Dear Parents/Guardians and Students,

Education is a fundamental right of all children, and a moral obligation of every society. An effective education requires a tremendous amount of collaboration and effort among the student, family, school, and community. In respect to the school’s role, there are four “A’s” that comprise the educational experience: academics, arts, athletics, and activities. The key to this success is to balance the four “A’s” with the values and goals of the family and community. Together, an effective learning environment is developed to produce an educated young adult who will be a life-long learner, able to contribute positively to society.

In order to maximize each child’s unique potential, Bergen County Technical High School - Teterboro is committed to a tradition of excellence by providing a challenging and rich learning environment. Thus, the courses chosen from this Course Catalog should reflect each student’s aspirations, achievements, and aptitudes. The courses offered provide students with many opportunities to meet their educational needs as well as their own interests. Students are encouraged to select courses that will be academically stimulating and personally enriching.

Students, please consult with your counselor, parents/guardians, and teachers to choose the best plan that leads to graduation and future opportunities. A successful high school experience creates the foundation for a positive and productive life.

Remember, prepare for your future - today!

Sincerely,

David J. Tankard
David J. Tankard
Principal

Updated: May 18, 2015
Bergen County Technical Schools Board of Education

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William J. Meisner, Ed.D., Vice President
Norah Peck, Interim Executive County Superintendent
Maria E. La Testa
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Bergen County Technical Schools Administration

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Teterboro Campus Administration

David J. Tankard, Principal
Jon Chevalier, Ed.D, Vice Principal
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Law & Justice

Pre-Engineering

Strategic Asset Management

Appendix: Scope & Sequence
Graduation Requirements

Minimum Credit Requirements

Credit is granted for passing work at the end of each course. All courses are assigned five (5) credits per year-long course, and one (1) credit per project. A total of 135 credits are required for graduation from BCTHS - Teterboro.

Minimum Course Requirements

Credits must be earned in the following areas to fulfill the graduation requirements.

<table>
<thead>
<tr>
<th>Course Area</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>English/Humanities</td>
<td>20</td>
</tr>
<tr>
<td>Mathematics</td>
<td>15</td>
</tr>
<tr>
<td>Financial Literacy</td>
<td>2.5</td>
</tr>
<tr>
<td>Science</td>
<td>18 including labs</td>
</tr>
<tr>
<td>US History</td>
<td>10</td>
</tr>
<tr>
<td>World History</td>
<td>5</td>
</tr>
<tr>
<td>World Languages</td>
<td>10</td>
</tr>
<tr>
<td>Visual Performing Arts</td>
<td>5</td>
</tr>
<tr>
<td>Technical Major</td>
<td>35</td>
</tr>
<tr>
<td>Senior Internship</td>
<td>5</td>
</tr>
<tr>
<td>PE/Health</td>
<td>16</td>
</tr>
<tr>
<td>Projects</td>
<td>6</td>
</tr>
<tr>
<td>Community Service</td>
<td>60 hours</td>
</tr>
</tbody>
</table>

Class Rank

Bergen County Technical High School - Teterboro does not calculate a numerical rank.

Course Averages

Numerical averages will be converted into letter grades based on the scale. Each marking period is worth 20%, and the mid-term and final exam grades are worth 10%. The final grade will be the average of all four marking period grades, and the mid-term and final exam grades. Courses with no midterm or final exam will average all four marking periods; each worth 25%.

Grading

Grade Point Average

Grade Point Averages (GPA) are calculated at the close of each school year, and sent to all colleges to which the student applies.

Grade Reporting/Progress Reports

Grades are reported mid-marking period and at the end of each quarter. Grades will be available online through Powerschool.

Grade Scale

<table>
<thead>
<tr>
<th>Letter Grade</th>
<th>Numerical Grade</th>
<th>Grade Point Equivalent</th>
</tr>
</thead>
<tbody>
<tr>
<td>A+</td>
<td>100 - 97</td>
<td>4.00</td>
</tr>
<tr>
<td>A-</td>
<td>96 - 93</td>
<td>4.00</td>
</tr>
<tr>
<td>A</td>
<td>92 - 90</td>
<td>3.67</td>
</tr>
<tr>
<td>B+</td>
<td>89 - 87</td>
<td>3.33</td>
</tr>
<tr>
<td>B</td>
<td>86 - 83</td>
<td>3.00</td>
</tr>
<tr>
<td>B-</td>
<td>82 - 80</td>
<td>2.67</td>
</tr>
<tr>
<td>C+</td>
<td>79 - 77</td>
<td>2.33</td>
</tr>
<tr>
<td>C</td>
<td>76 - 73</td>
<td>2.00</td>
</tr>
<tr>
<td>C-</td>
<td>72 - 70</td>
<td>1.67</td>
</tr>
<tr>
<td>D+</td>
<td>69 - 67</td>
<td>1.33</td>
</tr>
<tr>
<td>D</td>
<td>66 - 63</td>
<td>1.00</td>
</tr>
<tr>
<td>D-</td>
<td>62 - 60</td>
<td>0.67</td>
</tr>
<tr>
<td>F</td>
<td>59 - 50</td>
<td>0.00</td>
</tr>
</tbody>
</table>

Course Weighting

All classes, including Advanced Placement, are un-weighted using a 4.0 scale. (See above)
Advanced Placement Courses

Advanced Placement courses are offered for students who are capable of college freshman study and achievement. Selection is based upon successful honors course work in prior years, and teacher approval.

To receive credit, the student must sit for the AP test in May of each year. Any student who does not sit for the AP test will not receive credit for the course.

Once a student is scheduled for an AP class, the student is obliged to pay for the exam by the add/drop deadline in September. Fees are collected by Ms. Banks, Guidance Secretary, in the School Counseling office.

Course grades will remain final regardless of performance on the AP examination in May. Students may only take exams for courses taken at the Teterboro campus.

American Government & Politics
Biology
Calculus AB
Calculus BC
Chemistry
English Language & Composition
English Literature & Composition
Environmental Science
Macroeconomics
Microeconomics
Physics I, Physics C
Statistics
Studio Art I
U.S. History
Spanish Language & Composition

Homework

BCTHS – Teterboro believes that homework relevant to material presented in class provides an opportunity to broaden, deepen or reinforce student’s knowledge. Teachers must use discretion in deciding the number and length of assignments.

The homework policy for each academic area varies, and will be reflected in the course syllabus given at the start of each school year. In order to allow for students to have an opportunity to relax over breaks, there will be no homework assigned.

Makeup Work

Students absent for any reason must make up assignments, class work and tests. Credit will only be given for students who are marked absence excused. The time allotted to submit make up work is equivalent to the number of days the student was absent excused.

Incompletes

When a student does not complete work missed for absence or other excused reasons, he/she will receive an “incomplete” for the marking period. Students will be given two weeks following the end of the marking period to make up the missed work.

Note: If the “I” grade is not converted within the expected timeframe, a failing grade will automatically be assigned.

Honor Roll

At the end of each marking period, a student’s grades are used to compute an Honor Roll, a recognition for high achievement. In order to qualify for the Honor Roll, a student must have a “B” average, with only “A’s” and “B’s” in all subjects, and meet the requirements set forth in the attendance policy.

High Honor Roll

At the end of each marking period, a student’s grades are used to compute an Honor Roll; a recognition for high achievement. In order to qualify for the High Honor Roll, a student must have a straight “A” average, and meet the requirements set forth in the attendance policy.

National Honor Society

The Andrea Rublino Sheridan Chapter of the National Honor Society seeks to inspire its members to do their best in all areas of life. Committing to the four pillars of the National Honor Society, students are expected to exemplify scholarship, leadership, exhibiting strong character, and being of service to their peers and the community at large. For more information about specific Chapter By-Laws, please contact Ms. Genicoff at shagen@bergen.org
Edmodo

Edmodo is a "social learning platform" website for teachers, students, and parents. It is marketed as the Facebook for schools.

Parents can also view this website, either under their child’s username or they may create their own account. The Parent accounts allow parents to see their children’s assignments and grades. Teachers, subject to creating and maintaining parental records, could send alerts to parents about school events, missed assignments, and other important messages. Similarly, teachers can, subject to creating and maintaining class-participant data, generate printable class rosters.

Edmodo, as with any social network, can be used as a place to post and critique work and facilitate collaboration. Educational social networking sites, like Edmodo, offer an opportunity to “connect with students and help them create norms and reflect on how different online actions will be interpreted.” Edmodo and other social networking sites offer educators a chance to explore the use of social networks and use of media and online formats.

Edmodo is used worldwide, but mainly in the US. In Edmodo, teachers can put posts with attachments such as videos or pictures from their iPad, iPhone or computer and put it in a group folder in which pupils and teachers can access the post in a safe learning environment. It can be used to teach children how to create podcasts, posts and basic web-site designing.

For additional information, please visit:
https://support.edmodo.com/home#parent

Powerschool Access

Powerschool is the student information system used by our district to support the educational process, accumulate, maintain, analyze and report student data.

Powerschool Family & Student Access
The PowerSchool Parent/Student Portal is a feature of PowerSchool that provides parents/guardians immediate access to grades, attendance records and demographic information. In order to access the PowerSchool Parent/Student Portal, simply go to https://ps01.bergen.org/public/.

If you would like more information on Power School, you may do so by going to http://www.youtube.com/watch?v=Yk9UBBJ4BP8. If you would like to download the free app through iTunes for the iPhone or iPad, you may do so at http://itunes.apple.com/us/app/powerschool-for-parents/id444983648?mt=8&ls=1.

With Powerschool Family Access Parents/Guardians Can:

- Keep their family demographic and contact information up-to-date for district communication and emergencies.
- Keep track of their student’s progress with real-time access to grades, teacher comments, class/homework assignments and attendance.
- Access Report Cards and Progress Reports.

Important: Please keep your contact information (phone numbers and email addresses) up-to-date at all times to receive communications from the school.
Registration & Scheduling

Role of the School Counselor

There is no doubt that a child’s high school years are crucial to post-secondary success and beyond. The mission of the BCTHS - Teterboro counseling program is to conduct activities that respond to the developmental needs of all students in the areas of personal, social and academic growth. The program is based on the belief that each student is an individual, and that guidance and counseling are shared responsibilities between the school counselor and the family. Counselors can be accessed to provide assistance with problem solving, decision-making, career and college planning.

The counselors also facilitate communication between students and faculty, students and parents, and/or parents and faculty. Students are encouraged to visit the School Counseling Department and access the services that are available through appointments or email.

Enrollment in Courses

Any course listed in this book that does not receive the necessary minimum enrollment may be dropped. Students who registered for any dropped course will be given the opportunity to select an alternate course.

Students request courses through our web-based scheduling portal. Once the portal becomes available for course selections, students are encouraged to discuss offerings with faculty, school counselors, and parents.

Course Change Deadlines

Requests for schedule changes are carefully reviewed in terms of the overall quality of the student’s program of studies. Sometimes, what appears to be a simple request from a student and his or her parent(s) is a logistical challenge. Changes in courses will be made for the following reasons: core courses missing, appropriate subject level changes and prerequisites not met. In order to meet the education needs of all students, we will not accommodate requests for specific teachers nor can we accommodate requests that a student not receive a specific teacher. If you would like to request a change in a student’s schedule, your child must download and complete a Change Of Schedule Request Form, which can be found on the school’s homepage. All requests must be completed by Friday, September 18, 2015.
Program Planning

Sample Program

The following program is a sample only. Successful completion of the courses included in these programs will provide the necessary background to pursue further education at the post-secondary level.

<table>
<thead>
<tr>
<th>9th Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>1) English I H</td>
</tr>
<tr>
<td>2) Global Studies H</td>
</tr>
<tr>
<td>3) Algebra I H or Math Analysis I H ***Depends upon placement test</td>
</tr>
<tr>
<td>4) Elective or Geometry H</td>
</tr>
<tr>
<td>5) World Language I or II ***Depends upon placement test</td>
</tr>
<tr>
<td>6) Physics H</td>
</tr>
<tr>
<td>7) Health/PE</td>
</tr>
<tr>
<td>8) Core Technical Course (5 credits)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>10th Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>1) English II H</td>
</tr>
<tr>
<td>2) U.S. History I H or AP Physics I</td>
</tr>
<tr>
<td>3) Mathematics H</td>
</tr>
<tr>
<td>4) Chemistry H</td>
</tr>
<tr>
<td>5) World Language II, III, or III H</td>
</tr>
<tr>
<td>6) Health/PE</td>
</tr>
<tr>
<td>7) Core Technical Course(s) (10 credits)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>11th Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>1) English III H or AP Language &amp; Composition</td>
</tr>
<tr>
<td>2) U.S. History I H, US History II H, or AP US History II</td>
</tr>
<tr>
<td>3) Mathematics H</td>
</tr>
<tr>
<td>4) Biology H</td>
</tr>
<tr>
<td>5) World Language III, III H, or IV H, or elective</td>
</tr>
<tr>
<td>6) Health/PE</td>
</tr>
<tr>
<td>7) Core Technical Course(s) (10 credits)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>12th Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>1) English IV H or AP Literature &amp; Composition</td>
</tr>
<tr>
<td>2) U.S. History I H, US History II H, or AP US History II</td>
</tr>
<tr>
<td>3) Senior Internship</td>
</tr>
<tr>
<td>4) Personal Finance /Business Elective (Excluding SAM majors)</td>
</tr>
<tr>
<td>5) Visual/Performing Arts Elective</td>
</tr>
<tr>
<td>6) Health/PE</td>
</tr>
<tr>
<td>7) Core Technical Course(s) (10 credits)</td>
</tr>
</tbody>
</table>
College In High School
Articulations/Early College Options

As a student of BCTHS – Teterboro, your child has the opportunity to earn college credit through several colleges and universities while still in high school. Students who take advantage of these courses will be able to:

1) Receive a transcript from a partner college or university with advanced credits (3) prior to graduation
2) Receive college credits at a significantly reduced, average 30% to 50%, cost per credit
3) Upon graduation from BCTHS – Teterboro, assist your child in enrolling in an accelerated college program

Credits earned will be directly accepted by the institution issuing the credit. However, all earned credits may not be accepted at alternate universities or colleges. It is the discretion of each institution to accept or deny the credits earned at an alternate college or university. Different options for obtaining college credit in high school are listed below. Students should consult with their school counselor to explore early college credit options and choose the path that's right for them.

