imperative for students applying to the UK. For UK bound students, results on AP exams and other standardized tests are so important that a final offer of admission is typically not made until after the results are available following graduation. Exam results, along with a student’s background
and experiences related to the plan of study, may or may not result in an offer of admission. Please note that with the implementation of AT courses, our counseling team works with UK admissions officers to ensure that SAS maintains a robust selection of AP courses appropriate for the UK admissions process that are complemented by relevant, university-vetted AT course offerings.

The SAS counselors are happy to provide additional information about course choices and how they relate to admission in the UK. Additional information about UK university admission is also on the High School Counseling Website.

**ADVANCED PLACEMENT (AP) & ADVANCED TOPIC (AT)**

SAS offers Advanced Placement (AP) and Advanced Topic (AT) courses for students who wish to pursue college-level study while they are still in high school.

The AP program gives students the opportunity to show what has been learned by taking an AP exam. Based on exam scores, colleges may choose to grant credit, advanced standing, or both. Students who enroll in an AP course will be prepared for and strongly encouraged to sit for the AP exam in May.

AT courses provide relevant learning options, ensure focus on 21st century competencies, and prepare students for their future aspirations. Each AT course has been developed with the assistance of an external university professional and was vetted for quality and rigor by college admissions representatives.

Students who enroll in AP and/or AT courses will be expected to undertake rigorous and sophisticated assignments and to work independently. It is important to be realistic about the level and number of AP and AT courses selected. Taking too many and earning low grades hurt rather than help admission chances. Most students do not begin taking APs and ATs until grade 11 or 12.

While AP exam results can provide credit for a U.S. college course, most high school students are more interested in being admitted to the college than getting credit for a course after enrollment. For U.S. colleges, the AP and AT grades listed on transcripts are much more important than AP exam results. Results for senior year AP exams are not available until July - long after admission decisions are made.

An AP Capstone option was introduced at SAS in 2014-2015 when the AP Capstone Seminar course was first offered. To receive the AP Capstone Diploma, students must successfully complete both AT Seminar and AT Research & Catalyst. In addition, they must earn a score of 3 or higher on both the AP Seminar and AP Research exam, and earn a score of 3 or higher on four additional AP exams of their choosing. Students typically take AT Seminar in their sophomore or junior year, followed by AT Research & Catalyst.

**ACADEMIC LOAD**

The minimum SAS graduation requirements are just that - minimums. All students should look at the “recommended for college” rather than the “minimum credits” column. Students should speak to teachers and counselors for advice on exactly which courses to take. Remember, while it is important to take challenging courses, it is equally important to choose courses in which good grades can be earned. Earning a C, D or F is never impressive, whether it is in a regular, honors-equivalent, AP or AT course.

There is no specific number of AP, AT or advanced courses required by a selective college. While they are looking for academically able students who have challenged themselves academically, they also want students who have contributed to their school or community. Students should not take such a heavy load that they will not have time to be involved in the life of SAS. Colleges do expect students to challenge themselves, but if a couple of advanced courses would be too much, take standard academic courses where strong grades can be earned.

Academic performance is more important than rigor, but admission officers consider both. Taking overly challenging courses and performing poorly would certainly hurt a student's chances of admission.

For hyper-selective colleges, academic success is just the first step. Most of their applicants are academically talented. For those colleges admitting less than 20% of the applicants, excellent grades are not enough. Students also need to be interesting, involved, and have something which compels the college to admit the student.
GPA CALCULATION

Each high school calculates a GPA differently. At SAS all courses completed at SAS are included in the GPA with advanced courses being weighted. Since each high school uses a different set of grade weighting, most colleges recalculate each student’s GPA. They may drop the weighting, eliminate elective, PE and art classes, or discount freshman grades completely. Rather than focusing on a GPA, admission officers review an entire transcript to see the overall number of As, Bs and Cs, while carefully considering the course load. While students sometimes focus on their GPA, a college will definitely take the time to review an entire transcript paying more attention to the grades earned in the academic core courses.

CO-CURRICULARS

An important part of any high school experience is the co-curricular area. SAS offers a rich array of activities in such areas as music, dance, drama, sports, community service, student government, journalism, cultural clubs, academic and special interest clubs. Most clubs meet during one of the breaks or between 3:15 and 4:15, with athletic practices usually starting at 4:15. Some activities, including most of the journalism and music activities, are actually an extension of a class and are limited to students in those classes, though they will involve after-school participation. Other clubs, such as the Art Club, are related to a class but meet after school and membership is not restricted to class members. A complete list of activities is available on the high school website. A club fair is held each August where all of the different groups explain what they do and ask students to join them.

Co-curricular activities can play a big part in distinguishing a student from other applicants, with quality and commitment being much more important than quantity. Colleges are pleased to see students who are passionately committed to a few activities. Leadership positions demonstrate commitment and say something positive about the student. Just like it is better to take three years of French than to take one year each of French, Chinese, and Japanese, it is better to spend three years rising to a position of importance on the student council than it is to join every organization the school has to offer.

Johns Hopkins University has said: “A common misconception is that university admissions officers are looking for each student to be ‘well-rounded,’ whereas we are looking for a well-rounded freshman class, depth being valued over breadth. A combination of both is ideal.” Involvement in high school activities tells admission officers how much a student will likely contribute to campus life.

But remember, extracurricular activities can only do so much to make up for less than stellar grades. Students overly involved in extracurricular activities may find their grades suffer as a result. No list of activities will make up for mediocre grades. Highly selective universities, expect high school students to demonstrate leadership - and also make As.

COLLEGE ADMISSION TESTING

For students applying to the U.S., the answer to, “How important is the SAT or ACT?” is a complex one. There are now hundreds of colleges that no longer require the SAT or ACT because they have found the scores do not predict college success. Included on this list are schools ranging from Allegheny College and American University to Wake Forest University and Worcester Polytechnic Institute. While some colleges have dropped the testing requirement, the fact remains that most highly selective colleges expect that all parts of the application -- including the SAT or ACT -- to be strong.

The best way to improve SAT scores is to read a lot and to take appropriately challenging academic courses. No amount of SAT or ACT preparation will help if a student stops taking math. The reading and writing in a challenging social studies course will help students with the reading and writing sections of the SAT and ACT.

While doing well in classes is the best SAT or ACT preparation, practice can also help. All eleventh graders take the PSAT, the practice test for the SAT Reasoning test; tenth graders take a pre- ACT; ninth graders take the PSAT 9. The PSAT is given during the school day in October. Many students also practice outside of school -- but please note that there is no evidence that practice is valuable if it’s taken more than eight to ten weeks before the actual test date.
Students should take either the SAT or the ACT (or both) during the second semester of the junior year and probably again early in grade 12. There is rarely any benefit to taking the test earlier than the winter of grade 11; scores taken before this time are usually lower, because the tests are designed to test students in the second half of grade 11.

Many students ask, “should I take the SAT or the ACT?” There is no right answer to this question for students applying to college in the US; every college accepts them interchangeably. We recommend that students take diagnostic tests for both (or try taking one actual SAT and one actual ACT), decide which test they prefer, and focus on that test from then on.

About 25 U.S. colleges -- generally the most selective ones -- require additional tests called the SAT Subject Tests. These are one-hour multiple-choice tests offered in academic areas such as sciences, mathematics, language, literature or history. If they are required, students ordinarily take two of these tests in May or June of the junior year. Taking more than three is not helpful. If a college doesn’t ask for SAT Subject Tests it is unnecessary to take them. Most U.S. colleges will accept the ACT plus Writing in lieu of SAT Subject Tests. Testing policies vary from university to university, so check with a counselor for advice if you are wondering which tests to take and when.

Additional details about the SAT and ACT are on the testing section of SAS High School Counseling website.

**“FAMILY CONNECTION”**

SAS high school students and parents are given individual usernames and passwords to access Family Connection, our online college information system. Some of the features of Family Connection include a student’s ability to:

- View individualized displays of personal academic information and test scores.
- Create a personal resume.
- Complete career and interest inventories, which can be especially helpful to students considering universities in the UK.
- View admission data on SAS graduates who applied to colleges. Scattergrams plot the cumulative GPA, best SAT or ACT score, and whether the student was admitted or denied.
- Search for colleges and start a list of potential schools to explore more in depth.
- Get automatic e-mail reminders about colleges visiting SAS.

**DECEMBER GRADUATION**

Although students are expected to attend high school for eight semesters prior to graduation, in unusual circumstances a student may request to graduate one semester early in December. Ordinarily these circumstances involve a family leaving Singapore midway through the senior year, attendance at a university that begins the academic year in January or February, or a student who transferred to SAS from a high school that followed a different academic calendar (e.g., a student completed one semester of grade nine in the Australia system prior to beginning SAS as a new ninth grader so three semesters of grade nine were completed).

A student or parent interested in pursuing early graduation must speak with a counselor to determine if it is possible to earn all required credits by December of the senior year. If it is, a formal request to graduate early must be submitted to the principal by May 1st of the junior year. This request should explain the rationale and be signed by both the student and the parents. Full details are in the *Student Handbook*.
The English curriculum focuses on reading, writing, speaking and listening, research, and language. Each area will be assessed in every English course in various ways, and skills will be revisited and refined over the course of the four-year program.

**Students must enroll in an English class every semester they attend SAS.** All freshmen must take English 9 or World Studies, while sophomores must take English 10 or American Studies. Upperclassmen may opt to take any of the following courses during the junior and senior years: AP English Language, AP English Literature, AT Writing Seminar (all year long), or a combination of the semester-length junior/senior option courses.

While all of the courses can be used to fulfill the four credit SAS English graduation requirement, please note that there are some that do not meet the English requirements set by some outside organizations. The National Collegiate Athletic Association (NCAA) reviews all core courses at all high schools and makes an independent assessment on whether they are considered substantially comparable to a traditional core course. If you are a talented athlete who could potentially play a sport in a US college, be aware of the handful of non-traditional SAS English courses that are not certified by the NCAA.

**FAQ: Should a ninth grader choose English 9 and World History or the combined double block World Studies course?**

English 9, World History, and World Studies each challenge students to dive more deeply into core knowledge covered, and empower students to make meaningful connections across disciplines through an inquiry lens. For the World Studies course, which meets every day with the same teacher, school transcripts will not reflect independent grades for English 9 and World History, but instead will note one grade for World Studies. Whether choosing the everyday combined double block option or the discrete courses, to be successful, a student will need to thoughtfully understand the content introduced, and master the skills of speaking persuasively, writing effectively and reading analytically. Students will be expected to consistently research and share their perspectives in collaborative environments. The skills, methods and thinking emphasized in English 9, World History and World Studies will prove beneficial when students are asked to choose and develop an interdisciplinary SAS Catalyst project. Similarly, both choices will adequately prepare students for higher level social studies and English courses (AP & AT).

**World Studies (English 9/World History)**

- **ID:** 41005  
- **Grade:** 9  
- **Length:** Year  
- **Credit:** English/Soc Studies (2)

This interdisciplinary course is a thematic study of the human experience using the lenses of history and literature with a focus on skills development. Using the themes of identity, power, discovery and networks, and revolutions students will explore how individuals, communities, nations and the world have responded and continue to respond to the evolving challenges of their environment. World Studies will introduce students to a variety of literary genres and world history topics to provide students with the knowledge and skills needed to better answer the question: what does it mean to be me? This interdisciplinary course will meet every day, and students will earn both an English and social studies credit.

**Reading and Viewing** – Using a genre approach, students will study short stories, novels, poetry, drama, and non-fiction - specifically scholarly journals and articles; religious texts, government documents and other primary sources; memoirs; and secondary sources. All students will read and study a memoir, *Romeo and Juliet, Lord of the Flies,* and *World War Z,* but will also analyze shorter literary and non-fiction extracts that relate to the themes and major eras in world history. Students will develop skills in critical observation and creative representation by viewing and discussing films and other media.

**Writing** – The course emphasizes the structure and conventions of written English and provides a variety of writing opportunities. Some assignments will stem from a student’s own experiences and observations, while others will focus on responses to class texts. Students will write informative, argumentative and narrative pieces, including a research paper using primary and secondary sources. Vocabulary study is an integral part of the program.
**Speaking and Listening** – Class reading of literature selections, individual and group presentations, and class discussions in small and large groups all contribute to the enhancement of the students’ speaking skills. Students will practice careful and critical listening when taking notes on lectures, attending to readings and presentations, and participating in class discussions.

Students will be challenged to demonstrate the development of their skills and understandings in a final culminating project.

**English 9**

**ID:** 41012  **Grade:** 9  **Length:** Year  **Credit:** English

English 9 is a traditional Language Arts course which focuses on writing, reading, speaking/listening, and language skills in addition to a year-long vocabulary study of Greek and Latin prefixes, roots, and suffixes.

The written assignments in English 9 will build from a foundation of how to manage and organize primary and secondary source material, using each in increasingly sophisticated writing tasks. Writing opportunities for students include the literary analysis essay, the comparison and contrast essay, the research paper, and creative writing.

Reading for English 9 focuses on the skill of inferring meaning from text. Students will spend time with many titles from the high school canon, including *Of Mice and Men*, *The Absolutely True Diary of a Part Time Indian*, *To Kill A Mockingbird*, *Oedipus Rex*, *Antigone*, and *Romeo and Juliet*, and English 9 students will practice increasingly-complex inferential reading skills throughout the school year. Students will also read poetry, short story, non-fiction, and literary criticism.

Speaking and listening in English 9 is assessed in two ways. In one repeated setting, students learn how to participate in a high school-level discussion by supporting their thinking with textual evidence from their readings. In another, students prepare and deliver a formal presentation based on their research-based findings.

Language study in English 9 allows students to define their knowledge of syntax. During the first semester of the course, students practice and hone their skills for writing the four main syntactic patterns in English. During the second semester, students then learn to develop more sophisticated syntax by learning how, when, and why to add phrases to their independent and dependent clauses.

**American Studies (English 10/US History & Government)**

**ID:** 41014  **Grade:** 10  **Length:** Year  **Credit:** English/US History (2)

Note: Double block/credit in English and U.S. History & Government.

This course is a thematic study of the American experience through the lenses of history and literature, with a focus on skills development. Through the thematic units “Making a Nation,” “All Men are Created Equal?,” “The American Dream,” and “Conflicts and Resolutions,” students will explore critical issues, individuals and turning points in the history of the United States of America. Students will analyze the extent to which ideologies, people, literature and events developed and shaped both American history and its contemporary issues. Students will be challenged to think critically and to make thoughtful connections as they draw on a variety of resources to understand the American experience. This interdisciplinary course will meet every day, and students will earn both an English and a U.S. History/Social Studies credit for completing the course.

**Writing** – Students will develop their writing in a variety of genres (e.g. persuasion, narration, analysis, synthesis), responding insightfully to both literature and history and they will pursue class-related areas of interest for their research projects. Language usage and mechanics instruction will focus on the problems evident in the students’ writing.

**Speaking and Listening** – Students are expected to participate fully in class discussions, work in small groups, and make at least one formal presentation per unit, with a focus on persuasive speaking skills.

**Reading and Viewing** – Students will critically read a variety of nonfiction (e.g. academic articles, primary source documents), fiction (e.g. novels, short stories), drama and poetry reflecting the American Experience; the history text will be *The Americans* (Holt McDougal). Students will continue to develop skills in visual literacy by critically viewing documentaries and films. Students will be encouraged to read widely outside of class in order make connections.
English 10 - American Literature

ID: 41013  Grade: 10  Length: Year  Credit: English

English 10 is a survey of American Literature. Throughout the course, students are asked to think critically and reflect on two key questions: Who or what is an American? Is the American Dream a myth or reality?

Writing – In the tenth grade, the form and structure of the short essay are stressed, and the quality of writing is enhanced through the application of the writing process. Students will write in a variety of modes and styles (e.g. argumentative, narrative, informational, synthesis), with a focus on persuasive writing and research. Language usage and mechanics instruction focuses on the problems evident in the students’ writing. The study of vocabulary is continued.

Speaking and Listening – At the tenth grade level the course emphasizes the discussion of literary selections and oral reports to emphasize the skill of persuasive speaking.

Reading and Viewing – Students will read a variety of fiction, nonfiction, and poetry reflecting the various literary periods in American Literature. Students will study texts chosen from *The Catcher in the Rye*, *The Adventures of Huckleberry Finn*, *The Great Gatsby*, *Nickel and Dimed*, *Outliers*, *The Crucible*, and *A Raisin in the Sun*. Students will also read at least one American play and participate in literature circles using texts that examine current issues and the minority experience in America. Students will continue to develop skills in critical observation and creative representation by viewing videos of films and short subjects.

JUNIOR/SENIOR OPTIONS

The junior/senior options continue the development of skills and intensive study of literature of a college preparatory English sequence. These semester-long courses cover diverse bodies of literature from various periods and cultures. All of the courses develop writing, reading, viewing, speaking, listening and technology skills. Please note that some options are offered on a two-year, rotating basis; see course descriptions for details.

Writing – Students will compose a variety of writing assignments, such as personal essays, literary analysis, compare and contrast essays, reviews, journal entries, and character sketches. They will be encouraged to develop an authentic voice and sense of audience. Students will revise pieces of writing, concentrating on content and organization, and edit to improve diction and mechanics. Students will participate in peer critiquing and editing.

Speaking and Listening – Students will speak in a variety of contexts: speeches and oral presentations, large and small group discussions, dramatic readings, and/or readers’ theater activities.

Reading and Viewing – Students will read a significant body of literature appropriate to the focus of the course.

SEMESTER I OPTIONS

Advanced Composition

ID: 41041  Grade: 11-12  Length: Semester I  Credit: English

This semester course is designed for students who wish to explore creative writing, to develop an individual writing voice, and to learn first-hand how creative writers work. Using a workshop format, both in class and online, students will hone their collaboration skills as they survey specific forms of creative writing, develop a peer community of writers to critique and support each other, and create an individual portfolio of creative work. Students will have opportunities to submit their works to outside publications and select and perform their own works for a student-developed public reading at the end of the semester. While this course is not required for Advanced Topic Writing Seminar work, it does serve as an excellent foundation and introduction to the creative writing process.

Asian Literature: An East-West Perspective

ID: 41019  Grade: 11-12  Length: Semester I  Credit: English

Note: Offered in 2017/18; not offered in 2018/19.

The focus of this course is on issues and themes relating to Southeast Asia and East Asia. Students study the perspectives of Asian, American and European writers located both in Asia and in the West. Reading texts in translation, as well as those originally written in English, students
consider religious, economic, socio-cultural and political representations of Southeast and East Asia. Students will have opportunities to explore a question in-depth, such as What's the difference between a sage and a saint? or How do ideals of “masculine” and “feminine” compare, east and west? Students will write in a variety of genres (e.g. critical responses to literature, synthesis, research), participate in shared inquiry discussions and deliver presentations.

British Literature: The World of Shakespeare

ID: 41006    Grade: 11-12    Length: Semester I
Credit: English
Note: Not offered in 2017/18; offered in 2018/19.

In this course, students will study Shakespeare’s works in depth, critically reading at least one play from each of his four genres (history, comedy, tragedy and romance), along with sonnets and other poetry. Supplementary readings will include recent articles and scholarship about Shakespeare and Elizabethan England and the development of Shakespeare’s language; in addition, students will critically view films and performances (if possible) of the plays. In response to the readings, students will write in a variety of genres (e.g. persuasion, narration, critical responses) and participate in shared inquiry discussions and presentations.

Literature and the Imagination (Science Fiction)

ID: 41011    Grade: 11-12    Length: Semester I
Credit: English

Students in this course will study the three stages of Science Fiction: Gothic/classic science fiction period (1818 – 1926); the modern period (1926 – 1960s); and the contemporary period (1960s – present). Through the study of the literature of these three periods students will examine the philosophical (ethical), scientific, and political ideas developed in science fiction literature. Key ideas include: the ethics of science and the responsibility of the scientist, the conflict between man and technology, man’s relationship to nature, the individual against society, mankind meeting alien species, social problems highlighted in science fiction literature and film, and how science fiction questions what it means to be human. Students will also explore the relationship of science fiction literature to the novel and film. Consequently students will analyze both written text and film. The variety of science fiction writers includes H.G. Wells, Mary Shelley, Ray Bradbury, and P.D. James.

Reading, Writing and Publishing in a Digital World

ID: 41024    Grade: 11-12    Length: Semester I
Credit: English
Note: This course was previously named Media Literacy. If a credit was earned in that course, you cannot retake it under this new name.

This project-based course examines the textual relationship between literary style and content, examining how it has evolved over time. We examine how the tools of expression—the spoken word, the pen, the printing press, the radio, the television and the internet—have changed the ways we describe, explain, persuade and narrate in the world. By reading and writing many different forms, students will better understand how to interpret the written world and publish work with a greater awareness of the effects on different audiences. This course is designed to help students think critically about and responsibly within the digital age. With the Common Core Standards as a framework, student will plan, write, revise, produce, record, film, publish and evaluate their own work, creating a body of writing to take with them in their personal portfolio.

Contemporary American Literature

ID: 41008    Grade: 11-12    Length: Semester II
Credit: English

Contemporary American Literature focuses on reading text from multiple genre - nonfiction, poetry, imaginative literature, film, etc. - to explore the values, voices and attitudes in present-day American society. These myriad texts will be applied to wider contexts including gender, cultural, historical, psychological and political issues. For instance, what impact has the social construction of gender had on our contemporary understanding of masculinity and femininity or how is language used in political and social discourse to convey meaning? Students will analyze such issues through writing, speaking, and collaborative tasks that require them to consider the multiple perspectives involved. They will also practice their research skills by developing guiding questions and identifying academic sources to support their thinking.
Communications
ID: 41031    Grade: 11-12    Length: Semester II
Credit: English
Note: For potential college athletes, this course does not meet the NCAA Division I core course requirement for English. See counselor for details. Offered in 2017/18; not offered in 2018/19.

This course will enable students to develop fundamental skills in formal and informal oral communication. Students will be exposed to lessons on how communication affects our lives, the process of communication, listening skills, interpersonal communication, building confidence, structuring speeches, choosing effective language, media studies, and speech delivery. The first quarter of the course will focus on building the skills required in public speaking by practicing the following types of speeches: Oral Interpretation of Literature, Original Oratory, Impromptu Speaking and Storytelling. Students will also learn specific strategies required for both Shared Inquiry and Socratic Seminar discussions. The second half of the course will be spent doing a Project-Based Learning unit culminating with each student preparing and giving a TED Talk in a public setting. This unit will allow students to pursue their passions by doing research, organizing and producing a multi-media presentation imitating the famous TED Talk series.

