**Staten Island Technical High School**

**2020-2021 Course & Elective Guide**

<table>
<thead>
<tr>
<th>School History</th>
<th>Mission &amp; Vision Statement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Science</td>
<td>Mathematics</td>
</tr>
<tr>
<td>Career and Technology</td>
<td>Performing Arts</td>
</tr>
<tr>
<td>Social Studies</td>
<td>English</td>
</tr>
<tr>
<td>Russian</td>
<td>Health &amp; Phys Ed</td>
</tr>
</tbody>
</table>

**Staten Island Technical High School History**

Staten Island Technical High School is a New York City public high school established in 1988. Its student body is comprised of lifelong learners, innovation facilitators, contributors to the betterment of society and intellectually inquisitive young men and women. The impact of these leaders and problem solvers reaches beyond the scope of academics. They possess the skills required to positively impact the present and future challenges of the real world. Staten Island Technical High School’s student body is reflective of the diversity of the City of New York.

In September of 2005, Staten Island Technical High School was granted the status as New York City’s 7th Specialized High School by the New York City Department of Education. New York City’s Specialized High Schools are comprised of the most academically gifted and talented students.

The entire student body is comprised of 1,330 students. Staten Island Technical High School's college and career preparatory curriculum provides rich and challenging learning opportunities. Through courses and Work Based Learning experiences in Science, Technology, Engineering, Arts, Mathematics (STEAM), Humanities and Athletics, students develop a strong aptitude for real-world leadership and problem solving focusing on academics, teamwork, communication and interpersonal skills. A newly restructured, cutting edge Career Development Program, named the SITHS Guild, was formed centering on Work Based Learning experiences, entrepreneurship and internships via our new MakerSpace and Incubator program.
Curriculum, Vision & Mission Statement

Vision: Staten Island Technical High School places a high priority on academics and developing exemplary character, scholarship, service, leadership, and citizenship, while cultivating innovation through the development of 21st Century Global Skills. Our school community is committed to equity and excellence by ensuring every student has access, opportunities, supports, and interventions to achieve their greatest potential and succeed in a multicultural global society.

Mission: The SITHS community fosters the development of well-rounded, passionate learners through engaging academics and participation in student activities, athletics, service learning, cultural immersion and community service. SITHS cultivates strong collaboration, communication, creativity and critical thinking skills. We strive to instill in our students a mindset to meaningfully contribute to, and shape a 21st Century global society that values equity, excellence, and empathy.

In support of our school vision and mission, it is our pledge to:

- Support close communication between home and school that ensures greater parent/guardian involvement.
- Expose and engage students in the use of modern technologies that support the literacy and communication skills required of the 21st Century College and Career ready student.
- Provide and encourage ongoing professional development opportunities for our faculty and staff.
- Encourage and promote student involvement in local and global issues through rigorous and relevant classroom instruction, activities, clubs and experiential learning opportunities.
- Encourage lifelong fitness and health awareness.

School Administration

Mark D. Erlenwein (Merlenw@schools.nyc.gov) - Principal
Robert J. Andrews (RAndrew@schools.nyc.gov) - AP of Operations and Health & Physical Education
Dr. John Davis (JDavis41@schools.nyc.gov) - AP of Mathematics, Science and High School Admissions
Alexis Kirschbaum (AKirschbaum@schools.nyc.gov) - AP of Pupil Personnel Services, Security & College Admissions
Joseph Manzo (Jmanzo2@schools.nyc.gov) - AP of Social Studies, Technology, and Career & Technical Education
Noelle Sanguinedo (NSanguinedo@schools.nyc.gov) - AP of English, Foreign Language, Perf Arts, Music, Student Activities

Guidance & College Admissions Office

Lisa Barnett (LBarnet2@schools.nyc.gov) - Guidance Counselor, College Now Program Chair
Jessica Clark (JClark21@schools.nyc.gov) - School Social Worker
Ellen Devine (EDevine@schools.nyc.gov) - Guidance Counselor/Scholarship Coordinator
Margaret Ferrigno (MFerrigno@schools.nyc.gov) - Guidance Counselor/Special Needs Coordinator
Cathy Ecker (cecker@schools.nyc.gov) - Guidance Counselor
Liliana Leonforte (LLeonforte@schools.nyc.gov) - College Guidance Counselor
Student Directions - Completing the Course Selection Survey

- The hard deadline for the completion of this survey is **February 3, 2020**. After this date the survey will be closed and no longer accessible.
- At the onset of the **Spring Term in February 2020**, you will be scheduled to meet with your guidance counselor to review and discuss the classes that you have chosen. It is very important that the administration receive this information to help us decide how many sections of classes will be offered in the **Fall of 2020**.
- This survey must be completed only by the student through their Naviance account login information. Directions for finding the survey are as follows:

Log-in to your Naviance account.

Click on the “About Me” tab.

To the left of your screen, you will see “Surveys to Take”.

Click on “View All Surveys” in blue to expand the list fully.

**Current 10th Graders:** Click on “2020-2021 Sophomore Course Selection Survey” only.

**Current 11th Graders:** Click on “2020-2021 Junior Course Selection Survey” only.

Remember to click the “Update” button at the bottom of the screen.

**Parents/Guardians** – You are receiving this as a communication to be advised of this process. Please take the time to sit with your child and assist in their decision making. Below, within this document, you will find the Staten Island Technical High School 2020-2021 Course & Elective Guide. This Guide outlines our faculty, courses offered, along with a brief description of each course.

Advanced Placement (AP) Testing Policy:

Staten Island Technical High School encourages continued participation in the College Board’s Advanced Placement program to ensure that our students’ college applicant profile is aligned with other competitive national and international applicants.

Staten Island Tech offers 17 AP courses annually. Every student has access and is guaranteed to graduate with 2-3 AP courses via our Universal AP History initiative and in the spirit of the NYC Dept of Ed’s AP for All / Equity and Excellence initiatives. Access to the remaining 14-15 AP courses are determined using an objective merit-based selection process. Each of the 17 AP courses have a culminating exam that participating high schools worldwide administer each May. Staten Island Technical High School, fosters the expectation that all students who take an AP course will also take the corresponding AP Exam for the following reasons outlined below:

- **Earn College Credit** - Your AP score could earn you college credits before you even set foot on campus.
- **Earn Advanced Placement** - Your AP score can let you skip introductory courses in college.
- **Save Money and Time** - Earning credit / placement can enable you to graduate college early.
- **Stand Out to Colleges** - Taking AP courses and AP Exams shows colleges you’ve tackled college-level work.

*Nearly all colleges in the USA grant credit and placement for qualifying AP scores. Keep in mind that AP scores may be recognized by your initial, transfer and post graduate colleges on the journey towards your career goals.

Advanced Placement Exam Timeline & Protocols:

**Sept - Oct:** Students register for AP course(s), via College Board online portal.
- Payments due via “Total Registration” by 10/29.

**November 15th:**
- AP Exam School orders due to the College Board based upon AP Course Section Registers.
- A record will be maintained for all students who do not register and/or do not take their respective AP exam(s), which will be included and submitted in their College Admissions Applicant Profile for the Mid & Final Transcript Phases during senior year.

**May:** AP Exam Administration

**June:** In the case of students who originally registered and indicated their intent to take AP exam(s), but were not present to take the AP exam or schedule a makeup exam due to illness, notification to all colleges will be made that the student’s college applicant profile has changed.
Science

In the Science Department, all students will complete Living Environment, Chemistry and Physics before graduation. In addition to the core curriculum, students with an aptitude for science are advised (based upon academic strengths and career interest profiling) to continue their studies via Advanced Placement and College Level science courses in subjects such as Biology, Chemistry, Physics, Psychology, Environmental Science, Forensics and Biotechnology. Each subject (Core and AP) has an intensive laboratory component. This provides students with a strong hands-on experiential learning experience to complement and support classroom instruction.

Many students at Staten Island Tech have strong aspirations for careers in STEAM. Therefore, the demand for AP Science courses are often greater than the availability.

Science Courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chemistry / Lab (Physical Sciences</td>
<td>Grade 9)</td>
</tr>
<tr>
<td>Physics / Lab (Physical Sciences</td>
<td>Grade 10/11/12)</td>
</tr>
<tr>
<td>AP Biology (Grade 11/12)</td>
<td></td>
</tr>
<tr>
<td>AP Chemistry (Grade 11/12)</td>
<td></td>
</tr>
<tr>
<td>AP Physics 1 (Grade 10/11)</td>
<td></td>
</tr>
<tr>
<td>AP Physics 2 (Grade 11/12)</td>
<td></td>
</tr>
<tr>
<td>AP Physics C: Mechanics (Grade 12)</td>
<td></td>
</tr>
<tr>
<td>AP Environmental Science (Grade 11/12)</td>
<td></td>
</tr>
</tbody>
</table>

*Denotes college credits available.

Science Faculty

- Bianca Brandon
- Anthony Brunetti
- Jody Cavaliere
- Jonathan Colangelo
- Jennifer D’Anna
- John Davis
- Raymond Ferrigno
- Jodi Fertoli
- Felicia Giunta
- Eileen Labora
- Jared Jax
- Danielle Nickolauk
- Eric Olsen
- Thomas Spellacy
- Jennifer Toner

Science Course Descriptions
Chemistry / Lab (Physical Sciences | Grade 9) - The Physical Setting/Chemistry course is designed to introduce the student to a wide range of chemical applications. The main focus is on basic and fundamental principles of Chemistry. At the completion of the course, students should have a working knowledge of the basic principles of Chemistry. Included in the topics covered will be the chapters on matter and energy, atomic structure, chemical bonding, the periodic table, stoichiometry, kinetics and equilibrium, acids and bases, redox and electrochemistry, nuclear chemistry and organic chemistry. The course will begin with a basic definition of chemistry and builds upon each new principle. Due to the nature of scientific learning, each unit throughout the semester will build upon previous units and covered material. There are five lecture periods each week plus a chemistry lab that meets once a week. At the end of the course, it is expected that the student takes and passes the respective Advanced Placement examination.

Physics / Lab (Physical Sciences | Grade 10/11) - Honor's Regents Physics is a one-year course designed to provide a general understanding of the fundamental principles of physics and, at the same time, to achieve a deeper understanding of these principles. The syllabus includes five core units: Mechanics, Energy, Electricity and Magnetism, Wave Phenomena, and Modern Physics. Additional topics include Motion in a Plane, Internal Energy, Geometric Optics, and Nuclear Energy. There are five lecture periods each week plus a physics lab that meets once a week. At the end of the course, it is expected that the student takes and passes the Regents examination. For additional information please refer to the NYS Physics Core Curriculum which can be found here: http://www.p12.nysed.gov/cai/mst/pub/phycoresci.pdf

AP Biology (Grade 11/12) - AP Biology is a college level two semester introductory course in general biology. Most students who enroll in the equivalent of this course in college are usually interested in further study of biology or medicine. There is less emphasis on breadth of content coverage and more emphasis on in-depth conceptual understanding and science practices. As a result, this course requires students to spend more time on inquiry based learning of concepts and development of scientific reasoning skills such as formulating a scientific argument, analyzing case studies, designing a plan for collecting data, analyzing data, applying statistical tests, and connecting concepts across disciplines. SITHS’s goal is to engage students in learning biology so that this course becomes a positive component of their high school experience, that not only prepares them for more advanced study in biology (if they choose to pursue that) but also enriches their life. Because we emphasize USING facts about biology rather than memorizing information, SITHS hopes the teaching methods used will significantly change the way students view the world. Sometimes students will practice applying the material alone, and sometimes students will do so with members of their learning team. SITHS wants to foster an interest in biology that continues beyond the date of the final exam, prepares students to make effective choices in the voting booth, enables students to be citizens of the world, and helps them acquire skills that can be used in other endeavors. The sequence of topics is as follows: scientific inquiry, ecology and plant biology, biochemistry, energy and cells, genetics, evolution, and human anatomy and physiology. At the end of the course, it is expected that the student takes and passes the respective Advanced Placement examination.