Currently, BCTHS – Teterboro offers over 100 post-secondary credits through articulations with several colleges and post-secondary institutions including, but not limited to: Syracuse University, UMDNJ, Kean University, Rochester Institute of Technology, & New Jersey Institute of Technology. Students who elect to take any of these courses must complete a registration form provided by the college, and are responsible for all associated course fees. Some of our current offerings are:

Syracuse University

Syracuse University Project Advance is a cooperative program between Syracuse University and Bergen County Technical High School - Teterboro that allows Bergen Tech students to enroll in Syracuse University courses. Serving as adjunct SU instructors, trained Bergen Tech faculty teach these classes in the high school, and they follow the curriculum and guidelines established by the University. The Project Advance program enables high school students to gauge their ability to do college work prior to full-time college study. Upon successful completion of a Syracuse University course, students are awarded SU transcripts that record credits earned. These credits are transferable to hundreds of colleges and universities nationwide. Please note that there is a per-credit tuition charge associated with SU courses, although this charge is significantly discounted and financial aid is available to eligible students. For more information about Syracuse University Project Advance, contact your guidance counselor or visit www.supa.syr.edu.

ACC 151 Introduction to Financial Accounting
CHE 113 Forensic Science
CPS 155 Introduction to Cybersecurity
ECN 305 The Economics of Personal Finance
ECS 102 Introduction to Computing
MAT 397 Calculus III
PAF 101 An Introduction to the Analysis of Public Policy
SOC 101 Introduction to Sociology
SPA 201 Spanish III (Intermediate Spanish)
Fairleigh Dickinson University

MIDDLE COLLEGE PROGRAM

Qualified students may enroll in a BCTHS course that has been approved as a corresponding FDU course, taught by BCTHS staff who have been approved by FDU to teach these courses. Students will earn three credits upon successful completion of each course.

Anatomy & Physiology (FDU)
Global Challenge (FDU)
Organic Chemistry
Series Hybrids & Electric Vehicles (FDU)

Rochester Institute of Technology

Students may apply for RIT college credit for the following PLTW courses:

Introduction to Engineering Design
Principles of Engineering
Digital Electronics
Civil Engineering and Architecture

Complete details for acquiring credit can be found at http://www.rit.edu/emcs/pltw/counselors-administrators/undergraduate-credit.

Kean University

UMDNJ

NJIT

Physics 234
NAVIANCE/FAMILY CONNECTION

Naviance/Family Connection

Naviance/Family Connection offers a number of innovative, easy-to-use, web applications for students and their parents to assist with a variety of tasks such as: college research, college planning, college application process, teacher recommendation requests, career planning, and much more.

Family Connection

College Planner is a powerful tool to assist students and parents with the college search and application process. For the past several years, the Counseling Department has used the Family Connection, powered by Naviance, to keep track of college admissions data.

Naviance/Family Connection Features

- Apply to college
- Complete and save a comprehensive college search
- Keep track of your PSAT, SAT, ACT, and AP test scores
- Develop a Resume
- Check admissions results for BT students with comparable GPAs and SATs/ACTs
- Find out when admissions counselors will be visiting BT and sign up for the meetings
- Connect to other useful web sites related to college admissions and financial aid
- Receive important e-mail communications from your counselor regarding the college process.
- Complete a learning style inventory
- Prepare for SAT & ACT tests
- Conduct a personality style inventory
- Conduct a career interest inventory
- Locate information about scholarships

Naviance eDocs

Naviance eDocs allows high school counselors, registrars, and teachers to securely send student application forms, recommendations, transcripts, and secondary school profiles electronically to more than 2,000 participating colleges and universities – including every member of the Common Application.

Naviance eDocs Features

- **Counselors** can prepare and submit school report forms and recommendations electronically
- **Registrars** can send transcripts online – instantly and securely – while tracking the status of all materials
- **Teachers** can prepare and send letters of recommendation electronically
- **Students** can request letters of recommendation and transcripts

All users can monitor the process from end to end, ensuring that deadlines are met.

Naviance Link

https://connection.naviance.com/family-connection/auth/login/?hsid=bctsteterboro

Sign in with your username and your password
*If you forgot your password, please contact your counselor.

If you do not have a Naviance account, contact your school counselor to set one up.
Language Arts

In order to thrive in colleges, universities, and beyond students must be adequately prepared as literate persons in the 21st century. Students must readily undertake the close, attentive reading that is at the heart of understanding and enjoying complex works of literature. Faculty use a literature-based curriculum that emphasizes the development and mastery of reading, writing, and critical thinking skills. Students are exposed to classical, modern, and contemporary texts that challenge them to analyze literature and culture from several different perspectives.

Students perform the critical reading necessary to pick carefully through the staggering amount of information available today in print and digital format. They actively seek the wide, deep, and thoughtful engagement with high-quality literary and informational texts that builds knowledge, enlarges experience, and broadens worldviews. They demonstrate the cogent reasoning and use of evidence that is essential to both private deliberation and responsible citizenship in a democratic republic. In short, students must develop the skills in reading, writing, speaking, and listening that are the foundation for any creative and purposeful expression in language.

English I Honors 762104
(Grade 9; core; five credits)

English I Honors examines the human condition through world literary traditions. Selections may include but are not limited to the following: excerpts from The Iliad and The Odyssey, Romeo and Juliet, Frankenstein, Fahrenheit 451, The Kite Runner, selected poems, and multicultural and rhetorical texts. Emphasis is placed on expressing an understanding of fiction and non-fiction through oral and written language. The writing process will be used effectively with a focus on drafting, revising, editing, and student reflection.

Primary Text: The Language of Literature, Applebee, 2006, McDougal Littell

English II Honors 762214
(Grade 10; core; five credits)

English II Honors explores the emergence of the self through American and British Literary Traditions. Students will explore literature in its many forms (novels, short stories, poetry, essays, and film). Students will read, reflect on, and write imaginatively and critically to enhance our literary and personal experiences. Students will study the parallels of the American and British literary traditions and focus on the emergence of the self as the overarching theme of both genres.


English III Honors 762314
(Grade 11; core; five credits)

English II Honors continues the examination of the American Character via prose, fiction, non-fiction, drama and the essay. Writing focuses on a variety of genres and writing skills with an emphasis on PARCC preparation, writing process and research methods. Writing issues such as: vocabulary, grammar, usage and syntax are examined in depth.

Required texts include: Applebee, Arthur N. et al. The Language of Literature: American Literature, The Great Gatsby, A Streetcar Named Desire, Taming of the Shrew, One Flew Over the Cuckoo's Nest, In Cold Blood and various on line resources.
AP English Language & Composition 765464 (Grade 11; core; five credits)

AP English Language and Composition is offered as an alternative to English II Honors. This course will focus on developing the critical reading and academic writing skills needed in college-level courses. This year students will engage in close reading of both fiction and non-fiction, with an emphasis on non-fiction. Works to be examined include essays, memoirs, speeches, stories, and poems. Through intensive reading, class discussion, the writing of in-class AP sample exams, formal essays, and projects, students will develop a vocabulary for analyzing writing. By improving language skills and challenging students to wrestle with the “big questions” raised by great authors, students’ work this year will prepare them to make an impact on whatever field they choose.


English IV Honors 762414 (Grade 12; core; five credits)

English IV Honors incorporates an intensive study of Bergen County Technical High School’s World Literature curriculum with a strong emphasis on analysis, writing and project synthesis/presentation. Students will read a broad cross-section of literature from a variety of cultures and time periods. They will investigate the different genres of prose, poetry, fiction, non-fiction, and drama that are the product of the social and political conditions from which they spring. Students will also identify common aspects of the human experience and recognize the triumph of the human spirit in response to challenges faced. Writings will include the college essay, various literature based essays, critiques, response journals, analysis papers, and a research paper. Students will be exposed to a variety of teaching styles, including lecture, class “forum” style analysis, cooperative learning, and multimedia projects.

Primary Text: The Language of Literature: World Literature, Langer, 2006, McDougal Littell

AP English Literature & Composition 765454 (Grade 12; core; five credits)

AP English Literature & Composition is a college-level course for students who previously demonstrated strong writing and analytical skills. This course is thematically organized. Students read and carefully analyze a broad and challenging range of prose and poetry selections, and develop their awareness of how the various authors integrate the theme in their work. Through close reading and frequent writing, students develop their ability to work with texts with a greater awareness of the author’s purpose, strategy, and literary techniques while strengthening their own composing abilities. Reading assignments will include a broad range of primarily English and American authors such as Chaucer, Austin, Hemingway, Faulkner, Miller, and Orwell. Playwrights will include Sophocles, Shakespeare, and Wilde. Poetry selections will include works from various literary traditions such as Romanticism, Realism, Transcendentalism, Harlem Renaissance and contemporary American poetry.

Primary Text: The Bedford Introduction to Literature, Meyer, 2010, Bedford
Mathematics

Similar to the evolving nature of society, the field and discipline of mathematics is no different. As such, both require complex problem solvers who can come up with creative and alternative solutions; individuals who understand concepts rather than rote memorization of formulas. With this in mind, heavy emphasis is placed on development of critical thinking in the classroom that allows students to translate these skills to other facets of their lives.

As life-long learners, the mathematics faculty is committed to continued professional growth; embracing change, self-reflection, and meeting the needs of the students and community at large. As a result, the department has shown continued success throughout all courses and beyond. A majority of our students take at least one Advanced Placement (AP) course in mathematics. Students who successfully pass the BC Calculus exam are not only able to gain credit for two semesters of college calculus, but may also take MAT 397 Calculus III. MAT 397 Calculus III is an accredited course through Syracuse University.

Algebra I Honors 742114
(Grade 9; core; five credits)

Algebra I Honors is required for students who do not place out on their entrance test. It gives students an overview of many real-life math applications. The equations, graphs and applications that students will use in this course will give students the knowledge to understand how mathematics relates to the world.


Geometry Honors 742224
(Grade 9 or 10; core; five credits)

Geometry Honors takes a more rigorous and in-depth approach to topics covered in Geometry. Formal Proofs are emphasized to promote the development of critical and logical thinking as well as deductive reasoning. The definitions, postulates and theorems of Euclidean Geometry are presented through the study of the Pythagorean Theorem, Right Triangle Trigonometry, Congruent and Similar Polygons, Circles, and Transformations.


Math Analysis I Honors 742214
(Grade 9, 10, or 11; elective; five credits)

Math Analysis I Honors is the first of a two-year Math Analysis Sequence recommended for those students who will continue on to Calculus and have completed both Algebra 1 and Geometry. Key topics covered include trigonometric functions and their applications, analytic geometry, and trigonometric identities. Intensive study of polynomial, rational, exponential and logarithmic functions is also pursued. Additional topics include conics, polar coordinates, and graphing.


Math Analysis II Honors 742214
(Grade 10, 11 or 12; elective; five credits)

Math Analysis II Honors is the second of a two-year Math Analysis Sequence recommended for those students who will continue on to Calculus. Major topics include polar coordinates, vectors, determinants, matrices, combinatorics, probability, statistics, sequences, and limits.


Intermediate Algebra Honors 742230
(Grade 11; core; five credits)

Intermediate Algebra is designed to build on algebraic and geometric concepts. It develops advanced algebra skills such as systems of equations, advanced polynomials, imaginary and complex numbers, quadratics, and other algebraic concepts. It also introduces matrices and their properties. The content of this course are important for students’ success on both the ACT and college mathematics entrance exams. Students who complete Intermediate Algebra will be prepared to Algebra II/Trigonometry.

Algebra II/Trigonometry Honors 741344
(Grade 10; 11; core; five credits)

Algebra II / Trigonometry is offered to students who have completed Algebra I and Geometry. The course presents advanced topics in algebra, trigonometry and some topics in geometry. It prepares students for more advanced math courses and topics in pre-calculus. Topics include linear, quadratic, and polynomial equations, inequalities, powers and roots. Advanced topics in trigonometry include the laws of sines and cosines and graphing trigonometric functions.


Advanced Math Honors 742314
(Grade 11 or 12; elective; five credits)

Advanced Math is available to students who have completed Algebra II/Trigonometry Honors or Math Analysis I H. Major topics include vectors, determinants, matrices, combinatorics, probability, statistics, and sequences.


Calculus Honors 742064
(Grade 12; elective; five credits)

Calculus Honors is for first time calculus students who have successfully completed Math Analysis II Honors. The concepts of limit, continuity, derivative, anti-derivative, and definite integral are developed in the usual way, and they are then applied to the traditional collection of functions: polynomial, rational, trigonometric, and exponential, together with their inverses, compositions, and algebraic combinations.

The results are then applied to a wide variety of problems from geometry, physics, and other sciences. These include maximum and minimum problems, related rates, areas, volumes and surfaces of revolution, arc length, work, fluid pressure, velocity and acceleration, and exponential growth and decay.


AP Calculus AB 745014
(Grade 10, 11 or 12; elective; five credits)

AP Calculus AB covers single-variable calculus including the following topics: limits, derivatives, applications of derivatives, integration, applications of integrals, and the Fundamental Theorem of Calculus. It is equivalent to at least a semester of calculus at most colleges. Algebraic, numerical, and graphical representations are emphasized. The course also stresses an understanding of the underlying concepts of calculus, rather than computational skills. The course is excellent preparation for college mathematics and future study of mathematics. One of the goals of this course is for students to achieve a level of understanding and competency that will allow them to score well on the AP Exam and receive college credit for their work this year.


AP Calculus BC 745414
(Grade 11 or 12; elective; five credits)

AP Calculus BC builds upon the concepts learned in AP Calculus AB. Major topics include methods of integration, parametric and polar equations, differential equations, sequences, and Taylor and Maclaurin series. Students must have earned a score of 3 or better on the AP Calculus AB exam.

Primary Text: *Calculus*, Larson, 7th Ed., Houghton Mifflin

AP Statistics 745424
(Grade 12; elective; five credits)

This course is designed to introduce students to the major concepts and tools for collecting, analyzing, and drawing conclusions from data. The course will be based on four broad conceptual themes: exploring data to observe patterns and departures from patterns; planning a study which will include deciding what and how to measure; producing models using probability theory and simulation; and confirming models using statistical inference.