Studies in Satire
ID: 41022    Grade: 11-12    Length: Semester II
Credit: English

This course will provide students with a broad sense of satire in terms of how it has been defined and practiced. Thus, students will begin by briefly discussing several approaches to explaining the basic concepts of satire. These efforts seek to explain satire’s long and successful run as a literary genre and to clarify just how satire works. After establishing a critical lens through which to view satire, students will study classical examples of satire primarily from the eighteenth through the twentieth centuries using texts such as Being There, Brave New World, The Handmaid’s Tale, The Malcontents, and Cat’s Cradle. All the while, each week students will also be keeping tabs on twenty-first century satire. Overall, the course seeks to enhance students’ critical thinking skills by closely analyzing the criticisms inherent in works of satire.

World Literature: Myths and Monsters
ID: 41017    Grade: 11-12    Length: Semester II
Credit: English

The monster is a figure as old as literature itself. From the myths of the Greeks to the Biblical Leviathan, monsters of various kinds have roamed the landscapes of our imaginations. This course asks, what is a monster? Why do people seem fascinated with the grotesque, the outcast, and the evil? How are monsters portrayed in literature and other art forms? We will examine novels and stories that feature classic and contemporary visions of vampires, demons, ogres and perhaps the most frightening monster of all - mankind.

FULL-YEAR OPTIONS

AP English Language and Composition
ID: 41028    Grade: 11-12    Length: Year
Credit: English
Prerequisite: Semester I grade of B+ or higher in English 10/American Studies required to select this course as an 11th grader or teacher recommendation.

The AP Language and Composition course is primarily a course in both effective writing and critical reading. This course engages students in becoming skilled readers of prose written in a variety of periods, disciplines, and rhetorical contexts and in becoming skilled writers who compose for a variety of purposes. Readings will involve four general areas: science and
technology; government and politics; art and literature; and philosophy and religion. Students planning to take AP Language and Composition as a junior are cautioned: successful completion of the course requires a much greater effort and is significantly more demanding than English 10. Students will be prepared for and strongly encouraged to sit for the AP exam in May.

**AP English Literature and Composition**

ID: 41029  Grade: 11-12  Length: Year  Credit: English

Prerequisite: AP English Language or Semester I grade of B or higher in an 11th grade semester length English course or teacher recommendation.

Note: 2018/19 will be the final time this course is offered. Beginning in 2019/20, the course will be replaced with an AT Literature offering.

This course is designed for upperclassmen who have demonstrated a commitment to the critical study of literature and the study and practice of writing. Through speaking, listening, and reading, but chiefly through the experience of their own writing, students will become more aware of the resources of language and more adept at formal analysis of literature in terms of both form and content. The focus of this course is the in-depth analysis of literature in a variety of modes: Greek drama, Shakespearean drama, the novel, satire, the essay, and poetry. The AP curriculum is not specifically prescribed and may vary in content and emphasis from year to year. Works selected for study will represent a variety of modes and periods and are generally recognized as literary classics. Students will be prepared for and strongly encouraged to sit for the AP exam in May.

**AT English: Writing Seminar**

ID: 41045  Grade: 11-12  Length: Year  Credit: English

Prerequisite: B or higher in an AP English course, or a B+ or higher in American Studies, English 10 or a Jr/Sr Options course. Enrolled students will be required to submit a portfolio of creative writing pieces prior to the fall semester in order to remain in the course. See your English teacher for details.

This course offers an intensive, year-long inquiry into the creative writing and publication process. The course will operate in a small writers’ community to be structured on the Iowa Writers’ Workshop model used in creative writing departments across the world, but scaled for a high school student. The course is designed for students who already have a regular writing process in any creative genre and can demonstrate a passion for creative writing with a portfolio of work. The course will feature a variety of units to develop insight and skills centered on creativity and producing a collaborative professional publication. These units include: idea generation through journaling and writing exercises, designing and refining sentences and forms, producing and iterating drafts of fiction, nonfiction, and poetry, demonstrating courage to explore different approaches through radical revision, creating with others through writing workshop, and reflecting on the creative process in a journal and portfolio. The course will feature regular workshops to improve drafting and editing skills, study and analysis of works and writers (based on student voice and choice) that examines process and audience as well as key ideas and craft, structured encounters with visiting local and international authors, a writer's retreat to encourage growth of relationships and community, and production of a publication of student work (print, digital, and/or performance) based on inquiry into contemporary publishing practices. This course was collaboratively developed and endorsed by Professor Robin Hemley from Yale-NUS in 2016. The Advanced Topic (AT) designation indicates a course is at university level, putting it at or above the level of a traditional Advanced Placement (AP) course. This course has a grade point weighting of 0.5.
SOCIAL STUDIES

Social Studies offerings are consistent with the SAS Desired Student Learning Outcomes (DSLOs), and are designed to allow students to develop and demonstrate character, collaboration, communication, creativity, critical thinking, cultural competence, and core knowledge. Toward this end, courses are built around the College, Career, and Civic Life (C3) framework, a set of standards from the National Council for the Social Studies (NCSS). Students will develop questions, apply disciplinary tools, evaluate evidence, and communicate conclusions. Ninth grade students will take one of the two world history courses outlined below. Tenth through twelfth grade students have a wide variety of choices in the disciplines of history, government, economics, business, geography, and psychology, as well as the opportunity to take Advanced Topics (AT) and Advanced Placement (AP) courses in those disciplines.

REQUIRED 9TH GRADE WORLD HISTORY OPTIONS

All SAS ninth grade students must be enrolled in either World History or World Studies - the combined English 9/World History course.

English 9, World History, and World Studies each challenge students to dive more deeply into core knowledge covered, and empower students to make meaningful connections across disciplines through an inquiry lens. For the World Studies course, which meets every day with the same teacher, school transcripts will not reflect independent grades for English 9 and World History, but instead will note one grade for World Studies. Whether choosing the everyday combined double block option or the discrete courses, to be successful, a student will need to thoughtfully understand the content introduced, and master the skills of speaking persuasively, writing effectively and reading analytically. Students will be expected to consistently research and share their perspectives in collaborative environments. The skills, methods and thinking emphasized in English 9, World History and World Studies will prove beneficial when students are asked to choose and develop an interdisciplinary SAS Catalyst project. Similarly, both choices will adequately prepare students for higher level social studies and English courses (AP & AT).

World Studies (English 9/World History)
ID: 41005  Grade: 9  Length: Year
Credit: English/Social Studies (2)
Note: World Studies is a combined double-block English 9 and World History course. The course meets daily with the same teacher. Students can choose the double-block World Studies or separate English 9 and World History.

See the full course description in the English section.

World History
ID: 42022  Grade: 9  Length: Year
Credit: Social Studies

World History serves two purposes. The first is to familiarize students with the major ideas and themes of world civilizations. Students will examine the development of the political, economic, social, intellectual, religious and artistic traditions that have contributed to contemporary societies. Strong emphasis will also be put on the changing relationships between regions and peoples. The second purpose is to ground students on the skills needed to excel throughout high school. Using the C3 framework, students will develop questions, read and think like a historian, evaluate sources, and communicate ideas. The course will include a variety of instructional methods, including inquiry. All ninth graders must enroll in this course or World Studies.

U.S. HISTORY OPTIONS

U.S. citizens (not dual citizens) are required to earn a credit in American Studies or U.S. History. Since some U.S. public universities (e.g., University of California) require U.S. History as an admission requirement, students who might be applying to a U.S. public university should complete a year of U.S. History or American Studies.

American Studies (Eng 10/U.S. History)
ID: 41014  Grade: 10  Length: Year
Credit: English & US History (2)
Note: American Studies is a combined double-block English 9 and US History & Government course. The course meets daily with the same teacher. Sophomores can either choose the double-block American Studies or choose English 10 and either US History & Government, AP U.S. History or any other social studies course.

See the full course description in the English section.
**U.S. History and Government**

**ID:** 42012  
**Grade:** 10-12  
**Length:** Year  
**Credit:** US History

This course enables students to make intelligent judgments on societal problems of the past, present, and future. Developments of economic, cultural, and political patterns as well as the changing demographics of America since the Civil War are stressed. First semester topics include a review of American foundational beliefs and events from the time period between the Civil War and the Industrial Revolution. The government unit features a study of the Constitution of the United States and the legislative, executive, and judicial branches of the federal government. The second semester focuses primarily on the 20th Century, from the development of Imperialism, Economic Boom and bust cycles as well as the World Wars, and U.S. Foreign Policy.

**AP U.S. History**

**ID:** 42036  
**Grade:** 10-12  
**Length:** Year  
**Credit:** US History

**Prerequisite:** Semester I grade of A or better in World History/World Studies is required to select this course in grade 10; a B or higher in a 10th or 11th grade social studies course is required to select this course in grades 11 or 12, or current teacher recommendation.

This introductory college-level course provides students with an understanding of major themes in U.S. history, including American identity, economic and social life, political change and continuity, and the U.S. role in the world. The course is ideal for the student who has a real interest in history and who is prepared to work consistently and to go well beyond mere memorization of the material. Students are required to be internally motivated, to have good reading and comprehension skills, to be well organized, and to be prepared to examine and think about different, often conflicting, interpretations of history. The course moves briskly, so students must be prepared to devote time daily to reading and note taking. There will be considerable in-class discussions based on assigned readings, as well as numerous interpretive essays and a major research paper.

The AP exam assesses students in four areas - stimulus-based multiple choice (40%), four short answer essays (SAQs, 20%), one Document Based Question (DBQ, 25%), and one Long Essay (LEQ, 15%). The multiple-choice questions require students to use specific, detailed knowledge of the subject matter in order to analyze historical texts, interpretations, and evidence. The four SAQs ask students to respond to a prompt or document in a brief essay. The DBQ gives students a number of historical documents on a topic, and then asks the students to use the documents and outside knowledge to construct an argument in response to a prompt. The LEQ asks students to explain and analyze significant issues in U.S. history, and develop an argument supported by an analysis of historical evidence. Students will be prepared for and strongly encouraged to sit for the AP exam in May.

**HISTORY, CULTURES AND GEOGRAPHY OPTIONS**

When colleges and universities indicate a certain number of social studies courses should be completed, they are expecting students to take courses that are empirically based and promote critical thinking and questioning regarding historical events and perspectives. The following courses, plus the World History and U.S. History courses listed above, would meet a college’s admission requirement for core history courses.

**History of Malaysia and Singapore**

**ID:** 42007  
**Grade:** 10-12  
**Length:** Semester  
**Credit:** Social Studies

This course provides an overview of the events and forces that have created the modern nations of Malaysia and Singapore. Students will examine the common cultural and historical background of the two countries, as well as the impact of geography and location on their histories. The role of foreign empires and colonial powers will be examined, along with the forces at work and the courses followed in their independence movements. Emphasis will be placed on Singapore and Malaysia today. Students will examine their societies, cultures, economies, and political development through simulations, independent research, lectures, and class discussion.

**AP World History**

**ID:** 42039  
**Grade:** 10-12  
**Length:** Year  
**Credit:** Social Studies

**Prerequisite:** Semester I grade of A or better in World History/World Studies is required to select this course in grade 10; a B or higher in a 10th or 11th grade social studies course is required to select this course in grades 11 or 12, or current teacher recommendation.  
**Note:** 2018/19 will be the final time this course is offered. Beginning in 2019/20, the course will be replaced with an AT History offering.

The purpose of AP World History is to develop greater understanding of the evolution of global
processes and contacts, advanced through factual knowledge and specific analytical skills. The course will focus on change and continuity within and between cultures, allowing students to improve their analytical and persuasive writing skills. Students will explore the cultures of Asia, Africa, Europe, the Americas, and the Pacific islands. The period covered is from the Neolithic era to the present. Students will be prepared for and strongly encouraged to sit for the AP exam in May.

**AP Human Geography**

**ID:** 42051  
**Grade:** 10-12  
**Length:** Year  
**Credit:** Social Studies  
**Prerequisite:** Semester I grade of A or better in World History/World Studies is required to select this course in grade 10; a B or higher in a 10th or 11th grade social studies course is required to select this course in grades 11 or 12, or current teacher recommendation.  
**Note:** 2018/19 will be the final time this course is offered. Beginning in 2019/20, the course will be replaced with an AT Geography offering.

This course is designed to introduce students to key concepts surrounding human geography. Emphasis is placed on understanding past and present trends in population dynamics, political geography, geopolitics, economic development, cultural considerations, agriculture and urbanization. Throughout the course geographic models are presented to explain trends and to predict future change. For anyone interested in world geography and current events, this course is a natural as it combines theory with present case studies. This course receives a 0.25 additional GPA weighting (rather than 0.5). Students will be prepared for and strongly encouraged to sit for the AP exam in May.

**AP U.S. Government and Politics**

**ID:** 42035  
**Grade:** 11-12  
**Length:** Semester I  
**Credit:** Social Studies  
**Prerequisite:** Semester I grade of B or higher in a 10th or 11th grade social studies course is required, or current teacher recommendation.

This college level course is designed to give students an analytical perspective on government and politics in the United States. The course includes both the study of general concepts used to interpret U.S. politics and the analysis of specific examples. The following are the basic concepts to be covered: constitutional underpinnings of U.S. government; political beliefs and behaviors; political parties, interest groups, and the mass media; institutions of national government; and the formation of public policy. Students will be prepared for and strongly encouraged to sit for the AP exam in May.

**AP Comparative Government and Politics**

**ID:** 42031  
**Grade:** 11-12  
**Length:** Semester II  
**Credit:** Social Studies  
**Prerequisite:** Semester I grade of B or higher in a 10th or 11th grade social studies course is required, or current teacher recommendation.

This college level course is intended to help students better understand the diverse constitutional, ideological, and social bases of political leadership exercised by different countries. Six countries, China, Great Britain, Iran, Mexico, Nigeria, and Russia are examined. Basic concepts to be covered are: the sources of sovereignty, public authority and political power; national and international political institutions; the relationship between citizens, state, and society; the causes and effects of political and economic change; and various areas of public policy. Students will be prepared for and strongly encouraged to sit for the AP exam in May.

**AT Urban Studies**

**ID:** 42060  
**Grade:** 11-12  
**Length:** Semester  
**Credit:** Social Studies  
**Prerequisite:** Completion of AP Human Geography, or a B or higher in a 10th or 11th grade social studies course is required to select this course, or current teacher recommendation.

Students will study urban development from a historical and a geographic perspective focusing on themes, trends, and challenges that have faced urban planners. Students will engage in various interdisciplinary assignments and projects which demonstrate understanding of the key concepts, content, and skills associated with city design and analysis. Students will apply this knowledge to Singapore and look for themes and patterns related to various community stakeholders. Students will then focus on a theme of personal interest which will form the basis of field work research paper/project. Themes could relate to topics such as gentrification, green space, the negotiation between private and public interests, architecture, transportation, leisure and recreation, or government housing, and may focus on one specific location, such as the their own neighborhood.

Following the fieldwork-based research, students will look at the main challenges and issues facing urban planners today around the world. The
culminating summative project will be a research project which can take a variety of forms, but will address one of these issues. Students will also share a presentation which summarises their research and findings. This course will involve research in the field, and will require students to visit sites in their own time, and be responsible for conducting that field research. This course was collaboratively developed and endorsed by Shivani Singh, Head of Department at the Institute of Urban and Regional Planning, Mumbai, India in 2017. The Advanced Topic (AT) designation indicates a course is at university level, putting it at or above the level of a traditional Advanced Placement (AP) course. The course requires rigorous study and emphasizes in-depth research. Like an AP course, this course has a grade point weighting of 0.5 for the duration of the course.

BUSINESS & ECONOMICS RELATED OPTIONS

Economics is a social studies field that seeks to analyze and describe the production, distribution, and consumption of wealth. Business and economics courses are related to social studies but are viewed by most colleges as being different than the more traditional history courses.

Economics
ID: 42008 Grade: 10-12 Length: Semester Credit: Social Studies

Economics will provide students some insight into ways by which people and nations function economically, i.e., how they make a living. Basic economic concepts including wealth, utility, capital, labor, supply and demand, profit and competition, production, distribution, exchange, consumption, and the factors affecting each area are studied. Monetary and fiscal policies are examined in the light of contemporary economics, both national and international. Students will study major recessions to understand fiscal policy, the public debt, and ways banks create money.

AP Economics
ID: 42045 Grade: 11-12 Length: Year Credit: Social Studies

Prerequisite: Semester I grade of B or higher in a 10th or 11th grade social studies course is required, or current teacher recommendation.

AP Economics is made up of two semester-length College Board AP courses - Macroeconomics and Microeconomics. Topics covered include basic concepts such as scarcity, trade-offs, and the functions of the economics system; the nature and function of product markets, including basic supply and demand theory, consumer choice theory, and pricing theory; the nature and function of factor markets, including theories of wage determination; measurement of economic performance using concepts such as gross domestic product, inflation, and unemployment; analysis of various schools of economic thought in relation to aggregate demand and aggregate supply; money and banking, including the tools of the central bank; and, finally, the usefulness of various government policies that can be applied to remedy the economic problems discussed throughout each semester. College Board offers both an AP Microeconomics and AP Macroeconomics exam. This course prepares students to take both exams in May. SAS offers two different versions of AP Economics, this course, where students proceed at the normal AP pace. A self-paced AP Economics (42046) is also available. Students will be prepared for and strongly encouraged to sit for the AP exam in May.

AP Economics (Self-Paced)
ID: 42046 Grade: 11-12 Length: Year Credit: Social Studies

Prerequisite: Semester I grade of B or higher in a 10th or 11th grade social studies course is required, or current teacher recommendation.

This “self-paced” AP Economics covers the same content as the more traditional AP Economics course (42045), but students have the flexibility to move faster than the normal pace of the class. Students may take assessments before the normal “due date” but may not fall behind. Students who sign up for this course will benefit from the flexibility to plan the timing of assessments themselves but should be self-directed and strong independent learners. Students will be prepared for and strongly encouraged to sit for the AP exam in May.

Advanced Economics: Globalization
ID: 42041 Grade: 11-12 Length: Semester Credit: Social Studies

Prerequisite: AP Economics or an A in Economics and teacher approval.
Note: This college level course is identified as the equivalent of an honors course on transcripts.

This college level course is designed to offer students an opportunity to delve deeper into the international economy than our introductory courses allow. First quarter topics include: free trade theory; barriers to free trade; foreign
exchange; and international financial crises. The second quarter will address specific issues in globalization, including outsourcing, migration, China, the EU, and sovereign wealth funds. All students will write a research paper. This course is identified as being equivalent to an honors course on transcripts.

**Behavioral Economics & Game Theory**

**ID:** 42023  **Grade:** 10-12  **Length:** Semester  
**Credit:** Social Studies  
**Note:** This course does not meet the NCAA Division I core course requirement for Social Studies. See counselor for details.

This course uses models from the disciplines of psychology and economics to encourage a logical, deductive approach to thinking, and to look at several different approaches to resolving conflicts. The major analytical models presented are derived from “game theory” and “behavioral economics.” These models are used to tackle issues and problems across the entire spectrum of the social sciences. The course is largely problem centered, applying game theory tactics and skills to hypothetical situations and to case studies that that come from history, current world events, and the immediate world around us. Individual analysis, small group discussion, and class discussion are common formats. This course was previously known as Decision/Analysis.

**ADDITIONAL SOCIAL STUDIES OPTIONS**

Social Studies elective courses can fill out a high school program with courses that allow students to experience new areas of academic interest or may help in the selection of a future career path. All of these courses strengthen general study skills, particularly analytical reading, expository writing and oral communications.

**Psychology**

**ID:** 42010  **Grade:** 11-12  **Length:** Semester  
**Credit:** Social Studies  

This course focuses on the study of the mind and behavior, beginning with a brief history of psychology and a look at the work of its principal theorists. Because technological innovations have made the structure and work of the mind more accessible in the past decade, some time is spent addressing recent findings in articles and documentaries as well as the text. Principal units include The Brain, Learning and Conditioning, Memory and Thought, Altered States of Consciousness, Intelligence, Personality Theory, Abnormal Psychology, and Nature or Nurture.

**AP Psychology**

**ID:** 42050  **Grade:** 11-12  **Length:** Year  
**Credit:** Social Studies  
**Prerequisite:** Semester I grade of B or higher in a 10th or 11th grade social studies course is required, or current teacher recommendation.  
**Note:** 2018/19 will be the final time this course is offered. Beginning in 2019/20, the course will be replaced with an AT Psychology offering.

A student may choose Psychology or AP Psychology or both. They use different texts. What further differentiate the two are their level, duration and purpose. AP Psychology students must be willing to pursue college level work. Students electing AP Psychology are expected to have demonstrated high academic achievement in previous course work and to be prepared for the rigor and fast pace of an AP section. Strong students are encouraged to enroll directly in AP Psychology, an advanced level course that introduces the systematic and scientific study of behavior and mental processes. History and methods, the biological basis of behavior, sensation and perception, states of consciousness, learning, thinking, motivation and emotion, development, personality, testing, intelligence, abnormal psychology, treatment, and social psychology comprise the syllabus. The eminent psychologists are surveyed. The AP Psychology course will receive a 0.25 additional GPA weighting (rather than 0.5). Students will be prepared for and strongly encouraged to sit for the AP exam in May.
The mathematics curriculum is designed to meet the needs of students who have varying backgrounds, knowledge and skills, as well as diverse interests and career goals.

The goals of the mathematics program are:
• to provide opportunities for students to challenge themselves and to encourage them to do so,
• to provide students with options and wherever possible, keep doors open to high level math offerings,
• to ensure that all students learn what they need for college success, and where possible, advancement.

All students must earn two math credits in high school, one of which must be at the level of Geometry or higher. It is generally recommended that students take math for all four years of high school.

The math department embraces the use of technology and to this end, the TI-Nspire CX CAS calculator is prescribed for all math courses.

Changes for 2017-18:
• The current AP Calculus BC/Multivariable Calculus course will be offered for the last time in 2018/19.
• A course called Multivariable Calculus & Linear Algebra will be offered for students in 2017-18 and 2018-19.
• In 2019-20, SAS will introduce semester-long AP Calculus BC, Honors Multivariable Calculus and Honors Linear Algebra courses to replace the year-long offerings.
• Algebra 1B will be offered for the last time in 2017/8 to allow students who completed Algebra 1A in 2016/7 to complete their Algebra 1 sequence. From 2018/9 onwards, students will take Algebra 1 and those in need of support will receive this in the form of an Algebra 1 Math Lab.
• New Advanced Topic (AT) courses will be offered: AT Post-Euclidean Geometry and AT Finite Math Modeling.