AP Chemistry (Grade 11/12) - The AP Chemistry course provides students with a college-level foundation to support future advanced coursework in chemistry. Students cultivate their understanding of chemistry through inquiry-based laboratory investigations and classwork, as they explore topics such as: atomic structure, intermolecular forces and bonding, chemical reactions, kinetics, thermodynamics, and equilibrium. The course curriculum is compatible with Chemistry courses in colleges and universities. At the end of the course, it is expected that the student takes and passes the respective Advanced Placement examination.

AP Physics 1 (Grade 10/11/12) - AP Physics 1 is an algebra-based, introductory college-level physics course that explores topics such as Newtonian mechanics (including rotational motion); work, energy, and power; mechanical waves and sound; and introductory, simple circuits. Through inquiry-based learning, students will develop scientific critical thinking and reasoning skills. This course requires that 25 percent of the instructional
time will be spent in hands-on laboratory work, with an emphasis on inquiry- based investigations that provide students with opportunities to apply the science practices. No prior coursework in physics is necessary. Students should have completed geometry and be concurrently taking Algebra II or an equivalent course. Although the Physics 1 course includes basic use of trigonometric functions, this understanding can be gained either in the concurrent math course or in the AP Physics 1 course itself. At the end of the course, it is expected that the student takes and passes the respective Advanced Placement examination.

**AP Physics 2 (Grade 11/12)** - AP Physics 2 is an algebra-based, introductory course. Students cultivate their understanding of Physics through inquiry-based investigations as they explore these topics: fluids; thermodynamics; electrical force, field and potential; electric circuits; magnetism and electromagnetic induction; geometric and physical optics; and quantum, atomic and nuclear physics. AP Physics 2 is a full-year course that is the equivalent of a second-semester introductory college course in algebra-based physics. Prerequisite classes include AP Physics 1 and Algebra II with Trigonometry. At the end of the course, it is expected that the student takes and passes the respective Advanced Placement examination.

**AP Physics C: Mechanics (Grade 12)** - The AP Physics C Mechanics course is equivalent to a one semester, calculus-based college-level physics course. It is especially appropriate for students planning to specialize or major in physical science or engineering. The course explores topics such as kinematics; Newton’s laws of motion; work, energy and power; systems of particles and linear momentum; circular motion and rotation; and oscillations and gravitation. Introductory differential and integral calculus is used throughout the course. Prerequisite classes include Regents Physics or AP Physics 1. Co-requisite or prerequisite classes include Calculus. At the end of the course, it is expected that the student takes and passes the respective Advanced Placement examination.

**AP Environmental Science (Grade 11/12)** - This challenging course will take a global perspective to explore the status of sustainable Planet Earth. Students will examine environmental science through labs, field work, case studies, and discussion. As global citizens, students will investigate the practices and services in local, regional, national, and global spaces. First, students will investigate water use followed up with local water testing to explore the overall health of Staten Island’s waterways. Over the next few units, students will investigate the landscape and its biodiversity, discussing how biomes are changing and their impact on various species, including humans. This leads to an understanding of human population growth and its impacts on the environment, demonstrating the elasticity of the earth as well as its limitations. After identifying the consequences of our growth rate, students will determine our energy use and prioritize our energy resources in terms of economic and environmental factors. This segues into climate change – what it is, why it’s happening, its effects, and what we can do. The course will culminate in a final unit of sustainable cities, where students will discuss and create their own sustainable community based on the information gathered throughout the year. By the end of the year, each student should take away a concrete understanding of the various footprints on our planet and a plan on how to minimize it. At the end of the course, it is expected that the student takes and passes the respective Advanced Placement examination.

**AP Psychology (Grade 11/12)** - AP Psychology is the study of behavior and mental processes. The course is the equivalent of a college level introductory course in Psychology. Usually, the college class is taken over the course of one semester. For students intent on pursuing a major in psychology or neuroscience, this is a required course. For other students, the completion of this course and success on the AP Psychology Examination may serve to fulfill a social science core requirement mandated by select colleges and universities. This course is designed to help students develop invaluable skills that include the ability to present information logically via discussions and written papers as well as to carry out proper research techniques. Psychology also fosters the development of critical thinking and problem solving skills. Psychology is a discipline that is driven by terminology. It is not enough for students to be able to define the terms; they must be able to apply them to real life situations.
As such, a large part of the course is designed to focus on different case studies which allow for such application. The course also includes some lab work as well classroom demonstrations and computer simulations. The sequence of topics is as follows: Research Methods and Statistics, Neuropsychology, Sensation, Perception and States of Consciousness, Learning, Cognition, Developmental Psychology, Personality, Abnormal Psychology, Social Psychology, Motivation, Emotion and Health Psychology. At the end of the course, it is expected that the student takes and passes the respective Advanced Placement examination.

**Forensic Science** (Grade 11/12) - Forensic Science is defined as any application of scientific analysis to matters of law. It is a broad, interdisciplinary field that requires in-depth knowledge of chemistry, biology, physics, laboratory techniques, and legal procedures; as well as excellent skills in written communication, verbal communication, and computer applications. The purpose of this course is for students to gain experience in the major investigative techniques currently used by forensic scientists, crime scene investigators, and other law enforcement agencies; and to develop an understanding of the scientific concepts that serve as the basis for these techniques. Students will also familiarize themselves with the law governing evidence collection, admissibility of scientific evidence in court, search and seizure, as well as relevant portions of the New York State Penal Law. Students will improve their skills in critical thinking, scientific writing, creative writing, laboratory skills, and verbal communication. This course will require students to spend more time on inquiry-based learning of concepts and development of scientific reasoning skills. Topics will include, but are not limited to the following: overview and history of forensic science, crime scene processing, evidence examination, physical matching, impression evidence, tool marks and firearms comparisons, fingerprint analysis, trace evidence and microscopy, questioned document analysis, arson investigation, death investigation, serology, bloodstain pattern analysis, and DNA testing. Some of the topics covered in this course are disturbing in nature. Students will be discussing violent crimes as part of the normal course of study in forensic science. Please be reassured that any readings, photos, or other images used in this class are solely for the purposes of instruction. If a student thinks that an upcoming topic will cause mental or emotional distress, they are encouraged to discuss this with the course instructor PRIOR to the class. Students will be given advance notice of every topic of study, and will be “over-prepared” for any material they will see or read about. The College of St. Rose offers Criminal Justice college credits for this course.

**Biotechnology** (Grade 11/12) - In this course, students will demonstrate full understanding of the role of biotechnology in society, including the risks and benefits. They will learn the significance of biotechnology in pharmaceutical development, agriculture, forensics, genetic testing, industrial products, and scientific research. Students will also learn how a biotechnology company works, the roles of its employees, and understand how bioinformatics is used in research. Through this course, students will learn basic laboratory skills used in academic and industrial biotechnology laboratories, including best practice. Students will also learn the necessity of sterile technique and its importance in the laboratory. The College of St. Rose offers Biotechnology college credits for this course.

**Human Anatomy & Physiology (Grade 11/12)** - This course is designed to be a study of the human body for students with an interest in pursuing a career in a health-related field. Topics include anatomical structures, physiological systems, and body functions. Students will apply the principles of physiology to human health and evaluate the applications and career implications of physiology and anatomy principles

**Applied Physics (Grade 11/12)** - This is a second year high school physics course. This course is a 1 year course that will explore and apply more advanced topics in physics such as Rotational Mechanics, Astronomy and Modern Physics. You will be taking a hands on approach to learning some of these topics. You will be presented with tasks that you have to research, design and build. An example of this includes designing, building and firing small scale bottle rockets. Since this is a second year physics course and can only be taken by juniors and seniors you will be utilizing the fact that you are CAD certified and all of your designs will be constructed via CAD.
You will then take your schematics and construct the item according to the specifications. You will need to work collaboratively to complete these tasks and your interpersonal skills will be put to the test.

**Science Engineering Research Program (Grade 10/11/12)** - The SERP courses are designed to train students to conduct scientific research and compose a scientific research paper, with the ultimate goal to compete in city, state, and nationwide science fairs. This course encourages and enables students to think critically, ask questions, conduct research, determine outcomes using the scientific method, and express this information in a cogent, scientific manner. The course will consist of diverse activities meant to challenge students, enhance their problem solving capabilities, and improve written and verbal communication skills. All of this will enable students to conduct effective, solid research projects. Students enrolled in SERP are given opportunities to perform original research alongside nationally recognized leading scientists and mentors.
Career AND Technology

The Pre-Engineering Career and Technical Education (CTE) program offered at Staten Island Technical High School is consistent with its original charter and mission statement to produce graduates who are well-rounded and equipped to handle the challenges of college and career readiness through a robust STEAM curriculum. Students are given the opportunity and resources to engage in a career exploration program throughout their time at SITHS that helps them consider a multitude of career pathways, in addition to specific supports aligned to the technology and engineering fields.

All students are expected to successfully engage in a two-year course sequence focused on an introduction to engineering. S.I. Tech’s Pre-Engineering curriculum then continues with an option of continuing the program in the 11th and 12th grades; students who successfully finish the entire pre-engineering sequence will receive a special CTE Endorsed Diploma.

S.I. Tech’s philosophy has been to engage students in complex and rigorous college-level and real-world experiences which introduces them to various opportunities, college and career-wise, within the fields of Science, Technology, Engineering, Arts, and Mathematics. Some SITHS Technology / Engineering courses are required, and some are electives you may choose. SITHS’s program inspires the next generation of 21st century learners, entrepreneurs, and engineers. A major component of this initiative includes hundreds of yearly paid work-based learning experiences, and The Guild of Staten Island Tech, which is a school-based MakerSpace & Incubator program. Staten Island Technical High School also hosts the Staten Island Chamber of Commerce’s chapter of a national program called The Young Entrepreneurs Academy.

If you see * = College credits available.

If you see θ = A required course.

If you see Γ = Denotes that students who complete a specific course sequence which includes the required 9th and 10th grade courses, in addition to specific 11th and 12th grade electives, will be eligible for a special CTE Endorsed Diploma and Paid Internship Program. Those courses which are necessary for a CTE Endorsed Diploma are indicated with a gamma symbol (Γ). In addition, as a student completing the necessary components of a CTE Endorsed Diploma, you are eligible for a number of specially funded internship experiences, as long as you are eligible to work and be paid in New York City. The courses listed with a gamma symbol (Γ) give priority placement in the The SITHS / UAU Joint Employment Development Initiative, or “JEDI” Academy, which grants access to extracurricular job training and a paid SYEP internship that is not subject to the lottery. There are also a small number of paid, during the school year experiences that are available if you enroll in the Work-Based Learning Internship Course.