Primary Text: *The Practice of Statistics*, Starnes, 4th Ed., BFW Freeman
MAT 397 Calculus III
(Grade 12; elective; five credits)

This Syracuse University Project Advanced course allows students to earn 4 credits through Syracuse University, and is only open to students who scored a 4 or better on the AP BC Calculus exam. Concepts covered include vectors, vector-valued functions, functions of several variables, partial derivatives, and multiple-integration. This is a college course offered through Syracuse University, and students paying the (discounted) fee for SU credit will receive a Syracuse University transcript.

Primary Text: Calculus, Larson, 7th Ed., Houghton Mifflin
Physical Education/Health

Promoting a healthy mind and body, students are given the opportunity to engage in frequent and diverse activities necessary to support and build a healthy lifestyle. At the core of their instruction, faculty members emphasize and promote teamwork, respect, and responsibility. More importantly, authentic learning extends far beyond the boundaries of the gym or playing fields. The curriculum is designed to motivate the students to remain healthy, informed, and active individuals. Instructors promote teamwork, respect, and responsibility.

The Physical Education program has been designed to enhance our student’s ability to lead healthy and productive lives through the participation in fitness related activities. Our program will provide an appropriate setting for all students to develop the physical, social and cognitive skills necessary to apply healthy habits and enjoy lifelong fitness. Physical Education is a required course and is mandated by the State of New Jersey. Each student must complete four (4) years of physical education to graduate. Our program is coeducational and offers a wide variety of activities.

During their four years, the health education program provides learning opportunities that motivate and educate students to protect, maintain, and improve their own health and that of others. Topics such as disease prevention and treatment, human growth and development, substance abuse prevention, mental health, and cardiopulmonary resuscitation (CPR) are all examined.

Major Units Topics

At the beginning (pre) and end (post) of the school year all Physical Education students go through a fitness assessment that measures their height, weight, body fat %, mile run time and muscular strength (sits ups & pushups).

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Physical Education
(Grades 9-12; four credits annually)

Primary Text: Dynamic Physical Education for Secondary School Students, Darst, 2006, Benjamin Cummings

Social Issues
(Grade 9; core; one credit)

The Social Issues curriculum covers elements of substance abuse, eating disorders, human reproduction, suicide prevention and teen dating violence. The class will be student based and will include: class discussion, group and individual project, current events, and written assessments.

Primary Text: Health and Wellness, 2008, Glencoe

Driver’s Education Theory
(Grade 10; core; one credit)

Driver Education emphasizes the theory and safety of driving. Its primary goal is to develop good perception, judgment, driving skills and decision-making ability. Factors which have a negative effect upon driving are examined in addition to rules and regulations, the law, defensive driving techniques, and study and research on the effects of drugs and alcohol on driving.

Primary Text: New Jersey Driver’s Manual, State of NJ MVC
First Aid  
(Grade 11 or 12; core; one credit)  

First Aid is aligned with the American Heart Association Heartsaver First Aid, CPR, AED course. This course will provide the students with a framework for learning basic skills that may one day save a life or prevent further injury during an emergency situation. Upon successful completion of this course, students will be AHA (American Heart Association) certified in CPR, First Aid, and AED.

Primary Text: First Aid/CPR/AED for Schools and the Community, 2006, American Red Cross

Family Living  
(Grade 11 or 12; core; one credit)  

Family Living is designed to acclimatize each student to the four categories outlined by the New Jersey Department of Education. The categories include: family life, interpersonal relationships, foundations of human growth and development, and responsible sexual behavior. Students will discuss, examine, and form their own conclusions and values concerning the four topics. Upon completion of this course each student will have a comprehensive background in creating and maintaining the family unit and how to develop one’s own life style in order to interact with today’s complex society and deal with social changes.

Primary Text: Human Sexuality: Responsible Life Choices, Ryder & Smith, 2005, Goodheart-Wilcox
Science
Utilizing a “physics first” approach in the core scope and sequence, students learn in a manner that is a re-sequencing of traditional high school science courses. It is the belief of the department that a mastery of basic physics concepts is crucial to the understanding of chemical structures. Furthermore, in order to understand modern molecular biology and biochemical processes in cells, students need a solid background in both physics and chemistry.

Scientific literacy assumes an increasingly important role in the context of globalization. The rapid pace of technological advances, access to an unprecedented wealth of information, and the pervasive impact of science and technology on day-to-day living require a depth of understanding that can be enhanced through quality science education. In the 21st century, science education focuses on the practices of science that lead to a greater understanding of the growing body of scientific knowledge that is required of citizens in an ever-changing world.

To that end, students are required to apply scientific thinking to problems on all levels. Hands-on investigations are essential in education of science processes and methodologies. Therefore, all core and some advanced placement courses include a laboratory component; meaningful learning experiences that promote the ability to ask, find, or determine answers to questions derived from natural curiosity about everyday things and occurrences. More importantly, students are empowered to evaluate claims on the basis of evidence and explore connections between science and modern society. In fact, many of our students partake in research projects and competitions beyond the scope of the classroom.

Physics Honors 732124
(Grade 9; core; six credits)

Physics Honors is a required, algebra based, lab science for all ninth grade students. This course provides a systematic introduction to the principles of Mechanics, Electricity and Magnetism, Geometrical and Physical Optics, and Modern Physics. The goal is to build a solid foundation for the future college studies in physics as well as other sciences, engineering and technology.

Online Text Resource: Progressive Science Initiative-
Chemistry Honors 722224
(Grade 10; core; six credits)

Chemistry Honors is a required lab science course for all tenth graders. This course serves a dual role: it is the first in a two-year chemistry sequence and the central science course, bridging physics and biology. All the topics in this course are drawn from the AP Chemistry curriculum so that all students are prepared to go onto AP Chemistry, if they so choose. Students will be well prepared for their 11th grade biology course as well as AP Chemistry.


Biology Honors 712324
(Grade 11; core; six credits)

This lab science course is designed around the AP Biology Curriculum Framework that focuses on the major concepts in biology and their connections. Additionally, the Curriculum Framework provides a basis for students to develop a deep conceptual understanding as well as opportunities to integrate biological knowledge and the science practices through inquiry-based activities and laboratory investigations without having to teach a textbook from cover to cover. The main approach to the curriculum is to actively engage students in the process of science through class assignments and discussions that inform their laboratory experiences. Labs will engage critical thinking by actively requiring students to anticipate experimental set ups in group discussions, journal readings and hands-on labs. Emphasis is also given to case study and journal article readings in order to expose students to present day technologies and procedures to familiarize them to limitations of testable hypotheses in order to develop better-designed experimental investigations.


AP Biology 715054
(Grade 12; elective; six credits)

A.P. Biology is a full year lab science elective taken in the 12th grade. Admission into A.P. Biology is dependent on the successful completion of Biology Honors with a B + or higher, and by teacher recommendation. In the 2012-2013 academic year the College Board has implemented a redesign of the AP Biology curriculum. This redesign emphasizes scientific thinking, problem solving, and inquiry as well as scientific content. The course is focused around four big ideas in the biological sciences: evolution as the agent of biodiversity, biological systems utilize free energy for metabolism, living systems transmit genetic information, and all biological systems exhibit interdependence. The course requires not only an ability to learn a large amount of material quickly, but also to apply this material in a practical context.


AP Chemistry 725014
(Grade 11, 12; elective; six credits)

AP Chemistry is a lab science course aimed to increase students’ readiness to study advanced topics in subsequent college courses. The curriculum balances breadth of content coverage with depth of understanding. The major topics covered in AP Chemistry are: Atomic Structure, Kinetics, Equilibrium, Thermodynamics, Acids & Bases, Aqueous Equilibria and Electrochemistry. The format and level of difficulty of each unit is similar to that of a college level course. The College Board has outlined seven science practices for AP Chemistry which integrate knowledge and skills. Through laboratory investigations, students learn proper laboratory techniques and practice proper safety procedures, in addition to developing advanced inquiry and reasoning skills, such as designing a plan for collecting and analyzing data, applying mathematics, and connecting concepts across domains.

Primary Text: AP Edition: Chemistry, Steven S. Zunndral & Susan A. Zunndral
AP Physics 1 735064
(Grade 10, 11 or 12; elective; six credits)

AP Physics I is algebra-based lab science and is the equivalent to a first-semester college course in algebra-based physics. The course covers Newtonian mechanics (including rotational dynamics and angular momentum); work, energy, and power, and mechanical waves and sounds. It will also introduce circuits.

Online Text Resource: Progressive Science Initiative-
http://njctl.org/courses/science/ap-physics-b

AP Physics C 735084
(Grade 11 or 12; elective; six credits)

AP Physics C is a lab science elective course for 11th and 12th grade students. The goal of the course is to prepare students to take two Advanced Placement examinations; AP Physics C Mechanics and AP Physics C Electricity and Magnetism. The first semester of the course is devoted to Mechanics while the second semester is devoted to Electricity & Magnetism. This course will give students a solid foundation for future college studies in physics as well as other sciences such as engineering and technology. A successful outcome in the AP exams could also give the students college credit. The course is calculus based. The calculus course being taught is synchronized to the Physics C course, thus, Calculus and Physics courses complement each other.

Online Text Resource: Progressive Science Initiative-
http://njctl.org/courses/science/ap-physics-c/

Physics 234
(Grade 12; elective; five credits)

This science elective course is articulated with NJIT's Physics 234 course, and is only for students who have successfully completed AP Physics C. The first semester of the course will begin with Oscillation & Waves while the second semester will conclude with Nuclear Physics. This course will give students an advantage in their collegiate studies in physics as well as other sciences. The final grading for the course will be based on a composite score made up of the following: common exam scores, the final exam, lecture quizzes, and the homework score.

Text Book: Sears & Zemansky's University Physics with Modern Physics, Young & Friedman, 13th Ed. Technology Update Pearson

Environmental Science 735034
(Grade 12; Elective; five credits)

AP Environmental Science is an elective laboratory science course that may be taken in a student’s junior or senior year. All students will have completed one year of physics and one year of chemistry prior to beginning this course. Seniors will also have completed biology, while juniors will be taking biology in parallel. Environmental science is interdisciplinary; it embraces a wide variety of topics from different areas of study.

The goal of the AP Environmental Science course is to provide students with the scientific principles, concepts and methodologies required to understand the interrelationships of the natural world, to identify and analyze environmental problems both natural and human-made, to evaluate the relative risks associated with these problems, and to examine alternative solutions for resolving or preventing them. Topics will include: earth systems, the living world, populations, land and water use, energy resources and consumption, pollution and global change.

Primary Text: Environmental Science for AP, Friedland, 1st Ed., WH Freeman and Company

Organic Chemistry 722234
(Grade 12; elective; five credits)
Organic chemistry is the study of chemical principles and concepts to understand the chemistry of carbon containing compounds and apply the concepts to solve for real life situations. Students will be able to understand the significance of organic chemistry in the world we live in and correlate this to the major areas of their study as well as in their daily lives. Organic chemistry is a science that touches the lives of everyone. Topics include the naming, synthesis, reactions and spectral identification of major class of organic compounds. This course will provide the necessary background for any Pre-med, biochem, pharmacy and nursing courses requirements. The format and level of difficulty of each unit is similar to that of a college level course. This course qualifies for the Early College Option, whereby students may earn college credit through Fairleigh Dickinson University. Prerequisite – Chemistry Honors


**Anatomy & Physiology** 711414 (Grade 12; elective; five credits)

This is a college-level honors course designed for students who plan to enter careers that require extensive knowledge of human anatomy and physiology. Focus will be centered upon the orientation and organization of the human body, the support and movement of the human body, regulation and integration of the human body and maintenance of the body. This course will include lab exercises to physically demonstrate the mechanical principles. There will be a clinical focus to this course, whereby students will have to apply the knowledge obtained in class to clinical applications. Research projects will be assigned throughout the year and will include research on areas such as neurological and skeletal disorders. Students will also learn how to run a safety clinic aimed at reducing repetitive stress injuries and on the job injuries. Dissection of the sheep brain and heart as well as full dissection of the cat will be performed in this course. This course qualifies for the Early College Option, whereby students may earn college credit through Fairleigh Dickinson University.

Primary Text: **Human Anatomy & Physiology**, Marieb, 6th Ed. Pearson Benjamin Cummings
Social Studies

The digital age has transformed social studies education, allowing 21st-century learners to transcend the limits of time and place and experience historic events virtually. By expanding their learning networks through online collaboration with experts and other students from around the world, social studies students develop an increased depth of understanding of our global society. At the same time, their understanding of the fundamental principles and values of American democracy and citizenship provides the conceptual framework that allows them to make informed decisions about local, national, and international issues and challenges.

The mission of the BCTHS – Teterboro Social Studies Department is to foster a student body that:

• Is civic minded, globally aware, and socially responsible.

• Exemplifies fundamental values of American citizenship through active participation in local and global communities.

• Makes informed decisions about local, state, national, and global events based on inquiry and analysis.

• Considers multiple perspectives, values diversity, and promotes cultural understanding.

• Recognizes the implications of an interconnected global economy.

• Appreciates the global dynamics between people, places, and resources.

• Utilizes emerging technologies to communicate and collaborate on career and personal matters with citizens of other world regions.

Students who excel and are interested in humanities studies may take the following advanced courses:

AP United States History
AP United States Government
Global Challenge (Accredited through Fairleigh Dickinson University)
Sociology (Accredited through Syracuse University)

Global Studies Honors
(Grade 9; core; five credits)

Global Studies Honors examines the global community by focusing on essential themes that shape contemporary and historical global forces. These themes are rooted in two empirical historical foundations called collective learning and geographic luck. The themes of global politics, global economics, global social justice, global environment and global security emerge from these foundations and connect with each other forming a holistic and diverse approach to teaching and learning about the world. Contemporary trends and events related to these global themes are analyzed utilizing the principles of social science. Cooperative inquiry, debate, research and analytical writing skills are requirements of this honors level program and are practiced throughout the course. Oral and visual presentation skills are also featured.