NOTES:
1. *Algebra 1B and AP Calc BC and MVC will be offered for the last time in 2017/8
2. Algebra 1 Math Lab requires administrative approval for enrollment
3. With teacher approval, students in grades 10-12 can take two math courses concurrently - the following combinations are possible: Algebra 1B and Geometry; Geometry and Algebra II/Trig; Acc. math II and AP Statistics or AT Math course; AP Statistics and Pre-Calculus (or any course post Pre-Calculus); AT Math course and Pre-Calculus (or any course post Pre-Calculus); AT Math course and AP Statistics
Algebra I B
ID: 43001 Grade: 10 Length: Year Credit: Math
Prerequisite: Algebra IA

This class is for students covering the Algebra I curriculum over two years and will be offered for the last time in 2017-18. The course is designed to help students complete the requirements of a traditional Algebra I course with more flexibility in their pace of learning. Concepts will be developed over more time, with an emphasis on conceptual understanding. The course will include: solving systems of linear equations and inequalities, exponents and exponential functions, quadratic equations and functions, polynomials and factoring and statistical analysis. The approach used will emphasize problem solving, oral and written communication, and reasoning skills. This course is aligned with Common Core Standards with a strong emphasis on technology. Following the successful completion of Algebra IB, students will be prepared for Geometry. For the purposes of math graduation credits, Algebra IA and Algebra IB are equivalent to one year/credit of Algebra I.

Algebra I
ID: 43003 Grade: 9-11 Length: Year Credit: Math
Prerequisite: Approval from 8th grade math teacher.

This is the standard high school Algebra I course designed for students who have mastered the basic mathematics skills and concepts of Pre-Algebra. Algebra I covers linear, quadratic, rational and exponential functions, systems of inequalities and equations, and statistical analysis. The approach used will emphasize problem solving, oral and written communication, and reasoning skills. This course is aligned with Common Core Standards with a strong emphasis on technology.

Geometry
ID: 43011 Grade: 9-12 Length: Year Credit: Math
Prerequisite: Algebra I or concurrent enrollment in Algebra IB and teacher recommendation. Approval from 8th grade math teacher required for 9th graders.

This course is designed for students who have successfully completed Algebra I. Students deepen their understanding of geometric relationships, moving towards formal mathematical arguments. The course includes transformations, similarity, triangles, quadrilaterals, polygons, triangle trigonometry, circles, and area and volume of two- and three-dimensional figures. Coordinates, problem solving, and other elements of algebra are prevalent. This course is fully aligned to Common Core standards.

Algebra II/Trigonometry
ID: 43013 Grade: 9-12 Length: Year Credit: Math
Prerequisite: Semester I grade of C or higher in Geometry.

This course focuses on developing students' algebra skills and includes a full treatment of trigonometry. Algebra I topics are expanded to include polynomial, exponential, logarithmic and trigonometric functions as well as probability. Applications are integrated into all major topics. This course is fully aligned to Common Core standards.

Conceptual Algebra II
ID: 43004 Grade: 11-12 Length: Year Credit: Math
Prerequisite: Geometry and current math teacher's recommendation.

This course will allow students to meet the minimum prescribed levels of Algebra required by most colleges. The course is designed to support students for whom the Algebra II/Trigonometry course is not a viable option. The course will focus on the development of the students conceptual understanding of the Algebra II topics including elements of functions, quadratic, polynomial, exponential (and logarithmic) functions, and probability. The approach used will emphasize problem solving, oral and written communication, and reasoning skills.

Functions, Statistics, and Trigonometry
ID: 43006 Grade: 10-12 Length: Year Credit: Math
Prerequisite: Semester I grade of B or higher in Conceptual Algebra II or a grade of C or higher in Algebra II/Trigonometry.

This course serves as a link from Algebra II/Trigonometry to Pre-Calculus or AP Statistics. It reviews concepts learned in Algebra II/Trigonometry and introduces most of the main concepts taught in Pre-Calculus. Functions, Statistics and Trigonometry (FST) is less rigorous than Pre-Calculus. Throughout the year students will be expected to explore data, graphs and functions. This course covers functions and transformations, trigonometry and modelling, sequences and series, statistics, probability, and counting methods.
Accelerated Math I
ID: 43014  Grade: 9-10  Length: Year
Credit: Math
Prerequisite: Math 8+ with teacher approval or Semester I Algebra I grade of an A or higher with teacher recommendation.

This course is designed to serve highly motivated and able math students who excelled in Math 8+ or in Algebra 1 and are looking to access the highest level math offerings at SAS. It is the first year of a two year sequence that covers key content from Geometry and Algebra II/Trigonometry. The course aims to cover a broad range of topics and will therefore be high paced and rigorous. After successfully completing both Accelerated Math I and II, students will be able to enter AP Calculus. On transcripts this course is identified as being equivalent to an honors level course.

Accelerated Math II
ID: 43015  Grade: 10-11  Length: Year
Credit: Math
Prerequisite: Semester I grade of B or higher in Accelerated Math I.

This course is the second year of the Accelerated Math I and II sequence. It is designed to serve highly motivated and able math students looking to access the highest level math offerings at SAS. It covers key content from Algebra II/Trigonometry and Pre-Calculus. The course aims to cover a broad range of topics and will therefore be high paced and rigorous. After successfully completing both Accelerated Math I and II, students will be able to enter AP Calculus. On transcripts this course is identified as being equivalent to an honors level course.

Pre-Calculus
ID: 43020  Grade: 10-12  Length: Year
Credit: Math
Prerequisite: Semester I grade of B or higher in Algebra II/Trig or FST.

This course is the study of functions and function theory. Elementary functions as well as logarithmic, exponential, and trigonometric functions are studied in depth. Arithmetic and geometric sequences and series will also be studied, as will probability distributions. The course is a prerequisite for calculus and is higher-paced, more time-intensive, and more rigorous than previous courses in the sequence. For students who take this course during the senior year, Pre-Calculus provides an excellent foundation for pursuing math studies at the university level. On transcripts this course is designated as being equivalent to an honors course.

Discrete Mathematics
ID: 43017  Grade: 10-12  Length: Year
Credit: Math
Prerequisite: Completion of Conceptual Algebra II or Algebra II/Trigonometry.

This course is designed for the student who wants to continue on in mathematics and learn many real-life applications, but might not intend to pursue calculus level classes. Discrete Math students find that the topics covered in class are closely related with many things they do in other disciplines.

Discrete Mathematics provides an introduction to a variety of contemporary topics that are useful in various fields such as business and social sciences, as well as the physical and computer sciences. The topics include use of graphs to model real life applications, election theory, fair division of assets, linear programming, logic, and applications of matrices, probability and statistics. Problem based projects will be included in the class.

AP Statistics
ID: 43028  Grade: 10-12  Length: Year
Credit: Math
Prerequisite: Semester 1 grade of A or higher in Accelerated Math I, Algebra II/Trig; or a B or higher in FST or higher level math course.

The purpose of this course is to introduce students to the major concepts and tools for collecting, analyzing, and drawing conclusions from data. The four major themes are exploring data to find patterns, planning a study, exploring random phenomena using probability and simulations, and statistical inference, including confidence intervals and hypothesis testing. AP Statistics will receive a 0.25 additional GPA weighting (rather than 0.5). Students will be prepared for and strongly encouraged to sit for the AP exam in May.

AP Calculus AB
ID: 43026  Grade: 11-12  Length: Year
Credit: Math
Prerequisite: Semester I grade of B or higher in Pre-Calculus or Accelerated Math II.

This course covers topics typically found in a first-semester calculus course at U.S. universities. The course covers limits, continuity, differentiation and integration, and their applications. Success in this
course requires a solid Pre-Calculus background. Students will be prepared for and strongly encouraged to sit for the AP exam in May.

**AP Calculus BC**

**ID:** 43032  
**Grade:** 11-12  
**Length:** Year  
**Credit:** Math  
**Prerequisite:** Semester I grade of an A in Pre-Calculus or Accelerated Math II.

This fast-paced course covers topics usually found in the first two semesters of a first-year calculus course at U.S. universities. The course covers all of the topics in AP Calculus AB: limits, continuity, differentiation, and integration, and their applications. In addition, AP Calculus BC includes new integration techniques, polar, parametric, and vector calculus, and sequences and series, including Taylor series. Students will be prepared for and strongly encouraged to sit for the AP exam in May.

**AP Calculus BC & Multivariable Calculus**

**ID:** 43027  
**Grade:** 11-12  
**Length:** Year  
**Credit:** Math  
**Prerequisite:** Semester I grade of B or higher in AP Calculus AB.

Note: This course will be offered as a full-year course for the last time in 2018-19. Beginning in 2019-20, we will offer a semester-long AP Calculus BC (designed for students who have completed AP Calculus AB) and a semester-long Honors Multivariable Calculus.

In this course, students first complete the AP Calculus BC syllabus, which covers several new integration techniques and a unit on Taylor Series. The course then covers topics typically found in a second-year calculus course at U.S. universities, such as partial differentiation, multiple integration, and vector analysis. Students will be prepared for and strongly encouraged to sit for the AP exam in May.

**Multivariable Calculus & Linear Algebra**

**ID:** 43035  
**Grade:** 11-12  
**Length:** Year  
**Credit:** Math  
**Prerequisite:** Semester I grade of B or higher in AP Calculus BC.

Note: This course will be offered as a full-year course for the last time in 2018-19. Beginning in 2019-20, we will offer a semester-long Honors Multivariable Calculus and a semester-long Honors Linear Algebra.

In this course, students first complete the AP Calculus BC syllabus, which covers several new integration techniques and a unit on Taylor Series. The course then covers topics typically found in a second-year calculus course at U.S. universities, such as partial differentiation, multiple integration, and vector analysis. Students will be prepared for and strongly encouraged to sit for the AP exam in May.

In addition to reviewing all of the topics in AP Calculus BC, the Multivariable Calculus portion of the course will include an introduction to differential equations, new techniques of integration, parametric equations, vectors, and vector-valued functions, arc length and curvature, partial derivatives, and multiple integration. The Linear Algebra portion of the course will include systems of linear equations and their applications, linear independence and dependence, linear transformations and their matrix representations, matrix algebra, characterizations of invertible matrices, determinants, vector spaces and subspaces, null and column spaces, as well as Eigenvalues and Eigenvectors. On transcripts this course is identified as being equivalent to an honors level course.

**AT Post-Euclidean Geometry**

**ID:** 43041  
**Grade:** 10-12  
**Length:** Semester 1  
**Credit:** Math  
**Prerequisite:** Semester 1 grade of A or higher in Accelerated Math I, Algebra II/Trig; or a B or higher in FST or higher level math course.

This elective course is designed for students who seek further advanced study and applications beyond the Geometry course, involving concepts acquired in Algebra II/Trigonometry. Topics will include non-Euclidean geometries, further work with transformations and constructions, and higher level work with conic sections. Project-based learning will be prevalent, involving real-world applications, such as the shapes of satellite dishes, origami, animation design, and the spherical geometry of the Earth. This course was collaboratively developed and endorsed by Professor Edmund Harriss at the University of Arkansas in 2017. The Advanced Topic (AT) designation indicates a course is at university level, putting it at or above the level of a traditional Advanced Placement (AP) course. The course requires rigorous study and emphasizes in-depth research. Like an AP course, this course has a grade point weighting of 0.5 for the duration of the course.

**AT Finite Math Modeling**

**ID:** 43042  
**Grade:** 10-12  
**Length:** Semester II  
**Credit:** Math  
**Prerequisite:** Semester 1 grade of A or higher in Accelerated Math I, Algebra II/Trig; or a B or higher in FST or higher level math course.

This elective course is designed for students who seek high-level applications of math to real-life situations. Mathematics will be used to
explain and analyze elections, fair allocation of resources, and scheduling. Mathematical models will be used based on matrices, game theory, and graph theory. Project-based learning will be prevalent, involving real-world applications, such as perceived rewards, transportation networks, different systems of voting, and critical path schedules. This course was collaboratively developed and endorsed by Professor Eric Hart at the Grand View University in 2017. The Advanced Topic (AT) designation indicates a course is at university level, putting it at or above the level of a traditional Advanced Placement (AP) course. The course requires rigorous study and emphasizes in-depth research. Like an AP course, this course has a grade point weighting of 0.5 for the duration of the course.
**Science**

Scientifically literate individuals possess both a knowledge of facts and an understanding of concepts from a wide range of scientific disciplines. They should also have the opportunity to develop, through experimentation, the process skills that encourage and enable continuous learning and critical thinking. The goal is to develop scientifically literate individuals who understand and appreciate the interrelationships of science, technology, and society. All courses incorporate technology based laboratories (including graphical analysis software) and interactive resources.

All SAS ninth graders must enroll in a biology course. Tenth graders must enroll in a physical science course - usually chemistry. Nearly all SAS graduates complete three years of science, with most earning four or more science credits.

New high school students arriving from an “integrated science” program typically enroll in Biology, Molecular Biology, or Chemistry if arriving in grades nine or ten. After completing two years of an integrated science program, Molecular Biology, Accelerated Chemistry, or Physics are the typical choices.

**Life Sciences**

**Biology**

*ID: 44005 Grade: 9-11 Length: Year Credit: Life Science*

Of all the introductory science courses, Biology can have the greatest impact on students. It has special relevance and accessibility because it is about the living world. Biology at SAS is a sequential, full year, college preparatory curriculum that integrates hands on laboratory experiences and a wide range of technology centered activities into a dynamic program that brings key concepts to life. Five fundamental areas of biology are investigated: cellular biology, genetics, ecology, evolution and physiology. Factual content that elaborates on these concepts is presented in ways that strive to demonstrate biological interconnection and establish actual relevance to students’ lives.

**Molecular Biology**

*ID: 44020 Grade: 9-12 Length: Year Credit: Life Science Prerequisite: Approval from 8th grade science teacher.*

Molecular Biology is an introductory biology course for students who are particularly interested in pursuing a college major or career in scientific fields such as medicine, engineering, or the pure sciences. Molecular Biology is a rigorous course that is taught at a faster pace and that requires more critical reading and daily homework than Biology. The course is a study of biology from a molecular perspective, with emphasis upon recent advances in the study of genomes, cell physiology and biological evolution. The course includes an examination of molecular and cellular structures, genetics and heredity, human anatomy and physiology, ecology and evolution, all within the framework of science inquiry. During the course students will come to understand the chemical and cellular similarities and dissimilarities of all living organisms, the great variety and beauty of life forms and functions, and the intricate mechanism and balance in all living organisms. Students will learn to use and improve their science processing skills in order to solve problems. Laboratory and field-based investigations will allow students to have first-hand experience with modern methods of analysis built around computer based probeware. Students enrolling in this course should be able to read at or above grade level and should have demonstrated exemplary performance in previous science courses. On students’ transcripts, this course is designated as being equivalent to an honors course.

**Biotechnology**

*ID: 44016 Grade: 11-12 Length: Semester Credit: Life Science*

Recombinant DNA and Biotechnology is designed for students with at least one year of biological science, who are prepared for an in-depth study of the scientific foundations and technological applications of genomic and protein biotechnology. The course emphasizes laboratory techniques and exposes students to a variety of fields including microbiology, cell biology, genetics, bioinformatics, and bioengineering. Students need a solid understanding of DNA structure and replication, protein synthesis, and gene control mechanisms. It is an excellent course for students who are considering careers in any biological science field, such as genetics, biomedical engineering, or biomedical research.
Environmental Science

ID: 44022  Grade: 10-12  Length: Semester
Credit: Life Science
Prerequisite: Open to 10th graders concurrently enrolled in Chemistry or Accelerated Chemistry.

Environmental Science is the study of the interrelationships between man, other living things and the environment. Students will study all of the components of our environment and their interactions and will seek to understand man's impact on the environment and to discover ways by which we can minimize these impacts. Laboratory and field based investigations into some of these impacts will allow students to have first-hand experience with modern methods of environmental quality analysis built around computer based probeware. Environmental Science is an applied science course in that it seeks to discover solutions to the most urgent problems facing human society today: the interrelated problems of population, resources, and pollution.

Forensic Science

ID: 44017  Grade: 11-12  Length: Semester
Credit: Life Science

Forensic Science is designed for students with an interest in the problem-solving techniques used in criminal investigations. In this course students investigate a case, apply the principles of forensic science and learn specific laboratory techniques used in analyzing physical evidence. Students have the opportunity to apply a variety of skills from various academic fields including work in photography, visual arts, psychology, medicine as well as the pure sciences, chemistry, physics and biology. Case studies and laboratory skills commensurate with basic forensic science procedures are performed weekly as students apply their learning through experiences in analyzing fingerprints, DNA, blood, impressions, and hair and other physical evidences.

Marine Biology

ID: 44021  Grade: 11-12  Length: Semester
Credit: Life Science
Prerequisite: Open to 10th graders concurrently enrolled in Chemistry or Accelerated Chemistry.

This introductory course will explore the fundamentals of oceanography, the biology and diversity of marine organisms, and the patterns and processes that guide the ecological dynamics in various marine communities. The course will give students a general background in the taxonomy of marine organisms as well as the specific adaptations these organisms have evolved to survive in the ocean. Students will also be introduced to various marine ecosystems and the organisms that inhabit them. Laboratory and field-based investigations will allow students to have first-hand experience with modern methods of analysis built around computer-based probeware.

Anatomy and Physiology

ID: 44010  Grade: 10-12  Length: Semester
Credit: Life Science
Prerequisite: Biology or Molecular Biology

This course is designed for students interested in learning the important principles behind human movement, energetics, health and disease. The course focuses on the form and function of the musculoskeletal system and how it is powered by the body's metabolism. Prior knowledge of cell communication and physiology will be leveraged to gain a more thorough understanding of the integration of different body systems, while examining the impact of modern living on our physiology. Students will be asked to challenge their bodies with varied activities such as muscular strength and modified VO2 max tests to further understand how their body responds to applied stresses. Students are expected to devise and conduct a scientific research study during the course in lieu of a final exam.

Zoology

ID: 44013  Grade: 11-12  Length: Semester
Credit: Life Science

Zoology is a lab-based course that emphasizes the principles of animal biology and an account of the major types and groups of animals from protozoans to vertebrates. The discussion of each animal type includes an account of its structure and bodily processes together with a summary of its habits and reproduction. Relations of animals to their natural environment and their importance to humans also receive consideration. The broader aspects of animal biology are studied; namely, anatomy, physiology (evolutionary relationships), and ecology.
**AT Environmental Science & Field Research**  
**ID:** 44036  **Grade:** 11-12  **Length:** Year  **Credit:** Life Science  **Prerequisite:** B+ or higher in Biology or a B or better in Molecular Biology and a B or higher in Semester 1 Accelerated Chemistry. A Chemistry course can be taken concurrently with teacher recommendation.

This is a college-level course integrating the study of ecology and environmental science. In addition to the fundamental concepts of ecology, students will study, analyze and evaluate a wide range of environmental issues both natural and human-made, making connections between science, technology and society, and solutions for resolving and/or preventing environmental problems. Topics will include: sustainability, the structure and function of ecosystems, population dynamics, climate, water, mineral and soil resources, waste reduction and prevention, global food resources, biodiversity, energy resources, and environmental economics and politics. Tropical ecology investigations will include both lab and field-work in regional Southeast Asia ecosystems including mangroves, rocky shore and sandy beach, coral reefs, primary and secondary rainforests, and human impacted systems such as, plantation agriculture, urban systems. Local environmental monitoring will include physicochemical sampling and analysis of water, soil and air quality, plant and animal population dynamics and biodiversity to determine relative ecosystem integrity. Students will be prepared to take the College Board AP Environmental Science exam. This course was collaboratively developed and endorsed by Dr. Michiel Van Breugel, Tropical Ecologist, Yale-NUS College in 2016. The Advanced Topic (AT) designation indicates a course is at university-level, putting it at or above the level of a traditional Advanced Placement (AP) course. This course has a grade point weighting of 0.5.

**AP Biology**  
**ID:** 44027  **Grade:** 11-12  **Length:** Year  **Credit:** Life Science  **Prerequisite:** Semester 1 grade of B or higher in Accelerated Chemistry or B+ or higher in Chemistry.

AP Biology is designed for students who are interested in higher studies in biological sciences, engineering, medicine, or related disciplines. This course will examine the four big biological ideas of Evolution, Energy, Information, and Interaction by looking at topics such as molecular and cellular biology, physiology of plants and animals, heredity, ecology, and evolution. While biological knowledge and concepts will be taught, students will approach the material from the perspective of science practices such as modeling, mathematical analysis, scientific questioning, experimental design and execution, data analysis and evaluation, and conceptual connections. Biological concepts will be examined through laboratory exercises that focus on inquiry and investigation. Throughout this course students will improve their capacities for problem solving and critical thinking, preparing them for further study in the biological sciences. Students will be prepared for and strongly encouraged to sit for the AP exam in May.

**Physical Science**  
**ID:** 44006  **Grade:** 10-12  **Length:** Year  **Credit:** Physical Science  **Prerequisite:** Completion of Biology

This course will provide students with a fundamental knowledge of physical science while developing an understanding of their importance to society. Essential concepts of chemistry and physics are introduced in an engaging inquiry approach; without emphasizing applications involving math. The course is a broad-based course integrating, among other topics, health science, technology applications, earth science, and global issues; with the common thread being physical science. The course stresses analytical skills that are vital for any student to be successful in science; ultimately placing responsibility for learning on students themselves as they explore individually and in groups how physical science concepts apply to their everyday lives. In addition to traditional laboratory work, students will be involved in a variety of technology centered decision-making activities and projects.

**Chemistry**  
**ID:** 44014  **Grade:** 10-12  **Length:** Year  **Credit:** Physical Science  **Prerequisite:** A Biology course or Physical Science, plus completion of Algebra I or higher level math course.

This course models the fundamental laws of chemistry, kinetic molecular theory and atomic structure to make qualitative and quantitative representations and predictions about chemical processes. The first semester addresses student misconceptions of the particle model of matter in specific relation to conservation laws, the behaviour of gases and energy transfer. The second semester builds on these concepts and focuses on quantifying chemical reactions using masses, gases and solutions. The year concludes as we look deeper into acids, bases and equilibrium.
The course encourages problem-solving, inquiry and communication with an emphasis on graphs, diagrams, written explanations, and calculations.

**Accelerated Chemistry**

*ID: 44023  Grade: 10-12  Length: Year  Credit: Physical Science*

**Prerequisite:** Semester I grade of B+ or higher in Biology or a B or better in Molecular Biology plus completion of a Geometry or higher level math course.