9th grade students: Course Descriptions Below and linked

- Intro to STEM Engineering & Robotics θΓ
- Intro to Audio/Video Engineering & TV Studio θΓ
- Introduction to Talknology and Career and Technical Education Lab θ
10th grade students: Course Descriptions Below and linked

- **Computer Aided Design (C.A.D.) / Civil Engineer and Architecture θΓ* Dual-Enrolled College Course**
- **Adv. Audio/Video Engineering & TV Studio** (this elective is offered 10,11,12 and can be taken multiple times)
- **Computer Science & Engineering** (this elective is offered 10,11,12)

11th and 12th grade students: Course Descriptions Below and linked

- **Electronics 1 Digital** (Grade 11 or 12 θ) ½ year with a focus on Digital Electronics
- **Electronics 2 Cybersecurity** (Grade 11 or 12 θ) ½ year with a focus on Networking, Cybersecurity, and Digital Tools
- **Career Financial Management & Intro to Entrepreneurship** (Grade 11 and 12 θ *) Dual-Enrolled College Course
- **Work-Based Learning Internship** (Grade 11 and 12, and can be taken multiple times)
- **Advanced Audio/Video Engineering & TV Studio** (Grade 10, 11, and 12 and can be taken multiple times)
- **Computer Science & Engineering** (Grade 10, 11, and 12)
- **Advanced Computer Aided Design (C.A.D.) / Civil Engineering and Architecture** (Grade 11 or 12)
- **AP Computer Science Principles** (Grade 11 or 12 *)
- **College Now Introduction to Film** (Grade 11 or 12 *) Dual-Enrolled College Course
- **Fundamentals of Engineering** (Grade 11 or 12 *)
- **Electronics 3 with a focus on Analog Electronics** (Grade 11 or12 )

Career and Technology Department Faculty

Joseph Manzo, Assistant Principal
- Joseph Buro
- Charles Dazzo
- Jennifer Fitzpatrick - Work Based Learning Coordinator
- Joseph Frusci
- Barry Levine
- Everton Henriques
- Jared Jax - CTE Coordinator
- Michael Van Buren
- Mark Wantowski
- Michael Whalen
Career and Technology Department: Pre-Engineering Course Curriculum Overview

9th Grade Courses

In the 9th grade, all students complete one-term courses in Intro to STEM Engineering & Robotics, Intro to Audio/Video Engineering & TV Studio, and a two-term Introduction to Technology and Careers Lab. The purpose of these foundational courses is to build basic technical / computer skills, critical thinking, writing, teamwork, collaborative problem solving / design, public speaking / presentation skills and an introduction to various engineering disciplines / careers. These courses also allow 9th graders to work in teams to gain the technical, written, and oral articulation skills necessary for effective communication amongst their peers in real world problem-based experiences. The Staten Island Technical High School 9th grade CTE sequence meets the demand of developing and enhancing the communication skills required for college, career, and academic success.

10th Grade Courses

In the 10th grade, all students complete a two-term, C.A.D./Civil Engineer & Architecture course and have options for some additional elective classes.

11th and 12th Grade Courses - all Elective

In the 11th grade there are a wide number of elective courses that students can take to further their exploration of Technology and Pre-Engineering.

Course Descriptions

Intro to STEM Engineering & Robotics (Grade 9 | 1 Term CTE Certification Class)  Required - Introduction to STEM - Engineering and Robotics (STEM) is a mandatory half-year freshman level course that introduces various applications of the math and science concepts encountered in secondary education. The major focus is to expose students to various engineering fields, the design process, research and analysis, teamwork, communication methods, engineering standards, and technical documentation. Students will develop skills and understanding of course concepts through activity, project, and problem-based (APPB) learning. Used in combination with a teaming approach, APPB-learning challenges students to continually hone their interpersonal skills, creative abilities, and understanding of the design process. It also allows students to develop strategies to enable and direct their own learning, which is the ultimate goal of education.

Beginning with an overview of the ABET approved engineering disciplines, students will learn and apply the design process through basic problems and applications of Mechanical, Materials, Civil/Architectural, and Computer/Electrical Engineering. In addition to basic building and programming using the Tetrix robotics and Arduino platforms, students can expect to encounter structural member properties, bridge/tower/cantilever building and testing, computer aided drafting, 3D modeling, technical documentation, and DIY design prototyping, spanning the core engineering disciplines. At various points in the course, students will be required to manage multiple unrelated projects at once, requiring the critical development of efficient group dynamics and proper execution of time management.
Intro to Audio/Video Engineering & TV Studio (Grade 9 | 1 Term CTE Certification Class) Required - Intro to Audio/Video Engineering & TV Studio enables students to learn the technical engineering aspects of operating the video and audio hardware and software used in both television studios and mobile-based multimedia productions within a multi-million dollar HD TV studio. Students will have an in-depth understanding of camera functionality, light-to-video conversion, microphone technologies, and video editing using Adobe Premiere. This is achieved through a process of developing skills through individual and group-based activities and practical assessments, along with learning the skills and procedures necessary to operate mobile and studio based TV and recording equipment. The skills learned in this course prepare students for future study and careers in A/V engineering, television production, and filmmaking. However, these skills are also transferrable to practical applications in any courses/careers students will encounter, as our society continues to rely less on the printed word and more on a variety of audio-video media as our means of communication in the 21st century.

Introduction to Talknology and Career and Technical Education Lab (Grade 9 | 2 Terms) Required - The goal of this course is to provide you with the technical ability, knowledge, and skills necessary to succeed in your future endeavors and prepare you for college and career readiness. We are committed to providing you with a unique experience while at Staten Island Tech, supporting each of you as you work towards building the 21st century skills needed to stand apart in this competitive market. In order to achieve this, the Introduction to Talknology and Career and Technical Education Lab course is focused on applying a high tech, low tech, and no tech exploration of:

- Acquiring and accurately using protocols for effective communication in oral, written, and multimedia/digital formats
- Examining multiple sources of career information from diverse formats to make informed career decisions and manage personal career plans
- Analyzing existing and emerging computer technologies to research and explore the global impacts to industry and the comprehensive job market
- Developing the key 'soft skills' needed for workplace success
- Understanding how an individual's digital media presence is used by potential employers and post-secondary agencies to evaluate candidates.
- Exploring work-based learning opportunities to demonstrate and expand upon knowledge and skills gained during classroom instruction.
- Students will develop the skills needed to transition from the classroom to the workplace; these competencies include core academic and technical knowledge, employability skills, and job specific training.

The skills learned in this class can be applied broadly as you progress throughout both your educational and professional careers. This course will also encourage collaboration and teamwork with your peers and with your growing network, promoting the inclusion of divergent and creative perspectives. An emphasis will be placed throughout the entire course on the 21st century learning skills and relevance of a concept called Oracy. Oracy is a recently developed curriculum designed to provide students with the opportunity to learn effective communication techniques - verbal, non-verbal, and written - that can be applied as they progress throughout their educational and professional careers. The purpose of this new course will be to prepare students for social interactions, workplace readiness, and life. Using the tools developed by School 21 in England, and through the incorporation of Work Based Learning practices and the HOPE Skills, students are given the chance to develop the necessary soft skills and speaking skills necessary for success in any industry. Through use of the Oracy toolkit and talk protocols, students will “learn to talk” and “talk to learn”.

Staten Island Technical High School, 485 Clawson Street, Staten Island, New York 10306
T: (718) 667-3222 F: (718) 668-3095
C.A.D./Civil Engineer & Architecture (Grade 10 | 2 Terms CTE Certification Class, College Credits Available) **Required** - This pre-engineering course teaches students to design residential and commercial architectural drawings, as well as 3D parts, according to industry standards. Students create working 3D digital models using rapid prototyping lab equipment. Students use professional, industry-standard programs to become proficient in designing, drawing, and prototyping in 2D and 3D with perfect precision. Students also learn how to analyze Computer Aided Design (C.A.D.) drafts for the purpose of interpretation and documentation of such drawings, and to develop skills in creative thinking, scope and design, and decision-making strategies for addressing higher level problem solving. A successful C.A.D. user can work efficiently with no errors, and infuse balanced and creative design strategies to satisfy cost, usability, durability, and aesthetics in the final design. Students primarily utilize the Autodesk software (AutoCAD, Inventor, and Revit). Autodesk leads the industry globally in professional and educational C.A.D. and allows us to create a project-based, as well as a standards-based, cross-discipline learning experience. The American Institute of Architects (AIA), our industry partner, has certified that this class meets industry standards by teaching spatial proportions and orientation of the job site, integration of green and sustainable design, ADA compliance, and assembling of construction details.

The first term focuses on the most widely and long standing used C.A.D. software, AutoCAD. At the end of the first term, all students become industry certified in AutoCAD through Certiport, the only globally accepted program. The second term focuses on 3D driven perspective with Revit, Inventor, 3D Studio Max, and AutoCAD.

- **Exam Description:** Autodesk AutoCAD® Certified User exam is taken through Certiport, which aligns both academic and industry requirements into one attainable certification specifically designed for students. The exam combines multiple-choice and performance-based exam questions to ensure students can effectively use Autodesk software. Autodesk Certified User certification confirms students have the skills necessary to continue their design careers—whether they attend college, enter the workforce, or work toward additional levels of industry certification after graduation.

- **Articulation Agreement:** Students who complete this course, and pass the certification exam are eligible for 2 undergraduate course credits through the City University of New York (CUNY) College of Staten Island in Engineering 110.

**Computer Science & Engineering (Grade 10, 11, and 12 | 2 Terms and can be taken multiple times)**

**Elective - Application Required.** In computer science and engineering, students will learn how to build fully functioning modern web pages utilizing industry-standard techniques in HTML, SCSS, Javascript and Git. Students interested in computer science will find an interesting entry point while slightly more experienced students will learn new languages and have the opportunity to gain valuable skills such as reusable code and DRY code. The class is also a stepping stone to Mr. Whalen’s AP Computer Science Principles Course which focuses on Full-Stack Applications using Node JS and MongoDB. The class explores C++ via Arduino and how to utilize Adobe Photoshop as a tool in Web Development. Students utilize the MakerSpace to learn soldering and basic electronics skills. The class also builds a network of student support staff members for the school and students in this course troubleshoot classroom teachers, as well as student issues. The class could also potentially provide opportunities for paid internships alongside Mr. Whalen and with community businesses. This class is a great intro to computer engineering and computer programming. This class requires an application.
Adv. Audio/Video Engineering & TV Studio (Grade 10,11,12 | 2 Terms and can be taken multiple times)

Elective - Application Required. Adv. Audio/Video Engineering & TV Studio allows students to develop the skills introduced in the freshman year course in much greater depth and apply them to a number of video projects. Most of the projects will be completed in small groups, but the major project in Adv. Audio/Video Engineering & TV Studio is the production of a bi-weekly news program that combines both studio and mobile production at a much more technically complex level and is a collaborative effort of the entire class. Students will also cultivate various job skills such as time management, interpersonal communication, and collaboration as they work with their peers to continually create this program throughout the year. Students electing to take the course a second time will take on leadership/producer roles on the news show, as well as produce a short film that will serve as a culminating capstone project. This class requires an application and can be taken in lieu of C.A.D. in the 10th grade. If the student did not take this course in the 10th grade, they can take it for the first time in the 12th grade.

Students who excel in this class and wish to take it for a second time, may do so again at a more advanced level and are eligible to apply for a special section called AV Engineering Practicum. This full-year course is open to juniors and seniors who can apply after completing Advanced AV Engineering. In this version of the course, students will put their AV engineering / video production skills into practice. The students in this class will be responsible for the production and broadcast of a daily 5-minute news program, covering the full spectrum of news, events, and announcements of relevance to the entire SI Tech community. This demanding undertaking will draw on all the skills and talents that students have developed in Intro and Advanced AV Engineering, as they will now be the engineers utilizing the technology in the school’s professional-grade television studio.

Students will play different roles in each marking period. During two of the marking periods they will be performing a studio job and during the other two marking periods they will produce additional content for the show, which will most commonly be in the form of field packages such as news stories or profiles. Prior to the start of the course, students will be surveyed to determine their preferences and this will be one factor in the assignment of jobs.

A majority of the seats will be for students interested in production positions (ex. Director, camera operator). The remaining seats will be for students interested in on-air talent positions (ex. host, reporter).