U.S. History I Honors
(Grade 10 or 11; core; five credits)

In U.S. History I Honors students will explore the development of American history from the Columbian Exchange (1490s) through the end of the 19th century. Most importantly, this course aims to teach students to think like historians and learn the art of historical inquiry by developing their historical analysis skills. Specifically, students will learn to think critically by using chronological reasoning and contextualization of historical time periods in order to analyze, synthesize, and interpret historical evidence. Additionally, students will be able to craft their own historical arguments in well-written essays based on both primary and secondary documents. Additional attention will be given to developing students’ reading, writing, and study skills in order to prepare them to take Advanced Placement United States History in the following year.

United States History II Honors is a required social studies course. The class surveys the major political, economic, social, and cultural developments in the United States since 1877 and considers such political developments as imperialism, the growth in the power of the federal government (especially the presidency), the development of the Cold War, and the emergence of the United States as a superpower, and such economic developments as the maturation of the Industrial Revolution and the Great Depression. The class also examines the causes and consequences of six wars (including the two world wars) and the major social reform and liberation movements since 1877 and the conservative reactions produced by them. Analytical writing, collaborative work settings, project-based learning, public speaking and discourse as well as critical and creative thinking comprise the overarching skillset of this course.


American Film in Society/Financial Literacy

This course allows all students to develop skills and strategies that promote personal and financial responsibility related to financial planning, savings, investment, and financial restraint. Topics include: income and careers, money management, economics basics, credit and debt management, planning, saving and investing, consumerism, tax, risk management and insurance. In addition, students will develop skills and strategies to analyze various genres of American film, including finance films, historical films, suspense films, comedies and animated films.

*This course satisfies the NJ State requirement for financial literacy.


Sociology is designed as an analytic, skills-based introduction to sociology. What is Sociology? According to the American Sociological Association, “Sociology is the study of social life, social change, and the social causes and consequences of human behavior.” Sociologists investigate the structure of groups, organizations, and societies, and how people interact within these contexts. Since human behavior is shaped by social factors, the subject matter of sociology ranges from the intimate family to the hostile mob; from organized crime to religious cults; from the divisions of race, gender and social class to the shared beliefs of a common culture; and from the sociology of work to the sociology of sports. In fact, few fields have such broad scope and relevance for research, theory, and application of knowledge.

AP U.S. Government and Politics 775354
(Grade 12; elective; five credits)

This course seeks to explore and define the main themes, facts, concepts, and theories in government and politics as they relate to the United States political systems, philosophical governmental beliefs, citizen behavior and participation, specific governmental institutions, public policies, and external public and private pressures. Students should be able to analyze and interpret data relevant to U.S. government and politics, and understand patterns of political processes, as well as political behaviors and their consequences.


The Global Challenge 774124
(Grade 12; elective; five credits)

The course was launched in 2001 to serve as a first step in FDU's mission to educate for global citizenship. Your instructors hope that you will carry with you an interest in the themes and methods explored in this course through your college career and beyond. In the course, you will improve your ability to gather credible resources and organize them around critical questions involving the units listed below. In an ever more intricately connected world, the goal of liberal education is to stimulate active learners and curious thinkers who can sift and analyze vast amounts of information seems more urgently practical than ever before.


*This course satisfies the NJ State requirement for financial literacy.

AP Seminar 792114
(Grades 10-12; elective; five credits)

AP Seminar is the foundational course for any student who wishes to participate in the AP Capstone Program and aims to earn an AP Capstone Diploma from the College Board. AP Seminar is designed to give students an opportunity to develop and strengthen their analytical skills by conducting research individually and with a team. Students will learn to analyze an issue from multiple perspectives, evaluate the strength of an argument, and make logical, fact-based decisions. Students can earn college credit in this course by successfully completing a team project, an individual paper and presentation, and passing a written end-of-year exam. Students who successfully complete AP Seminar will be eligible to take the AP Research course.

AP Research
(Grades 11-12; elective; five credits)

AP Research is the second course in the AP Capstone Program and offers students an opportunity to develop advanced research skills by conducting an individual research project in any area of interest to the student. Participants can choose to expand on the research topic they explored in the AP Seminar course or choose a new topic. By the end of the course, students will complete an academic thesis paper, give a presentation of their findings, and an oral defense of their work to a committee of educators and research mentors. To earn college credit, students must earn a score of 3 or higher on their thesis paper, presentation, and oral defense.

Pre-requisite: AP Seminar.
WORLD LANGUAGES

Today’s students are part of a dynamic, interconnected, and technologically-driven global society centered on the creation and communication of knowledge and ideas across geographical, cultural, and linguistic borders. Individuals who effectively communicate in more than one language, with an appropriate understanding of cultural contexts, are globally literate. This global literacy brings about long-term worth in fostering personal, work-related, and/or financial success in our increasingly interconnected world.

At BCTHS-Teterboro, students develop proficiencies in listening, speaking, reading, and writing throughout their coursework, enabling them to communicate in more than one language with the level of proficiency required to function in a variety of occupations and careers in the contemporary workplace. Knowledge of several languages empowers individuals by opening economic and social opportunities, and promotes tolerance and diversity as well as solidarity within our global community. Language learning allows us to bridge cultural barriers and promote ways of interpreting our diverse world while stimulating intellectual curiosity. French, Mandarin, and Spanish are currently offered.

French I 781114
(Grade 9; core; five credits)

French I introduces students to the language as well as the culture and customs of France and some French-speaking countries. Emphasis will be placed on basic communication in everyday situations. Students will gain a working knowledge of the structure of the language using mainly the present tense and the immediate future and develop listening, speaking, reading and writing skills simultaneously through various interactive activities. Vocabulary will be introduced via thematic units.


French II 781214
(Grade 9 or 10; core; five credits; appropriate performance on placement test)

French II allows students to review and master the present tense and the immediate future of the three groups of regular verbs as well as several irregular verbs. Students will expand their study of the past tense as they study thematic vocabulary. Students will develop skills in listening, speaking, reading, and writing through various activities, including reading, role-playing, audio visual, and research projects. Students will be able to communicate effectively in many contexts, whether informal or formal. Students will learn about the history of the French-speaking countries, as well as the history, culture and traditions of the regions of France.


French III Honors 782314
(Grades 10 or 11; elective; five credits; B- or better in French II w/teacher recommendation)

French III Honors seeks to allow students to continue working on oral and written proficiency in French. As more complex reading passages are integrated into the course, thematic units will provide situations for discussions in addition to dialogues, role-playing, songs, poems, audio visual projects, as well as writing and interdisciplinary projects. Students will gain a good command of all the tenses of the indicative mood, including the imperfect tense, which is very important at this level. Students will learn more about French History and its great contributions to western civilization.

French IV Honors 782414
(Grades 11 or 12; elective; five credits; B- or better in French III w/teacher recommendation)

In this course, students will do a lot of review as they continue to expand their knowledge of the language, history and culture of France. The fourth level of French concentrates on extensive reading, conversation, and composition and prepares students for future AP or college French. Classes will be conducted entirely in French. The thematic units studied will include shopping for daily needs, health, personal relations, and future plans. We will study contemporary France History via reading and also current events. We will also study the history of French music, and immigration in France today among other cultural topics.


Spanish I 784114
(Grade 9; core; five credits)

Spanish I will focus on the development of students’ basic knowledge of the Spanish linguistic structure through various interactive activities. There will be a heavy emphasis on vocabulary, as well as the formation of correct grammatical structures. Over the course of the school year, students will utilize the vocabulary and grammar learned in class in the development of their conversational skills. Although the emphasis will be on the pronunciation, basic comprehension, and communication of Spanish, students will also be exposed to the many cultural aspects of the Spanish-speaking world.

Primary Text: Realidades 1, Boyles, 3rd Ed., Prentice Hall

Spanish II 784214
(Grade 9 or 10; five credits; appropriate performance on placement test)

Students will enrich their study of the present tense continuing to master the three classes of regular verbs as well as irregular verbs. The course will develop the students’ skills in listening, speaking, reading, and writing at an intermediate-low level. These skills are practiced using the three communicative modes: interpretive, presentational, and intrapersonal; all of which are aiming at the five goals of the Standards: communication, culture, connectivity, comparisons, and communities.

Primary Text: Realidades 2, Boyles, 3rd Ed., Pearson Prentice Hall

Spanish III 783324
(Grades 10, 11 or 12; elective; five credits)

This course is the continuation of Spanish II. The content of the course will be similar to Spanish III-Honors. However, students will develop a more comprehensive level of cultural competency of the Spanish-speaking world. The reading, listening and written aspects of the language will be emphasized and oral skills will be stressed. At the end of the course the student will be able to speak and write at an intermediate level. This non-honors course is not a pre-requisite for Spanish AP. Students who maintain a B average and approval from teacher can continue their study of the language and culture with SPA201-Intermediate Spanish.

Primary Text: Realidades 2, Boyles, 3rd Ed., Pearson Prentice Hall
Spanish III Honors 783314
(Grades 10, 11, or 12; elective; five credits)

Spanish III Honors is a pre-AP course that focuses extensively on developing four major language skills: listening, speaking, reading and writing. The study of grammar is intensive and comprehensive, focusing on the formation and use of various verb moods and tenses, including the preterite, imperfect, subjunctive, present perfect, and future. Students will be urged to speak and write primarily in Spanish. Student led and created class presentations focusing on the development of both vocabulary and grammar will occur frequently in order to enrich fluency of the language. A prerequisite for entrance into this course will be a B- or above in Spanish II. Those students who complete the year with a B- or higher will be eligible to enroll in AP Spanish.

Primary Text: Realidades 3, Boyles, 3rd Ed., Pearson Prentice Hall

SPA 201 Intermediate Spanish 784424
(Grade 11 with approval, Grade 12; elective; five credits)

This is a full year elective course and a college level class – equivalent to a third semester of Spanish at university level. This course is a proficiency-based course that reviews understanding of the formal structures of language; refines previously acquired linguistic skills and builds cultural awareness. Authentic cultural and literary media and texts are introduced, including the screening of films relevant to the thematic units. The main objectives of this course are to further develop communicative skills, and expand your cultural knowledge. The class also incorporates fun and interesting types of activities; i.e., conversation groups, group activities, projects and technology/lab use. (Note: This class will allow you the opportunity to earn 4 paid college credits.)


Advanced Placement Spanish Language 762414
(Grade 11, 12 with approval; elective; five credits)

"The three modes of communication (Interpersonal, Interpretive, and Presentational) defined in the Standards for Foreign Language Learning in the 21st Century are foundational to the AP Spanish Language and Culture course. The AP course provides students with opportunities to demonstrate their proficiency in each of the three modes in the Intermediate to PreAdvanced range as described in the ACTFL Performance Guidelines for K–12 Learners. As such, the AP Spanish Language and Culture course has been designed to provide advanced high school students with a rich and rigorous opportunity to study the language and culture of the Spanish speaking world that is approximately equivalent to an upper-intermediate college or university Spanish course. It is expected that this course will be offered as the first step in the study of college-level Spanish after approximately three to five years of language study for classroom learners. For native and heritage speakers, there may be a different course of study that leads to the AP Spanish Language and Culture course. Students who are successful in this course and exam may continue their study of college level Spanish by taking the AP Spanish Literature and Culture course and exam, as well."

Mandarin I 781714
(Grade 9; core; five credits)

Mandarin I is designed for students with minimal or no prior Mandarin exposure. In this class students explore the basics of Mandarin language and Chinese culture. First we focus on pronunciation and writing basics: learning to read and write the Chinese Romanization system Pinyin, and radicals – the meaningful symbols that compose characters. After establishing these fundamentals we spend the rest of the year learning to communicate basic information about ourselves, with units such as “Greetings,” “Family,” and “Birthdays.” These units are built around the initial chapters of the textbook Integrated Chinese published by Cheng and Tsui. Each unit will be taught through a series of activities – including interviews, surveys, role-playing, and games.

In Mandarin II students will continue to develop their ability to communicate basic personal information in units such as “Hobbies,” “School Life,” and “Daily routines.” In addition, students will begin learning to conduct everyday interactions such as “Arranging a Get Together,” and “Hosting a Party.” These units are built primarily around those in the textbook Integrated Chinese by Cheng and Tsui. Unlike Mandarin I where the focus was on building a solid foundation of basic knowledge, in Mandarin II the emphasis shifts more heavily towards developing communicative competence – the ability to use the language.

Primary Text: Ni Hao 2, Fredlein, 3rd Ed., China Soft

In Mandarin III, communicative competence is of the utmost importance and at the end of the class. Students use the language to explore certain topics relating to Chinese literature, history, music, entertainment, and education. Students will develop language proficiency while broadening their worldview by comparing Chinese culture with that of their own.

Art

Airbrush Custom Painting 863094
(Elective; five credits)

This course is a survey of concepts, methods, and issues of design as a vehicle of visual organization, thought, and expression. The subject is explored through lectures, discussions, critiques, and the process of making images and objects. The coursework follows a sequence of studies that introduces basic drawing techniques, media, and composition through observation and analysis of natural and manufactured forms. This course will also cover teaching the elements of design – color, balance, harmony, value, rhythm and movement, composition, color wheel and a variety of paint media. No prior art experience is necessary but a strong interest is a must.

*This course satisfies the NJ State requirement for visual and performing arts.

AP Art 795014
(Elective; ten credits)

The AP Studio Art portfolios are designed for students who are seriously interested in the practical experience of art. AP Studio Art is not based on a written examination; instead, students submit portfolios for evaluation at the end of the school year. Most AP Studio Art candidates prepare their portfolios in AP Studio Art. The AP Studio Art Program offers three portfolios: Drawing, 2-D Design, and 3-D Design. The portfolios share a basic, three-section structure, which requires the student to show a fundamental competence and range of understanding in visual concerns (and methods). Each of the portfolios asks the student to demonstrate a depth of investigation and process of discovery through the Concentration section (Section II). In the Breadth section (Section III), the student is asked to demonstrate a serious grounding in visual principles and material techniques. The Quality section (Section I) permits the student to select the works that best exhibit a synthesis of form, technique, and content.

*This course satisfies the NJ State requirement for visual and performing arts.

Drawing Fundamentals 793014
(Elective; five credits)

Fundamentals of Drawing (EGE108) will focus on the fundamentals of drawing, including: elements of line, composition, proportion, spatial relationships, perspective, volume, light and shadow, foreshortening, value and texture. The course will enhance students’ observational sensibilities and enable their application to their work. The notion of visual perception will be explored and students will learn how to record what they observe. Students will become familiar with various ways in which the elements, principles of design and composition improve their creative approach and critical judgment.