Accelerated Chemistry is an introductory chemistry course designed for above-average students, in particular those who intend to pursue further science courses leading to a science-related career. It is a rigorous course in which students are expected to be able to read and comprehend technical material at or above grade level. The course presents contemporary ideas of chemistry based heavily on laboratory experiences done by both traditional methods and by the use of laptop-based probeware. Energy, stoichiometry, periodicity, chemical bonding and molecular geometry, chemical thermodynamics, chemical kinetics, equilibrium, and quantum mechanics are all examined. On transcripts, this course is designated as being equivalent to an honors course.

**AP Chemistry**

*ID: 44031  Grade: 11-12  Length: Year  Credit: Physical Science*

**Prerequisite:** Semester I grade of B or higher in Accelerated Chemistry or A or higher in Chemistry, plus completion of Algebra II/Trig or higher math course.

AP Chemistry is a rigorous, college-level course specifically intended for students who plan higher studies in science, engineering, or medicine. Topics studied include atoms and forces, kinetics, equilibrium, thermodynamics, quantum mechanics and periodicity, electrochemistry and gaseous behavior. Laboratory work involves careful measurements and applications of theory to explain and/or predict the behavior of chemical systems. Laboratory work will include both traditional and probeware-based experiences. The subject matter in this course is presented with an emphasis on both chemical calculations and the conceptual foundation of chemical principles, so a strong mathematics background is imperative. Students will be expected to demonstrate the ability to read and comprehend sophisticated material from college level textbooks and journals and to summarize concepts. Students will be prepared for and strongly encouraged to sit for the AP exam in May.

**Physics**

*ID: 44015  Grade: 10-12  Length: Year  Credit: Physical Science*

**Prerequisite:** Algebra II or higher math course

The Physics course is a math-oriented, problem-solving, laboratory-based approach to physics. It is designed for the student who intends to pursue further science courses. Through laboratory experiences and problem-solving activities, this course will treat each major area of physics in some detail, including mechanics, waves and light, electricity and magnetism, and some modern physics. Students will use creative problem solving and technology to gather, analyze, and present data and conclusions about the physical world around them.

**Earth Science**

*ID: 44009  Grade: 10-12  Length: Semester  Credit: Physical Science*

**Prerequisite:** To request this course as a 10th grader, concurrent enrollment in Physical Science or a Chemistry course is required.

*Note: Not offered in 2017-18*

Earth science is the study of many interesting and interrelated subjects within the field of science. These subjects include but are not limited to the study of earth's interior, its rocks and soils, its atmosphere, its oceans, and the Earth's relation to our celestial neighbors. The study of earth science deals with many fascinating yet practical questions regarding our dynamic planet's history and possible future. What forces produce earthquakes? Why do volcanoes erupt? What drives our weather patterns? Where do waves come from? The course begins with the creation of the earth and takes students on a tour of the process and forces that shape our planet; from volcanoes and earthquakes to wind, weather, and waves, this course offers something for everyone. The focus of the course is helping students connect the different parts of the earth - its oceans, atmosphere, rocks, soil, and living things - to their own lives and frequently involves current events and the use of technology when appropriate.

**Engineering Science**

See the full course description in the TEC section.
AT Computational Physics

ID: 44050 Grade: 11-12 Length: Year
Credit: Science
Prerequisite: Semester 1 grade of A in Algebra II or completion of Algebra II/Trig or higher level math course.

AT Computational Physics is an introductory course in physics that will also incorporate coding using vPython and mathematical modeling using Excel. The first three quarters of the year will be dedicated to learning the introductory concepts ideas of classical mechanics as well as an introduction to coding. Students would learn physics theory, perform experiments and compare their experimental results to the data predicted via modeling. The last quarter of the year would be dedicated to individualized, student-initiated and designed advanced projects using and applying the physics and computer-generated data. The Advanced Topic (AT) designation indicates a course is at university-level, putting it at or above the level of a traditional Advanced Placement (AP) course. The course requires rigorous study and emphasizes in-depth research. Like an AP course, this course has a grade point weighting of 0.5 for the duration of the course. *This course is not designed to align fully to the AP Physics 1 curriculum, and therefore, students will not be fully prepared for the AP Physics 1 Exam. Should students wish to sit the AP exam, they will need to complete independent work to self-study one unit and prepare for the AP Exam.

AP Physics 1

ID: 44032 Grade: 11-12 Length: Year
Credit: Physical Science
Prerequisite: Semester 1 grade of A in Algebra II or completion of Algebra II/Trig or higher level math course.

Note: In 2017-18, AP Physics 1 is available for juniors and seniors. In 2018-19, the course will be offered for the final time and is available for seniors only. Beginning in 2019-20, SAS will only offer AT Computational Physics.

AP Physics 1 is an introductory algebra-based physics course that gives students an exposure to Newton’s laws (kinematics, dynamics, uniform circular motion, gravity, rotation, oscillations), conservation laws (momentum, energy, work), mechanical waves (traveling waves, sound), electrostatics and electric circuits. Additionally the course will include further topics such as electromagnetism to better prepare students who plan on taking AP Physics C in the following year. There will more time for hands-on explorations of physics content and inquiry labs. Investigations will require students to ask questions, make observations and predictions, design experiments, analyze data, and construct arguments in a collaborative setting. The course is based on six Big Ideas, which encompasses core scientific principles, theories, and processes that cut across traditional boundaries and provide a broad way of thinking about the physical world.

AP Physics 2

ID: 44033 Grade: 11-12 Length: Year
Credit: Physical Science
Prerequisite: Semester I grade of A in regular Physics.
Note: Given the introduction of AT Computational Physics, this course is under consideration for redevelopment.

AP Physics 2 is equivalent to a second-semester college course in algebra-based physics. The course covers fluid mechanics, thermodynamics, electricity and magnetism, waves and optics, and modern (atomic, nuclear and quantum) physics. Similar to AP Physics 1, this course will allow students to achieve an in-depth understanding of the above additional topics using hands-on explorations of physics content and inquiry-based instructional strategies. In AP Physics 2, they will build on their existing understandings by using multiple representations of physical processes, solving multi-step problems, and designing investigations. The course is based on six Big Ideas, which encompasses core scientific principles, theories, and processes that cut across traditional boundaries and provide a broad way of thinking about the physical world. Students will be prepared for and strongly encouraged to sit for the AP exam in May.

AP Physics C

ID: 44030 Grade: 11-12 Length: Year
Credit: Physical Science
Prerequisite: Semester I grade of at least a B in AP Physics 1 or B+ in Physics, plus completion or concurrent enrollment in AP Calculus AB.

AP Physics C is a rigorous calculus-based physics course for those students planning on higher studies in science or engineering. It is equivalent to an introductory college-level physics course for science majors. The first semester covers the following topics in Newtonian mechanics: the laws of motion, energy, momentum, oscillations and gravitation. Topics in the second semester include electricity and magnetism: electrostatics (including Gauss’s Law), electric circuits, magnetostatics (including Ampere’s Law) and electromagnetism (including Faraday’s Law) and
Maxwell’s equations. Students who are successful in this course are prepared to sit for both portions of the AP Physics C examination. Students will be prepared for and strongly encouraged to sit for the AP exam in May.
World Languages

The SAS World Language program offers instruction in three different languages: Chinese (Mandarin, taught using simplified Chinese characters), French and Spanish. In alignment with our K-12 program philosophy, we believe that the primary purpose of learning another language is to develop the ability to communicate effectively in real-life contexts. The goal of the World Language program, therefore, is to establish an understanding of the respective cultures and to develop language proficiency through a focus on communicative ability - in other words, a focus on what students are able to do with the language, beyond what they know about the language. Courses are taught in the target language beginning in all our Novice courses.

Interpersonal listening and speaking skills are a key component of our program and are the primary focus in our Novice and Intermediate courses, as these are the skills that are most important in the first stages of learning a language. In the Intermediate High and Advanced courses, while students continue to develop their interpersonal listening and speaking skills, increasing attention is given to the development and assessment of the interpretive skills (listening and reading), as well as presentational communication (speaking and writing).

Course names and design refer to the proficiency level being targeted by the end of each course (year-long or multi-year). It is necessary for students to reach the performance benchmarks before advancing to the next level because, as their language ability develops, their needs change, and, as such, instructional focus changes. The multi-year courses (e.g., Intermediate, Intermediate High) are designed to allow students to take the time they need to build greater confidence and consistency in their language abilities, while they experience new culturally-rich thematic units over a period of two to three years. Research and past practice have shown this to be the amount of time commonly required in order to achieve the performance targets indicated.

Students who have learned one of the three languages offered at SAS at home or as a second language in a target-language country will be assessed and may be advised to maintain the language on their own.

Two years of study of the same foreign language or the equivalent (e.g., Chinese/French/Spanish: Novice, Intermediate) proficiency is the minimum SAS graduation requirement. Since most colleges and universities include language study as an admission requirement, students are advised to attain at least an Intermediate-Mid level of proficiency. This level is generally acquired in 3-4 years of language study.

Spanish, French and Chinese

Novice

This year-long course is for students who have little or no experience with the language. It provides them with the necessary skills to understand and create meaningful communication from early on in a supportive and rich environment. This course focuses on the development of listening and speaking through interpersonal communication, and the performance exit target is Novice High.

Novice High speakers can manage a number of uncomplicated communicative tasks in straightforward social situations. They can express personal meaning by relying heavily on learned phrases (memorized language) or recombinations of these, as well as respond to simple, direct questions or request for information.

The skills of writing, plus interpretive listening and reading, are also integrated into the course to the extent that they foster the development of students’ communicative ability as appropriate to the performance target.

Novice Courses

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<tr>
<td>45050</td>
<td>French: Novice</td>
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<tr>
<td>45060</td>
<td>Chinese: Novice</td>
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</tbody>
</table>

Grade: 9-12  Length: Year  Credit: Language

Intermediate

This multi-year course is for students who have reached at least a Novice High level of performance in interpersonal listening and speaking. It is possible that students performing at the Novice Mid level could be considered for admission with teacher recommendation.
With differentiation and new culturally rich thematic units each year, teachers engage and support students at whichever stage they are in the proficiency building process. This course focuses on interpersonal listening and speaking, and the performance exit target is Intermediate Mid.

Intermediate Mid speakers are able to successfully handle a variety of uncomplicated communicative tasks in straightforward social situations. They can express their own thoughts and maintain conversations by asking and answering a variety of questions, allowing them to exchange information about family, home, daily activities, interests and personal preferences, as well as physical and social needs, such as food, shopping and travel. This performance target is most commonly achieved over a period of two to three years.

The skills of writing*, plus interpretive listening and reading, are also integrated into the course to the extent that they foster the development of students’ communicative ability as appropriate to the performance target.

*Intermediate Chinese courses will also include development and assessment of presentational speaking skills

All Intermediate courses require a recommendation from the student's current language teacher. Students who are new to SAS will be assessed upon their arrival.

**Intermediate Courses**

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<td>Chinese: Intermediate II</td>
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Grade: 9-12 Length: Year Credit: Language

**Intermediate High Courses**

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Grade: 9-12 Length: Year Credit: Language

With differentiation and new culturally rich thematic units each year, teachers engage and support students at whichever stage they are in the proficiency building process. While this course continues to emphasize interpersonal listening and speaking, interpretive listening and reading, and presentational writing*, are more formally developed and assessed. For French and Spanish the performance exit target for each of these skills is Intermediate High. For Chinese, while the performance exit target is Intermediate High in listening and speaking, the exit target for reading and writing is Intermediate Mid.

Intermediate High speakers are able to successfully handle uncomplicated tasks and social situations requiring an exchange of information about their school, recreation, particular interests, and areas of competence. They also demonstrate an increasing ability to express their own ideas about some topics beyond themselves (current events/issues, matters of public and community interest), and to resolve problems they might encounter in their daily lives. They aim to narrate and describe in three major time frames - present, past, and future - and mostly in connected paragraphs. This performance target is most commonly achieved over a period of two to three years.

*Intermediate High Chinese courses will also include development and assessment of presentational speaking skills

All Intermediate High courses require a recommendation from the student's current language teacher. Students who are new to SAS will be assessed upon their arrival.

**Intermediate High Courses**

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<td>French: Intermediate High II</td>
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<td>French: Intermediate High III</td>
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<td>45064</td>
<td>Chinese: Intermediate High</td>
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<td>Chinese: Intermediate High II</td>
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<td>45066</td>
<td>Chinese: Intermediate High III</td>
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Grade: 9-12 Length: Year Credit: Language

This multi-year course is for students who have reached an Intermediate Mid level of performance in interpersonal listening and speaking.
**Advanced**

Advanced-level courses are for students who have reached at least an Intermediate High performance level in interpersonal listening and speaking, interpretive listening and reading, and presentational writing. They should be able to express themselves orally and in writing in three major time frames - present, past, and future - and mostly in connected paragraphs. As well, they should be able to handle some topics beyond themselves (current events/issues, matters of public and community interest). These courses focus on all modes of communication - interpersonal, presentational and interpretive - and the performance target is at least Advanced Low for each.

Advanced Low speakers are able to handle a variety of communicative tasks. They are able to participate in most informal and some formal conversations, including some topics related to current events, and matters of public and community interest. Advanced Low writers can meet basic academic writing needs and compose texts of paragraph length and structure.

All Advanced courses require a recommendation from the student's current language teacher. On students’ transcripts, Advanced courses are designated as being equivalent to an honors level course. Students who are new to SAS will be assessed upon their arrival.

**Spanish: Advanced**

ID: 45047  Grade: 9-12  Length: Year  Credit: Language

Advanced Spanish is a one-year advanced-level course offered as an alternative to AP Spanish Language and Culture, or as an opportunity to further develop language skills before or after the AP course. This course will continue to focus on spoken and written expression, including presentational speaking, while developing higher-level comprehension skills through culturally rich thematic units. It will also allow students to gain a deeper understanding and appreciation of Hispanic language and culture (products, practices and perspectives). On students’ transcripts, Advanced courses are designated as being equivalent to an honors level course.

**Chinese: Advanced**

ID: 45070  Grade: 9-12  Length: Year  Credit: Language

Advanced Chinese is a one-year advanced-level course offered as an opportunity to further develop language skills. This course will continue to focus on spoken and written expression, including presentational speaking, while developing higher-level comprehension skills through culturally rich thematic units. It will also allow students to gain a deeper understanding and appreciation of Chinese language, history and culture. On students’ transcripts, Advanced courses are designated as being equivalent to an honors level course.

**Advanced Options (AP and AT)**

**AP Spanish Language and Culture**

ID: 45024  Grade: 10-12  Length: Year  Credit: Language

Prerequisite: Teacher recommendation

This AP course is comparable to a fourth semester college course in Spanish. The course prepares students to demonstrate their level of Spanish proficiency with a higher degree of accuracy and fluency across the three communicative modes: spoken and written interpersonal communication; audio, visual and audiovisual interpretive communication; and spoken and written presentational communication. Students will also hone their ability to comprehend and communicate in formal and informal contexts reflective of the richness of Hispanic language and cultures. Instructional materials and activities are carefully and strategically adapted from authentic sources to support the linguistic and cultural goals of the course. Students will be prepared for and strongly encouraged to sit for the AP exam in May.

**AP French Language and Culture**

ID: 45023  Grade: 10-12  Length: Year  Credit: Language

Prerequisite: Teacher recommendation

This AP course is comparable to a fourth semester college course in French. The course prepares students to demonstrate their level of French proficiency with a higher degree of accuracy and fluency across the three communicative modes: spoken and written interpersonal communication; audio, visual and audiovisual interpretive communication; and spoken and
written presentational communication. Students will also hone their ability to comprehend and communicate in formal and informal contexts, reflective of the richness of Francophone language and cultures. Instructional materials and activities are carefully and strategically adapted from authentic sources to support the linguistic and cultural goals of the course. Students will be prepared for and strongly encouraged to sit for the AP exam in May.

**AP Chinese Language and Culture**

ID: 45025  Grade: 10-12  Length: Year  Credit: Language  Prerequisite: Teacher recommendation

AP Chinese is designed to be comparable to fourth semester university courses in Mandarin Chinese. The course prepares students to demonstrate their level of Chinese proficiency across the three communicative modes (interpersonal, interpretive, and presentational) and the five goal areas (communication, cultures, connections, comparisons, and communities). Students are provided with ongoing and varied opportunities to further develop their proficiencies across the full range of language skills within a cultural frame of reference. Materials and activities are adapted from authentic sources to support the linguistic and cultural goals of the course. Both contemporary and historical Chinese culture are explored. Students will be prepared for and strongly encouraged to sit for the AP exam in May.

**AT Chinese Language: History**

ID: 45029  Grade: 11-12  Length: Year  Credit: Language  Prerequisite: Minimum proficiency level of Advanced Low across all four skills.

This inquiry and project-based course will provide students with the opportunity to gain deeper understanding of the significance of key historical periods in Chinese history, while developing their advanced Chinese language proficiency. The course is also designed for students to identify their interests in specific areas of Chinese history and culture and delve into the process of researching, analysing, and reevaluating existing perceptions or stereotypes, to draw their own evidence-based conclusions of the significance of some historical phenomena. Students will be expected to complete a comprehensive project related to their own areas of interest each semester. The course will include an extended essay and oral presentation based on their research to demonstrate the final learning outcomes.
TECHNOLOGY, ELECTIVES AND CAPSTONE (TEC)

TEC courses prepare students for the real world. Students will develop critical thinking skills, often utilizing hands on, project-based experiences in these courses. They will have opportunities to explore their own interests, while blending core academic course knowledge and applications with authentic, creative demands. Please check the grade level requirements for each course. Some are only open to students in certain grades or those who have met specific prerequisites.

Beginning with the SAS Class of 2018, all students must complete the SAS Catalyst Project as a requirement for graduation.

COMPUTER SCIENCE & EMERGING TECH

Emerging Technologies

ID: 44501 Grade: 9-11 Length: Sem or Year
Credit: Elective

This semester-long survey course gives primarily underclassmen a view into design, digital fabrication, coding and graphics at an entry level. Students explore a wide range of fundamental hands-on skills including digital sketching, fabrication using the laser cutter and 3D printer, basic app development and the interconnection of computing devices. The course is deliberately broad, spanning many of the design and technology courses currently taught at SAS, and for this reason is a good entry point into more specialized courses offered at the junior and senior level. This course is a recommended for students who have an interest in learning through discovery and working in teams while solving reality-based problems through design thinking. Students build on this course to later study 2D and 3D Graphics, Robotics and Game Development. Students may take the course a second time if they wish to expand the knowledge, skills, and projects that they began developing during their first semester experience.

Computer Science I

ID: 44518 Grade: 9-12 Length: Semester
Credit: Elective
Prerequisite: Completion of Algebra 1. Ninth graders need approval of their Math 8+ math teacher.

This course provides an introduction to coding and computer science principles. Students will use Java and computational thinking strategies to design, write, and test programs. Java supports object-oriented programming (OOP), common to all high-level programming languages and is the language of instruction for AP Computer Science A. This hands-on course will give students the opportunity to appreciate and understand the depth at which businesses, engineering, and our daily interactions are dependent on computer science. Students learn by carefully designing a solution (algorithm) to problems, programming, and testing/debugging. Examples of programming applications to be reviewed include financial, probability, simulations of payrolls, simulations of trip planning, games, and many math problems. This course is designed as an exciting and unintimidating jumping off point for those who want to understand what coding is and how it relates to the technological world in which we live. No prior knowledge of Java or programming is required. Successful completion of the course will fulfill the prerequisite for AP Computer Science.

Mobile Application Development

ID: 44504 Grade: 9-12 Length: Semester
Credit: Elective

Tablet, phones and computers all have migrated to the use of specialized programs called Applications or “Apps.” This course is designed to give students with no programming experience the opportunity to develop marketable Android mobile apps using the new Google App Maker application. Features like built-in templates, a drag-and-drop UI editor, and point-and-click data modeling let you quickly create beautiful apps. This course will be taught on the introductory level without any advanced concepts offered. Therefore, students with prior programming courses, or advanced programming skills are not allowed to select this course.
Graphic Design

ID: 44527  Grade: 10-12  Length: Semester  Credit: Elective

Graphic design is a part of daily life. From humble things like gum wrappers to huge things like billboards to the T-shirt people wear, graphic design is used to convey a message from a client to an audience. In this course students will learn how to use graphic design to inform, persuade and attract attention by creating and organizing the elements of typography, images, and the so called “white space” around them. Students will complete a variety of authentic projects that includes but is not limited to the design of posters and brochures. They will gain a solid foundation in the use of Adobe Illustrator, Photoshop and InDesign. This course is a complement to the Newspaper and Yearbook courses.

Digital Game Development

ID: 44517  Grade: 10-12  Length: Semester  Credit: Elective

Games have been around for a very long time (consider the game Senet played by the ancient Egyptians). Games were used as ways to develop physical skills (consider throwing objects at targets) or training to develop military strategies (chess?) or to simply kill time while waiting for the crops to grow. Of course, creating games, and especially video games, requires more than just an idea of something that would be fun. Designers have to understand the mechanics of games, test the balance of the rules to ensure that all players have an equal opportunity to win, communicate how the game is played, and create the environment that will be used to play the game - whether a board game with dice or a computer. This course will cover the basic game development process, from design process through to playable digital and non-digital games. This will include study of game design mechanics and principles of the game design process (e.g., play balancing, testing), basic computer programming concepts, and concepts and production processes of game related art, including background design, character design, and user interface design. Students will gain a very good sense of the game development process and the various creative and technical aspects involved.

ADVANCED OPTIONS

AP Computer Science

ID: 44520  Grade: 10-12  Length: Year  Credit: Elective

Prerequisite: Semester I grade of B or higher in Algebra II/Trig or a higher level math course or comp science I. In exceptional cases, concurrent enrollment in Algebra II/Trig or Accelerated Math is possible with AP Computer Science teacher recommendation.

AP Computer Science is a full-year course designed to teach the fundamentals of programming with the Java programming language. It is designed as an accelerated first course in computer science or as a course for people who will major in other disciplines requiring significant involvement with computing. Prior knowledge of programming is not essential; although logic, math, and linguistic skills along with a strong core GPA are good indicators of success. AP Computer Science emphasizes programming methodology with a concentration on problem solving, algorithm development, and object orient programming. A large part of the course is built around the design, creation, and testing of computer programs or parts of programs that correctly solve a given problem. This year-long course is identical to a first semester programming course taught at most universities; therefore, students are expected to commit to a daily schedule of programming and studying activities. AP Computer Science will receive a 0.25 additional GPA weighting (rather than 0.5). Students will be prepared for and strongly encouraged to sit for the AP exam in May.