Electronics 1 with a focus on Digital Electronics (Grade 11 or 12 | 1 Term, but must take Electronics 2 if this elective is chosen) CTE Certification Class Elective - Enrolling in this course continues you on your goal in earning an additional CTE endorsed High School Diploma and gives you (as long as you are eligible to work in New York City) priority placement in the The SITHS / UAU Joint Employment Development Initiative, or “JEDI” Academy (which grants access to extracurricular job training and a paid SYEP internship that is not subject to the lottery). The Digital Electronics course is one of three electronics courses offered at Staten Island Technical High School. Students will study theoretical concepts of a digital components and circuitry, and then reinforce it in the lab setting by using National Instruments “Multisim 11” software. The following topics will be covered:

- Number Systems: Binary, Hex, and Octal.
- Boolean Algebra – Algebraic, Standard, Canonical, and Karnaugh Forms of Boolean Functions.
- Optimization of Boolean Functions. two through five variables functions simplification using K-Map Method.
- Optimizing circuits for cost, speed, and size.
- MSI (Medium Scale Integration) and PLD’s ( Programmable Logic Devices)
- The following components will be covered: Adders, Multiplexers, ROM’s, Programmable Logic Arrays (PLA), and Programmable Array Logic (PAL).
- Synchronous Sequential Logic (Memory Elements) – JK, D, T, and RS Flip-Flops.
Electronics 2 with a focus on Cybersecurity, Networking, and Digital Tools (Grade 11 or 12 | 1 Term, but must take Electronics 1 if this elective is chosen) CTE Certification Class Elective - Enrolling in this course continues you on your goal in earning an additional CTE endorsed High School Diploma and gives you (as long as you are eligible to work in New York City) priority placement in the The SITHS / UAU Joint Employment Development Initiative, or “JEDI” Academy (which grants access to extracurricular job training and a lottery free SYEP paid internship). Digital and electronic telecommunication networks are a critical component of the global economic and social infrastructures. This course serves as a theoretical and practical approach to computer network and Web security, attack methods, and algorithms for defending computers and computer networks in a digital and electronic environment. In addition, this course examines the field of secure telecommunications networks. Students analyze cyber attacks as case studies, learn about major security threats, methods and technologies used, and how threats affect the development and functioning of computer software and hardware. This includes electronic networking equipment, such as switches, hubs, access points, and routers. Students will use various tools and methods to create and implement canary tokens, conduct penetration testing, packet sniffing, firewall rules and management, as well as other ethical hacking methods in an electronic and digital environment.

Career and Financial Management & Introduction to Entrepreneurship (Grade 11 or 12 | 2 Terms CTE Certification Class, College Credits Available) Elective - Enrolling in this course continues you on your goal in earning an additional CTE endorsed High School Diploma and gives you (as long as you are eligible to work in New York City) priority placement in the The SITHS / UAU Joint Employment Development Initiative, or “JEDI” Academy (which grants access to extracurricular job training and a paid SYEP internship that is not subject to the lottery). The Career and Financial Management Course is given as a dual initiative through the University of Iowa BizInnoverator program and STEM Innovator Program, which is the entrepreneurship curriculum toolkit that enables educators to teach the "entrepreneurial mindset" by encouraging creativity, innovation, critical thinking, and problem-solving - and also equipping students with the skills necessary to succeed and excel. Students earn 3 college credits from the University of Iowa after completing this course. This program blends the traditional topics covered in Career Financial Mgmt & Entrepreneurship curriculum to learn about the features of our economy, explore a variety of careers, learn the skills and competencies needed for success in the workplace and to begin to become financially literate, through a myriad of tasks and activities which invoke real-world finance and economic scenarios involved in achieving solutions.

Fundamentals of Engineering (Grade 11 or 12 | Pending budget and demand / teacher availability, this new course will be either 2 terms, or 1 term paired with a term of Electronics 3 (no electronics prerequisite.) Application Required. Elective - Application Required. Fundamentals of Engineering (FE) is an upper level high school survey course intended to expose students to the principles and concepts encountered in a postsecondary engineering course of study. Students employ engineering and scientific concepts in the solution of engineering design problems. They develop problem-solving skills and apply their knowledge of research and design to create solutions to various challenges, documenting their work and communicating solutions to peers and members of the professional community. Students will further advance their computer aided design (C.A.D.) and building skills, developed in the prerequisite Intro to STEM Engineering & Robotics course, via hands-on applications that utilize Autodesk Inventor Professional and the TETRIX Robotics platform to produce viable design solutions to any associated problems. Students can expect to survey mechanical, civil, architectural, environmental, electrical, computer, aeronautical, aerospace, and industrial engineering fields throughout the following core interdisciplinary units:

<table>
<thead>
<tr>
<th>Energy and Power</th>
<th>Aerospace Design</th>
</tr>
</thead>
<tbody>
<tr>
<td>Materials and Structures</td>
<td>Statistics, Databases, and Kinematics</td>
</tr>
<tr>
<td>Control Systems</td>
<td>Engineering Capstone</td>
</tr>
</tbody>
</table>
Both versions of AP CS Principles culminate in an AP exam. Students may take a second level of C.A.D. in which they may choose a discipline for further study. Each discipline is project driven, meaning that exploration of new techniques and programs will occur as new projects are examined. There will be components of teamwork and presentation involved during the course of the year. See below for the areas of focus students may choose to explore.

**Focus: Green Architecture and Sustainable Design**: Students study sustainable design components such as green spaces, solar panels, geothermal, wind turbines, etc. Students also study industry standard methods of sustainable design construction certification, such as LEED for the United States. Projects push students to be creative in design while incorporating green technology, cost, aesthetics, and feasibility. Students use Revit Architecture, AutoCAD, and any other software they choose to complete their tasks.

**Focus: Biomedical Engineering**: An exploration of anything in the medical field that requires or benefits from using C.A.D. software to design the device or procedure. Examples include surgical tools, artificial and biological heart valves, a pacemaker, and prosthetic body parts. Another project includes modeling a custom plate to repair the skull of a person whom underwent brain surgery and required a craniotomy. Real field data is used in all calculations. SITHS 3D printers and laser cutter assist in producing student solutions for evaluation. Students use Inventor and AutoCAD, as well as any other software they choose to complete their tasks.

**Focus: Independent Study**: If a student has a desire to pursue extensive depth in a more specific area where C.A.D. is used, they may present to the instructor a plan to deviate from a normal Advanced C.A.D. focus.

**Focus: 3D Media and CGI**: Coming Soon

Advanced Placement Computer Science Principles Courses (Grade 11 or 12 | 2 Terms) Elective - Application Required.

**Version Python**: The Advanced Placement Computer Science Principles course centers on the python programming language and provides an introduction to the basic principles of computer science (CS).

The lessons and materials used by students incorporate programming while also integrating all other AP CSP big ideas: creativity, abstraction, data and information, algorithms, the internet and global impact. The curriculum engages students and supports the development of problem solving skills honing in on the computational thinking practices as indicated in the AP CSP curriculum framework. Students learn to create socially useful computational artifacts using Python.

The curriculum also emphasizes communication and collaboration in a project-based approach and classroom environment. This course involves a strong writing component. Students will maintain a portfolio of their work, which will include several performance tasks in the areas of programming and the impact of computing technology.

[https://apstudent.collegeboard.org/apcourse/ap-computer-science-principles](https://apstudent.collegeboard.org/apcourse/ap-computer-science-principles)

Both versions of AP CS Principles culminate in an AP exam.
**Version JavaScript:** For students who are interested in this class and have already taken Computer Science and Engineering with Mr. Whalen prior, you may be selected for a special section of the AP CS Principles course which has been designed to help you further your studies. This course is a rigorous project-based curriculum centered around building skills desired in the industry. Students will continue to learn key front-end development concepts in JavaScript while building a GitHub portfolio of web-based projects. Students will then transition to learning NodeJS, MongoDB with Mongoose and Authentication with JWT/Passport JS to build full-stack applications in teams. The skills in this course are directly transferable to other programming languages.

The curriculum also emphasizes communication and collaboration in a project-based approach and classroom environment. This course involves a strong writing component. Students will maintain a portfolio of their work, which will include several performance tasks in the areas of programming and the impact of computing technology.

https://apstudent.collegeboard.org/apcourse/ap-computer-science-principles

Both versions of AP CS Principles culminate in an AP exam.

**Work-Based Learning Internship (Grade 11, 12 | 2 terms) Elective - Application Required.**

The SITHS Career Development Center “CDC” has established multiple partnerships and funding sources to offer employment and paid or unpaid internship opportunities to hundreds of SITHS students. This internship course is an elective class. It is designed so that students can leave school early to accommodate the needs of the position. The job must meet eligibility requirements. This “offsite” course will combine a number of in-class meetings with the hours worked in the internship to satisfy the course total requirements that all students must have.

- The Work-Based Learning Internship course meets in school, usually once a week, during 9th period.
- The rest of the week, you will have period 9 free to work your Work-Based Learning/Internship opportunity.
- If you register for this course, you are expected to secure an internship that is in alignment with NYC Department of Education regulations and NYS Labor Laws. These will be elaborated in the class.
- Both paid and unpaid experiences can be eligible.
  - Paid experiences can originate with SITHS CDC funding sources, or with external businesses or programs that fund your position.
  - Unpaid experiences, such as certain community service positions or special programs like ACE Mentorship, can be eligible.
- All work-based learning experiences must be approved by the Work Based Learning Coordinator and the Career Development Center.

The in-class portion of the course will instruct and challenge students on refining their professional skills and prepare them to work with SITHS business partners and local businesses throughout New York City. This course will support students as they understand the resources needed for finding a job, explore career paths that align with their interests and strengths, and support them with professional development while working in an internship.

**Students who are interested in the architecture/engineering fields have a higher percentage opportunity of obtaining a paid internship (sponsored by the SITHS CDC) with Designer’s Edge, a nationally recognized architecture survey firm.**

Students who have questions about this unique course option should come to the SITHS Career Development Center in room 139 for further information. If you have a company you are working with now or over the summer, that was not directly arranged for you by the SITHS CDC, please come to the CDC office to let us know.
Electronics 3 with a focus on Analog Electronics (Grade 11 or 12) | Pending budget and demand / teacher availability, this new course will be either 2 terms, or 1 term paired with a term of Fundamentals of Engineering (no electronics prerequisite.) **Elective** - Students will gain core knowledge and applications of principles representative of the various fields of study within the Engineering industry. The Electronics two-term curriculum will enable students to explore various aspects of circuit theory with direct current. This includes analysis of various types of circuits using resistors and is complemented with the use of virtual lab activities that reinforce what students learn. The second term curriculum builds on previous knowledge of circuit theory to explore the effects of components such as inductors and capacitors. This leads into basic understanding of radio circuits in communications. The use of National Instruments “Multisim 11” lab software activities enhances and reinforces this instruction.

**College Now: Introduction to Film (Grade 11, 12 | 1 Term) Elective** - This class is a CSI course which occurs after the school day once a week. Intro to Film is an introduction to the terms and methods of film analysis. Students will learn to "read" a movie by learning how to speak the language of film. Each week, a film will be viewed in class in order to illustrate a different topic, including cinematography, editing, sound, narrative, genre, and ideology.
Mathematics

All students take 4 years of Mathematics, including Algebra 1, Geometry, Algebra 2/Trigonometry and Precalculus.
- All 12th graders take Multivariable Calculus, AP Calculus BC, AP Calculus AB or Non-AP Calculus.