*This course satisfies the NJ State requirement for visual and performing arts.

Painting 793044
(Elective; five credits)

Painting is an introduction to the use of oils that emphasizes color mixing, painting techniques, and composition. The purpose of the course is to promote sensitivity to color interaction, advance technical and compositional skills, and provide a basis for creative growth and expression. This course allows students to encounter the physical and intellectual curiosities of painting. Students will learn basic techniques of painting as well as other contemporary techniques and art ideas; developing critical awareness of the inherent problems of painting.

*This course satisfies the NJ State requirement for visual and performing arts.
Music

Band 803024
(Grade 9 - 12; elective; two and a half credits)

BCTHS Band is a band using jazz instrumentation (sax, clarinet, flute, trumpet, trombone, piano, keyboard, drums, bass, and electric guitar). All seats in Band are now by audition due to overwhelming demand and limited space. Emphasis is given to tonal and rhythmic blend, dynamics, and performance concerns specific to each piece of music studied. The majority of class time is spent in active rehearsal. Band gives 3-5 performances in a typical school year.

*This course satisfies half of the NJ State requirement for visual and performing arts.

Beginning Guitar 803034
(Grade 10, 11, or 12; elective; five credits)

Beginning Guitar is an introduction to playing the guitar. Using an individualized approach, students learn how to hold and tune a guitar, how to read music from standard notation, and how to play chords and melodies. Students are shown guitar techniques by written example and presentation as well as performed examples. Students receive individual attention to resolve specific problems and obstacles in playing. This course culminates in a public recital near the end of the school year.

Primary Text: Mastering the Guitar CLASS METHOD Level 1/Beginning 9th Grade and Higher, William Bay, Mel Bay Publications

*This course satisfies the NJ State requirement for visual and performing arts.

Chorus 803014
(Grade 9, 10, 11, or 12; elective; two and a half credits)

BCTHS Chorus is an SATB (soprano, alto, tenor, bass) choral ensemble that performs a wide variety of choral literature. Due to overwhelming demand, chorus is by audition only. Emphasis is given to tonal and rhythmic blend, dynamics, and performance concerns specific to each piece of music studied. The majority of class time is spent in active rehearsal. Chorus gives 3-5 performances in a typical school year.

*This course satisfies half of the NJ State requirement for visual and performing arts.

Music Across Time 803044
(Grade 10, 11, or 12; elective; five credits)

Music Across Time is a music appreciation course with a twist. Most similar courses at the college level move in chronological order, starting with Medieval-era plainsong chant and moving toward the present day. Music Across Time takes a somewhat different approach to the teaching of the Western or European musical tradition. After exploring the elements of music (and how to listen to music) in depth during the 1st quarter, we move backwards in time, starting with post-modern composers like John Cage and Edgar Varese, and then continuing through Modernist, Impressionist, Romantic, Classical and Baroque eras before finally touching on the music of the Renaissance and earlier. This method is based on the idea that we start with the musical culture we’ve inherited simply by inhabiting the world in this time, and we gain our understanding of that culture by digging down, layer by layer, as if archaeologists of a musical heritage.

*This course satisfies the NJ State requirement for visual and performing arts.
Technical Areas
Aerospace Engineering

“A new century has begun. As a student you will be spending your life in the 21st century and the future may offer many unpredictable opportunities. It will be a time of space stations and robotic probes. Manned missions to other planets and moon outposts are future possibilities. All this, and more scientific accomplishments that have not been dreamed of, will happen because Americans want to live and work in space.” —NASA

The roots of aerospace engineering can be traced back to the aviation pioneers, Orville and Wilbur Wright’s, successful flight of the Wright Flyer in 1903 at Kitty Hawk, North Carolina. Since those early days, the field has grown exponentially; both scientifically and technologically. Aerospace Engineering is the primary branch of engineering concerned with the research, design, development, construction, testing, science, and technology of aircraft and spacecraft. More specifically, aerospace engineers develop new technologies for use in aviation, defense systems, and space exploration, often specializing in areas such as structural design, guidance, navigation and control, instrumentation and communication, and production methods. They also may specialize in a particular type of aerospace product, such as commercial aircraft, military fighter jets, helicopters, spacecraft, or missiles and rockets.

Upon completion of the program, a graduate will have taken substantial coursework in Computer Assisted Design (CAD), advanced placement mathematics/science.

Introduction to Aerospace Engineering 982514 (Grade 9; core; five credits)

This introductory course is a hybrid that combines the fundamentals of Computer Assisted Design (CAD), and the principals of flight. With foundational knowledge of both areas, students will apply flight principals to the design of various types of aircraft. Students will explore different methods by which humans achieve flight and use that knowledge to design and build their own aircraft.

Principles of Aerospace Engineering 982524 (Grade 10; core; five credits)

Building upon their foundational knowledge of flight and Computer Assisted Design (CAD), students will delve deeper into the engineering design process. Using project-based learning, student will apply their mathematical, scientific, and engineering skills to real world problems individually and with classmates. With the infusion of 3D modeling software and other 21st century technologies, students will explore a broad range of engineering topics, including mechanisms, the strength of structures and materials, and automation. Over the course of the year, students will refine their knowledge of learning strategies for design process documentation, collaboration, and presentation.

Digital Electronics 982314 (Grade 10; core; five credits)

This is a course in applied logic that encompasses the application of electronic circuits and devices. Computer simulation software is used to design and test digital circuitry prior to the actual construction of circuits and devices. Students are introduced to the principles and applications of digital electronics and microprocessors. Topics include safety, number systems, logic gates, memory devices, registers, counters, and Boolean algebra. Students gain knowledge and experience by working with training systems, kits, computers, and meters/measuring devices. The course is designed to instruct students in the skills necessary to succeed as engineering professionals and prepare for future independent electronic projects. Modules are taught in a project-based format with clear goals and final written/oral exams. Lectures are reinforced through laboratory experiments, projects, quizzes, and tests. The course integrates mathematics, physics, chemistry, design and history.

Primary Text: Digital Electronics: Principles and Applications, Tokheim, 7th Ed., Career Education
Automotive Engineering & Design

Automotive Engineering & Design is a competency-based instructional program that emphasizes the development of automotive technicians trained for the demands of today’s sophisticated automotive repair, engineering, and laboratory environments. Unlike most traditional automotive programs, AED offers students the opportunity to work with computer-assisted design technology in a state of the art lab.

Unlike any other high school, students are able to utilize the 3-D printer, Wind & Solar Trainers, Hybrid Technology, and computers equipped with CAD. The structure of the program emphasizes both theory and opportunity for engagement in a live work process. Students are tracked through a series of proficiencies and projects that support the A.S.E. and Project Lead the Way approved curricula.

The AED Program is unique in that it offers opportunities for discovery in Automotive Fundamentals, Automotive Design, Engineering, Performance, Diagnostics & Repair, Clean Air & Alternative Fuel Technologies, and Navigational Systems that bring automotive students together with other technical disciplines, such as Electronics, Auto Fabrication, Pre-Engineering, and Welding.

The Automotive Technology suite is equipped with state-of-the-art diagnostic technology. The service environments designed for production tied to specific competencies sequenced through the advancement of the automotive curriculum, current computer-driven diagnostic, and alignment and colorizing technologies. With experience and with a background in college preparatory academics, students are well prepared for college acceptance, postsecondary technical school placement, or field employment. Students who meet all eligibility criteria become A.S.E. certified. Students may also earn college credit through the Project Lead the Way courses.

Foundations in Automotive Engineering Design
(Grade 9; core; five credits) 861124

This course introduces students to the basic mechanical and electrical components fundamental to automotive diagnostics and repair. Components in career exploration augment a problem-solving approach to the use of tools and equipment and understanding the complex structures and systems inherent in cars today. This introductory program begins with a thorough review of safety standards and practices and quickly moves into practical application of automotive theory with a progressive emphasis on those skills required of high-level automotive technicians and engineers.

Primary Text: Modern Automotive Technology, Duffy, 7th Ed., Goodheart-Willcox

Introduction to Engineering Design
(Grade 10; core; four credits) 982214

Using a problem-solving design approach, students learn the principles of Computer Aided Design. Models of product solutions are created, analyzed and communicated using solid modeling computer design software. Students are introduced to measuring tools and techniques, the use of laboratory notebooks, reverse-engineering techniques, hand and power tools, shop safety, rapid prototyping with 3D printer, design improvement, design evaluation and assessment, and presentation skills. Students who successfully complete this course possess a working knowledge of and basic proficiency with the tools (both physical and software), the organization, and presentation skills used in the Engineering Industry. Students create engineering drawings and 3D CAD files.

Primary Resource: Project Lead the Way; www.PLTW.org
Systems Analysis I 861213
(Grade 10; core; four credits)

This course moves beyond the basics of Foundations of Automotive Technology and begins an in-depth focus on Brake Systems as endorsed by the National Institute for Automotive Service Excellence (ASE) and Automotive Youth Educational Systems (AYES). Students will continue with their exploration of Electrical & Electronics Systems, Steering & Suspension, and Engine Performance.

Primary Text: Modern Automotive Technology, Duffy, 7th Ed., Goodheart-Wilcoxon

Series Hybrids and Electric Vehicles
(Grade 10; core, 2 credits)

This course is articulated through Fairleigh Dickinson University and allows students to gain college credit. With the world supply of fossil fuels dwindling, automotive manufacturers are producing more alternative fuel vehicles that rely less on fossil fuels. As a result there is a growing demand for automotive technicians trained in the service and repair of these vehicles.

Advanced Systems Analysis 861274
(Grade 11; core; five credits)

This course is the third of the five core courses in automotive technology and provides an in-depth focus on Steering and Suspension systems as endorsed by the National Institute for Automotive Service Excellence (ASE) and Automotive Youth Educational Systems (AYES). Additionally, students will continue to build on their knowledge of Electrical & Electronics Systems and Engine Performance.

Primary Text: Modern Automotive Technology, Duffy, 7th Ed., Goodheart-Wilcoxon

Foundations of Automotive Technology 861445
(Grade 12; elective; five credits)

This course, is an elective and is for students not enrolled in the Automotive Engineering and Design Major. This course introduces students to the basic mechanical and electrical components fundamental to automotive diagnostics and repair. Components in career exploration augment a problem-solving approach to the use of tools and equipment and understanding the complex structures and systems inherent in cars today.

Primary Text: Digital Electronics: Principles and Applications, Tokheim, 7th Ed., Career Education

Engine Performance 861494
(Grade 12; core; ten credits)

This double session class represents the final year in automotive science with advanced in-depth focus in Electrical & Electronics Systems and Engine Performance. More specifically, at this level students refine and broaden their knowledge of mechanical systems and services, including advanced electrical and electronic systems, on board computer modules, engine performance, lighting systems, heating and air conditioning. Seniors lead collaborative diagnostic and problem-solving teams that work on complex automotive repair projects in preparation for state and national competitions and ASE certification exams. Integrated into this course is a focus on the development of leadership competencies, interpersonal skills, professional etiquette and courtesy, the importance of developing and maintaining a code of professional ethics, combined with intensive preparation and review for the ASE Certification Exam.

Primary Text: Modern Automotive Technology, Duffy, 7th Ed., Goodheart-Wilcoxon

Digital Electronics 982314
(Grade 11; core; five credits)

This is a course in applied logic that encompasses the application of electronic circuits and devices. Computer simulation software is used to design and test digital circuitry prior to the actual construction of circuits and devices. Students are introduced to the principles and applications of digital electronics and microprocessors. Topics include safety, number systems, logic gates, memory devices, registers, counters, and Boolean algebra. Students gain knowledge and experience by working with training systems, kits, computers, and meters/measuring devices. The course is designed to instruct students in the skills necessary to succeed as engineering professionals and prepare for future independent electronic projects. Modules are taught in a project-based format with clear goals and final written/oral exams. Lectures are reinforced through laboratory experiments, projects, quizzes, and tests. The course integrates mathematics, physics, chemistry, design and history.

Primary Text: Digital Electronics: Principles and Applications, Tokheim, 7th Ed., Career Education
Commercial Art & Graphic Design

Commercial art, also referred to as graphic design, is the art of creative services. The program primarily focuses on areas such as design, communication, and marketing. The intention of the commercial art & graphic design program at BCTHS - Teterboro is that all students will have a depth of knowledge of fine arts, visualization and media. Students study essential aspects of the commercial art field through a curriculum, which embraces new technology while emphasizing principles of art and design. Studio classes include graphic design, multimedia design, web design, and advertising & marketing.

Students engage in a real-world curriculum that is driven by high expectations, computer graphics instruction, and current graphic imaging technologies. A program requirement is the creation and maintenance of portfolio that exhibits a high degree of creativity as well as technical proficiency. The school's proximity to the creative epicenter of the world, students have access to internships in hundreds of production houses that support the art and imaging needs of prestigious area businesses.

Foundations of Graphic Design Through Art History 871114
(Grade 9; core; five credits)

This course, for the novice commercial artist, presents an introduction to design basics, including symbology, typography, illustration, and photography. Students are introduced to art careers, care and use of professional materials, basic lettering, design glossary, and design research. The course also surveys the history of graphic design, art history, the fundamentals of drawing, 2D design, and 3D design.


Foundations of 2D Design & Drawing 871294
(Grade 10; core; ten credits)

This course highlights the fundamentals of drawing as a process. Topics range from introducing perspective to illustrate characters and moves onto more advanced topics of actual comic book illustration. Students learn basic skills and techniques for drawing from direct observation using subjects such as still life, landscape and architecture. The depiction of form, light and spatial depth is emphasized along with accurate proportion and scale. Research tools such as thumbnail sketches, quick studies, sketchbooks and digital resources are used to develop ideas. Analysis of drawings, critiques and classroom discussions build vocabulary and enrich the students’ understanding of drawing. Research and experimentation will be utilized to refine the handling of black, white media, expand skills to include the use of color media and develop drawings that integrate content, concept and composition. Additionally, students will learn Photoshop, Illustrator, typography, and 2D design basics as they pertain to graphic design.