AT Computer Science: Data Structures

ID: 44540  Grade: 11-12  Length: Year  Credit: Elective

Prerequisite: Semester I grade of B or higher in AP Computer Science.

This course is a standard college course on algorithms and data structures in an object-oriented environment. The sorting algorithms include selection, insertion, merge, quick, and heap. The data structures include arrays, linked lists, stacks, queues, trees, sets, maps, and graphs. Additional topics include recursion, the Java Collections framework, Big-O analysis, unit testing, and class design. The programming language is Java. Students taking this course should be independent thinkers able to spend a significant amount of time at a computer outside of class. This course goes well beyond the material tested by the College Board’s Advanced Placement® Computer Science A exam. This
course is project-based and very hands-on, and emphasizes a use of real world data whenever possible. This course was collaboratively developed and endorsed by Professor Mike Scott at the University of Texas at Austin in 2017. The Advanced Topic (AT) designation indicates a course is at university level, putting it above the level of a traditional Advanced Placement (AP) course. The course requires rigorous study and emphasizes in-depth research. Like an AP course, this course has a grade point weighting of 0.5 for the duration of the course.

**ENGINEERING & ROBOTICS**

**Introduction to Robotics**

**ID:** 46520  
**Grade:** 9-12  
**Length:** Semester  
**Credit:** Elective

In this course students will learn new skills and apply critical thinking to solving concrete problems. Important learning goals of the course are innovation, perseverance, teamwork and communication. The course is divided into three main segments: 1) Code Academy is used to walk students with no experience through basic coding laws and language, using the Python language. 2) Arduinos and additional introductory electronics kits allow students to understand the basics of hardware/software interfacing. Arduinos and their close relatives are at the heart of the hand phone, microwave oven, automobile and airplanes. Using Arduinos leads to a basic understanding of the interaction between hardware and software. 3) Tetrix robots are approximately one cubic foot in size and are used in two in-class competitions - Bomb Squad and Ken and Barbie Firefighter rescue. Students design, build and drive robots to perform these real-world tasks. A technical poster, technical paper and interviews with outside engineers are required as well.

**Robotics Science**

**ID:** 46522/46529  
**Grade:** 9-12  
**Length:** Sem or Year  
**Credit:** Elective  
**Prerequisite:** Tech 8, Intro to Robotics or an MS/HS TEC teacher recommendation

This course teaches and applies learning in the areas of mechanics, electronics, CAD, robotics design, writing, art and marketing. Students meet, network and compete with local and international high schools and universities, at competitions including VEX robotics in Taipei, FRC robotics in Sydney, and MATE robotics in Hong Kong. These competitions are “the gold standard” of STEM, and membership on a robotics team provides excellent preparation for students headed to careers in engineering, marketing or science. Students choosing this course may take it for just one semester (46522) or for the full year (select both 46522 and 46529). Successful students are those who excel at teamwork, innovation and perseverance. This course may be repeated for credit. Those who have previously taken the course are expected to assume leadership roles and mentor new students. Community service may include mentoring SAS robotics teams in the lower schools. Travel to out-of-country competition is optional, and is the financial responsibility of the student.

**Engineering Science: Design, Build, & Transform**

**ID:** 44012  
**Grade:** 10-12  
**Length:** Year  
**Credit:** Elective

In this class students assume the role of designer-makers and learn to apply the design process to an increasingly difficult series of challenges. Collaboratively taught, this class will interest students wanting the opportunity to learn by tackling real problems within fields of study such as sustainable housing, transportation, community infrastructure and energy. Students approach learning through creative problem solving and activities that retain a sense of playful exploration. Semester one includes a deep dive into the design process; prototyping and computer aided design (Sketchup) as well as exploratory work with tools such as Lego, Rube Goldbergs, folding techniques and 3D printing. Activities will strengthen basic skills in fabrication, collaboration, project management and underlying scientific concepts. In the second semester student teams will be given guidance and opportunities to apply their skills to an authentic challenge and will work collaboratively to realize a solution of sufficient scale and complexity.

**BUSINESS**

**Business**

**ID:** 46524  
**Grade:** 10-12  
**Length:** Semester  
**Credit:** Elective  
**Note:** This course does not meet the NCAA Division I core course requirement for social studies. See counselor for details.

This course will explore the world of modern business through project-based learning. The course will guide students through the essential activities of an enterprise, including finance
and accounting, human resources, operations, and marketing. Students will become critical thinkers, analyzing, discussing, and solving real-world business case problems. Students also improve their written and oral communication skills in authentic settings when reporting their solutions to business cases. Students will polish their technology skills by authentically using computers as business people would: preparing presentations, calculating, preparing, and analyzing quantitative data in Excel, and creating marketing materials using image and video manipulation tools. The course is designed for those who would like a better understanding of the world of commerce or hope to one day join the business field.

**Business of Sports (APEx)**

*ID: 48040  Grade: 10-12  Length: Semester  Credit: Elective*

The APEX course focuses on the qualitative and quantitative aspects of our present facility in terms of planning and projection into the next few years. Students will study possibilities such as how to make the facility self-sustainable, the art of marketing the product, how to connect with stakeholders, and fundraising techniques. Students will learn hands-on techniques designed to make the entire SAS community aware of this futuristic project as we work toward our ultimate goal of a student-administered APEX. Assessments will center on project-based learning and group work. Thoughtful introspection and long termed goal-oriented students are needed, as learning will deviate from ordinary classroom situations. Good writing skills and public speaking experience are a plus.

**Personal Finance: You and Your Money**

*ID: 46531  Grade: 10-12  Length: Semester  Credit: Elective*

Few high school and college graduates are financially literate when they first enter the workforce. This course gives students an advantage in the real world by developing their financial literacy. Students will learn that high salaries don’t guarantee future wealth unless earnings are properly managed. Students will learn to manage their money through responsible spending and investing habits. In this course students will track their own daily spending from the first day of the class, blog about their learning, and explore the merits of careful consumption and effective investing through a series of project-based discoveries.

Please see Social Studies for other business and entrepreneurship offerings.

**JOURNALISM AND MEDIA**

**Journalism: Newspaper**

*ID: 46400  Grade: 10-12  Length: Year  Credit: Elective*

This is a project-based course offering exposure to all of the practices, skills and tools used in contemporary print and online journalism. Students will learn how to interview, report, write and edit as well as learning about the operation of a contemporary online newspaper: ethical practices, organization, editorial policy, production and design. Output may be in the form of written stories, video stories (news packages) or even documentaries. All will learn the multiple skills of the contemporary journalist. The traditional print reporter might have to learn to introduce their written post with a short stand-up video, a short interview with a principal source, or a voice-over with taped images of the event. The broadcast reporter will learn how to write three-paragraph introductions to news packages or video montage and to add written content that explores details that the news package cannot with its time limitations. There will be an attempt to schedule free periods consecutive to this class and students will use a combination of class time and free periods for mandatory staff meetings, small ‘tools and skills’ sessions, and one-on-one sessions with the adviser. Students must be able to work independently on stories and projects. The course may be repeated for credit.

**Journalism: Yearbook**

*ID: 46401  Grade: 9-12  Length: Year  Credit: Elective*

Note: Limited enrollment. Priority will go to students who have completed a graphic design course or have equivalent knowledge.

Enjoy research, writing, photography and/or layout design? Want to apply academic skills to real-world assignments? Ever dreamed of seeing your work in print? Then join the class that creates the Islander, the official photo journalistic publication covering a year in the life of SAS. This course is a dynamic mixture of hands-on instruction/production, lively discussion, computer and camera work, individual and group projects and adrenaline-pumping deadlines. In addition to learning yearbook publishing skills, students will also develop a sense of time management,
workplace ethics and leadership finesse. Some after school and weekend hours are required to cover school events and meet deadlines. Because this course has limited enrollment and requires a certain number of students in each of the four grades, some students requesting the course may not be able to take it. This course may be repeated for credit.

**AP Capstone, Online, Independent & Catalyst**

**AT Entrepreneurship**

*ID: 46560   Grade: 10-12   Length: Semester*

**Credit:** Elective

**Prerequisite:** Semester 1 grade of A or better in World History/World Studies is required to select this course in grade 10; a B or higher in a 10th or 11th grade social studies course is required to select this course in grades 11 or 12, or current teacher recommendation.

Entrepreneurship provides real world, hands-on learning on what it’s like to actually start a company. The goal is to give students a framework to test the business model of a startup while creating all of the pressures and demands of the real world in an early stage start up. They will learn marketing, finance, and other business disciplines, while also acquiring organizational skills such as time management and leadership development. The class is also a vehicle to develop character, intellect, and resilience in students.

Students start the semester with an immediate immersion into the Lean Startup methodology adopted from University of California Berkeley and Design Thinking techniques from Stanford University. As students develop skills through working in the field, observing and interviewing to discover problems, and learning techniques for validating hypotheses they learn by doing, through real world problems and collaborating with real entrepreneurs. Students work with carefully selected Singapore entrepreneurs, who present real and urgent business problems with hard deliverables and deadlines. Students learn processes including customer development, agile development and rapid prototyping. Throughout the course, students will learn to problem solve, think critically, make well-informed decisions, communicate effectively, and engage in productive and successful team work. In the final portion of the course, students use everything they’ve earned about entrepreneurship and group work to launch their own startups. This course has been developed in alignment with the University of California Berkeley Haas School of Business and Stanford University Entrepreneurial Program. The Advanced Topic (AT) designation indicates a course is at university level, putting it at or above the level of a traditional Advanced Placement (AP) course. The course requires rigorous study and emphasizes in-depth research. Like an AP course, this course has a grade point weighting of 0.5 for the duration of the course.

**AT Seminar**

*ID: 48520   Grade: 10-11   Length: Year*

**Credit:** Elective

**Prerequisite:** Semester 1 grade of A in both English 9 and World History or an A in World Studies is required to select this course in grade 10; Semester 1 grade of B+ or higher in English 10 or American Studies is required to select this course in grade 11.

The AT Seminar course is an inquiry-driven course that engages students in cross-curricular conversations that explore real-world topics and issues from multiple perspectives. Students learn to collect and analyze information with accuracy and precision in order to craft and communicate evidence-based arguments. The AT Seminar is year one of the AT Research & Catalyst program; merging the AT Seminar/AT Research program with the Catalyst project allows students to reflect on their passions and strengths while they develop the skills that help them to think and write academically. Upon completion of the AT Seminar, students will be prepared for a research, performance, or innovation AT Research & Catalyst experience the following academic year. This course has fully adopted the AP Seminar curriculum, and therefore, students will be eligible to take the AP Seminar exam in preparation for earning the AP Capstone Diploma. The Advanced Topic (AT) designation indicates a course is at university level, putting it at or above the level of a traditional Advanced Placement (AP) course. The course requires rigorous study and emphasizes in-depth research. Like an AP course, this course has a grade point weighting of 0.5 for the duration of the course.

**AT Research & Catalyst**

*ID: 48515   Grade: 11-12   Length: Year*

**Credit:** Elective

**Prerequisite:** Semester 1 B or higher in AP Seminar; to take this course in 2018/19, B or higher in AT Seminar.

AT Research & Catalyst allows students to deeply explore an academic topic, problem, or issue of individual interest with the expectation of producing both a university level research paper and a meaningful Catalyst project. For example, students can dig deeper into a topic.
studied in an AP or AT course, work across academic areas on an interdisciplinary topic or study a new discipline of interest, perhaps one a student would like to study in college. The course begins with students developing a greater sense of self by generating a learning profile, a SMART goal, and a project framework. As they explore their interests, students design, plan, and conduct qualitative and/or quantitative research and choose a methodology to address a potential research question. Ultimately, students hone in on a driving question and work on an independent research project. Students utilize the desired student learning outcomes (DSLOs) as they document their processes and curate their scholarly work in a portfolio. In addition, students will be guided to operationalise their personal networks in order to establish mentorships and other forms of experiential network-based learning (collaborative research studies, internships, etc.) The course culminates in an academic paper of approximately 5000 words, an oral defense presentation of their research, and an exhibition of their Catalyst project. This course has fully adopted the AP Research curriculum, and therefore, students will be eligible to take the AP Research exam in preparation for earning the AP Capstone Diploma. The Advanced Topic (AT) designation indicates a course is at university level, putting it at or above the level of a traditional Advanced Placement (AP) course. The course requires rigorous study and emphasizes in-depth research. Like an AP course, this course has a grade point weighting of 0.5 for the duration of the course.

The SAS Catalyst Project
ID: 48510 Grade: 11-12 Length: Semester Credit: Required beginning with the Class of 2018

The SAS Catalyst project represents the culmination of academic, intellectual, and social-emotional learning experiences where students are provided guidance, resources, and flexible scheduling to explore interests and pursue passions. Teachers act as “guides on the side” for students where learning is differentiated for each student based on their interest, readiness, and learning profile. The desired student learning outcomes (DSLOs) of communication, collaboration, critical thinking, and creativity are emphasized, developed, and assessed. As students design, plan, and conduct their projects, they will focus on producing a tangible outcome and encouraged to dive deep into relevant content and knowledge. Often, students experience real world learning and problem solving in authentic contexts (e.g., interviews, work study, scientific research, internships, etc.). Students will be taught how to employ the rich regional and global professional network; starting with working with a mentor from a respective field or profession. The project scope is limited only by the student’s imagination. Juniors who have a strong interest in a particular project may complete the Catalyst project as a junior. This would be especially true for students who are planning a heavier senior course load or are applying to a university requiring a demonstration of understanding in a particular academic area (e.g., UK universities).

Independent Learning
ID: 49013 Grade: 11-12 Length: Semester Credit: Elective
Prerequisite: Students will be required to provide additional information and have their learning plan approved after the course selection process ends.

The Independent Learning option is designed so that students can study a topic or learn in an area in which no course is available or for students to pursue work experience programs like internships, externships, or employment that is supervised by SAS. Rising juniors and seniors should select the six traditional SAS classes, with the independent course as a seventh course. For the independent learning option to be listed on the SAS transcript, it must be reviewed and approved by the Center for Innovation Coordinator, Dennis Steigerwald, by the start of the semester and must be completed by the end of the semester. Successful completion would provide one-half credit per semester and be listed on the transcript as a P (Pass). The course would not be included in the SAS GPA. In order to ensure that students benefit from the full academic program offered at SAS, an independent activity could not be used to fulfill the SAS subject area graduation requirements. Further information about independent learning options is available from the Coordinator of the Center for Innovation.

GOA Online Learning
ID: 48600 (S1) and/or ID: 48601 (S2) Grade: 11-12 Length: Semester I and/or Sem II Credit: Elective
Prerequisite: Students must meet and have their learning plan approved by the SAS GOA Site Director.

SAS is a member of the Global Online Academy (GOA), a consortium of the top independent schools from around the world. As a member of GOA, SAS students can enroll in courses as diverse as The Graphic Novel or Medical Problem
Solving. Working closely with peers and teachers from the U.S. and other international schools, SAS students have an exciting and flexible online learning opportunity that will challenge them to further develop cultural competence and global citizenship skills.

Students who would like specialized learning options beyond SAS’s in-house course offerings may choose to enroll in a one-semester or year-long online course through GOA’s broad and rigorous selection of online courses. If this sounds interesting, take a look at the GOA Course Options table below and then speak with your counselor.

Students who would like to take a GOA course should select the “GOA Online Course” option during the SAS online course request process in the spring. Once a GOA course is selected, the student is committed to completing the course, so it is important that there be careful consideration. Unlike traditional SAS courses, GOA courses cannot be changed during the add/drop period at the beginning of a semester. In addition, students should note that collaboration with peers and teachers is an essential component of many GOA courses, and students may be expected to manage collaboration and communication across time zones. The SAS GOA Site Director, Mr. Patrick Green, will contact students to assist them through the process of signing up for a specific course through GOA.

Students in grades 11 and 12 may complete a maximum of one credit per year through GOA, with the GOA course replacing one of the six or seven courses that a student would ordinarily take during the academic year. Students are encouraged to select a course that allows them to follow their interests or passions and goes beyond the options available at SAS. A GOA course must be a course that is not already offered at SAS. Credits earned through GOA could be used to fulfill minimum number of SAS credits required for graduation, but would not fulfill department specific minimum requirements (except in the case of the World Language options).

The GOA transcript will become a part of the student’s official academic record. To earn a credit, the course must be completed prior to the final day of the semester; otherwise the course will be listed as an F. On the SAS transcript, the course will be listed as “GOA Online Course” with a P (pass) grade and 0.5 credit per semester. The grade will not be included in the calculation of an SAS grade point average (GPA). The GOA transcript, including the actual grades, will be sent to colleges as an additional page of the SAS transcript.

While students are encouraged to enhance their learning through other online learning opportunities and report details on university applications, only GOA courses will be listed on the SAS transcript.
GOA COURSE OPTIONS

The GOA courses listed below are available for SAS students. For complete information on length of course, which semester the course is offered, and a full course details please consult the GOA online course catalogue at www.globalonlineacademy.org/student-program/courses/

<table>
<thead>
<tr>
<th>GOA: ART, MEDIA AND DESIGN</th>
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<tr>
<td><strong>Advocacy</strong> - This skills-based course will explore the creativity, effort, and diversity of techniques required to change people’s minds and motivate them to act.</td>
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<td><strong>Architecture</strong> - In this course students will explore the architecture, engineering, and construction of some of the most important buildings from human history. Students will be encouraged to build models of elements of these structures to better understand the construction and engineering behind their design.</td>
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<tr>
<td><strong>Citizen artist’s studio: From making to action</strong> - In this course students will explore the architecture, engineering, and construction of some of the most important buildings from human history. Students will be encouraged to build models of elements of these structures to better understand the construction and engineering behind their design.</td>
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<td><strong>Creative nonfiction</strong> - This course will focus on shaping real experiences into powerful narratives. Through the study of professional examples and their own work, students will learn how to identify great stories in their lives and in the world around them.</td>
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<td><strong>Music theory &amp; digital composition</strong> - In Music Theory and Digital Composition, students explore the structure, writing, and recording of music as a design problem, with the intention of creating and releasing a finished piece of original music.</td>
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<td><strong>Poetry writing</strong> - This poetry-writing workshop explores identity and seeks to answer the question How are you shaped (or not) by the community you live in?</td>
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<tr>
<th>GOA: MATHEMATICS AND TECHNOLOGY</th>
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<tr>
<td><strong>Computer science I: Computational thinking</strong> - This introductory level course focuses on thinking like a computer scientist, especially understanding how computer scientists define and solve problems.</td>
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<tr>
<td><strong>Computer science II: Analyzing data with python</strong> - In this course, students will utilize the Python programming language to read, manipulate, and analyze data.</td>
</tr>
<tr>
<td><strong>Linear algebra</strong> - In this course you will learn about the algebra of vector spaces and matrices by looking at how images of objects in the plane and space are transformed in computer graphics.</td>
</tr>
<tr>
<td><strong>Number theory</strong> - Once thought of as the purest but least applicable part of mathematics, number theory is now by far the most commonly applied: every one of the millions of secure internet transmissions occurring each second is encrypted using ideas from number theory.</td>
</tr>
</tbody>
</table>
**GOA: SOCIAL SCIENCES**

**9/11 In a global context** - September 11, 2001, was a tragic day that changed the world in profound ways. In this course, students will explore the causes of 9/11, the events of the day itself, and its aftermath locally, nationally, and around the world.

**Applying philosophy to modern global issues** - This is an applied philosophy course that connects pressing contemporary issues with broad-range philosophical ideas and controversies, drawn from multiple traditions and many centuries.

**Energy** - Through investigating historical, economic, political, and environmental perspectives on energy concepts and controversies, students develop a keen ability to understand and analyze global questions surrounding energy consumption and distribution.

**Gender studies** - This course uses the concept of gender to examine a range of topics and disciplines that might include: feminism, gay and lesbian studies, women’s studies, popular culture, and politics.

**Genocide & human rights** - Students in this course study several of the major genocides of the 20th century (Armenian, the Holocaust, Cambodian, and Rwandan), analyze the role of the international community in responding to and preventing further genocides (with particular attention to the Nuremberg tribunals), and examine current human rights crises around the world.

**Prisons and the criminal law** - In this course, students become familiar with the legal rules and institutions that determine who goes to prison, and for how long.

**GOA: WORLD LANGUAGES**

**Arabic language through culture I** - This full-year course will highlight Modern Standard Arabic and some of the spoken dialect of the Levant.

**Arabic language through culture II** - This full-year course continues the work of Arabic Language Through Culture I, highlighting Modern Standard Arabic and the spoken dialect of the Levant.

**Japanese language through culture I** - This full-year course is a unique combination of Japanese culture and language, weaving cultural comparison with the study of basic Japanese language and grammar.

**Japanese language through culture II** - Through language learning, students in this course share their voices, cultivate global perspectives, and foster appreciation of self and others.

**GOA: LEARNING STUDIOS**

**Power: Redressing inequity through data** - Students utilize research, data, their own sense of social justice, and the application of all three to right wrongs in our world.

**Water: From inquiry to action** - The second most common compound in the world, water is essential to life. It is also a cause of quick death. It carves mountains and reshapes coastlines. It gives rise to conflicts among neighbors and nations, yet it brings peace and pleasure to many. Characteristics of water can be studied in disciplines from art to zoology, and this course will touch on many of them.
**GOA: SCIENCE AND HEALTH**

**Abnormal psychology** - This course focuses on psychiatric disorders such as schizophrenia, character disorders, anxiety disorders, substance abuse, and depression. As students examine these and other disorders they will learn about their symptoms, diagnoses, and treatments.

**Bioethics** - Ethics is the study of what one should do as an individual and as a member of society. In this course students will evaluate ethical issues related to medicine and the life sciences.

**Global health** - What makes people sick? What social and political factors lead to the health disparities we see both within our own community and on a global scale? What are the biggest challenges in global health and how might they be met? Using an interdisciplinary approach to address these questions, this course hopes to improve students' health literacy through an examination of the most significant public-health challenges facing today’s global population.

**Medical problem solving I** - In this course students will collaboratively solve medical mystery cases, similar to the approach used in many medical schools. Students enhance their critical thinking skills as they examine data, draw conclusions, diagnose, and treat patients.

**Medical problem solving II** - This course is an extension of the problem-based learning done in Medical Problem Solving I. While collaborative examination of medical case studies will remain the core work of the course, students will tackle more complex cases and explore new topics in medical science.

**Neuropsychology** - This course is an exploration of the neurological basis of behavior. It will cover basic brain anatomy and function as well as cognitive and behavioral disorders from a neurobiological perspective.