Mathematics Courses
- Algebra I (Grade 9)
- Geometry (Grade 9/10)
- Algebra II: Trig (Grade 10/11)
- PreCalculus (Grade 11/12)
- AP Calculus AB (Grade 11/12)
- AP Calculus BC (Grade 11/12)
- Multivariable Calculus (Grade 12)
- Math Team (Grade 9-12)

Mathematics Faculty
- Lisa Asher
- Jill Bergstrom
- Kevin Chester
- Peter Dellegrazie
- Georgia Koutsovasilis

- Kaitlyn Lang
- Stephanie Partnow
- Christina Polizzi
- Lisa Ravitz
- Humphrey Scavo

Mathematics Course Descriptions

Algebra I (Common Core: Grade 9) - Algebra 1 is the first course offered in high school Mathematics. Most students who come to Staten Island Technical High School will have already taken Algebra 1 in their Middle School and have successfully passed the NYS Regents Exam for the course. It is the responsibility of the student and parent to confirm that the middle school properly documents both the course and test grade on their official transcript prior to the start of the school year. Students lacking the documentation will automatically be programmed for Algebra 1. The Algebra 1 course set forth here is not the algebra of 30 years ago. The focal point of this course is the algebra content strand. Algebra provides tools and ways of thinking that are necessary for solving problems in a wide variety of disciplines, such as science, business, social sciences, fine arts, and technology. This course will assist students in developing skills and processes to be applied using a variety of techniques to successfully solve problems in a variety of settings. Problem situations may result in all types of linear equations in one variable, quadratic functions with integral coefficients and roots as well as absolute value and exponential functions. Coordinate geometry will be integrated into the investigation of these functions allowing students to make connections between their analytical and geometrical representations. Problem situations resulting in systems of equations will also be presented. Alternative solution methods should be given equal value within the strategies used for problem solving. For example, a matrix solution to a system of equations is just as valid as a graphical solution or an algebraic algorithm such as elimination. Measurement within a problem-solving context will include calculating rates using appropriate units and converting within measurement systems. Data analysis including measures of central tendency and visual representations of data will be studied. An understanding of correlation and causation will be developed and reasonable lines of best fit will be used to make predictions. Students will solve problem situations requiring right triangle trigonometry. Elementary probability theory will be used to determine the probability of events including independent, dependent and mutually exclusive events. Students will sit for a NYS Regents Examination at the end of this course. The use of a personal tablet computer is fully integrated in class. Students will have access to online textbooks as well other digital resources.
Geometry (Common Core: Grade 9/10) - Geometry is intended to be the second course in mathematics for high school students. There is no other school mathematics course that offers students the opportunity to act as mathematicians. Within this course, students will have the opportunity to make conjectures about geometric situations and prove in a variety of ways, both formal and informal, that their conclusion follows logically from their hypothesis. This course is meant to employ an integrated approach to the study of geometric relationships. Integrating synthetic, transformational, and coordinate approaches to geometry, students will justify geometric relationships and properties of geometric figures. Congruence and similarity of triangles will be established using appropriate theorems. Transformations including rotations, reflections, translations, and glide reflections and coordinate geometry will be used to establish and verify geometric relationships. A major emphasis of this course is to allow students to investigate geometric situations. Properties of triangles, quadrilaterals, and circles should receive particular attention. It is intended that students will use the traditional tools of compass and straightedge as well as dynamic geometry software that models these tools more efficiently and accurately, to assist in these investigations. Geometry is meant to lead students to an understanding that reasoning and proof are fundamental aspects of mathematics and something that sets it apart from the other sciences. Students will sit for a NYS Regents Examination at the end of this course.

Algebra II: Trigonometry (Common Core: Grade 10/11) - Algebra 2 is the capstone course of the three units of credit required for a Regents diploma. This course is a continuation and extension of the two courses that preceded it. While developing the algebraic techniques that will be required of those students that continue their study of mathematics, this course is also intended to continue developing alternative solution strategies and algorithms. For example, technology can provide to many students the means to address a problem situation to which they might not otherwise have access. Within this course, the number system will be extended to include imaginary and complex numbers. The families of functions to be studied will include polynomial, absolute value, radical, trigonometric, exponential, and logarithmic functions. Problem situations involving direct and indirect variation will be solved. Problems resulting in systems of equations will be solved graphically and algebraically. Algebraic techniques will be developed to facilitate rewriting mathematical expressions into multiple equivalent forms. Data analysis will be extended to include measures of dispersion and the analysis of regression that model functions studied throughout this course. Associated correlation coefficients will be determined, using technology tools and interpreted as a measure of strength of the relationship. Arithmetic and geometric sequences will be expressed in multiple forms, and arithmetic and geometric series will be evaluated. Binomial experiments will provide the basis for the study of probability theory and the normal probability distribution will be analyzed and used as an approximation for these binomial experiments. Right triangle trigonometry will be expanded to include the investigation of circular functions. Problem situations requiring the use of trigonometric equations and identities will also be investigated. Students will sit for a NYS Regents Examination at the end of this course.

PreCalculus (Grade 11/12) - The Precalculus Course is designed to better prepare our students for Advanced Placement Calculus courses. We have enhanced the standard precalculus course with additional and extended topics. The additional materials include more proofs and justifications for selected methods, further examples of applications for some topics, extensions of some methods to cover more cases, explanations of the connections between various topics, alternative methods of solving some problems and some new topics with an emphasis on building the reasoning skills for calculus.

Senior Calculus (Grade 11/12) - The goal of this class is to give students who did not qualify to take the Advanced Placement Calculus Course, a "taste" of Calculus. The course will better prepare students for Calculus 1 and 2 in college. The class follows the same outline as AP Calculus AB, but it moves at a slower pace since there is no rush to finish for the AP Exam. Most of the material in the course outline will be covered.
Students should be able to work with functions represented in a variety of ways: graphical, numerical, analytic, or verbal. They should understand the connections among these representations.

Students should understand the meaning of the derivative in terms of a rate of change and local linear approximation, and should be able to use derivatives to solve a variety of problems.

Students should understand the meaning of the definite integral both as a limit of Riemann sums and as the net accumulation of change, and should be able to use integrals to solve a variety of problems.

Students should understand the relationship between the derivative and the definite integral as expressed in both parts of the Fundamental Theorem of Calculus.

Students should be able to communicate mathematics and explain solutions to problems both verbally and in written sentences.

Students should be able to model a written description of a physical situation with a function, a differential equation, or an integral.

Students should be able to use technology to help solve problems, experiment, interpret results, and support conclusions.

Students should be able to determine the reasonableness of solutions, including sign, size, relative accuracy, and units of measurement.

Students should develop an appreciation of calculus.

AP Calculus AB (Grade 11/12) - AP Calculus AB is roughly equivalent to a first semester college calculus course devoted to topics in differential and integral calculus. The AP course covers topics in these areas, including concepts and skills of limits, derivatives, definite integrals, and the Fundamental Theorem of Calculus. The course teaches students to approach calculus concepts and problems when they are represented graphically, numerically, analytically, and verbally, and to make connections amongst these representations. Students learn how to use technology to help solve problems, experiment, interpret results, and support conclusions. At the end of the course it is expected that the student takes and passes the respective Advanced Placement examination.

Course Objectives

Students should be able to work with functions represented in a variety of ways: graphical, numerical, analytic, or verbal. They should understand the connections among these representations.

Students should understand the meaning of the derivative in terms of a rate of change and local linear approximation, and should be able to use derivatives to solve a variety of problems.

Students should understand the meaning of the definite integral both as a limit of Riemann sums and as the net accumulation of change, and should be able to use integrals to solve a variety of problems.

Students should understand the relationship between the derivative and the definite integral as expressed in both parts of the Fundamental Theorem of Calculus.

Students should be able to communicate mathematics and explain solutions to problems both verbally and in written sentences.

Students should be able to model a written description of a physical situation with a function, a differential equation, or an integral.

Students should be able to use technology to help solve problems, experiment, interpret results, and support conclusions.

Students should be able to determine the reasonableness of solutions, including sign, size, relative accuracy, and units of measurement.

Students should develop an appreciation of calculus.
AP Calculus BC (Grade 11/12) - AP Calculus BC is roughly equivalent to both first and second semester college calculus courses and extends the content learned in AB to different types of equations and introduces the topic of sequences and series. This course covers topics in differential and integral calculus, including concepts and skills of limits, derivatives, definite integrals, the Fundamental Theorem of Calculus, and series. You will learn how to approach calculus concepts and problems when they are represented graphically, numerically, analytically, and verbally, and to make connections amongst these representations. You will also learn how to use technology to help solve problems, experiment, interpret results, and support conclusions. At the end of the course it is expected that the student takes and passes the respective Advanced Placement examination.

Course Objectives

- Students should be able to work with functions represented in a variety of ways: graphical, numerical, analytic, or verbal. They should understand the connections among these representations.
- Students should understand the meaning of the derivative in terms of a rate of change and local linear approximation, and should be able to use derivatives to solve a variety of problems.
- Students should understand the meaning of the definite integral both as a limit of Riemann sums and as the net accumulation of change, and should be able to use integrals to solve a variety of problems.
- Students should understand the relationship between the derivative and the definite integral as expressed in both parts of the Fundamental Theorem of Calculus.
- Students should be able to communicate mathematics and explain solutions to problems both verbally and in written sentences.
- Students should be able to model a written description of a physical situation with a function, a differential equation, or an integral.
- Students should be able to use technology to help solve problems, experiment, interpret results, and support conclusions.
- Students should be able to determine the reasonableness of solutions, including sign, size, relative accuracy, and units of measurement.
- Students should develop an appreciation of calculus.

Multivariable Calculus (Grade 12) - In this course, students will extend what was learned in Advanced Placement Calculus BC and learn about the subtleties, applications, and beauty of limits, continuity, differentiation, and integration in higher dimensions. This course covers vector and multivariable calculus. Topics include vectors in Euclidean space, vector analysis, analytic geometry of three dimensions, curves in space, partial derivatives, optimization techniques, multiple integrals, line integrals and surface integrals, vector fields, Green’s theorem, Divergence theorem and Stokes' theorem.

Math Team (Grade 9-12) - The Math Team is a place where all students who enjoy math come together. Students discuss and learn various areas of math, from elementary to very advanced, college level mathematics. Every meeting is filled with rich topics for discussion in various areas of mathematics. Topics will range from history, philosophy, and math education to the discussion and study of particular areas of math. Students problem solve for both remedial and advanced areas of mathematics. Problem solving sessions can range from subjects like high school algebra and geometry to college level courses such as calculus, statistics, analysis, abstract algebra, and much more. Some of the subjects covered in the Math Team are: Abstract Algebra, Real Analysis, Complex Analysis, Number Theory, Topology, Combinatorics, Probability, Linear Algebra, Differential Equations, Advanced Euclidean Geometry, Mathematics Education. The Math Team is also a great opportunity to meet other fellow math enthusiasts, as well as to make friends and to socialize. Math Team is elective and meets 2-3 times a
week during lunch periods. The team also participates in New York City Interscholastic Math League (NYCIML), the New York Mathematics League (NYML), and American Mathematics Competitions (AMC).
English

Students learn to appreciate all aspects of Literature and the elements of higher level writing for the real-world. Fiction and Non-Fiction works are studied and aligned to the Social Studies curriculum scope and sequence, along the historical periods in which students are exploring.

- All 9th graders take a one-term Intensive Writing Program, focusing on English Rhetoric and Communication skills that transcend the classroom and become effective, practical and required tools in the real-world.
- All 11th and 12th graders have access to AP, Dual-Enrollment and College Level English courses and electives.

English Courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>English 1 &amp; 2 (Common Core: Grade 9)</td>
<td></td>
</tr>
<tr>
<td>English 3 &amp; 4 (Common Core: Grade 10)</td>
<td></td>
</tr>
<tr>
<td>English 5 &amp; 6 (Common Core: Grade 11)</td>
<td></td>
</tr>
<tr>
<td>AP English Language &amp; Composition (Grade 11)</td>
<td></td>
</tr>
<tr>
<td>AP English Literature &amp; Composition (Grade 12)</td>
<td></td>
</tr>
<tr>
<td>Modern Mythology: Gods &amp; Monsters (Grade 12)</td>
<td></td>
</tr>
<tr>
<td>Creative Writing* (Grade 12)</td>
<td></td>
</tr>
<tr>
<td>Journalism (Grade 12)</td>
<td></td>
</tr>
<tr>
<td>Public Speaking (Grade 12)</td>
<td></td>
</tr>
<tr>
<td>Unheard Voices (NEW 2020)</td>
<td></td>
</tr>
</tbody>
</table>

*Denotes college credits available

English Faculty

- Katherine Callan
- Jody Cavaliere
- Kristen Fusaro
- Diane Federico
- Amanda Lane
- Dorothy Mannino
- Yevgenya Michan
- Patrick Misciagna
- Elizabeth Murphy
- Noelle Sanguinedo
- Thomas Terrusa

English Core Curriculum Overview:

**English 1-2 (Common Core):** All 9th graders take a one-term Intensive Writing Program, focusing on English Rhetoric and Communication skills that transcend the classroom and become effective, practical and required tools in the real-world, the alternate term compliments the Writing Program with Literature and Language Arts skills to build readers and craft writers.