Graphi Design Studio I 871394
(Grade 11; core; ten credits)

Creative, ideational, image-making design, digital and traditional skills are necessary in this course to meet rigorous conceptual/visual standards pertinent to creating a brand and/or a company's identity. Through a few complex projects and numerous graphic design formats and applications, all major aspects of visual identity are emphasized and developed: logotypes, typographic sets, color palettes, photographic and illustration styles, and appropriate project presentation formats. This course provides students the opportunity to learn to organize the printed page using words and pictures—graphic design. Students learn to properly integrate typography, the study of typefaces and the aesthetic and communicative aspects of letterforms. They learn the process, tools, materials, and techniques used to solve specific design problems, as well as the principles of packaging and advertising & marketing concepts. Use of Adobe InDesign extends students’ digital publishing base and Apple iMovie begins their video editing experience. Additionally, students begin their study of flexographic printing.

Graphic Design Studio II
(Grade 12; required; ten credits)

This double session course provides opportunity for independent specialization in graphic design. This course expands on previous graphic design knowledge and skills, offering students the opportunity to work on a major self-initiated design project. The course emphasizes research and analysis and the design processes that lead to creative conceptualization and final design solutions. Students are expected to demonstrate sophisticated design decisions and appropriate design solutions that demonstrate a high level of expertise and achievement. This course reviews all the subjects covered in preceding lessons and brings together students’ written, visual, and philosophic skills in preparation for entry into the design field and advanced post-secondary study. Students select specific projects in order to concentrate on a particular design discipline or to acquire more practice in selected areas, such as marketing, package design and product design. The course also broadens their development with advanced vector illustration, Flexographic printing, Adobe Dreamweaver (web design) and Adobe Flash Animation (for web).


Professional Practice & Design
(Grade 12; required; ten credits)

This course focuses on students’ job-seeking portfolios through lectures, demonstrations and studio work. Existing projects are refined and gaps are filled with new projects. All projects must meet the most professional standards with emphasis on quality and job-related subject matter. Students will be responsible for developing a self-promotional design portfolio that is utilized during the college application process or professional job search process. Throughout this course, students will further explore career paths in the design and marketing fields. This course presents an in-depth study of the business aspects of the graphic design profession. Common design problems are emphasized, including pricing, estimates, invoices, client relations and professional business conduct. Additionally, students will take on clients and be expected to meet deadlines and serve the needs of their respective employers.

Primary Text: Graphic Design Solutions, Landa, 4th Ed., Kean University
Computer Science

This program seeks to educate students with the understanding of real-world computing needs, as demonstrated by their ability to address technical issues involving computing problems encountered in industry and government. The curriculum is aligned with the most recent trends in the field of computer science leaning toward mobile app development and cloud-based computing.

The program supports research in communications information, network theory, and programming. The Department’s priorities focus on computer programming theory; key topics include object-oriented programming and data structures. With emphases on both client- and server-side programming, research priorities include efficient design of a multitude of program types and their application to real problems.

Intro to Object-Orientated Design 951132
(Grade 9; core; five credits)

This course offers an introduction to Java programming language and covers core programming concepts including variables, logic statements and loops. Using JavaScript and related web resources, this introductory course provides hands-on programming and allows students to create an authentic full-featured Web site on the Internet or corporate Intranet. The course starts with thorough coverage of HTML and Cascading Style Sheets (CSS), and HTML5, and progresses to the implementation of dynamic client-side content using JavaScript language; allowing students to see how the language can be used to turn static XHTML pages into dynamic, interactive Web pages. Students will learn the syntax of the JavaScript language and how client-side scripts interact with server-side programs. Additional topics covered are: the Document Object Model, form validation, cookies, how to create functions, how to create script files, and core Photoshop competencies to manipulate and modify image files used to embed into webpages. Upon completion of the course, students will have a web portfolio of their work throughout the year.


Networking I
(Grade 10; core; five credits)

This course introduces students to the fundamentals of Local Area Networks (LANs). Students will use online curriculum, hands-on labs with computers and routers, and group projects to design network topologies. The emphasis of this course is on networking theory and will familiarize students with the techniques used by professionals in a work and project environment; will require integration with mathematics, computer science, and technology. The focus will be on network terminology and protocols, local area, networks and Wide area networks. Students will learn about Open System Interconnection (OSI) models, cabling, cabling tools, routers, and router programs, Ethernet, Internet Protocol (IP) addressing and network standards. This course will include the introduction into the world of wireless networking technologies integral to the administration of wireless LAN’s. The multi-faceted approach addresses wireless network data security, the integration of wired and wireless networks, and the design, installation, and troubleshooting of basic wireless networking technologies.

Online text/resource: CISCO Academy; CISCO IOS software

Intermediate Programming 951244
(Grade 10; core; five credits)

Expanding on their existing knowledge of programming with the Java language, students are introduced to the application development cycle, structure of programs, and specific language syntax. At the outset of the course, structured programming techniques and error handling are emphasized to allow students to apply their knowledge of inheritance and polymorphism in classroom labs. In addition, the course includes the processing of user input and environment variables so students will be able to write flexible, user-friendly programs. Upon completion of the course, students will understand important algorithmic constructs, string and character manipulation, dynamic memory allocation, standard I/O, and fundamental object-oriented programming concepts.

Leverage the students existing programming skills, this course continues to teach Advanced Java concepts and Java programming language; providing students an object-oriented, portable and robust framework for application development. Comprehensive lab exercises provide hands on practice crucial to developing competence and confidence with the new skills being learned. Topics include: design of classes and objects, inheritance and polymorphism, Java Collections API, fundamental I/O, exceptions, and exception handling, and GUI programming using the Swing library as an example of a GUI API, creation of programs for use on a distributed network, with emphasis on JSP, Servlets, and JDBC.


**Networking II** 954434 (Grade 11; core; five credits)

This course concentrates on Routers and Routing Basics leading to the Cisco Certified Network Associate (CCNA) designation. Focuses on initial router configuration, Cisco IOS Software management, routing protocol configuration, TCP/IP, and access control lists (ACLs). Students develop skills on how to configure a router, manage Cisco IOS Software, configure routing protocol on routers, and set the access lists to control the access to routers. In addition, this course will include Switching Basics and Intermediate Routing - It will focus on the following advanced IP addressing techniques: Intermediate routing protocols; Command-line interface configuration of switches; Ethernet switching; and Virtual LANs (VLANs). Students will also be introduced to the networking for small offices (SOHO), level 1 troubleshooting, network performance, and security.

Online text/resource: CISCO Academy; CISCO IOS software

**ECN 305 The Economics of Personal Finance** (Grade 12; required; two and a half credits)

This course is designed to provide students with the theoretical and practical skills needed to take control of their personal finances and make informed choices about loans, credit cards, investments, savings, taxes, and more. This is a college course offered through Syracuse University, and students paying the (discounted) fee for SU credit will receive a Syracuse University transcript.

Cloud computing has become a major commercial area for Internet product development and activity. The term has many uses: we use the cloud whenever we search the web, post a photo to Facebook, or use the mobile version of Google Maps for driving directions. Cloud computing enables a new kind of computation in which staggering amounts of data can be culled from sensors world-wide and then employed as the basis for problem solving in new styles that need to also be massively parallel, since the data ends up spread over large numbers of machines, with no single machine having more than a "shard" of the big picture. Many users think of the cloud as the ultimate "rent-a-machine" computing solution: as many virtual computing nodes as you might care to pay for, on demand. Finally, computing evokes a new kind of social phenomenon, namely the penetration of computing systems into society at every level, and a diversity of privacy, security and even legal issues tied to those developments. This course will focus on the technology of the cloud. This course will be offered in the fall semester only, and will be followed by *ECN 305 The Economics of Personal Finance in the spring.*

**Mobile Application Development** 951454 (Grade 12; elective; Five Credits)

The main objective of this course is to provide students with the tools and knowledge necessary to create applications that can run on mobile devices like the Apple iPhone/iPad/iPod Touch and those that support Google's Android system. This course covers how to develop applications for mobile platforms, specifically for Apple iOS and Google Android devices. Differences between mobile and desktop computing will be investigated, sample mobile apps will be dissected, and tool suites for the development of mobile software will be covered, including programming languages (Objective-C, Java), frameworks (Cocoa/iOS, Android Application Framework), libraries and integrated development environments (Xcode for iOS, Eclipse for Android).

Classes meet in a computer laboratory and sessions are conducted as lecture/demonstrations, with student play-along periods. Students will demonstrate their mastery of concepts covered through homework assignments, and, more importantly, by submitting a substantial, working mobile application as a final project.
**CPS 155 Intro to Cybersecurity**  951035
(Grade 12; elective; five credits)

This is a course that presents fundamental concepts of security, network organization and operation. It introduces mechanisms and the history of software, hardware, and OS security. Students differentiate between physical, organizational and personal security. Introduction to Cybersecurity consists of two lectures per week that are based on reference text and course notes. In addition, two hands-on labs are conducted each week based on the Lab Manual for the course. By the end of the course, students are able to: understand how a network functions, monitor a network’s functions and performance, control a network’s configuration, determine what security is and how it relates to a network, detect and respond to an attack on a network, determine if a network is vulnerable to an attack, identify the threats to a network, prevent harm to a network, and analyze the impact of the protection. This course offers 4 college credits through Syracuse University Project Advance- ECS 100.


**ECS 102 Introduction to Computing**  951484
(Grade 12; required; five credits)

This course is offered through Syracuse University Project Advance, and allows students to earn three credits. This introductory college course covers computing concepts, principles of programming, applications of computing concepts, and problem solving in engineering and computer science. Laboratory topics will include problem-solving projects from various engineering disciplines.
Culinology®

The Culinology® program blends the science and technology of food production and preservation research with cooking and the culinary arts. BCTHS-Teterboro’s program was approved by the education committee of the Research Chefs Association, and is the first high school program of its kind in the United States. The school is furnished with the nation’s only Culinology® facility; a separate science laboratory to conduct food chemistry and food microbiology experiments is complemented by a state-of-the-art kitchen.

The program offers strong partnerships with corporations such as Pepsi and colleges including Rutgers to provide a unique hands-on experience for students as they complete their course work. Students enrolled in the program who are interested in pursuing an undergraduate degree in the area of Culinology® will be better prepared for the science and technology curricula that they will have to master once they get into college. Students are offered two tracks of study; one that has a stronger food science focus and the other a more culinary science focus. Culinology® graduates are prepared for careers in research and development of food products, new ways to store and manufacture foods, and new products that meet health and safety standards.

**Culinary Essentials I**

**851114**

(Grade 9; core; five credits)

This is an in-depth study of the basic core components in the creative study of culinary arts and food production. Students achieve basic competency in theories, science, and applications of working with food. Students are exposed to professional techniques of the culinary artist. Introduction to culinary terminology and ingredients will be presented. Areas of study include: tools, equipment, knife skills, food and plate presentation, food evaluation, basic cooking principles to include dry heat methods, seasonings, flavorings and aromatics, fats, dairy products, stocks, soups to include cream, clear and puree. Basic applications of baking will also be covered.

Primary Text: The Professional Chef, The Culinary Institute of America, 7th Ed., Wiley & Sons

**Introduction to Culinology®**

**860264**

(Grade 10; core; nine credits)

This course in Culinology® is designed to familiarize the student with the breadth and scope of Culinology® as a new discipline, encompassing both culinary arts and food science.

Students will gain an overview of the role of the Culinologist®, and how the blending of taste and technology enhances the food product development process. The course introduces students to the use of emulsions, gels and other advanced cooking techniques.

**Nutrition Food and Health**

**851214**

(Grade 10; core; one credit)

This course is articulated with UMDNJ, and allows students who pass an exam through UMDNJ to receive college credits. During the course, students will explore the science of foods and the nutrients and other substances they contain and their actions within the body. They will develop an understanding of the social, economic, cultural and psychological implications of food and eating. Students will analyze the importance of healthy eating and the impact of poor dietary habits on individuals and societies.


**Culinary Essentials II**

**851324**

(Grade 11, core; nine credits)

Building upon knowledge gained in Culinary Essentials I, students in this course continue their in-depth study of intermediate level processes in culinary arts and food production. Students study and apply cooking methods of scratch cookery through small batch assignments. Areas of study focus on the cultural diversity of food. Food products are examined from a global perspective with students investigating indigenous ingredients to create their own recipes/food products.

Primary Text: The Professional Chef, The Culinary Institute of America, 7th Ed., Wiley & Sons

Chemistry of Food 851334  
(Grade 11, core; one credit)

This course provides an overview of the chemical, physical, and biological properties of food components including proteins, lipids, carbohydrates, and pigments. Consequences of the properties of food components and their reaction products to health and nutrition also emphasized. Prerequisite: organic chemistry. Laboratory exercises emphasizing chemical, physical, and biological changes in foods, during processing and storage.

Primary texts: Principles of Food Chemistry, deMan, 1st Ed., Springer  
Introduction to Food Science, Parker, 1st Ed., Delmar  
Cengage Learning

Microbiology of Food 851434  
(Grade 12, core; one credit)

Principles of microbiology applied to food manufacturing. Emphasis on influence of food formulation and processing on microbial growth, methodology to detect organisms in foods, design of industrial HACCP programs, and causative agents of food-borne illness. Laboratory exercises emphasize quality control and experimental approaches to food microbiology. Labs teach basic culture methods, in addition to chemical, immunological, and molecular techniques employed for the microbiological analysis of foods.

Primary texts: Principles of Food Chemistry, deMan, 1st Ed., Springer  
Introduction to Food Science, Parker, 1st Ed., Delmar  
Cengage Learning

Advanced Culinology®  
(Grade 12, core; nine credits)

This course in Culinology® is designed to be a culmination of the knowledge and skills the students have obtained in food science, nutrition and culinary arts. Students work in teams on a capstone project to develop a new and unique food product that will address a pressing societal issue. Past projects have included the development of food products to help children suffering from cancer and investigations into the role food plays in the onset of Autism.

Primary texts: The Professional Chef, The Culinary Institute of America, 7th Ed., Wiley & Sons  
Digital & Media Arts

Digital Media is the integration of digital art, design, technology, and broadcasting. New innovations, breakthrough technologies, and changing consumer habits are redefining the digital media landscape. Students must be prepared to be creative leaders with the skills and knowledge to meet the design and communication challenges of the 21st century. Additionally, they must be broadly educated, articulate, scholarly, visually sophisticated, and capable of active participation in all phases of the design process. This program’s curriculum comprises a mix of traditional graphic design, interactive and web design, motion design, and video production.