**Organic chemistry** - This course is designed with two goals in mind; one pragmatic, and one philosophical. Pragmatically it will provide a few foundational blocks for further studies in the organic chemistry field, giving students a small window on future, more traditional organic courses. Philosophically it aims to open an infinite world of discovery of complex molecules, their properties and reactions and applications, that hold the keys to confronting and solving the world’s most challenging, future scientific problems.

**Practical astronomy** - This course serves as a model of how modern astronomy has benefited from the digital revolution and advances in imaging technology.
VISUAL & PERFORMING ARTS

Singapore American School offers a number of options in the visual and performing arts to meet the needs and interests of all students.

The comprehensive visual arts program will appeal to students interested in art courses that enrich their high school experience, as well as those students who intend to pursue art careers. Courses available cover a broad range of skills that promote innovation using a variety of traditional and digital media.

In the performing arts, students are offered courses in instrumental and vocal music, dance, and theater. These classes and ensembles are geared for every level of experience and ability. Beginning and advanced courses give students superb performance opportunities with specialty classes available for students with greater interest in music. So that performing ensembles can best meet the needs of all students, some courses require an audition prior to enrollment.

VISUAL ARTS

Art I: Foundations
ID: 46100  Grade: 9-12  Length: Semester
Credit: Visual/Performing Arts

In this survey course students are exposed to a variety of media through study of the elements and principles of art and design. Students acquire and apply skills using a variety of media and techniques. Pencil, charcoal, colored pencil, various paints, clay, sculptural materials and linoleum for printmaking are examples of media offered to students. Emphasis is placed on skills acquisition and creativity. This course enables students to identify their strengths and possible areas of interest for future development. It provides the necessary foundation for the more advanced Studio Art courses.

Ceramics I
ID: 46104  Grade: 9-12  Length: Semester
Credit: Visual/Performing Arts

In this one-semester course students learn basic hand building, decorating and glazing techniques. Students are free to develop their own ideas within structured guidelines while building on acquired skills. Students leave the class with an assortment of forms of different functions, shapes, and sizes. Instructional time is also spent on sculptural pieces. Students are responsible for preparing their materials and looking after their pieces through the various stages of the ceramic process from construction through glazing. A brief introduction to the potter’s wheel and glaze chemistry will be given as a part of this course but will not be the focus. This course is a prerequisite for students who wish to continue on to learn potter’s wheel techniques in Ceramics II.

Ceramics II
ID: 46105  Grade: 9-12  Length: Semester
Credit: Visual/Performing Arts
Prerequisite: Ceramics I

This class builds on the skills acquired in the Ceramics I class. Students will work towards further mastering basic hand building and may choose to learn wheel throwing techniques on the potter’s wheel. A focus on modern ceramic art as it exists today will be the focus of cultural investigation. Students will be given design and glaze chemistry problems to solve using skills and innovation for developing self-expression. They are responsible for maintaining the ceramic supplies needed and for managing the clay process from construction through glazing.

Printmaking & Mixed Media
ID: 46110  Grade: 9-12  Length: Semester
Credit: Visual/Performing Arts

This course is for students who enjoy hands-on work and who would like to develop their printmaking skills as a base to their artwork. Students will explore many different types of printmaking, including screen printing, intaglio, linoleum, and collagraphs. Students will also explore the integration of drawing and painting techniques with printmaking to create mixed media work. The emphasis of this course is to use the elements and principles of art and design in contemporary printmaking techniques.

Studio Art
ID: 46106  Grade: 10-12  Length: Year
Credit: Visual/Performing Arts
Prerequisite: Art Foundations or acceptable portfolio.

In this course students are provided with the opportunity to further develop their artistic abilities and interests by honing their drawing and painting skills. They find and build upon their strengths in a variety of media within each unit.
Students are exposed to a broad spectrum of art styles allowing each student to find and develop his or her particular area or areas of interest. Finding voice in their work and making connections both culturally and personally are a focus throughout the course. Students work to achieve higher levels of proficiency in art.

Studio Art is a Pre-AP course. The work created prepares students for Advanced Placement courses.

**AP Studio Art: Drawing**  
ID: 46111  Grade: 10-12  Length: Year  
Credit: Visual/Performing Arts  
Prerequisite: Studio Art

The Drawing portfolio is designed to address a very broad interpretation of drawing issues and media. Light and shade, line quality, rendering of form, composition, surface manipulation, and illusion of depth are drawing issues that can be addressed through a variety of means, which could include painting, printmaking, mixed media, etc. Abstract, observational and inventive works may demonstrate drawing competence. The range of marks used to make drawings, the arrangement of those marks, and the materials used to make the marks are endless. Photography, videotapes, digital imaging, photocopies of work, and three-dimensional work may not be submitted for the Drawing Portfolio. Students will be prepared for and strongly encouraged to sit for the AP exam in May.

**AP Studio Art: 2D Design**  
ID: 46112  Grade: 10-12  Length: Year  
Credit: Visual/Performing Arts  
Prerequisite: Completion of Studio Art or submission of acceptable portfolio

This portfolio is intended to address two-dimensional (2D) design issues. Design involves purposeful decision making about how to use the elements and principles of art in an integrated way. The principles of design articulated through the visual elements help guide artists in making decisions about how to organize the elements on a picture plane in order to communicate content. Strong design is possible whether one uses representational, abstract, or expressive approaches to make art. For this portfolio, students are asked to demonstrate mastery of 2D design through any two-dimensional medium or process, including but not limited to, graphic design, digital imaging, photography, collage, fabric design, weaving, illustration, painting and printmaking. Students will be prepared for and strongly encouraged to sit for the AP exam in May.

**AP Studio Art: 3D Design**  
ID: 46113  Grade: 10-12  Length: Year  
Credit: Visual/Performing Arts  
Prerequisite: Completion of Studio Art

This portfolio is intended to address sculptural issues. Design involves purposeful decision-making about using the elements and principals of art in an integrative way. In the 3D Design portfolio, students are asked to demonstrate their understanding of design principles as they relate to depth and space. The principles of design (unity/variety, balance, emphasis, contrast, rhythm, repetition, proportion/scale, figure/ground relationship) can be articulated through visual elements (mass, volume, color/light, form, plane, line, texture). For this portfolio, students are asked to demonstrate mastery of 3D design through any three-dimensional approach, including, figurative or non-figurative sculpture, architectural models, metal work, ceramics, and three-dimensional fiber arts. Students will be prepared for and strongly encouraged to sit for the AP exam in May.

**Theater**

**Stagecraft**  
ID: 46544  Grade: 9-12  Length: Semester  
Credit: Visual/Performing Arts

Stagecraft covers the technical aspects of theater productions. Student assignments and projects will involve three topic areas: set design and construction, stage lighting, and theater sound systems. Projects in each of these areas will provide students with knowledge and hands on experience with technical equipment used in theaters. All student work that involves construction and work with electrical equipment will include proper safety instruction. All students must follow safety guidelines. This course can be repeated for credit.

**Theater: Foundations**  
ID: 46307  Grade: 9-12  Length: Semester  
Credit: Visual/Performing Arts

The ensemble is the foundation supporting all our work in theater. Students engage in wide variety of ensemble and theater exercises throughout the semester. They develop fundamental acting skills through scene work and acting exercises. Actor
training focuses on realism, which has as its goal ‘truthful behavior under imaginary circumstances.

**Theater: Improvisation**

ID: 46310 Grade: 9-12 Length: Semester Credit: Visual/Performing Arts

Improv performers do not just ‘make it all up’ on the spot. There are skills and structures that provide the springboard for entertaining improvisation. Students will develop these skills and improv ‘forms’ in a workshop process emphasizing collaboration and play. Particular focus will be placed on those forms which lead to “long form” performance. (See the course description for Advanced Improvisation for more information about “long form.”)

**Theater: Advanced Improvisation**

ID: 46314 Grade: 10-12 Length: Semester Credit: Visual/Performing Arts

Prerequisite: Theater: Improvisation

Building on skills learned in Improv, students will work towards a ‘long form’ performance. The ensemble improvises a 20-30 minute set based on a single prompt from the audience. Long form relies more heavily on acting skills, ensemble memory and active listening than short forms. Long form ensembles represent the ‘cutting edge’ in today’s Improv subculture. This course can be repeated for credit.

**Theater: Production**

ID: 46313 Grade: 10-12 Length: Semester II Credit: Visual/Performing Arts

Prerequisite: Any Theater course

Students work in small and full-class ensembles devising, rehearsing, and performing theater for a public audience. This course prepares students and is the prerequisite for the AT Performing Arts: Theater course. A few after-school rehearsals may be required. This course can be repeated for credit.

**Film/Acting Ensemble**

ID: 46315 Grade: 10-12 Length: Semester Credit: Visual/Performing Arts

Prerequisite: Any Theater or Filmmaking course

In this course, students form a collaborative ensemble to create short films for entry in film contests. Students will focus on either the performance or the technical aspects of filmmaking. Ensembles work together on creating story and dialogue, choosing locations and a variety of other aspects related to the creation of short films.

**Musical Theater: History and Production**

ID: 46226 Grade: 9-12 Length: Semester II Credit: Visual/Performing Arts

This course provides an in-depth study and practical application of musical theater. Students will research, rehearse and perform material from the musical theater genre. In the first quarter the students will examine examples of Broadway musicals. In the second quarter the students will write, direct, produce and perform original musicals. No prior experience is necessary but students must be willing to try all aspects of the modern musical.

**AT Performing Arts**

ID: 46327 (Theater) Grade: 12 Length: Year Credit: Visual/Performing Arts

Prerequisite: Completion of three courses in the performance discipline and completion of application process detailed below. Specific strands may also include course pre-requisites.

Please see page 55 for full details.

**FILM AND PHOTOGRAPHY**

**Filmmaking**

ID: 46404 Grade: 9-12 Length: Semester Credit: Visual/Performing Arts

The emphasis in this course is the art and craft of filmmaking as students study and practice the single-camera style used by filmmakers in the production of features and documentaries. Assignments will include readings on film aesthetics and practices and the study of critically acclaimed, early and contemporary films. Practical, hands-on work includes a camera familiarization exercise, a digital-editing exercise, two structured exercises and a final project. Students will write a treatment and script, and prepare a storyboard for the final project. Students will be required to complete work outside of regularly scheduled class meetings. This course may be repeated for credit.
Advanced Filmmaking
ID: 46406  Grade: 10-12  Length: Semester  Credit: Visual/Performing Arts  Prerequisite: Filmmaking

Students take the skills and experience gained in Filmmaking and work independently to create short films for entry in film festivals. This course may be repeated for credit.

Digital Photography
ID: 46519  Grade: 9-12  Length: Semester  Credit: Visual/Performing Arts  Prerequisite: A digital camera

This course will introduce students to the limitless possibilities of image making in the digital age. Students will be expected to learn the fundamental concepts and skills related to digital photography and graphic design. This is a project-based course that will require students to integrate the concepts of art and design into a series of assignments that they will create on the computer using Adobe Photoshop software. Students will also learn to use digital cameras, and scanners as image input devices and laser and color ink jet printers as output devices. Topics will include: digital vs. traditional photography, basic digital image adjustment, advanced digital image manipulation, type and text, composite and photomontage, methods of printing and presentation of digital images. Students will be required to submit prints for exhibition as well as prepare and present a final portfolio of their work at the end of the semester.

Advanced Digital Photography
ID: 46521  Grade: 9-12  Length: Semester  Credit: Visual/Performing Arts  Prerequisite: Digital Photography and access to a digital camera, preferably a DSLR.

Advanced Digital Photography is designed as a continuation of the current semester-long Digital Photography course. The purpose of this second course is to provide motivated students with the opportunity to expand on the knowledge and skills they acquired in Digital Photography. This is a project-based course, which seeks to challenge the student's creative and technical skills through the creation of both “straight” and manipulated digital images. Topics to be covered will include advanced digital camera skills using a DSLR camera, advanced Photoshop skills as well as the use of several other digital image and multimedia software. Students will be expected to design a final creative project in a direction and area of their interest. Throughout the course, students will be required to submit prints for exhibition as well as prepare and present a multimedia final portfolio of their work at the end of the semester.

INSTRUMENTAL MUSIC

Concert Band
ID: 46202  Grade: 9-12  Length: Year  Credit: Visual/Performing Arts  Prerequisite: Intermediate to advanced ability on a band instrument.

Fee: Performance attire S$50-$150. A limited number of instruments are available for rental at S$150 per year.

Concert Band is open to all students who have had previous experience on a band instrument. The band will perform in concerts during the year, playing a variety of musical styles ranging from popular to classical. This course may be repeated each year for credit. All Concert Band members are required to attend all scheduled performances, including after school or weekends.

Symphonic Band
ID: 46210  Grade: 9-12  Length: Year  Credit: Visual/Performing Arts  Prerequisite: Audition

Fee: Performance attire S$50-$150. A limited number of instruments are available for rental at S$150 per year.

Symphonic Band is an audition-based group for intermediate to advanced musicians who wish to challenge their skills with more difficult music. The band will perform in four major concerts during the year, playing a variety of musical styles ranging from popular to classical. This course may be repeated each year for credit. All Symphonic Band members are required to attend all scheduled performances, including after school or weekends.

Wind Ensemble
ID: 46208  Grade: 9-12  Length: Year  Credit: Visual/Performing Arts

Fee: Performance attire S$50-$150. A limited number of instruments are available for rental at S$150 per year.

Wind Ensemble is a very advanced band course for serious musicians who wish to challenge their skills with more difficult music. They play a varied repertoire of classical and popular music and will be encouraged to do solo and small ensemble performances as well. The Wind Ensemble represents the school in the community through concerts and programs. This course may be
repeated each year for additional credit. All Wind Ensemble members are required to attend all scheduled performances, including after school or weekends.

**Jazz Improvisation**

**ID:** 46217  **Grade:** 10-12  **Length:** S1  
**Credit:** Visual/Performing Arts  
**Prerequisite:** Successful audition to Wind Ensemble and teacher recommendation.  
**Fee:** Please see Wind Ensemble

Jazz Improvisation is offered to advanced musicians seeking to further their knowledge and skill in the jazz idiom. Students will study basic chords, scales and patterns used in improvisation, further develop small ensemble and combo playing skills and explore a variety of jazz standards. Students in Jazz Improvisation will perform with both the Wind Ensemble and the HS Jazz Band. This is a fall semester course, and students in Jazz Improvisation will be enrolled in Wind Ensemble during the spring semester. Students interested in enrolling in Jazz Improvisation must audition successfully for Wind Ensemble and subsequently request the approval of the Band Director.

**Strings**

**Concert Strings**

**ID:** 46213  **Grade:** 9-12  **Length:** Year  
**Credit:** Visual/Performing Arts  
**Prerequisite:** Experience with a string instrument  
**Fee:** Performance attire $50-$120. Instrument rental at $150 per year if required.

Concert Strings is designed to help students with one to three years experience playing a string-instrument to prepare for String Ensemble. This is an ideal setting for the string student who would like to switch instruments (i.e., violin to viola or cello to double bass). Special consideration will be devoted to developing technique, with particular emphasis placed on shifting, facility in the upper positions, developing a mature vibrato, and more advanced bow technique. Students will be exposed to a wide range of styles, including: classical, folk, jazz and rock. The history of orchestral music, string instruments and the general maintenance of the instrument will also be covered. This course may be repeated each year for credit. All students are required to attend all scheduled performances, including after school or weekends.

**Chamber Strings**

**ID:** 46229  **Grade:** 9-12  **Length:** Year  
**Credit:** Visual/Performing Arts  
**Prerequisite:** Audition  
**Fee:** Performance attire $50-$120. A limited number of instruments are available for rental at $150 per year.

Chamber Strings is geared for the budding virtuoso who is very serious about music, and wants to take their performance to the highest level (think… “Instrumental Music AP”). The instrumentation for this ensemble will be set at 12 violins, 4 viola, 4 cello and 2 bass. Placement in this prestigious ensemble will be by rigorous audition stressing intonation and musicality. The demanding repertoire will be the catalyst for understanding the stylistic characteristics of music throughout the ages. The smaller size of this group will allow students to strive for a very refined, articulate performance standard, and exploration of the various tone colors possible on a stringed instrument.

**Vocal Music**

**Concert Choir - Chorale**

**ID:** 46203/46205  **Grade:** 9-12  **Length:** Sem or Year  
**Credit:** Visual/Performing Arts  
**Fee:** Performance attire $50-$150

The SAS Chorale is a choir of males and females that will sing a wide variety of choral repertoire both in the large group and in smaller ensembles. Students will advance their skills while learning about different musical styles through music prepared for public performance. From this
choral experience, students will develop an excellent level of musicianship and will refine their vocal techniques. The Chorale represents the SAS community through various concerts and programs, sometimes as many as three or four per semester. Chorale members will participate in an annual Choir Festival with a well-known guest conductor. Students choosing this course may take it for just one semester (46203) or for the full year (select both 46203 and 46205). In order to be eligible to audition for SAS Singers it must be taken for the whole year. All Chorale members are required to attend all scheduled performances and rehearsals, including after school or weekends. This course may be repeated for credit.

Choral Ensemble - Chanterie
ID: 46212 Grade: 9-12 Length: Year Credit: Visual/Performing Arts Fee: Performance attire $550-$150

The SAS Chanterie is a choir made up of females that will sing a wide variety of choral repertoire both in the large group and in smaller ensembles. Students will advance their skills while learning about different musical styles through music prepared for public performance. From this choral experience, students will develop an excellent level of musicianship and will refine their vocal techniques. The Chanterie represents the SAS community through various concerts and programs, sometimes as many as 3-4 per semester. Chanterie members will have the opportunity to participate in two specific activities of note; 1) The Annual Music Festival with a well-known guest conductor, 2) a collaborative performance with dance and drama classes. All Chanterie members are required to attend all scheduled performances and rehearsals, including after school or weekends. This course may be repeated for credit.

SAS Singers
ID: 46206 Grade: 9-12 Length: Year Credit: Visual/Performing Arts Prerequisite: Audition Fee: Performance attire $550-$150

SAS Singers is a small ensemble of selected musicians who wish to participate in a variety of musical performances. They will learn to analyze music, develop choral techniques, recognize musical styles, and demonstrate movement to music (choreography). They will serve as an elite group, singing many genres of music including jazz, popular and madrigal music as well as top-level choral repertoire. Each member will also be expected to function as an integrated chorale within the other two choirs for major classical works. The Singers frequently represent the school in the community, sometimes 5-8 times per semester. SAS Singers have one required evening rehearsal per week. This course may be repeated for credit.

MUSIC EXPLORATORY WHEEL

The following courses are part of the music exploratory wheel and are designed to introduce students to aspects of music beyond the traditional areas of strings, vocal, and instrumental music. Many of these courses are offered in alternate years. Sufficient student interest is required for a course to be offered.

Introduction to Guitar
ID: 46214 Grade: 9-12 Length: Semester Credit: Visual/Performing Arts

Introduction to Guitar is designed for the beginning guitarist who wants to learn the fundamentals of guitar pedagogy in a classroom setting. Students will be exposed to a wide range of styles, including: classical, folk, jazz and rock. The history of the guitar, what to look for when buying a guitar, along with tuning and general maintenance of the instrument will also be covered. Students will learn to read standard notation and tablature as well as strategies for reading rhythm patterns. This class will equip students with the skills necessary for a lifetime of enjoyment on this beautiful and practical instrument.

Advanced Guitar
ID: 46218 Grade: 9-12 Length: Semester Credit: Visual/Performing Arts Prerequisite: Successful completion of Introduction to Guitar or audition.

Advanced Guitar is a one-semester, elective course offering intermediate to advanced instruction on the guitar. Students in this course will improve their skill in open, power and moveable (barre) chords, using a variety of accompaniment styles.
Continued development of right hand technique (pick and finger style) will also be a focus. Students will improve their reading skills in both traditional notation and tablature. Increased knowledge of the guitar finger board will be a main goal for the course, along with the exploration of secondary chords and embellished chords. Students will be exposed to a wide range of quality literature designed to improve overall technique and musicianship. Students will also learn basic digital recording techniques using ProTools and an analogue mixing board. Students will leave this course with a "portfolio" CD of their recorded repertoire.

**MUSIC COURSES NOT OFFERED THIS YEAR**

Some music exploratory courses are not offered every year and may be offered in alternate years (assuming there is sufficient student interest).

**Music Performance & Recording Technology**

*ID: 46545  Grade: 10-12  Length: Semester II  Credit: Visual/Performing Arts  Note: Not offered in 2017-18*

In this course students will learn to create, record and distribute music. It will focus on teaching students to become better performing artists and recording engineers and to support them in the pursuit of their own musical interests. Student projects can include work on student audition recordings, live concert recordings, and independent projects. Recording topics will cover basic functions of microphones, mixing desks, digital recording, and music editing software such as Garageband, Audacity, and Logic. Creating topics can include writing new music or working on existing songs for live performance or mastered recordings. Course topics for distributing music will cover creating CDs, podcasts, videos and use of social media. Students will work throughout the semester to create a portfolio of audio projects related to the students areas of interest and expertise.

**Vocal Technique**

*ID: 46224  Grade: 9-12  Length: Semester I  Credit: Visual/Performing Arts  Note: Not offered in 2017-18*

This class is designed for students who would like to improve their singing. Through a variety of genres (e.g., popular, musical, folk, classical) students will work on their individual vocal technique and music reading skills. Specific topics will include the following: 1) Vocal Warm-ups, 2) Vocal Skill and Support, 3) Performance Skill, 4) Stylization, and 5) Efficient Music Reading.

**Music Exploration: Rock-n-Roll**

*ID: 46216  Grade: 9-12  Length: Semester II  Credit: Visual/Performing Arts  Note: Not offered in 2017-18*

This course is for anyone who wants to learn more about rock & roll. Students will study the history of rock and roll as a musical genre, and become familiar with the major styles of rock music along with the elements and artists that define those styles. Students will develop active listening skills and the ability to discuss rock music intelligently. Students will explore songwriting, chord changes, and the basics of the rock band instruments: guitar, bass, drums, and keyboards. In the spirit of Rock, no previous skills are necessary to take this class - just a willingness to learn. “Hey! Ho! Let’s Go!” - The Ramones.

**Music of Our Time: Modern Music/DJing**

*ID: 46225  Grade: 9-12  Length: Semester I  Credit: Visual/Performing Arts  Note: Not offered in 2017-18*

This course provides students with a deeper understanding of the popular music listened to on a daily basis. With the help of guest artists in the pop music and DJing fields as well as class discussion and research, students will intelligently discuss their favorite genres as well as write and perform them. The topics of DJing and modern popular music are broad; consequently, the students will determine many of the topics in this course.