**English 3-4 (Common Core):** In Sophomore year of English at Staten Island Technical High School, students are challenged to deepen their writing voice and use critical reading as intellectual inquiry. Students explore various themes, literary structures, and writing techniques to develop skills in narration, persuasion, argument, and reflection. Through the critical analysis of numerous literary works, students receive a model for various modes of writing, as well as critical, thoughtful, analytical questioning, preparing them for the deeper study of rhetorical structures in the Junior year.

**English 5-6 (Common Core):** In Junior year, students follow the American journey through works of literature that reflect our history. Students track the paranoia of the Puritans, the wisdom of the founding fathers, and the beauty of the transcendentalists. Students read classic and contemporary texts that challenge and celebrate American virtues of liberty, justice and happiness. Along the way, students consider their own identity and notions of what it means to be an American. The course is designed to help students improve skills in critical reading and
critical thinking. There is also a focus on the craft of composition and skills required for the SAT examination, the English Common Core Regents and writing products that meet the ELA Common Core State Standards.

**English Course Descriptions**

**English 1 & 2 (Grade 9)** - The initial steps examine the ancient meaning of journey. Students will read literature that spans Greek and Roman history, from mythical monsters to modern science fiction, interpreting and defining the archetype of the hero and the hero’s journey. As students consider the plight of ordinary and epic characters, they will respond to their trials, their tests, and their human and heroic qualities incorporating the lessons taught to us into their own trials and tests of the adventure called high school. This course is designed to help students improve skills in critical reading and critical thinking. The course will also focus on the craft of composition and skills required for the SAT examination, the English Common Core Regents and writing products that meet the ELA Common Core State Standards.

- All 9th graders take a one-term Intensive Writing Program, focusing on English Rhetoric and Communication skills that transcend the classroom and become effective, practical and required tools in the real-world, the alternate term compliments the Writing Program with Literature and Language Arts skills to build readers and craft writers.

**English 3 & 4 (Grade 10)** - The fiction of the Sophomore year presents the idea that the world can be a dark place—a treacherous, dehumanizing, lawless and unjust place where dystopia prevails, civilization crumbles, apathy reigns and evil exists for its own sake. Fortunately, we are also presented with remarkable protagonists—our rebels with a cause—for whom comfort isn’t an option if it means living a life void of passion and truth. As each student continues on their journey through high school, it is SITHS’s hope that students will see their own struggles and victories reflected in these protagonists, and that students will always recognize the light of courage, morality and humanity, even in the confines of a dark world.

In Sophomore year of English at Staten Island Technical High School, students are challenged to deepen their writing voice and use critical reading as intellectual inquiry. Students explore various themes, literary structures, and writing techniques to develop skills in narration, persuasion, argument, and reflection. Through the critical analysis of numerous literary works, students receive a model for various modes of writing, as well as critical, thoughtful, analytical questioning, preparing them for the deeper study of rhetorical structures in the Junior year.

**English 5 & 6 (Grade 11)** - Ever since settlers first landed on these shores, the American story has been a tug of war between individualism and communalism, dependence and independence, money and morality. In junior year, students will follow the American journey through works of literature that reflect our history. Students will track the paranoia of the Puritans, the wisdom of the founding fathers, and the beauty of the transcendentalists. They will read classic and contemporary texts that challenge and celebrate American virtues of liberty, justice and happiness.

Along the way, students will consider their own identity and notions of what it means to be an American. This course is designed to help students improve skills in critical reading and critical thinking. The course will also focus on the craft of composition and skills required for the SAT examination, the English Common Core Regents and writing products that meet the ELA Common Core State Standards.

- All 11th and 12th graders have access to AP, Dual-Enrollment and College Level English courses and electives.
AP English Language & Composition (Grade 11) - The Advanced Placement Language and Composition class is a full year section that will take a detailed look at the art of writing and rhetoric. Through both fictional and non-fictional works students will gain a deeper understanding of HOW a work is constructed in order to shape the author’s meaning and purpose through style, strategy, and technique. Students will be exposed to a challenging list of essays, speeches, fictional and non-fictional prose. In addition, sporadic AP questioning and peer review will help to develop confidence and sharpen skills for the Language and Composition Exam. Although students will be exposed to the American Literature curriculum for high school junior, this class will not follow the patterns and timelines of other non-AP courses.

As always, and in keeping with the College Board, AP Course Description, the goal of this class will be to help students “write effectively and confidently in their college courses across the curriculum and in their professional and personal lives” (2005 – 2006 Workshop Materials 49). Students will be expected to respond to various texts in writing concerning theme, as well as purpose and rhetorical mode. In addition, each student will prepare analytical essays in which they synthesize materials reviewed and course information gained from lecture and class discussion. Critical reading skills along with the processes of synthesis, research, writing, and revision will be emphasized.

At the end of the course, it is expected that the student takes and passes the respective Advanced Placement examination.

English Grade 12: – In How to Read Literature Like a Professor, Dr. Thomas C. Foster tells us, “Every trip is a quest about self-discovery.” Since embarking on their journey through Staten Island Tech, students have shared in the quests of Odysseus, Winston Smith, Macbeth, Frederick Douglass, Jay Gatsby among others. They were with them as they rose; shared their pain as they fell. Senior year is about a student’s personal journey - about understanding why the student empathized with those characters who grappled with their being. Students will read captivating classics and modern marvels to discover a true sense of self. Students will question their world, their culture, their history to begin answering the most gripping question and powerful journey of all - Who am I? Therefore, senior year allows students to Choose from the Selectives below.

AP English Literature & Composition (Grade 12) - Advanced Placement Literature and Composition is a class of close and deep reading, with a strong focus on the tools and application of author’s craft. A central and recurring question drives nearly all aspects of class analysis and discussion, of writing tasks small and formal: How and why does (author’s name) use of (literary device and/or technique) contribute to the meaning of the literary work?

Its satisfactory response requires students to strengthen their ability to recognize, understand and articulate (through inevitably eloquent writing) how and why an author uses specific tools, and to what effect. This skill is attained through the guided close reading and analysis of poetry, prose and drama from various time periods. Students will learn to recognize the role of subtext, structure, literary elements, and the social dynamics of the time on the meaning and message of a given work of fiction— that is, the large and timeless truths of humanity. Advanced Placement Literature and Composition students emerge from the course as sharp writers with a thoughtful, insightful and instinctive ability to evaluate fiction—an invaluable tool that is applicable to all areas of study. At the end of the course, it is expected that the student takes and passes the respective Advanced Placement examination.
Modern Mythology: Gods, Monsters & the Apocalypse (Grade 12) - In a world plagued by wrathful gods, hideous monsters, and destructive otherworldly forces, will humankind transcend above the challenges it faces, or will humanity rear its villainous head and turn against itself? This course addresses the foundations of world mythology, monsters, dystopia, and its effects on Western civilization, and how those effects have evolved and mutated into humankind’s greatest fear – ourselves.

Essential Questions
1. What constitutes human dignity?
2. How is man torn between the desire for solitude or solidarity?
3. How does our creation determine our destiny?
4. Is it possible to do great good with power, without misusing that power?
5. What is true of humanity and pride?

Disclaimer: Some of the subject matter, which relates to Gods, Monsters, and the Apocalypse, is inherently controversial, such as the sexualized notion of monsters; however, all of these issues will be discussed and displayed with the utmost respect and prudence necessary for public school.

Creative Writing* (Grade 12) - This course is an intensive writing course emphasizing critical thinking, reading and writing practice. There is a focus on writing as a mode of communication as well as an intellectual and personal activity. Writing is a means of communication that is vital in parlaying intelligent, comprehensive ideas, varied audiences and utilizing rhetorical conventions for the prime effect decided by the author.

Creative Writing will largely be based on a Portfolio Assessment which includes: a paraphrase and summary of poetry such as Limerick, Narrative Poetry, Parody of Shakespearean Works (2), Analysis of Song Lyrics (choice), Bio Poem (2), Haiku (2), original short story, Response to “A Daughter Leaving Home”, and an original poem. Longer pieces include a Memoir (can be college essay), a review of a biography, a modernized version of a scene from Othello, and a response to “The Yellow Wallpaper”. At least one of these will be part of a required presentation for the class. St. John’s University offers college credit for this course.

Journalism (Grade 12) - In this course, students will gain skills in one or more of the following areas: page design, advanced publishing techniques, copywriting, editing and photography while producing a creative, innovative yearbook which records school memories and events. There is an emphasis on journalism skills in this class! Participants gain useful, real world skills in time management, marketing, teamwork, and design principles.

Public Speaking (Grade 12) - This course prepares students for a variety of academic, social, and professional situations in which formal presentations are required in addition to traditional writing skills. Topics will include theories and practices about speech communication, verbal and nonverbal messages, and techniques of oral presentation and persuasion. Students will learn research, outline, and delivery skills for presentations using powerpoint, prezi, and stand-alone speech. The public speaking class is designed to provide opportunities for students to develop and strengthen their skills in preparing and presenting oral presentations in a variety of situations. Although some students might find the emphasis on performance frightening or frustrating, the rewards for acquiring public speaking skills are many. Through feedback, support, and guidance, students will gain insight into the tactics that will help them become more effective speakers.
Imagine you are quietly sitting in your living room watching your favorite show. BAM!!! A sudden boom, like the piercing sound of dropping your fork on a cold hard floor amplified a 100 times, holds your senses hostage – you don’t move, hardly breathe. Maybe you are frightened, maybe not. The uncertainty of the sound paralyzes you and you are still. You dare not move. You realize that someone has slammed open your front door and you head in that direction. Intruders, thieves flash through your mind. You scream, yell, demand that the intruders leave, but they do not hear you. They start insulting you, yelling at you. They catch a glimpse of the show you are watching and begin telling you that you have bad taste; that no one in their right mind would find that show interesting. You try telling them that they are wrong; that many others love that show; that they broke into your house! They do not even acknowledge your protests. They begin to talk at you not to you. They start criticizing you, your home. They say that your floors are too hard, that your couch is too soft. They start saying that your clothes are mere rags; that you are too short, your hair too thick, the bridge of your nose too high, and the whites of your eyes too white. They say this cannot go on. They say they will help you change. They say they are here to help you be a better you. You are now “The Other.” This class will explore the idea of power. It will ask the hard questions of who are powerful and who are powerless. It will focus on the idea that power is at the root of all human connection and interaction and it will explore themes of hope, language, justice, belonging, and dignity. The class will ultimately attempt to answer this question: Can you preserve your own dignity if you do not hold the power?

*Denotes college credits available with payment.
Social Studies

A participatory democracy requires the experience of history, the study of social science, and an appreciation of social studies. At SITHS, this vital knowledge is explored in a challenging college level curriculum encompassing historical topics of World History and United States History, Government, Economics and Behavioral Social Science such as Sociology.

- **All 9th and 10th grade students** take Advanced Placement World History over a period of two years. This course terminates at the end of the 10th grade in a New York State Regent Exam and Advanced Placement Test which can lead to the equivalency of two college classes worth of credit (6 credits).

- **All 11th grade students** take AP United States History. This course terminates in a New York State Regent Exam and Advanced Placement Test which can lead to the equivalency of two college classes worth of credit (6 credits).