With a specialization in this area of study, our students acquire strong critical thinking skills and aesthetic abilities while gaining an in-depth understanding of the strengths and weaknesses of various types of digital media and technologies. Classroom instruction and activities provide opportunities for students to augment their digital animation, interactive multimedia, and many other technical skills. Utilizing text, sound, graphics, animation, and video, the students are able to inform and entertain audiences.

Upon completion of the program, students will possess the technical competence required to create and maintain a website, transform scripts into video productions, edit audio and video program material using non-linear editing stations, create stereo mixes of multi-track audio material, work with multiple software programs to create still and motion graphics, and publish video to the web.

**Introduction to Digital Media**

*821124 (Grade 9; core; five credits)*

An introduction to Digital Media tools including Photoshop, Flash, Final Cut Pro, Logic Audio, Dreamweaver, Microsoft Office, and the Mac itself. Alongside the technical introduction is a conceptual foundation that includes Art appreciation from design perspectives, understanding the audience, Analog and Digital technology, and workplace readiness skills.

Online resource: **Total Training DVD:**
http://www.totaltraining.com/

**Audio/Video & Broadcast Media I**

*821122 (Grade 10; core; five credits)*

An Audio and Video Production course with equal emphasis on both conceptual understanding and technical application. Students will study genre and stylistic evolution from creative and technical perspectives while developing their own audio and video productions. Software includes ProTools, Logic Audio, Garageband, Soundtrack Pro, Final Cut Pro, and iMovie (as well as supporting tools such as Photoshop).

Primary Texts: *Film directing Shot by Shot*, Katz, 1st Ed., Michael Weise
*Setting up your Shots*, Vinyard, 2000, Michael Weise

**Graphics & Web Production**

*821252 (Grade 10; core; five credits)*

The Graphics component of this course starts with composition and ends with digital image manipulation geared towards specific creative goals. The Web component includes HTML programming and interactive Web development using contemporary tools. Both portions incorporate client-driven projects in a realistic work environment. Software includes Photoshop, Illustrator, InDesign, Dreamweaver, Text Editor, and Flash.

Primary Text: *How to Cheat in Flash CS3: The art of design & animation in Adobe Flash CS3*, Georgenes, 2007, Focal

**Audio/Video & Broadcast Media II**

*821352 (Grade 11; core; five credits)*

A course that allows students to delve deeper into Video, Television, Audio, and Radio production work using advanced capabilities and techniques. Students will apply their understanding to Television and Radio projects in class and in competitions such as Skills USA. Developed skills include hands-on experience with Microphones, Mixing Boards, Cameras, Video Switchers, and other Television and Radio components. Concepts learned and applied include Color Correction, Motion Graphics, Green Screen and advanced Lighting, Advanced audio processing, Music Mixing, and Mastering. Software includes ProTools, Logic Audio, Garageband, Soundtrack Pro, Final Cut Pro, Compressor, DVD Studio Pro, Motion, and iMovie (as well as supporting tools such as Photoshop).

Primary texts: *Modern Recording Techniques*, Huber & Rundstein, 6th Ed., Focal
*Setting up your Shots*, Vinyard, 2000, Michael Weise
Animation and Web Production  
(Grade 11; core; five credits)

The Animation component includes 2D and 3D animation, starting with early concepts and leading up to contemporary techniques. The Web component utilizes advanced interactive Web development and Flash animation to make rich user experiences in client-driven projects. Software includes Photoshop, Flash, Maya, and Dreamweaver.

Primary Text: How to Cheat in Flash CS3: The art of design & animation in Adobe Flash CS3, Georgenes, 2007, Focal

Advanced Digital Media  
(Grade 12; core; ten credits)

This final course ties together everything covered in previous years along with new emerging technologies, advanced Digital Media applications, portfolio and resume development, and stylistic creative development. Students create gallery installations for the Senior Art show, and videos for a year-end film festival. Software includes ProTools, Logic Audio, Garageband, Soundtrack Pro, Final Cut Pro, Compressor, DVD Studio Pro, Motion, iMovie, Photoshop, Illustrator, InDesign, Dreamweaver, Flash, and Maya.

Primary Texts: Real World Adobe Photoshop7, Blatner & Fraser, 1st Ed., Peachpit Press  
How to Cheat in Flash CS3: The art of design & animation in Adobe Flash CS3, Georgenes, 2007, Focal

Online resource: Total Training DVD:  
http://www.totaltraining.com/
Fashion Design & Merchandising

Giving form and function to clothing, the Fashion Design Program expresses itself in the language of style, ever-changing in harmony with the attitudes of the time and fundamental human need. Utilizing high-end computer interfaces, students experiment with design concepts and patterns before turning ideas into fashion statements that continue to move the industry forward into new visual and practical territory.

At the core of the Fashion Design Program lies a fully equipped design studio. Students weave their way from pattern making to the construction of finished garments as they study all aspects of fashion design and merchandising. An annual highlight is the program’s fashion show extravaganza presented by the Fashion Design students. This capstone event allows them to display the skills acquired throughout their high school career.

Fashion Design students consistently receive local and national recognition for their creations, and actively participate in annual Skills USA conferences/competitions and community projects. With academic achievement and high performance in Fashion Design, graduates are well qualified for numerous entry-level positions, as well as entrance into world-renowned fashion design institutes, colleges, and universities.

Foundations in Fashion Design
(Grade 9; core; five credits)

In this course, students will be introduced to the foundational array of requisite knowledge, skills, and approaches pertinent to the fashion industry. Students develop a set of fundamental proficiencies in the art and construction of fashion design. The goal of this course is to immerse students into a technology rich, state-of-the-art fashion design studio environment and to expose them to a comprehensive history of fashion and the evolution of the industry. Students learn the basic professional tools and techniques used in the construction of designers' sample garments, using design tools, industrial sewing machines and irons. Sewing techniques such as basic knowledge in cutting, construction, and finishing are explored, using industrial equipment to create sewing projects. In learning conjunction with fashion terminology for various fashion silhouettes and details, students are also introduced to the basic concept of sketching designs and actual garments in the flat format.

Primary Text: Successful Sewing, Westfall, Mary G., Goodheart-Wilcox Company, Inc.

Primary Text: Fashion Sketchbook, Bina Abling, Fairchild Publications.

Apparel Design I  
971234  
(Grade 10; core; five credits)

This introductory course focuses primarily on basic sewing techniques and producing fashion. In addition, in this course the students will be introduced to the continued foundational array of requisite knowledge and skills, pertinent to garment construction such as selecting patterns and fabrics and pattern layouts. Students also uncover the concept from fibers to fabrics, yarns and fabrics, which includes natural and manufactured fibers, fabric color and finishes. Students will also be introduced to visual poise & high fashion runway modeling, wherein they will learn and practice intricate choreography and are expected to incorporate this knowledge into a coordinated fashion show to be presented at the conclusion of the course.

Primary Text: Successful Sewing, Westfall, Mary G., Goodheart-Wilcox Company, Inc.


Fashion Art & Design I  
971244  
(Grade 10; core; five credits)

This course includes the study of basic proportions of the fashion figure along with the principles in line, balance and color. Also involves a continued study of advanced fashion terminology for various fashion silhouettes and design details in the flat sketching format. Students are also introduced to the basic concept of sketching designs and technical flats, using fashion croquis.


Primary Text: Fashion Marketing, Glencoe Marketing Series, 2006

Apparel Design II  
971344  
(Grade 11; core; five credits)

Building upon their knowledge and skills learned in Apparel Design I, students will learn intermediate sewing techniques and garment construction. In addition, students also continue to learn new and more compound design room construction methods to help develop advanced sewing techniques for apparel construction.

Primary Text: Successful Sewing, Westfall, Mary G., Goodheart-Wilcox Company, Inc.


Fashion Art & Design II  
971354  
(Grade 11; core; five credits)

Introduces the concept of sketching designs and actual garments in the flat format as well as on the fashion figure. Students learn how to communicate their design ideas through garment details, silhouettes, and color theory, using model drawings / fashion illustrations. Students learn and develop skills in design development, creating various design groups and mini- portfolios. In addition, it explores the interrelationships between the consumer and the primary, secondary, retailing, and auxiliary segments of the fashion industry. Presents the characteristics, promotional practices, and marketing strategies revolving within the fashion industry. Students also develop an understanding of apparel merchandising within the product development process and the interrelationships among technical design, merchandising, production, creative design, and retailing.


Primary Text: Fashion Marketing, Glencoe Marketing Series, 2006
Fashion Art & Design III  
971464  
(Grade 12; core; five credits)

In this course the students will be building and reinforcing skills required for the NOCTI Apparel and Textile Production & Merchandising testing. Students also continue to learn new and more complex design room construction methods to help develop advanced sewing techniques for apparel construction.

Primary Text: Successful Sewing, Westfall, Mary G., Goodheart-Wilcox Company, Inc.


Introduction to Fashion Marketing  
971474  
(Grade 12; core; five credits)

During this course the students of Fashion Design and Merchandising will be introduced to a distinct discipline of marketing education to enable students to understand and apply marketing, management and entrepreneurial principles; to make rational economic decisions; and to exhibit social responsibility in a global economy. The course covers the essential areas such as business, management, communication and entrepreneurship essential to understanding the concepts of marketing. The second part of the marketing standards, lays out the seven skills that correspond to specific marketing activities applicable in the business world - specifics include, Distribution, Financing, Marketing Information Management, Pricing, Product management, Promotion and Selling.

Primary Texts: An Introduction to Fashion Marketing, Fashion Institute of Technology, 2009, Pearson  
An Introduction to Fashion Merchandising, 1991, Cambridge Educational
Law & Justice

The Law & Justice program provides students an in-depth background in the foundation of laws, law practice, forensic science, criminology, and technical methods used today by various agencies to protect the public. Studies in the foundation of laws from common law to constitutional law, the American system of justice, court structures, the art of debate, and individual rights provided by the Constitution will be analyzed.

Academic courses integrate technical writing methods to develop reports, legal briefs, summaries, and arguments utilized to present scientific evidence, legal defenses, and position documents. The program also offers courses in the history of various public safety agencies and the mathematical principles needed to solve the mechanics of an event.

Through partnerships with local, state, and county agencies, members of the Bar and the judicial system, and various specialists employed in judicial and public safety professions, students are exposed to a variety of immersive experiences in the theoretical, practical, and technical arts and sciences associated with law, criminal justice, and public safety. A student graduating from this program will be prepared to continue his/her education at a two- or four-year college, university, technical school, or law enforcement academy, as well as be employed in support occupations within the judicial and public safety professions.

Introduction to Law & Justice 901114
(Grade 9; core; five credits)

In our democratic system of government, every aspect of life is based on the rule of law. This primer presents a topical overview of the law and justice system beginning with historic contexts and working toward modern applications and issues. Students engage in the study of law and how law reflects and promotes our society’s values. They study the balance of rights and the will of the majority with the rights of the minority. As students explore the appeals process and the complexities of legal systems in view of their simple origins, students quickly learn that democracy is not a spectator sport. Skills in the areas of advocacy, protection, conflict resolution and introductory moot court proceedings are concomitantly pursued.
Primary Text: Street Law, 7th Ed., Glencoe

Criminology 891214
(Grade 11; core; five credits)

Secondary Moot Court Proceedings: This course investigates the nature and causes of crime in America. Students explore the various costs of crime in the context of the financial and psychological impact on society. Crime statistics are studied to discern patterns and trends in America relating to the commission of various crimes. The distinction and examples of crime against persons and crime against property are analyzed and researched along with the relatively new field of intellectual property law.
Primary Text: Criminology, Siegel, 11th Ed., Cengage

Constitutional Law 892432
(Grade 10; core; five credits)

This issue-oriented course examines the United States Constitution, its interpretation by the Supreme Court, and the impact constitutional law has on the history and social institutions in America. Students research and examine landmark cases, discuss past and current political viewpoints, and analyze the relationship of the Judicial Branch of government with the Legislative Branch and the Executive Branch of government.
Primary Text: Leading Cases In Constitutional Law, Choper, Fallon Kamisar, & Shiffrin, 2008, West
Police Studies & Corrections  891224  
(No longer offered)

This year long course begins with a complete review of police procedures commencing with arrest. Significant topics of controversy include: knock and announce, search and seizure, plain view doctrine, warrantless searches and interrogations. Through field trips, interviews and case studies, knowledge of patrol procedure, crime scene investigation, evidence processing and police and community relations is significantly enriched. Police training and self-defense are exhibited, as well as police ethics and the use of psychology in the training process. The second half of the course focuses on the correctional system. More specifically, the history and philosophy of the corrections systems is investigated with highlights on the distinctions between the treatment of juveniles and adults. The controversial issue of public versus privatization of corrections is explored through discussion and debate along with correctional ethics and psychology, deviance and social control. Major issues on the morality of imprisonment and the actual circumstances of imprisonment, i.e. overcrowding, etc., are among the topics explored with community representatives that include law enforcement officials, judicial members, legislative members, the legal and religious community and human rights supporters.

Primary Text: Criminal Justice in Action, Gaines and Miller, 6th Ed., Wadsworth Cengage Learning

AP US Government and Politics  775354  
(Grade 10; required; five credits)

This course seeks to explore and define the main themes, facts, concepts, and theories in government and politics as they relate to the United States political systems, philosophical governmental beliefs, citizen behavior and participation, specific governmental institutions, public policies, and external public and private pressures. Students should be able to analyze and interpret data relevant to U.S. government and politics, and understand patterns of political processes, as well as political behaviors and their consequences.


PAF 101 Intro to the Analysis of Public Policy  892344  
(Grade 11; core; five credits)

This course is designed to provide students with basic research, communication, and decision-making skills used in public policy analysis. Students will develop a range of applied social science skills that will help them to make more informed choices as citizens, as workers, and as consumers. While studying particular public policy issues, students will practice collecting information and will examine the use of graphs, tables, statistics, surveys, and other informal interviewing procedures. In addition, students will identify a social problem and come up with a proposed public policy to deal with it. They will forecast the impact of that policy on societal conditions, analyze the political factors affecting the policy, and develop strategies to implement the proposed public policy. This is a college course offered through Syracuse University, and students paying the (discounted) fee for SU credit will receive a Syracuse University transcript.