**AT Performing Arts**

*ID: 46326 (Music)  Grade: 12  Length: Year  Credit: Visual/Performing Arts  Prerequisite: Completion of three courses in the performance discipline and completion of application process detailed below. Specific strands may also include course pre-requisites. Note: Please see page 55 for full details.*
DANCE

Dance I - Introduction to Dance
ID: 48002  Grade: 9-12  Length: Semester  Credit: PE or Visual/Performing Arts

This course is designed for any student who would like to use dance to develop the physical fitness, confidence, and ability to dance either for fun or as a performer. This course combines fitness, dance technique, and dance choreography. The class is designed to improve physical skills such as posture, strength, flexibility, stamina, and balance, as well as introduce choreographic and improvisational techniques. Students will learn the techniques and vocabulary for various types of dance, including ballet, lyrical, contemporary, jazz and hip hop. Students will incorporate what they have learned into creative dance choreography. Appropriate injury prevention techniques will be explored along with relevant aspects of anatomy. Students will perform for each other in class and have the option to perform at the semester show. All students are recommended to take Dance I, even those with previous studio dance experience. Concepts covered within a dance education class are different from what is often covered in a studio technique class, and the two types of classes complement each other beautifully.

Dance II
ID: 48003  Grade: 9-12  Length: Semester  Credit: PE or Visual/Performing Arts  Prerequisite: Dance I or equivalent (not technique/studio) experience.

Dance II is a course designed for students who have a serious interest in dance and who wish to increase their knowledge and skills. This class provides an intensive approach to skill development, etiquette, discipline, and knowledge of three dance styles: ballet, jazz and modern/contemporary. Each technique class will cater to specific needs and abilities. The semester is broken into three sections, during which each dance style is studied and practiced intensively. Students will also be asked to create a more in-depth piece of choreography that uses more complex choreographic concepts. Students will perform for each other in class and have the option to perform at the semester show.

Dance III
ID: 48004  Grade: 9-12  Length: Semester  Credit: PE or Visual/Performing Arts  Prerequisite: Dance II or equivalent dance education (not technique/studio) experience.

This course allows students to continue their technical training in dance, while offering them more opportunities to explore choreography. It will also prepare students for the auditions for Dance Performance. Dance III has three major goals: 1) To continue building and strengthening the dancers’ technique in a variety of dance forms; 2) The course will also provide an opportunity for dancers to study and discuss and analyze dance history, philosophy and theory concepts to a greater depth; 3) To allow students the opportunity to choreograph longer pieces and pieces for different purposes. These performances will be performed and recorded. There are possibilities for performances outside of the classroom in this course. This class also provides an opportunity for more advanced dancers to learn the skills needed to teach creative dance classes to their peers and the wider community. Some costs may be incurred for the purchase of costumes and shoes.

Dance Performance
ID: 48006  Grade: 10-12  Length: Year  Credit: PE or Visual/Performing Arts  Prerequisite: Audition (completed Dance III and taught in the after school Middle School Dance Program).

This course is designed for the serious dancer who has had dance training and would like to experience choreographing and performing more intensely. Students will continue learning and working on dance techniques. They will also learn more about choreography, dance design and choreographic devices. They will be expected to work as a team with guidance to teach, stage and direct their own dances for the semester production. Students will be asked to critique and evaluate their own and other dancers’ choreography and performances in more depth using appropriate terminology. Students will be expected to rehearse at least three afternoons each week (4:15-6:00 PM), increasing to daily rehearsals prior to the show. They will be expected to attend all scheduled rehearsals and participate in school performances as well as attend community performances. Some costs may be incurred for the purchase of costumes and shoes.
AT Performing Arts

ID: 46325 (Dance) Grade: 12 Length: Year
Credit: Visual/Performing Arts
Prerequisite: Completion of three courses in the performance discipline and completion of application process detailed below. Specific strands may also include course pre-requisites.

Please see below for full details.

ADVANCED OPTIONS

AT Performing Arts

ID: 46325 (Dance) / 46326 (Music) / 46327 (Theater)
Grade: 12 Length: Year
Credit: Visual/Performing Arts
Prerequisite: Completion of three courses in the performance discipline and completion of application process detailed below. Specific strands may also include course pre-requisites.

This course provides students with opportunities to create and engage with university-level performance experiences. Students working within one of the disciplines of Dance, Drama, Vocal or Instrumental Music will fulfill requirements specific to that discipline. These include: guided research, exploration of methodologies, development of a performance, and in depth reflection. The application process is as follows: a) students audition as per usual for higher level performance groups by March, b) upon passing the audition, students submit a written application, and c) applicants are vetted by a Performing Arts Teacher panel in April. All applicants must be rising seniors.

There are three strands within AT Performing Arts:

1. The Dance strand is designed for the serious dancer who has had sufficient dance training and would like to study choreography and production aspects more intensely. Students will continue to be part of the Dance Performance class and the two semester production, but will also engage in guided research, exploration of methodologies, development of a performance, and in-depth reflection. This strand was collaboratively developed and endorsed by Cyrus Parker Jeannette, Dean of the College of the Arts, California State University at Long Beach in 2016.

2. The Music strand is for serious music students. AT Music students will expand their group performance experience by performing as an individual and by deepening their skill as music analysts, theorists and historians. The strand was collaboratively developed and endorsed by Dr. Travis Cross from University of California Los Angeles in 2016.

3. The Theater strand requires students to work collaboratively to create a piece of original theater and has a prerequisite of Theater Production. Students will assume positions of leadership in the ensemble: creators, designers, and directors, as well as performers. They will work in ensembles to examine and develop ideas to generate theatrical material for performance. AT Theater students must be enrolled in a theater course both semesters of their senior year. This strand was collaboratively developed and endorsed by Mark Charney, Associate Director of National Critics Institute, Eugene O’Neill Theater Center and Head of Theater and Dance at Texas Tech University in 2016.

The Advanced Topic (AT) designation indicates a course is at university level, putting it at or above the level of a traditional Advanced Placement (AP) course. The course requires rigorous study and emphasizes in-depth research. Like an AP course, this course has an additional grade point weighting of 0.5.
PHYSICAL EDUCATION

Students must successfully complete three semester courses in Physical Education (PE). Students may repeat a PE course for an elective credit, but a repeated course may not be used to fulfill the PE graduation requirement. Students may not be enrolled in more than one PE course per semester. All students in physical education classes are required to participate actively in physical fitness, conditioning, and aerobic activities. Students will be assessed regularly on the rules and skills of the sports being taught, as well as on their level of fitness.

Technology is an integral part of the PE curriculum and the department adopts relevant applications as they become available. Due to the special nature of the subject area, the scope reaches beyond the laptop driven research and interaction framework to include specific software such as the Fitness Gram program. Results are linked to age specific scores from North America to provide teachers, students and parents with a comparison to others.

Video recordings of skills acquisition are routinely utilized to ensure that students are grasping specific movement patterns inherent in the learning of skills. Heart rate monitors are utilized so that students and teachers can track real time fitness levels in many courses. The use of pedometers allows students to ascertain the volume of movement they are involved in daily and stopwatches help to quantify progress.

Field Hockey, Softball, and Golf

ID: 48015  Grade: 9-12  Length: Semester  Credit: Physical Education

This course includes basic instruction in three areas. In field hockey, students will learn to properly handle the hockey stick and develop the skills of passing, receiving, dribbling, shooting, tackling, and goal keeping. In the softball unit, students will learn the primary skills of softball throwing, catching, running and batting. They will develop skills required to play offensive and defensive positions. Upon completion of the softball and field hockey units, students will be able to employ appropriate strategies in game situations and will demonstrate skill in playing and officiating. At the conclusion of the course, students should be able to play softball and field hockey with enjoyment and confidence. Golf makes up the final unit of the course, which is designed for both beginners and experienced students. Students will develop many golf skills including hitting off a tee, driving with an iron, chipping, and putting. Course etiquette, score card understanding, safety aspects, penalties and club selection will be covered. Instruction will be augmented with sessions at a local driving range. Upon completion of the unit, students will have the skills and proficiency to play a regular round of golf.

Fitness for the Body and Mind

ID: 48024  Grade: 9-12  Length: Semester  Credit: Physical Education

This course is designed to teach students the process of using exercise to not only challenge the body but also to stimulate the brain by using various exercise forms such as Yoga, Pilates, Drums Alive, Qi Kung, Tai Chi and other martial art disciplines. Students will challenge their balance, strength, flexibility, coordination and concentration through these various disciplines as well as through fusion exercises such as Iron Yoga, Yo Chi, Yoga with Stability Balls, Pilates with BOSU and TRX. The objective of this course is to seek an alternative route to stimulate cognitive development through providing physical and mental challenges, which in return, result in a stronger focus, self discipline and ultimately in increased self confidence.

Group Fitness

ID: 48001  Grade: 9-12  Length: Semester  Credit: Physical Education

This is a group exercise program with an emphasis on strength and fitness conditioning offered to students looking to get stronger, fitter and more importantly, to be able to move more efficiently through a variety of fitness related exercises and workouts. The course is designed to encourage intense and vigorous participation with a focus on the basic foundations of movement using a wide variety of fitness tools to enhance movement efficiency. The following equipment will be used: BOSU, Kamagon Balls, SMART boards, Slastix bands, Slingshots, Suspension Trainers, Stability balls, Medicine Balls, Slam Balls, Kettlebells, Barbells, Dumbbells, Sandbells, Sandbags, Battle Ropes, Ladders, and Hurdles. Student will learn to train like an athlete and will learn exercises to increase strength, endurance, coordination, flexibility and balance through these various forms of group fitness exercises using a distinct progressional method. Students will use heart
monitors to better understand how to maximize their workouts for optimal health. Nutrition, kinesiology and fitness concepts will also be covered to enhance their knowledge of fitness education.

**Group Fitness II**

**ID:** 48029  
**Grade:** 9-12  
**Length:** Semester  
**Credit:** Physical Education  
**Prerequisite:** Group Fitness

This course will provide students with the opportunity to get a deeper understanding behind the concepts of Movement Efficiency Training. In addition to applying these concepts for their own personal use, they will be able to safely design training programs for students and adults during class time or through the “House of Pain” SAS after school fitness club. Students will have the opportunity to set up their own training practices, market the program to students or adults, and teach, coach, or train small groups. Valuable information on motivational and cueing techniques, the principles of class design, creating a positive fitness experience, progressions and regressions for multi-level classes, exercise and movement selection, sequencing, choreography, program modifications, music and legal guidelines will also be covered in the course.

**Indoor Team Sports**

**ID:** 48009  
**Grade:** 9-12  
**Length:** Semester  
**Credit:** Physical Education

This course is designed to develop and improve ball skills, teamwork, muscular strength and endurance. Students will learn the basic skills, techniques and strategies of volleyball, basketball, team handball and indoor soccer. They will practice these skills in individual and group drill situations. When students have mastered these basic skills, regulation games will be played. Students will be tested on all pertinent theoretical aspects of each activity.

**International Sports**

**ID:** 48008  
**Grade:** 9-12  
**Length:** Semester  
**Credit:** Physical Education

This PE course will include the following 3 core disciplines/activities: Netball, (Indoor) Cricket and Archery. Additionally students play 2 of the following other activities: Ultimate Frisbee, Sepak Takraw, Tchouk Ball and Lacrosse. Each of the sports will focus on fundamental movement patterns (i.e. passing & receiving, shooting, batting, running, fielding) designed to make the student competent with regard to the basic skill sets in order to demonstrate and participate in organised play and interclass competition. At the conclusion of the course, students should be able to play all sports with enjoyment and confidence. A comprehensive skill and written assessment will be administered at the conclusion of each unit, as well as a practical based final exam project at the end of the course.

**Climbing and Adventure Training**

**ID:** 48028  
**Grade:** 9-12  
**Length:** Semester  
**Credit:** Physical Education

This course is designed to introduce students to elements of adventure sports and adventure training. Adventure training challenges students in teams and as individuals through games and engineering configurations. The semester starts with trust building activities needed for both the climbing wall and the challenge course. Students will learn different types of knots and safety information needed to participate. Bouldering, belay work, various climbing routes, rappelling and constant communication are skills that will be recurring through out the semester as we start on the indoor climbing wall and slowly and safely work our way to the high elements on our outdoor ropes course. An added aspect will be a fitness component that will support and enhance the students’ endurance, flexibility and strength in order to become more efficient on the wall.

**Personal Defense and Combatives**

**ID:** 48027  
**Grade:** 9-12  
**Length:** Semester  
**Credit:** Physical Education

This course is designed to expose students to a variety of Mixed Martial Arts type techniques and strategies that combine stand up and ground work related to personal defense and athletic training. It involves martial arts techniques from disciplines such as boxing, jiu jitsu, judo, krav maga, tae kwon do and wrestling. Students will learn the basic elements of striking, kicking, takedowns, and ground defense work as well as mental strategies in a safe and controlled environment. Additionally students will learn self-defense principles and strategies on how to be safe and aware of potential dangers in their surroundings. The course will include both practical and theoretical work.
Racquet Sports
ID: 48016  Grade: 9-12  Length: Semester  Credit: Physical Education

This course is designed to expose the students to five distinct racket activities: badminton, table tennis, pickleball (modified indoor paddle tennis), soft indoor tennis, and court tennis. The course will focus on stroke development, game analysis and play refinement. Students will work on improving hand-eye coordination and reaction time response. Singles and doubles play strategies will also be presented. Practicing court etiquette, officiating, scoring and participating in round robin or bracket tournaments will conclude the class activities. A comprehensive skill and written assessment will be administered at the conclusion of each unit.

Soccer, Flag Football and Rugby
ID: 48014  Grade: 9-12  Length: Semester  Credit: Physical Education

Through this course students will become knowledgeable about the rules and regulations of soccer, flag football, and rugby and will be able to officiate games. In soccer, students will learn to perform skills at a satisfactory ability level, integrate soccer skills into a regular game situation, apply rules and strategies, and also teach skills to the other students. In the flag football unit, students will learn locomotor skills such as running (forward, backwards), shuffling sideways, handing the ball off to another player, throwing, and catching with good biomechanics. Basic offensive and defensive plays and strategies will be explored and implemented in order for the student to fully understand and enjoy the experience of participation in flag football. Students will demonstrate knowledge of, correctly follow, and apply the rules of flag football. In the final unit of this course, coeducational rugby will be taught and played. Touch rugby will be introduced during the initial period of the course. After mastering the basic skills and techniques of the game, students will be able to apply them in scrums, rucks, mauls, lineouts, and kickoffs in drills and game situations.

Track and Field: Running Events
ID: 48017  Grade: 9-12  Length: Semester  Credit: Physical Education

This course will concentrate on the sprints, relays, and middle distance running events. The 100, 200, 400, 800 and 1500 meter distances will be covered as well as the 4 x 100 and 4 x 400 relays. Students will complete the various training methodology for each discipline along with the relevant theory associated for the successful completion of the events.

Weight Training and Conditioning I
ID: 48018  Grade: 9-12  Length: Semester  Credit: Physical Education

This course is designed to meet the needs of students who demonstrate an interest in developing personal fitness skills and gaining knowledge of anatomy and physiology. The course introduces students to many aspects of physical fitness, weight training, and conditioning and their role in promoting strength, muscular endurance, cardiovascular endurance, agility and flexibility. Students will apply weight training and fitness concepts through the development of their own personal fitness program. Students will learn the proper use of the Universal weight machine and free weights. Students will also become knowledgeable about various nutritional and weight control programs and will be able to analyze the effectiveness of each of the programs studied.

Weight Training and Conditioning II
ID: 48019  Grade: 9-12  Length: Semester  Credit: Physical Education  Prerequisite: Weight Training I

This course is designed to continue knowledge and skill in the components of physical fitness: strength, muscular endurance, cardiovascular endurance, agility and flexibility. The resistance-training program includes free weights, circuit training, flexibility instruction and aerobic activities. Theoretical instruction comes from a variety of sources including physiology texts, salient journals and teaching periodicals. The students’ knowledge of this theoretical base, along with practical application, forms the core concepts of this offering. Students will be graded on both practice and theory.
**Lifeguarding**

**ID:** 48023  
**Grade:** 10-12  
**Length:** Semester  
**Credit:** Physical Education  
**Prerequisite:** Must be able pass the prerequisite swimming test. If uncertain about your swimming skills, check with a PE teacher before requesting this course. Must be at least 15 years old to receive certification.

The purpose of the Lifeguarding course is to teach lifeguards the skills and knowledge needed to prevent, recognize, and respond to aquatic emergencies and to provide care for injuries and sudden illnesses. The American Red Cross Lifeguard Training Program curriculum is used for this course. Upon successful completion students will receive the following certificates: Lifeguarding, First Aid, CPR and AED Administration for the Professional Rescuer.

**Dance Courses**

See the full course description in Visual/Performing Arts section.

**ADVANCED OPTIONS**

**AT Kinesiology**

**ID:** 48000  
**Grade:** 11-12  
**Length:** Semester  
**Credit:** Physical Education  
**Prerequisite:** Completion of Biology and a B+ in Chemistry or B in Accelerated Chemistry.

This course is designed to provide students with selected foundational knowledge in kinesiology. Modules focus on basic anatomy and introduce key aspects of exercise physiology, biomechanics, and motor behavior. Students will have the opportunity to apply course content through project-based learning. Projects may look to explore and investigate areas such as human performance, personal wellness, public health, and quality of life across the lifespan. This course aims to prepare students to pursue further studies in physical education and medical fields. This course was collaboratively developed and endorsed by Professor Collin Webster at the University of South Carolina in 2016. The Advanced Topic (AT) designation indicates a course is at university level, putting it at or above the level of a traditional Advanced Placement (AP) course. The course requires rigorous study and emphasizes in-depth research. Like an AP course, this course has a grade point weighting of 0.5.
HEALTH/WELLNESS

All students are required to take one semester-long Health and Wellness course in grade 10. All courses will include the following critical issues components: human sexuality and diseases, drug and alcohol issues, and decision-making.

Body Systems and Diseases
ID: 48011  Grade: 10-12  Length: Semester  Credit: Physical Education

This course is designed to help students better understand body systems and their functions. Students will understand the impact of personal health, behaviors and life-styles on body systems. Emphasis will be placed on such important diseases and disorders as heart disease, cancer, diabetes, and AIDS. Students will become aware of the major communicable and noncommunicable diseases with the emphasis on prevention, treatment, and significant medical breakthroughs. Students will also learn how research and medical advances influence prevention, life-style, wellness and the control of health problems. Knowledge of the short and long term effects associated with the use of alcohol, tobacco, and other drugs on reproduction, pregnancy, and the health and wellness of an individual will be emphasized. A preventative versus a curative approach will be taken in order to encourage students to take responsibility for their own life-styles and wellness.

Safety and First Aid
ID: 48012  Grade: 10-12  Length: Semester  Credit: Physical Education

This course is designed to help students become aware of their surroundings and how they can affect their own and other’s safety, and to help them deal with potential accidents and hazardous situations. The First Aid section will teach students what to do in a number of emergency medical situations. The course will follow American Red Cross Emergency Response programs for First Aid and CPR. Besides becoming proficient in CPR and other immediate related life saving techniques, complete emergency response first aid training will examine the most common injuries and situations associated with sports and other activities. Students will receive Red Cross certifications in both First Aid and CPR. Additionally, a 3-4 week study review of Critical Issues will be included on a variety of topics like alcohol, tobacco, (mis)used drugs, nutrition, sexuality, STIs and HIV/AIDS.

Life Balance: Body and Mind Wellness
ID: 48007  Grade: 10-12  Length: Semester  Credit: Physical Education

This course provides students with an opportunity to learn, discuss and explore topics relevant to SAS teens and their overall wellbeing. The course will help students learn how to take healthy action and build toolkits to prepare them to handle the many challenges in their high school lives. Learning to reflect and process issues, and find language that will help one to articulate their needs will also be modeled. The core topics are mental health, healthy relationships, sexual health, physical health and nutritional health; this overall health framework will allow for the class to be responsive to current issues. This will be a very hands-on, participation focused, application minded and project based class.

Life Skills and Human Development
ID: 48010  Grade: 10-12  Length: Semester  Credit: Physical Education

This course provides students with a solid knowledge base about important personal and social skills to help them make appropriate life-style decisions. Topics include the misuse and abuse of alcohol, tobacco and illicit drugs; human development, including reproduction, development of relationships, marriage and divorce; and sexually transmitted diseases, including behaviors that lead to them and how to avoid them. Student participation in discussions and projects is a key element. Students should be mature and forthcoming in their attitudes toward the subject matter.
OTHER COURSES

LEARNING SUPPORT

SAS offers targeted services for students who need support, assistance, or further instruction in order to be successful in the regular academic program. The Learning Support Department provides educational intervention to students identified via a Student Services Meeting (SSM) as needing support in their academic course work. The goal of the program is to allow all students to learn at high levels at SAS.

Learning Support I
ID: 47501 Grade: 9 Length: Year
Credit: May be taken for credit or non-credit.
Prerequisite: By school professional referral.

The goal of this course is to help students acquire the skills necessary for success in their academic program. This course includes developing students’ executive function skills and development of learning strategies and behaviors for academic success. Through small group instruction, students are assisted in applying these skills and strategies to their course work. This course is not intended to be used as supervised study.

Reading/Language Arts Lab I
ID: 47510 Grade: 9 Length: Year
Credit: May be taken for credit or non-credit.
Prerequisite: By school professional referral.

This course is designed to provide assistance to identified students in grade 9 to improve their reading, writing, speaking, listening, and vocabulary skills in English. Students address strategies to read and write effectively. Interventions target reading comprehension, reading speed, organizing ideas for writing, developing writer’s craft, revision process, and using grammar and mechanics to compose clear sentences, based on each student’s individual needs.

Learning Support II
ID: 47502 Grade: 10-12 Length: Year
Credit: May be taken for credit or non-credit.
Prerequisite: By school professional referral.

The goal of this course is to help students acquire the skills necessary for success in their academic program. This course includes developing students’ executive function skills and development of learning strategies and behaviors for academic success. Through small group instruction, students are assisted in applying these skills and strategies to their course work. This course is not intended to be used as supervised study.

Reading/Language Arts Lab II & III
ID: 47511/2 Grade: 10-12 Length: Year
Credit: May be taken for credit or non-credit.
Prerequisite: By school professional referral.