- **In the 12th grade, students** begin to study the governmental structures of the United States as well as economic markets and personal finance, with options to be taken at the Advanced Placement level. Students can choose to take one of the following options:
  A. Participation in Government and Economics - These are non AP Courses.
  B. AP Macroeconomics embedded with US Government. The AP Macroeconomics culminates in an AP exam and can lead to the equivalency of one college class worth of credit (3 credits).
  C. AP US Government embedded with economics. The AP US Government class culminates in an AP exam and can lead to the equivalency of one college class worth of credit (3 credits).

**College Now Course in Social Science:** In either the 11th and 12th grade, students can enroll in an elective College Now course in Behavioral Social Science with an emphasis in Sociology. As part of a collaboration with the City University of New York’s Kingsborough Community College, this course carries the equivalency of one college course in CUNY (3 credits). Both a zero period and evening version of the course is available.

**History Courses**

<table>
<thead>
<tr>
<th>Course Name</th>
<th>Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>AP World History 1 &amp; 2</td>
<td>Grade 9</td>
</tr>
<tr>
<td>AP World History A 3 &amp; 4</td>
<td>Grade 10</td>
</tr>
<tr>
<td>AP US History A</td>
<td>Grade 11</td>
</tr>
<tr>
<td>AP US History B</td>
<td>Grade 11</td>
</tr>
<tr>
<td>AP US Government &amp; Politics</td>
<td>Grade 12</td>
</tr>
<tr>
<td>Participation In Government</td>
<td>Grade 12</td>
</tr>
<tr>
<td>Economics</td>
<td>Grade 12</td>
</tr>
<tr>
<td>AP Macroeconomics</td>
<td>Grade 12</td>
</tr>
<tr>
<td>Behavioral &amp; Social Science Class</td>
<td>Grade 12</td>
</tr>
<tr>
<td>(emphasis in Sociology)</td>
<td></td>
</tr>
</tbody>
</table>

**Social Studies Faculty**

Joseph Manzo, Assistant Principal
- Victoria Finkelshtein
- Joseph Frusci
- Meredith Hansalik
- Nicholas Macula
- Suzanne Mugge

- Jessica Pagliaro
- Kathy Palma
- James Tarangelo
- Lauren Zerega
- Michael Whalen

Staten Island Technical High School, 485 Clawson Street, Staten Island, New York 10306
T: (718) 667-3222  F: (718) 668-3095
History Course Descriptions

9th grade

**AP World History** - AP World History is designed to be the equivalent of a two-semester introductory college or university world history course. In AP World History students investigate significant events, individuals, developments, and processes in six historical periods from approximately 8000 B.C.E. to the present. Students develop and use the same skills, practices, and methods employed by historians: analyzing primary and secondary sources; developing historical arguments; making historical comparisons; and utilizing reasoning about contextualization, causation, and continuity and change over time. The course provides five themes that students explore throughout the course in order to make connections among historical developments in different times and places: interaction between humans and the environment; development and interaction of cultures; state building, expansion, and conflict; creation, expansion, and interaction of economic systems; and development and transformation of social structures.

- [https://apstudent.collegeboard.org/apcourse/ap-world-history](https://apstudent.collegeboard.org/apcourse/ap-world-history)

10th grade

10th grade students can choose between two versions of AP World History. At the end of the course it is expected that the student takes and passes the respective Advanced Placement examination.

**AP World History** -

- [https://apstudent.collegeboard.org/apcourse/ap-world-history](https://apstudent.collegeboard.org/apcourse/ap-world-history)

11th grade

11th grade students can choose between two versions of AP United States History

AP U.S. History is designed to be the equivalent of a two-semester introductory college or university U.S. history course. In AP U.S. History students investigate significant events, individuals, developments, and processes in nine historical periods from approximately 1491 to the present. Students develop and use the same skills, practices, and methods employed by historians: analyzing primary and secondary sources; developing historical arguments; making historical comparisons; and utilizing reasoning about contextualization, causation, and continuity and change over time. The course also provides seven themes that students explore throughout the course in order to make connections among historical developments in different times and places: American and national identity; migration and settlement; politics and power; work, exchange, and technology; America in the world; geography and the environment; and culture and society.

**AP US History (Grade 11)** -


Universal AP History A & B Courses Explained
Both versions of the AP History courses have a blend of students - those who are enthusiastic about Social Studies and Humanities and those who enjoy other subjects more. Both courses emphasize reading, analyzing, and studying history, therefore interest in the subject matter should NOT be a major motivation for which version of the class you take. The major difference between the two courses is the amount of focus put on preparing for the culminating AP test in school.

**Version A:** Students experience a college level survey course in history. There is a greater emphasis on test prep in lessons and on exams. College board style questions are used for most exams and assignments. There is greater rigor in test preparation because of this, but that makes in-school tests and homework assignments more difficult. The curriculum will cover the full content of the AP Course, but the learning environment will be more aligned to skills that prep you for AP style questions while still fostering college and career readiness.

**Version B:** Students experience a college level survey course in history. There will be less emphasis on test prep for the AP exam by taking this version. The curriculum will cover the full content of the AP Course, but the learning environment will be more aligned to skills that foster college and career readiness. This is a great option for a student taking other advanced classes that they think they may need to focus on more. Some independent test prep would be advised.

12th grade

**Choice one:** AP Macroeconomics: [https://apstudent.collegeboard.org/apcourse/ap-macroeconomics](https://apstudent.collegeboard.org/apcourse/ap-macroeconomics)

Macroeconomics studies the business cycle, national income, productivity, employment, trade, price levels, growth, and stabilization policies as parts of an interactive economic arrangement. Students study models that describe how a market economy works as a system. Macroeconomics has considerable value in helping make effective decisions about educational and career choices, personal finance, and the economic implications of government policies.

Goals and Objectives: The goal is to learn the vocabulary, concepts and graphical models of the principles of macroeconomics. The main objective is to master the conceptual and graphical skills within each of the five instructional units. This involves applying concepts acquired in lectures and readings to problems of macroeconomic description, translation, interpretation, and analysis.


**Choice three:** Participation In Government and Economics (non AP) Term 1 of American Government & Economics explores the structure, dynamics and processes of the American system of government, providing a comprehensive introduction to the origins and development of ideas and institutions that influence the contemporary political milieu. The course examines the development and composition of the Declaration of Independence, the United States Constitution, the three branches of government, political parties, and interest groups within the framework of the historical, economic and social context. Term 2 of this course explores personal finance and the fundamental economic question of the behavior of consumers, firms, and markets under the constrictions of scarcity. Topics covered include supply and demand analysis, determination of market prices, profit maximizing output, distribution of income, Gross Domestic Product, and fiscal and monetary policy.
11th or 12th grade elective

**Behavioral and Social Science Class with an emphasis on Sociology** - Behavioral Social Science is a survey course. The course is unlike any course that is offered at the high school level. It is a Social Science Course, which focuses on sociology and other social sciences. In this course, we analyze topics in social science in an interesting way, unlike a standard high school course. This course is the most popular one in the College Now program. It traditionally carries the largest enrollment and generally has very positive student feedback. Once students take a college level social science course, they start to examine the world around them in a different and more vivid way!

This introductory course looks at a variety of topics in ways students may not have studied them before. The structure of the course is that of a college seminar. Discussions, presentations, critiques, analysis of academic journals, current events, documentary film and pop culture will enforce students’ understanding established by the framework of a college text that focuses on sociology in the global community. Students are encouraged to think about the world they’re living in using a sociological imagination. There will be a strong coverage of race and ethnicity, examples of sociology's real-world applications, and in-depth coverage of currently relevant topics like mass media and social policy.

The following is an outline of the major topics that will be discussed through the semester:

- Names: How are we affected by our name? Why was our name chosen? How do names represent our social grouping and possibly determine how we behave or are perceived?
- Methods of studying social science including ethical decisions and the social scientific method.
- Ethnocentrism.
- Socialization: How do families, friends, teachers, peers, the media influence adolescent development?
- Subculture: Conformity and deviance
- Issues of equality, liberty, and democracy. What is freedom and equality?
- Oppression.
- Heredity vs. Environment, Nature vs. Nurture. Why are things beautiful and ugly? How is attraction and behavior affected by these theories?
- Population density.
**Foreign Language - Russian**

Russian is the exclusive language taught at Staten Island Technical High School, from the school’s inception during the mid 1980’s at the end of the Cold War.

- Staten Island Technical H.S. has one of the largest secondary Russian language programs in the nation, with 50% of graduates taking Advanced Placement Russian (College Board Pilot program).

**Russian Courses**

- Russian Language: Beginner / Intermediate (Grade 9)
- Russian Language: (Grade 10)
- Russian Language: Accelerated (Grade 10)
- Russian Language: Advanced H (Grade 10)
- Russian Language (Grade 11)
- AP Russian Language Accelerated (Grade 11/12)
- AP Russian Language Advanced H (Grade 11/12)
- Russian for Business (Grade 12)
- * New Electives will be in process for roll-out in 2020.*

**Foreign Language: Russian Faculty**

- John Callahan
- Olga Dobry
- Natalya Levina
- Veronica Maslyukova
- Kateryna Ratushnyuk
- Elena Sokolovski
- Nataliya Ushakova

**Russian Course Descriptions**

At Staten Island Technical High School, Russian Language is the premiere language of instruction since the school’s inception in 1988. Students are able to learn the language based on their ability in a streamlined process that is consistently working for the betterment of the student.

**Ninth Grade**

**Russian Language: Heritage / Non-Heritage (Grade 9)** - Until the fall of 2018, ninth grade students were placed in homogeneous groups consisting of both heritage and non-heritage speakers, respectively, based upon an entrance interview, and short written evaluation. For multiple reasons, in 2017, it was decided to group students heterogeneously for the fall term in the ninth grade year, with a strong focus on grammatical skills, reading comprehension, and writing, and assess periodically using the World-Readiness Standards for Learning Languages to determine language levels. Students are then divided into large groups of Beginner or Intermediate H level for the Spring of the ninth grade year. *In the rare case that a ninth grade student is at the intermediate-mid to intermediate-high range they will begin promptly with a Sophomore Level H course curriculum.*
Tenth Grade & Eleventh Grade

**Russian Language: Accelerated (Grade 10) / Russian Language: Advanced H (Grade 10) / Russian Language (Grade 11)** - After completing their ninth grade curriculum, a short background survey, a leveled assessment based on the World-Readiness Standards for Learning Languages, and NCSSFL-ACTFL Can-Do Statements as Self-Assessments, students will be divided into classes on the sophomore level.

1. All heritage speakers who qualify as *intermediate-mid* and above will be grouped homogeneously in their sophomore year and beyond. These students will take a condensed curriculum and the LOTE exam at the culmination of their tenth grade year and will move directly to Advanced Placement/NEWL (College Board) Russian in their eleventh grade year.

2. All non-heritage speakers who qualify as *intermediate-low* and above will be grouped homogeneously in their sophomore year and beyond. These students will take a condensed curriculum and the LOTE exam at the culmination of their tenth grade year and will move directly to Advanced Placement/NEWL (College Board) Russian in their eleventh grade year.

3. All other students will stay on course for Russian language study, completing the Russian language study on pace for sophomore year, with the LOTE exam as the culmination of the junior year. **It should be noted that some students choose to stay in a non-advanced track even if they qualify for other tracks due to programming limitations with other advanced courses.**

Eleventh Grade & Twelfth Grade

**AP Russian Language Advanced (Grade 11/12)** - is a class, which culminates in the NEWL (National Examination in World Languages) exam. NEWL® has been developed in collaboration with the American Council on the Teaching of Foreign Languages (ACTFL). The *National Examinations in World Languages* or NEWL® is an online proficiency-based language assessment available in several critical languages. The exam is designed to provide a set of measures of functional proficiency in the target language for use as a predictive assessment for continued language study beyond high school and as a placement tool by American colleges and universities for entering freshmen. NEWL is intended for high school students—both traditional and heritage learners—seeking college credit and/or placement. **Endorsed by the College Board,** NEWL is intended to provide students an opportunity to demonstrate their language skills and to earn credit and/or placement into a college level language program. The exam targets students’ language proficiency in the Novice High to Intermediate High levels across four skills: Reading Comprehension, Listening Comprehension, Writing, and Speaking.