*Senior Seminar in Law/Financial Literacy  892414  
(Grade 12; core; five credits)

This seminar course is designed to serve as an opportunity for students to research topical and contemporary issues related to their prior course work. The course will culminate with a research paper and the opportunity to present their findings to their peers. Students will complete primary and secondary source research including interviews with policy makers in Washington, DC. The seminar will additionally serve to bridge and prepare the graduate for entry-level positions in the criminal justice system, or undergraduate studies.

Primary Text: Keeping the Republic, Barbour, 2nd Ed., CQ Press
This course is offered through Syracuse University Project Advance and is an introduction to the unique ways to analyze blood; deconstruct organic and inorganic evidence; discover the many uses of DNA; explore drug chemistry and toxicology; learn how to compare fibers, paints, glass, and soil; and much more. Your lab assignments will be techniques in forensic investigation—including identifying food dyes by paper chromatography, classifying carbohydrates, and performing qualitative tests for amino acids and proteins, among other chemical make-ups. Being a fan of the “CSI” TV show is not a requirement. Being a motivated high school senior with Internet access is.
Pre-Engineering

The Pre-Engineering Program is a three year sequence of courses which, when combined with traditional mathematics and science courses, introduces students to the scope, rigor and discipline of engineering prior to entering college. The curriculum is engineered to prepare secondary school students for admission, in some instances with advanced standing, to high quality engineering schools and, once there, to succeed. Pre-Engineering students take four years of math culminating in calculus as well as four years of science, and three of a foreign language. Pre-Engineering classes begin in grade nine and are co-taught by a Pre-Engineering instructor and a physics teacher. School-to-Careers and Tech Prep activities, such as visits to colleges and exchanges with local engineering firms, are integral to the program. Graduates possess the necessary science and math skills, as well as practical experiences, for entry into most college engineering programs. The technology-infused curriculum is driven by a series of technical practica designed to mesh the hands-on application of engineering theory with rigorous core academics. Pre-Engineering students find themselves functioning in research, design, and development teams built around various real-world engineering problems that form the basis of a variety of engineering projects. In addition to challenging core academics, the engineering sequence includes Introduction to Engineering Design CAD, Principles of Engineering, Engineering Design & Development, Digital Electronics, Computer Integrated Manufacturing Systems and Civil Engineering and Architecture.

Introduction to Engineering Design 982214
(no longer offered)

Using a problem-solving design approach, students learn the principles of Computer Aided Design. Models of product solutions are created, analyzed and communicated using solid modeling computer design software. Students are introduced to measuring tools and techniques, the use of laboratory notebooks, reverse-engineering techniques, hand and power tools, shop safety, rapid prototyping with 3d printer, design improvement, design evaluation and assessment, and presentation skills. Students who successfully complete this course possess a working knowledge of and basic proficiency with the tools (both physical and software), the organization, and presentation skills used in the Engineering Industry. Students create engineering drawings and 3D CAD files.

Online Resource: Project Lead the Way, www.PLTW.org

AP Physics 1 735064
(Grade 10,11,12; elective; six credits)

This course provides a systematic introduction to the principles of Mechanics, Electricity and Magnetism, Geometrical and Physical Optics, and Modern Physics. The goal is to build a solid foundation for the future college studies in physics as well as other sciences, engineering and technology. The course is Algebra/Trigonometry based. It emphasizes several components including both the knowledge of physics laws of nature and ability to achieve complete experimental and theoretical explanations. This course includes a lab component: 16 -20 labs for the entire year.

Principles of Engineering 982114
(Grade 10; required; five credits)

This course will help students understand the field of engineering/technology. Students will explore various technology systems and manufacturing processes that help them learn how engineers and technicians use math, science and technology in an engineering problem solving process to benefit people. The course also includes concerns about social and political consequences of technological change.


Digital Electronics 982314
(Grade 11; required; five credits)

This is a course in applied logic that encompasses the application of electronic circuits and devices. Computer simulation software is used to design and test digital circuitry prior to the actual construction of circuits and devices. Students are introduced to the principles and applications of digital electronics and microprocessors. Topics include safety, number systems, logic gates, memory devices, registers, counters, and Boolean algebra. Students gain knowledge and experience by working with training systems, kits, computers, and meters/measuring devices. The course is designed to instruct students in the skills necessary to succeed as engineering professionals and prepare for future independent electronic projects. Modules are taught in a project-based format with clear goals and final written/oral exams. Lectures are reinforced through laboratory experiments, projects, quizzes, and tests. The course integrates mathematics, physics, chemistry, design and history.

Primary Text: Digital Electronics: Principles and Applications, Tokheim, 7th Ed., Career Education

Engineering Design & Development 982434
(Grade 12; required; five credits)

In this engineering research course, students work in teams to research, design and construct a solution to an open-ended engineering problem. Students apply principles developed in the four preceding courses and are guided by a community mentor. They must present progress reports, submit a final written report and defend their solutions to a panel of outside reviewers at the end of the school year.

Strategic Asset Management

Strategic Asset Management (S.A.M.) capitalizes on our proximity to New York City—the financial capital of the world. Students are prepared for a variety of careers in the financial services sector, including investment and commercial banking, brokerage, trading, and investment management. The program consists of a rigorous academic curriculum that engages students to learn sophisticated content. A “theory in action” approach teaches concepts in finance and economics through their impact on financial markets. Students focus on how companies create wealth as well as how investors evaluate risk and growth potential.

The program emphasizes the use of case study analysis. Students utilize mathematical reasoning in the assessment of risk factors. S.A.M. focuses on the development of skills that provide students the foundation required to enter and be successful at premier colleges.

Introduction to Business Management 831114
(Grade 9; core; five credits)

This course provides an introduction to the world of business from a global perspective. It focuses on the financial and economic systems, which provide the context in which businesses operate. Essential topics include; Market Dynamics, our private enterprise system - historical and philosophical underpinnings, Personal Finance, Government and Business – Intro to Macroeconomics.


Strategy Formulation 831234
(Grade 10; core; five credits)

This course provides a framework for assessing the complexity of industry competition. The course has a special focus on the topic of innovation, particularly as it relates to the introduction of new and high-tech products to the market. Essential topics include; the Concept of Strategy, Industry Analysis – The Fundamentals (Porter’s 5 Forces), the Nature and Sources of Competitive Advantage, Innovation – Creating and Sustaining Successful Growth and Predicting Industry Change.

Primary Text: Contemporary Strategy Analysis, Grant, 7th Ed., Wiley.

AP Macroeconomics 831254
(Grade 10; core; five credits)

The purpose of this course is to give students an understanding of the principles of economics that apply to an economic system. The course places particular emphasis on the study of national income and price level determination and also examines students’ familiarity with economic performance measures, the financial system, stabilization policies, economic growth and international economics.” Essential topics include: Basic Economic Concepts, Measurement of Economic Performance, National Income and Price Performance, Financial Sector, and Inflation, Unemployment, and Stabilization Policies.


AP Microeconomics 835244
(Grade 11; core; five credits)

The purpose of this course is to give students a thorough understanding of the principles of economics that apply to the functions of individual decision makers, both consumers and producers, within the economic system. It places primary emphasis on the nature and functions of product markets, and includes the study of factor markets and of the role of government in promoting greater efficiency and equity in the economy. The topics covered include the functions of product markets, production and cost analysis, behavior of firms in different types of market structures, factor markets and market failure. All of the tests in the course are cumulative and done in the format of the actual AP test.

ACC 151 Introduction to Financial Accounting – 831484 or 831474
(Grade 11 or 12; core; five credits)

This is a college course offered through Syracuse University, and students paying the (discounted) fee for SU credit will receive a Syracuse University transcript. The course introduces students to financial accounting concepts that aid entrepreneurs, managers, and investors in planning, operating, and analyzing a business. Through its emphasis on interpreting financial statements, this class provides a foundation for managing a business as well as for making personal investment decisions. Students are required to complete a comprehensive project that demonstrates their ability to analyze the financial statements of publicly traded companies and make an informed investment decision based on the analysis.

Portfolio Management 831444
(Grade 12; core; five credits)

Portfolio Management is about assembling a mix of assets into a group, or portfolio, in order to achieve stated objectives, particularly, the reduction of risk. The course examines the underlying theory; including the notion that there is an optimum return for a given level or risk and that there is a relationship between risk and return. Portfolio Management examines the portfolio management process at length and then examines several asset classes. Essential topics include: Asset Pricing Theory, Efficient Market Hypothesis; The Portfolio Management Process, the Planning Stage and the Execution Stage, and Asset Classes – Fixed Income.

Managing Investment Portfolios, Maginn & Tuttle, 3rd Ed., Wiley

Derivatives Trading 831454
(Grade 12; core; five credits)

This course examines the mechanics of futures markets, the fundamental and technical determinants of price movement in commodity and financial markets as well as strategies for decision-making and risk management of a trading portfolio. It also considers the psychological biases that impede trader performance. Essential topics include: Futures Markets, Technical Analysis, Psychology and the Markets, The Petroleum Complex, and Foreign Exchange Markets.


Entrepreneurship 831414
(Elective; five credits)

This course offers a broad menu for the student who wishes to develop an understanding of the entrepreneurial process and the knowledge and skills that are required to be successful entrepreneurs or an investor in entrepreneurial ventures. The concentration is on identifying and evaluating opportunities for new business. The key concepts include industry factors, market and competitive factors, and customer needs. Personal entrepreneurial capacity and opportunity feasibility assessments are covered as well. A project to develop a business plan for a new venture is a major activity.

Online Resource: Small Business Administration (www.sba.org).

Corporate Finance (No longer offered)

Corporate finance covers every decision a firm makes that may affect its finances. The objective of decision making, how business should allocate resources across competing uses, the sources of financing, dividend policy decisions and finally tracing the decisions made to a final value. Students will develop an understanding of business finance decisions by exploring a variety of inter-related major topics. Those topics include stock market reactions to geo-political events, capital budgeting, uncertainty and the trade-off between risk and return and the management of risk, and capital structure.

Investment Analysis (No longer offered)

The essential purpose of this class is to be able to examine and assess a broad array of factors (including economic, market trends, earning prospects, financial accounting ratios, etc.) that determine whether an investment is likely to produce a profit. Further, it should provide a means of comparing one potential investment against other investment possibilities to determine, on a relative basis, which is the superior choice. Essential topics include; Business and the Macroeconomic Environment, Financial Statement Analysis, Value Stock Investing, Growth/Momentum Stock Investing, and Leadership and Transformational Change.

### ACADEMIC COURSES

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<td>AP Seminar 792114</td>
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<tr>
<th>Art</th>
<th>Commercial Art &amp; Graphic Design majors are exempt</th>
<th>Painting (793044)</th>
<th>Painting (793044)</th>
<th>Airbrush Cust Paint (863094)</th>
<th>Drawing Fundamentals (793014) Airbrush Cust Paint (863094)</th>
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<td>Music</td>
<td>Commercial Art &amp; Graphic Design majors are exempt</td>
<td>Band (803024) Chorus (803014) Begin Guitar (803034) Music Across Time (803044)</td>
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<td>Financial Literacy</td>
<td>S.A.M. majors are exempt</td>
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<td>Global Challenge (774124) Cloud Computing/Financial Literacy (951474) American Film/Financial Literacy (773024)</td>
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<td>Technical Electives (ALL STUDENTS)</td>
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<td>Mobil App Development (951454) Intro to Aerospace (982514)</td>
<td>CPS 155 Intro to Cybersecurity (951035) Mobil App Development (951454) Entrepreneurship (831414) Intro to Aerospace (982514)</td>
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<td>TECHNICAL COURSES</td>
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Principles of Engineering (982114) 
Airbrush_Custom Painting (863094) |
<p>| <strong>Aerospace Engineering</strong>                             | Introduction to Aerospace Engineering (982514)                   | Principles of Aerospace Engineering (982524 AND Digital Electronics (982314) | Graphic Design Studio I (871394)                                 | Graphic Design Studio II/Prof Practice (871414)                   |
| <strong>Commercial Art &amp; Graphic Design</strong>                  | Found of Graphic Design through Art History (871114)            | Fundamentals of 2D Design &amp; Drawing (871294)                      | Graphic Design Studio I (871394)                                 | Graphic Design Studio II/Prof Practice (871414)                   |
| <strong>Culinology®</strong>                                       | Principles of Culinary Science (851114)                          | Intro to Culinology® (860264) AND Nutrition Food Health (851214) | Culinary Essentials II (851324) AND Chemistry of Food (UMDMJ) (851334) | MicroBiology/Culinology® (851434)                                 |
| <strong>Computer Science</strong>                                 | Intro to Object-Oriented Design (951132)                         | Intermediate Programming (951244) AND Networking I (951234)       | Advanced Programming (951324) AND Networking II (954434)          | ECS 102 Introduction to Computing (951484) AND Cloud Computing/Financial Literacy (951474) |</p>
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<tr>
<th>Digital Media</th>
<th>Introduction to Digital Media (821124)</th>
<th>Graphics and Web Production (821252) AND Audio/Video &amp; Broadcast Media I (821212)</th>
<th>Animation and Web Production (821342) AND Audio/Video &amp; Broadcast Media II (821352)</th>
<th>Advanced Digital Media (821414)</th>
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<td>Law &amp; Justice</td>
<td>Intro to Law &amp; Justice (901114)</td>
<td>AP US Gov &amp; Politics (775354) AND Constitutional Law (892432)</td>
<td>AP US Gov &amp; Politics (775354)**Class of 16 Only AND PAF 101 Intro to the Analysis of Public Policy (892344) AND Crimonology (891214)</td>
<td>CHE 113 Forensic Science (892424) AND Senior Seminar/Financial Literacy (892414)</td>
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<td>Strategic Asset Management</td>
<td>Intro to Business Management (831114)</td>
<td>Strategy Formulation (831234) AND AP Macroeconomics (831254)</td>
<td>AP Microeconomics (835244) AND Intro to Financial Accounting 11 (SUPA) (831484)</td>
<td>Portfolio Management (831444) AND Derivatives Trading (831454)</td>
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