This course is designed to provide assistance to identified students in grades 10 through 12 to improve their reading, writing, speaking, listening, and vocabulary skills in English. Students address strategies to read and write effectively. Interventions target reading comprehension, reading speed, organizing ideas for writing, developing writer’s craft, revision process, and using grammar and mechanics to compose clear sentences, based on each student’s individual needs.

Algebra I Math Lab
ID: 47520 Grade: 9 Length: Year
Credit: May be taken for credit or non-credit.
Prerequisite: By school professional referral.

This course aims to assist identified students with the development of mathematical skills, knowledge and confidence. Given the small student to teacher ratio, students will receive instruction to develop computational, numeracy, fluency and algebraic skills, as well as study, test-taking and organizational strategies. Interventions, remediation and pre- and re-teaching will target pre-Algebra and Algebra skills, based on each student’s individual needs.
SUPERVISED STUDY PROGRAM

The Supervised Study Program is designed to offer additional support for students who are academically at-risk by providing in-school supervision and structure during “free blocks.” SAS students are traditionally afforded the privilege of an unscheduled block (80 minutes every other day) during which they are allowed to make choices about their use of time; however, some students do not use their free time in a productive manner and need a more structured location in which to study.

A teacher may temporarily place students into Supervised Study as a way to assist students before they fail. Supervised Study is intended for those students who have the “skill” but may lack the “will” to complete their work. Reasons for placement may include (but are not limited to) low grades, missing or inconsistent homework, and poor organizational or time management skills. Supervised Study is not designed to address gaps in content knowledge, or poor behavior. Students found to be struggling in their learning may be placed in Supervised Study until specific tasks are completed or skills are mastered. Teachers will determine the length of a placement (minimum placement is two weeks).

In addition to teacher placements, counselors may place students in Supervised Study based upon poor grades at mid-semester progress time and at the end of each semester. Students who are new to the High School may also be placed in Supervised Study upon their arrival should their previous grades warrant it.

As long as there is room in the class, a counselor can add a student to Supervised Study. Full details and eligibility criteria for Supervised Study program can be found in the Student Handbook.

INTERIM SEMESTER

Students do not select their Interim Semester courses until the beginning of the academic year. The program is committed to:

- deepening students’ understanding of the world around them;
- inspiring students to contribute to the global community;
- encouraging students to challenge themselves; and
- building a sense of community.

Courses are offered in the following categories. Beginning with members of the Class of 2016, students must complete at least one service learning Interim course:

**Global Studies:** These courses denote active participation and awareness of our interconnectedness with people and cultures around the world. Students will deepen their understanding of the world through themes. These themes may cross any academic discipline and often focus on development (resource management, environmental care, poverty), peace and conflict, cultural expression, and political conditions. Language study, which facilitates all cultural understanding, is also a valued focus area.

**Service Learning:** These courses have the capacity to touch on each of the desired student learning outcomes of the school’s strategic focus. By using the model that knowledge leads to compassion, and compassion to action, service-learning projects give students the opportunity to make a positive impact on the local community in which they work. Service learning provides a framework in which students learn and develop through active contribution in thoughtfully prepared service that meets the needs of the community.

**Eco-Adventures:** These courses are designed around the belief that the outdoors provides the greatest context for humans to grow socially, emotionally and academically. As such, eco-adventure courses provide students opportunities to learn and develop physically and intellectually while being fully immersed in the natural environment. Students will return from these excursions with an improved self-perception, increased academic skill-set and a robust sense of the environmental dynamics of the region visited.
Quest is an exciting and innovative program for seniors at SAS. Students who are interested in Quest should plan their high school career to ensure their eligibility in their senior year.

Quest provides structure and time to support students in pursuing their curiosity and passions. Instead of taking a traditional course load, students will earn credits by engaging with interdisciplinary projects that are personalized to their interests. The program is designed to allow flexibility in scheduling so that students have the time to explore, innovate, and be inspired. Students will also develop skills and connections to the real world through different experiences such as:

- Corporate partnerships
- Community outreach
- Interdisciplinary projects
- Off-campus experiences

The Quest calendar is designed to ensure students can participate in extracurricular and spirit activities. With the exception of starting school two weeks early and receiving two extra weeks for winter break, the Quest calendar aligns with the SAS calendar.

The units stress skill acquisition through interdisciplinary projects personalized to the interests of each student. Quest students explore various topics, forms of communication, and are encouraged to engage with school, community, and global networks. Throughout the year, students will practice time-management, project organization and develop skills such as critical-thinking, creativity, cultural awareness, and communication which will be essential skills for the future. The year culminates with the senior project thesis paper, thesis talk, thesis defense; and the end of year student planned trip.

**DAILY SCHEDULE**

Students in Quest will schedule their time around Quest community times, group project work and the senior project. Throughout the day, the advisors will regularly provide personalized resources and assistance to ensure that students are meeting expectations and discovering strategies that work for them to be responsible for their own learning. As such, there is no “set schedule” for how Quest students will spend their time. Students will have flexibility and accountability to plan their time as needed.
To help visualize the uniqueness of the flexibility afforded the students, below is what a daily schedule of a Quest student might look like:

<table>
<thead>
<tr>
<th>Time</th>
<th>Activity</th>
<th>Location</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-10 AM</td>
<td>SKYPE WITH RICK AVALOS - TESLA H.R.</td>
<td>SENIOR RESEARCH PROJECT</td>
<td>LATE START VIYALIZING DATA WITH MS. POLIUS GROUP PITCHES PRACTICE TIME/AUTHENTIC AUDIENCE</td>
</tr>
<tr>
<td>10-12 AM</td>
<td>GROUP PROJECT TIME</td>
<td>OFF CAMPUS @ THE HUB: TO EXPLORE STARTUPS</td>
<td>GROUP PROJECT TIME COMMUNITY MEETING</td>
</tr>
<tr>
<td>12-2 PM</td>
<td>CONFERENCE WITH TEACHERS</td>
<td></td>
<td>GROUP PROJECT TIME</td>
</tr>
<tr>
<td>2-3 PM</td>
<td>GROUP PROJECT TIME</td>
<td>DESIGN THINKING WITH MR. BRIGHT</td>
<td>SENIOR PROJECT CHECK-IN</td>
</tr>
<tr>
<td>AFTE SCHOOL</td>
<td>EXTRACURRICULARS</td>
<td>EXTRACURRICULARS</td>
<td>EXTRACURRICULARS</td>
</tr>
<tr>
<td>EVENING</td>
<td>7-9 NETWORK WITH PROFESSIONALS</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

TRANSCRIPTS

Students will digitally document their learning experience through a personal learning portfolio. As Quest provides personalized experiences for each student the portfolio will look different for each student and serve as a record of their processes and products throughout the year.

Students will be evaluated using rubrics developed using the educational gold standards of today. Rubrics focused on skills have been adapted from:

- College Board Advanced Placement
- Ed Leader 21
- Common Core
- Project Lead the Way
- IDEO and Stanford dSchool
- Association of American Colleges and Universities

The focus on skills will be reflected on the transcript. Quest students are guaranteed 6.0 high school credits with an optional Independent Learning Credit available, which may be an online course or SAS offered course as long as it is aligned with the Quest daily schedule.
QUEST CREDIT OFFERINGS

The following are the credits that students will earn in Quest through the interdisciplinary projects in each unit and the Senior Project. Students may choose to receive all, some, or none of the three Advanced Topic credits offered through Quest. These wishes should be communicated during enrollment in the Quest program. Students who wish to earn Advanced Topic credits will individually be held to a higher standard of skill acquisition and/or will be defining their learning objectives and how they personally go beyond the requirements. In addition, Advanced Topic credits have prerequisites, so students should make sure they meet the requirements. All students will submit their Senior Project thesis, talk and defense to the Quest advisors and community partners who are experts in the field of the student's research. Successful completion of the Senior Project fulfills the Catalyst requirement.

English: Research & Composition

ID: 48525  Grade: 12  Length: Year  Credit: English

In order to receive credit in English Research and Composition, students must meet research requirements, oral communication requirements, and written composition requirements while practicing the skills required for narrative, argumentative, and informative pieces. Students will conduct thorough research into a self-generated research question through gathering, evaluating and analyzing scholarly journals, as well as completing a statistical analysis of their own data. Their research will be utilized throughout the year to demonstrate their competency in writing a thesis paper, delivering engaging presentations and completing an oral defense. Students will deliver multiple presentations that consider how style, content and the advanced use of technology contribute to the power, persuasiveness or beauty of a text (e.g. making documentaries, digital portfolios, websites, crafting arguments that rely on rhetoric to influence an audience). This work culminates in the Senior Project, talk and defense which will be reviewed by an expert in the field of research.

AT English: Research & Composition

ID: 48526  Grade: 12  Length: Year  Credit: English

Prerequisite: Completion of AP Seminar, AP Research, or AP Language and Composition. Semester I grade of A or higher in grade 11 English course, or an English teacher recommendation.

Please see above for detailed description of English: Research and Composition. Students wishing to earn Advanced Topic credit in English: Research and Composition will practice narrative, informative, and argumentative skills at a level that demonstrates in-depth application of said skills. One additional project will be proposed by the student per unit. This project will be self-selected, but must meet the skill requirements of the unit.

Note: Quest students who completed AP Seminar and earned a score of 3 or better on the exam may choose to submit the thesis papers they produce in this course to the College Board for AP Research exam scoring. These students will be supported within Quest to follow the AP Research guidelines. To earn the AP Capstone Diploma, students must earn scores of 3 or higher on the AP Seminar and AP Research exams and on four additional AP exams.

Math: Data Analytics

ID: 48527  Grade: 12  Length: Year  Credit: Math

Prerequisite: Completion of Geometry

In order to receive credit in data analytics, students are required to demonstrate their learning in interpreting categorical and quantitative data, making inferences and justifying conclusions and using probability to make decisions. Students do not need to dwell on the details of computation - the main focus is on understanding a few deep concepts and interpreting data and the results of statistical analysis. Students are required to collect, organize, represent, and analyze data through the use of statistical software or programming language.
AT Math: Data Analytics

ID: 48528 Grade: 12 Length: Year
Credit: Math
Prerequisite: Completion of Algebra 2/Trig with a B or higher, or teacher recommendation.

Please see above for detailed description of Math: Data Analytics. Students who wish to earn Advanced Topic credit will individually be held to a higher standard of skill acquisition and will need to demonstrate a high level of data processing and analyzing skills. Students are required to collect, organize, represent, and analyze their own data through the use of statistical software or programming language. Students will also be defining their learning objectives and how they personally go beyond the requirements.

Science: Design Thinking

ID: 48529 Grade: 12 Length: Year
Credit: Science
Prerequisite: Completion of Chemistry or science teacher recommendation.
Note: For potential college athletes, this course does not meet the NCAA Division I core course requirement for Science. See counselor for details.

Students will learn to produce strong designs, become more effective problem solvers, and communicate effectively with high emotional and intellectual impact. This project-based course requires that students apply engineering, science, math, and technology to solve complex, open-ended problems in a real-world context. Students will focus on the process of defining and solving a problem, not on getting the “right” answer. In practice, rigor in process and tools must be balanced with flexibility and adaptability towards the problems they solve, so instruction focuses on teaching multiple tested, iterative design processes as well as techniques and mindsets to sharpen creative analysis. Guest lectures from all disciplines illustrate different approaches to design thinking. This course develops students’ skills to conceive, organize, lead, implement, and evaluate successful projects in any discipline.

Cultural Awareness & Collaboration

ID: 48533 Grade: 12 Length: Year
Credit: Social Studies

Cultural awareness and collaboration requires students to participate in inquiry concerning various cultures in Singapore and around the world. When encountering people from various cultures, students are expected to understand the complexity of worldviews and to practice cultural awareness. They will demonstrate these skills in research, questioning, human interactions, and advocacy. In addition, students will practice and develop skills concerning collaboration with other members of Quest, the advisors, and the members of the wider community such as professionals in the field.

Creativity & Innovation

ID: 48531 Grade: 12 Length: Year
Credit: Elective

Creativity and innovation requires that students explore individual and organizational factors that stimulate and inhibit creativity in individuals and teams. Students are expected to demonstrate their ability and willingness to take risks while developing creative solutions and products for specific purposes. Students will reflect deeply within their portfolio and be assessed for their creative thinking processes around standards of courage, ethics, openness, originality and practicality.
Critical Thinking & Reasoning

ID: 48532  Grade: 12  Length: Year
Credit: Elective

In order to receive credit in Critical Thinking and Reasoning, students are required to demonstrate their learning in explaining issues, selecting and using information to investigate a point of view or conclusion, thoroughly analyzing context and assumptions, taking a specific position and discussing the limits of position, and creating a logical conclusion based on the evidence and perspectives discussed.
FLEXIBLE LEARNING OPTIONS

SUMMER SEMESTER

The SAS Summer Semester opens a new learning option, encouraging students to extend, diversify, and accelerate learning from the academic school year. It will allow students to explore new learning paths not available through existing course offerings. The Summer Semester program focuses on the whole child and presents learning opportunities in four distinct categories: intellectual curiosity, creative expression, sports and wellness, and travel adventures and service. Students will have an opportunity to select programs from all categories.

SAS is partnering with world leaders in a variety of fields to offer leading edge programs not available elsewhere in Singapore. These partners have designed exclusive programs for the SAS Summer Semester student. In addition to an SAS Summer Semester transcript, students participating in this programs will receive a Certificate of Participation from the partnering organization.

An SAS Summer Semester transcript will become a part of the student’s official academic record. Courses that are eligible for credit will be listed on the SAS transcript as a P (pass) grade, which is similar to how credits are listed on the SAS transcript for students transferring into SAS from any other high school. Credits earned through the SAS Summer Semester could be used to fulfill SAS graduation requirements but would not be included in the calculation of a student’s SAS grade point average (GPA). A Summer Semester transcript, including the actual grades or comments, would be sent to colleges as an additional page of the SAS transcript.

SCHOOL YEAR ABROAD

SAS, in partnership with the School Year Abroad (SYA) organization, is proud to offer SAS high school students the opportunity to participate in a one-year study abroad opportunity during their junior or senior year. SAS joins a consortium of elite independent schools including, Phillips Academy Andover, Phillips Exeter, St. Paul’s School, Taft, and the American School of London in offering this program.

SYA is an independent nonprofit institution that owns and operates campuses in France, Italy, Spain, and China. SYA is the only high school study abroad program that requires students to live with a host family for an entire academic year. Our partnership with SYA allows SAS students to access their four language immersion campuses around the world for a year, while remaining SAS students.

Students apply to join SYA by completing an application on the www.sya.org website. Students must apply by the end of January to participate in the program during the next academic year, with acceptance decisions made shortly thereafter. Prior to applying, students should speak with their counselor to make certain the program will serve their needs and to review their SAS graduation credits. If accepted by SYA, tuition and fees will be paid directly to SYA. Only the SAS annual enrollment fee, which is required of all SAS students, would be required by SAS.

At the conclusion of the academic year an SYA transcript will be sent to SAS and will become a part of the student’s official academic record. The credits will be listed on to the SAS transcript as a P (pass) grade, which is similar to how credits are listed on the SAS transcript for students transferring into SAS from any other high school. Credits earned through SYA could be used to fulfill SAS graduation requirements but would not be included in the calculation of an SAS grade point average (GPA). The actual SYA transcript, including the grades earned, would be sent to colleges as a second page of the SAS transcript providing colleges and universities with a full understanding of the SYA program.
APPENDIX I: COURSE SELECTION INSTRUCTIONS

Before Requesting Courses

After reviewing the information in this guide, use the four-year planning chart in the Appendix or in Family Connection to develop a high school plan of study. Make certain that the minimum graduation requirements are fulfilled, but remember they are just that - minimum requirements. College-bound students graduate with significantly more than the minimum credits. Students should enroll a challenging academic program in which they can be successful while also having time to participate in some activities.

How to Request Courses

• For students who do not plan to return to SAS next year, please complete this process anyway. It will help us plan for new students and can help students think about courses to consider whether at SAS or a different school. Teachers and counselors are happy to answer any questions about this request process or any of the SAS courses.

• Either parents or students can login to PowerSchool and click the “Class Registration” icon to open the course selection screen. Access to this page is only available during the registration period in spring. Follow the on-screen instructions to select courses for next year.

• All students must enroll in the correct number of “credit hours.” Students going into grades 9 or 10 must have seven, and students in grades 11 or 12 must have between six and seven credits.

• Click a subject area to see the available courses. The list of available courses is based upon the courses already completed, the prerequisites that have been met, or the recommendations entered by current teachers. New students who recently joined our school and have no SAS course history may appear to be missing a prerequisite. See a counselor so that prerequisite courses can be manually added.

• PowerSchool disconnects from the server after 15 minutes of no activity. If too long has been spent choosing courses, when clicking submit the login screen will appear instead of a summary. If that happens, login again and re-enter course requests.

• Once the correct number of credits has been entered, parents agree to the choices and click “Submit”. The course requests will be displayed. Until the request period ends, students or parents can go back and review or change course requests.

Reviewing Graduation Credits

After submitting course requests and a summary of courses has been displayed, students can check graduation progress by clicking the “View Graduation Progress” hyperlink. These charts combine the credits that have been completed, are in-progress this semester, and have been requested for next year. The top graph shows progress at meeting minimum SAS graduation requirements, and the bottom one shows progress toward fulfilling typical college preparatory expectations.

While students don’t need to be concerned if PowerSchool temporarily assigned credits in a different combination than expected (e.g., Dance could be assigned to either PE or Art), each area should be fulfilled once senior courses are entered. If not, stop by the counseling office.
# APPENDIX II: COURSE LIST

## English
- World Studies 2xYR
- English 9 YR
- American Studies 2xYR
- English 10 YR
- Advanced Composition S1
- Asian Literature S1
- British Literature S1
- Literature/Imagination S1
- Read, Write, & Publish S1
- American Literature S2
- Communications S2
- 21st Century Literature S2
- Studies in Satire S2
- World Literature S2
- AP English: Language YR
- AP English: Literature YR
- AT Writing Seminar YR

## Social Studies
- World Studies 2xYR
- World History YR
- US History
- American Studies 2xYR
- US History & Govt YR
- AP US History YR
- History, Culture, Geography
- History of Malaysia/Sing S1
- AP World History YR
- AP Human Geography YR
- AP US Gov/Poltics S1
- AP Comparative Gov S2
- AT Urban Studies SM

## Business/Economics
- Economics SM
- AP Economics YR
- Adv Econ: Globalization SM
- Behavioral Econ/Game SM

## Social Studies Electives
- Psychology SM
- AP Psychology YR

## Mathematics
- Algebra IB YR
- Algebra I YR
- Geometry YR
- Algebra II/Trig YR
- Conceptual Algebra II YR
- Functions/Stats/Trig YR
- Accelerated Math I YR
- Accelerated Math II YR
- Pre-Calculus* YR
- Discrete Math YR
- AP Statistics YR
- AP Calculus AB YR
- AP Calculus BC YR
- AP Cal BC/Multivariable YR
- Multivariable Calc/Linear YR
- AT Post-Euclidean Geo S1
- AT Finite Math Modeling S2

## Science
- Life Sciences
- Biology YR
- Molecular Biology* YR
- Biotechnology SM
- Environmental Science SM
- Forensic Science SM
- Marine Biology SM
- Anatomy & Physiology SM
- Zoology SM
- AT Env Sci/Field Research YR
- AP Biology YR

## World Languages
- French: Novice YR
- French: Intermediate II YR
- French: Intermediate III YR
- French: Advanced YR
- Spanish: Novice YR
- Spanish: Intermediate YR
- Spanish: Intermediate III YR
- Spanish: Advanced YR
- AP Spanish YR

## Business
- Business SM
- Business of Sports SM
- Personal Finance SM

## Journalism
- Newspaper YR
- Yearbook YR

## Physical Education
- Capstone/Catalyst YR
- AT Entrepreneurship YR
- AT Research YR
- AT Research Catalyst YR
- SAS Catalyst Project SM
- Independent Learning SM
- Global Online Academy SM

## Visual/Performing Arts
- Art/Ceramics SM
- Ceramics I SM
- Ceramics II SM
- Printmaking SM
- Studio Art SM
- AP Art: Drawing YR
- AP Art: 2D Design YR
- AP Art: 3D Design YR

## Theater
- Stagecraft SM
- Musical Theater S2
- Improvisation SM

## Visual/Performing Arts
- Film/Photography SM
- Adv Filmmaking SM
- Digital Photography SM
- Adv Digital Photography SM

## Instrumental Music
- Concert Band YR
- Symphonic Band YR
- Wind Ensemble YR
- Jazz Improvisation S1

## Strings
- Concert Strings YR
- String Ensemble YR
- Chamber Strings YR

## Vocal Music
- Concert Choir SM/YR
- Choral Ensemble YR
- SAS Singers YR

## Music Exploratory Wheel
- Advanced Guitar SM

## Dance
- Dance I SM
- Dance II SM
- Dance III SM
- Dance Performance YR

## Advanced Option
- AT Performing Arts YR

## Health/Wellness
- Body Systems SM
- Safety/First Aid SM
- Life Balance SM
- Life Skills SM

## Learning Support
- Learning Support YR
- RLA Lab YR
- Algebra 1 Math Lab YR

## Quest
- Eng: Research/Compo YR
- AT Eng: Research/Compo YR
- Math: Data Analytics YR
- AT Math: Data Analytics YR
- Sci: Design Thinking YR
- AT Sci: Design Thinking YR
- Cultural Awareness YR
- Creativity/Innovation YR
- Critical Thinking YR

## Flexible Learning Options
- Summer Semester
- School Year Abroad
### APPENDIX III: FOUR-YEAR PLANNING CHART

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<th>Department</th>
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<th>Grade 10</th>
<th>Grade 11</th>
<th>Grade 12</th>
<th>To Graduate</th>
<th>College Recom’d</th>
<th>Total Earned</th>
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<td>English</td>
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<td></td>
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<td>4</td>
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<td></td>
<td>2</td>
<td>3-4</td>
<td></td>
</tr>
<tr>
<td>Soc Studies</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2</td>
<td>3-4</td>
<td></td>
</tr>
</tbody>
</table>

US citizens and Univ of California applicants are required to complete a US History course.

| Language    |         |          |          | Intermediate | 3-4            |              |
| V/P Arts    |         |          |          | 1           | 1              |              |

University of California requires one credit or two semesters in the same type of V/P art.

| PE          |         |          |          | 1.5         |              |              |
| Health      |         |          |          | 0.5         |              |              |

Required in 10th

Catalyst Project (Class of 2018)  
See page 6 for options

Minimum Total Credits for Graduation = 24
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