1. Additionally, the Advanced Placement Russian class is sponsored by the University at Albany’s, University in the High School’s Program. Students can enroll in the AUS201 as an official SUNY Albany student for 5 Undergraduate credits at a pro-rated cost.

2. Students can write them, give their name and the year of taken exam, and ACTR will send them the official document with the overall grade and the breakdown. EXAMS@americanccouncils.org

**Russian for Business (Grade 12)** - In 2016/2017 Staten Island Technical High School was honored to partner with the Pushkin State Russian Language Institute in Moscow, Russia, a renowned institution of higher learning. Staten Island Technical High School is one of only 30 hub sites worldwide to spread knowledge of the Russian Language beginning with our Russian for Business Elective Course offered for seniors based on the Pushkin State Russian Language Institute Curriculum. Students in this class speak in Russian to learn to communicate in
the business world to study international relations and prepare themselves to assimilate to Russian cultures as well as the world of economics and partnership.

Although, this is an only an overview of our program, we are working constantly to build stronger relationships between our students and their knowledge of Russian literature, culture, and of course language. Over the years SITHS has participated in National Russian Essay Contests, the National Olympiada of Spoken Russian, and for many years has taken our students to Moscow and St. Petersburg either by student Exchange or for a short study abroad. In school, we celebrate with traditional festivals for Maslenitsa (the end of Winter/the Russian Sun Festival), International Women’s Day, and Pushkin Day. Russian Language has become part of our school’s culture and students work with both the History department and the English Language Arts department to incorporate as much learning into the student experience here at Staten Island Technical High School as possible.

**Russian Conversation (Grade 11/12) *Budget Pending* -** Conversational Russian uses the situations set-up by the City of New York for the Languages Other Than English (LOTE) examination. Using 500 situations dialogues/monologues are created. Consistently used and useful vocabulary are allocated over several situations through conversations and assessments. Culture, biography, art, music, will all be incorporated as part of the design for oral expression as of one of the most difficult aspects of language learning.
Performing Arts

Performing Arts:

Concert Bands - Staten Island Technical High School offers four major band classes:
  ● Freshman, Symphonic, Concert, Wind Ensemble

Jazz Ensemble - Staten Island Technical High School Jazz Ensemble is currently made of select students in grades nine through twelve.

String Ensemble - Staten Island Technical High School String Ensemble is currently made up of students who play the Violin, Viola, Cello and Upright Bass.

Marching Band - Staten Island Technical High School Marching Band is currently made up of students in the 10th, 11th and 12th grades.

Drama -
  ● The Performing Arts classes focus on scene study, performance skills, intro to improvisation, the cultural impact of the performing arts (television, movies, Broadway) and overall theatrical production.
  ● Students stage two major theatrical works yearly - SING / Spring Musical. Scripts, sets, music, choreography and production are student created and presented for SING. The Spring Musical presents the opportunity to participate in a full-length Broadway Musical Production.

Performing Arts Course Descriptions

Band Classes

Freshmen Band (Grade 9) - Freshmen Band is for beginning students, as well as those who are getting down the basics for performing in a band setting. The Freshmen Band’s emphasis is on acquiring the fundamentals: posture, instrument knowledge, note-reading skills and rehearsal technique. Students will develop basic musicianship through the practice and performance of concert works & exercises in a large ensemble setting, develop and improve proper playing technique. NYSSMA Level III

Concert Band (Grade 10) - continues the track started in Freshmen Band, by applying note-reading skills, musicianship, rehearsal techniques to increasingly challenging literature. Students will improve basic musicianship skills through the practice and performance of concert works & exercises in a large ensemble setting as well as develop and improve proper playing technique. NYSSMA Level IV

Symphonic Band (Grade 11/12) - continues the track started in Freshmen Band, by applying note-reading skills, musicianship, rehearsal techniques to increasingly challenging literature. Students will improve basic musicianship skills through the practice and performance of concert works & exercises in a large ensemble setting as well as develop and improve proper playing technique. NYSSMA Level IV

Wind Ensemble (Grade 10/11/12) Wind Ensemble is the highest level band at Staten Island Technical High School. Students who have been promoted to this level demonstrate a high degree of proficiency on their chosen instrument. In this class, we explore deeper listening, precision of execution, phrasing, balance and blend and...
interprogram style. Chamber Winds focuses on performing advanced high school and early college level works of significant length and artistic depth. NYSSMA Level VI. Prerequisites: Audition only, instructor approval.

Jazz Ensemble (Grade 9/10/11/12) This premier performing group placing strong emphasis on advanced high school and collegiate repertoire requiring jazz improvisation from all selected musicians. The musicians enjoy performances throughout the school year, including participation in the Essentially Ellington jazz festivals and NYSSMA Level VI. Prerequisites: Audition only, instructor approval.

String Ensemble (Grade 9/10/11/12) The String Ensemble emphasis is on acquiring the fundamentals: posture, instrument knowledge, note-reading skills and rehearsal technique. Students will develop basic musicianship through the practice and performance of concert works & exercises in a large ensemble setting, develop and improve proper playing technique. Students perform throughout the school year.

Chamber Music (Grade 9/10/11/12) Staten Island Technical High School has the following chamber music groups; Saxophone Ensemble (2), Brass Ensemble and Mixed Ensemble. Students perform throughout the school year. Prerequisites: Audition only, instructor approval.

Marching Band (Grade 10/11/12) Staten Island Technical High School Marching Band members receive a Physical Education credit for this class. The marching band performs at various festivals, competitions, parades, half-times, and other community functions. Prerequisites: Successful completion of 9th grade Health and of the 9th grade Physical Education credit. Audition only, instructor approval.

Drama
Theater Production (Grade 11/12) - The Theatre Production elective class offers the opportunity for students to gain the confidence to perform in front of their peers and the knowledge of what goes on behind the scenes. Students will become well-versed in the roles within a theatre company, influential movie directors, the history of television, the Golden Age of Hollywood and broadway musicals, amongst other topics. The class studies and discusses the impact of performing arts on our society and culture both today and in the past. These units will be interspersed with performance opportunities such as monologues, scene study, improvisation, staged readings, and ballroom dancing. No prior experience is necessary to enroll in this class and your grade is determined not by your level of talent but rather your desire to learn and the effort put forth.

Performing Arts Faculty
- Heather Brown
- Robert Rams
**Health & Physical Education**

*How can we foster a lifelong love of being physically active?* The answer to this question is the challenge of every physical education teacher and student. The menu of courses offered ranges from traditional team sports to more individual focused classes. The end result is wellness through improved health and physical fitness.

- Students in grades 10-12 may select from the following classes including: Weight Training, Fitness, Volleyball, Dance, Basketball and Marching Band. (See course descriptions below.)

- All students, in all Physical Education classes, are trained and assessed via the **NYC FitnessGram**.

- There are 46 Public School Athletic League (PSAL) teams in which students can participate, many of which are Staten Island and New York City Championship teams.

**Health & Physical Education Courses**

<table>
<thead>
<tr>
<th>Health (Grade 9)</th>
<th>Dance (Grades 10 -12)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical Education (Grades 9 - 12)</td>
<td>Volleyball (Grades 10 -12)</td>
</tr>
<tr>
<td>Fitness (Grades 10 -12)</td>
<td>Volleyball Advanced (Grades 10 -12)</td>
</tr>
<tr>
<td>Basketball (Grades 10 -12)</td>
<td>Team Physical Education (Grades 10 -12)</td>
</tr>
<tr>
<td>Weight Training (Grades 10 -12)</td>
<td>Marching Band (Grades 10 -12)</td>
</tr>
</tbody>
</table>

**Health & Physical Education Faculty**

- Heather Brown
- Matthew Granite
- Michael Grippo
- David Mahon
- James McCarthy
- Jessica Ragucci

**Health & Physical Education Course Descriptions**

**Health (Grade 9)** - Health Education is an essential academic subject that teaches young people to take care of their minds, bodies, and the people around them. Health education builds a foundation for academic success by teaching all students how to make healthy and informed decisions. In order to graduate, students are required to complete one term of health education and seven terms of physical education. Students are encouraged to explore various components of health including: Physical Health and Nutrition, Emotional Health, Social Health, Mental Health, and Environmental Health.

**Physical Education (Grades 9-12)** - Physical Education class is a traditional PE class that encourages physical activity through various team sports such as soccer, football, basketball, volleyball, softball, tennis and other team oriented ball sports. Throughout each of the disciplines, each sport’s rules and practices are covered. Students are required to work in groups that encourage the principles of teamwork, compassion, encouragement and perseverance. Freshman physical education class is conducted serves as an introduction into high school...
physical education and the key components of sportsmanship and fitness in an effort to ignite a lifelong love of being physically fit.

**Fitness (Grades 10-12)** - for students looking for a fitness alternative to team sports. This course emphasizes the basics of yoga, meditation and other music infused aerobic activities.

**Basketball (Grades 10-12)** - Upperclassmen have the ability to apply for basketball physical education. This class is for students who wish to concentrate their physical fitness experience in the fast moving sport of basketball. This class will cover the rules, as well as the fundamental and intermediate skills of the game.

**Weight Training (Grades 10-12)** - for students looking for a fitness alternative to team sports. This is an introductory course designed to help each student: improve muscular strength, gain knowledge and understanding of weight training theory and practice, and develop a personalized weight training program.

**Dance (Grades 10-12)** - for students looking for a fitness alternative to team sports. This class is designed to enhance your love and appreciation of dancing. Jazz, hip hop, musical theatre and multicultural, are just a few of the genre’s that are experienced in dance class.

**Volleyball (Grades 10-12)** - for students who want to improve their overall volleyball skills and learn the strategies and positions related to a 6 on 6 game of volleyball.

**Volleyball Advanced (Grades 10-12)** - for students with average to above average volleyball skills or significant athletic ability and the aptitude to learn advance strategies in the game of volleyball. Registration for this course requires completing the basic Volleyball course or the recommendation of your physical education teacher.

**Team Physical Education (Grades 10-12)** - Team physical education is designed for upperclassmen who are actively participating on a PSAL sports team from September through June. Student athletes may apply for the class with a recommendation from their PSAL coach.

**Marching Band (Grades 10-12)** - for students who already are part of the school’s music program this class performs at various off-site festivals, competitions, parades, halftime of PSAL games and other community functions. Additional rehearsals are a requirement for this course.
Dual Enrollment
In partnership with several colleges and universities, students have the opportunity to participate in college level courses, earning credit while simultaneously enrolled in the respective high school course. Staten Island Tech has Dual-Enrollment and Articulation Agreements, with the following institutions:

- **St. John’s University** - College Creative Writing
- **The College of St. Rose** - Forensic Science / Criminal Justice
- **The College of Staten Island - CUNY** - CAD / Civil Engineering & Architecture
- **College Now Program - CUNY** (The College of Staten Island and Kingsborough Community College) - Alternating Course Variety
- **New Jersey Institute of Technology** - Pending Admissions / Transcript Review.
- **University at Albany - SUNY** - Advanced Placement Russian
- **University of Iowa** - Career Financial Mgmt & Entrepreneurship (BizInnovator)

Advanced Placement
Currently, 17 AP courses are offered at S.I.Tech throughout the subject disciplines as core and electives courses. Due to the highly selective criteria and seat limitations, the absence of AP courses on a student’s transcript is not indicative of their desire to take AP courses. Students are encouraged to participate in our dual-enrollment programs/partnerships, if AP courses are not available to them.