

# Northern High School

## Program of Studies



*“Intellectually Prepared, Civically Engaged, Personally Responsible”*

January 30, 2017

Information in this document is intended to guide decisions for the 2017-2018 school year.

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## Welcome Parents and Students

### Principal's Welcome

Northern High School is comprised of grades 9 to 12 and serves approximately 1,000 students with 65 professional staff. If you visit us in person, you will understand why we are so proud of our students and faculty. Our teachers work hard at developing a partnership with students and their parents. This cooperative approach is essential to our students maximizing their potential. Northern High School students enjoy a variety of academic activities and challenges during the course of their day, and they distinguish themselves by their high performance in these areas. We are committed to providing an educational environment that contains both high expectations and high support. Our faculty works hard to provide a challenging course of study for all students, and our faculty takes the time to work with each student so that they have the opportunity to meet these challenges to the best of their ability. To aid our efforts in having each student realize her/his potential, students must commit to working hard and parents must be supportive. Because of this teamwork, Northern High School has always enjoyed an enviable reputation and we consider it our duty to ensure an even better future.

### School Counselor Team Welcome

At Northern High School we focus on preparing every student for post-high school learning opportunities. These opportunities include attending college, technical school, vocational education or certification programs, enrolling in the military, or joining the workforce. As your School Counseling Team, our mission is to enhance and promote the learning opportunities available to all students. We do so by focusing on each student's academic, career, and personal/social development. We evaluate the assistance we provide by asking, "How are our students successful as a result of our school counseling program?"

The purpose of this "program of studies" is to inform parents and students of the educational offerings available at Northern High School. Parents and students should become familiar with the information contained herein, so they can collaboratively plan the student's high school academic experience. Please do not hesitate to contact your child's assigned school counselor with any questions.

### 2017-2018 Counselor/Administration Assignments

In an effort to build a student services team that best serves our student body, the school counselor and assistant principal loop with the student for grades 10, 11, & 12. These assignments are listed in the table below.

Graduation Class	School Counselor	Assistant Principal
Class of 2018 Grade 12	Mrs. Gunning agunning@nycsd.k12.pa.us	Mr. Borrell dborrell@nycsd.k12.pa.us
Class of 2019 Grade 11	Mr. Reeder dreeder@nycsd.k12.pa.us	Mr. Borrell dborrell@nycsd.k12.pa.us
Class of 2020 Grade 10	Mrs. DePalmer sdepalmer@nycsd.k12.pa.us	Mr. Walker mwalker@nycsd.k12.pa.us
Class of 2021 Last Names A-K	Mrs. DePalmer agunning@nycsd.k12.pa.us	Mr. Lehman slehman@nycsd.k12.pa.us
Class of 2021 Last Names L-Z	Mr. Reeder dreeder@nycsd.k12.pa.us	Mr. Lehman slehman@nycsd.k12.pa.us

## Graduation Credit and Course Requirements

Graduation requirements at Northern High School require each student to pass a minimum of 23.5 credits in grades 9 through 12. Students are required to schedule at least 6.33 credits per year, except for students who are not in the building for a full day because of college courses or the senior co-operative/internship education program.

A subject that is offered for a year must be completed to receive credit (no partial credit is granted for unfinished courses). Failed courses may be rescheduled the following year or made up in the summer at the student's expense (online course or correspondence packet). The fourth year of high school is not required for graduation if the student has completed all requirements to graduate and attends a post-secondary institution as a full-time student.

Northern High School operates on a nine period day (lunch is one of the nine) and on a six-day cycle. Generally, one credit represents the completion of work requiring one period per day, six times per cycle, for one school year. A course that meets fewer than six times per cycle yields a fraction of a credit, depending on the frequency of class meetings. For example, Health education meets one period a day, three days a cycle, for one semester. Passing this course yields .25 credits.

Below is a list of graduation credit requirements, per content area, for students attending Northern High School. For students who transfer in during their high school career, the school counselor and assistant principal will work with the student on a case by case basis to develop a graduation plan.

Content Area	Graduation Credit Requirement
English	4 credits
Social Studies	4 credits (Vo-tech students take 10 <sup>th</sup> & 11 <sup>th</sup> grade social studies at Vo-tech)
Math	3 credits (a 4 <sup>th</sup> year is encouraged)
Science	3 credits (a 4 <sup>th</sup> year is encouraged)
Phys Ed	1.33 credits = Phys Ed (every year, 2 x per cycle, all year) .25 credits = Health (1 semester, 3x per cycle) .25 credits = *Driver Ed-Classroom Theory (On Line-30 hr minimum)
Health	
Driver Ed	
Electives	7.67 credits
<b>Total</b>	<b>23.5 credits</b>

**\*Students must complete their on-line driver education course prior to commencing Behind-the-Wheel driver training.**

### Additional Graduation Requirements

#### Keystone Exam Graduation Requirement

On February 3, 2016, the Governor signed into law Senate Bill 880. This bill delays the use of Keystone Exams as a graduation requirement until the class of 2019. Keystone Exams are state-designed end-of-course exams that impact the graduation status of students. Beginning with the class of 2019, students must score at least proficient on Keystone Exams in Algebra 1, Biology, and Literature. The performance level scored on each Keystone Exam will be on each student's transcript. Student's not proficient on their first Keystone attempt must then receive supplemental instruction (remediation), and then retake the exam. This process of remediation followed by retest will continue until the student reaches proficiency on the Keystone exam, or the corresponding Keystone project based assessment. Students not passing the Keystone exam on the first attempt will experience a reduction in scheduling options because of the required student remediation course(s).

### Course Weights

Courses offered at Northern High School are instructed at various levels of rigor. Thus, course weights vary accordingly. A student's schedule could be composed of honors or advanced placement level courses in the areas of her/his strength, but academic level in other content areas. The chart below outlines this course weight system.

Course Weight	Description
1.0	Normal Course
1.06	Academic Course
1.1	Honors Course
1.12	Advanced Placement Course

*Please Note: A weight of 1.03 (Applied) is utilized by some departments.*

**Course weights only factor into a student's cumulative weighted grade point average (CWGPA) and consequently, class rank.** Course weights **ARE NOT** factored into a student's marking period grade point average, final course grade, or credits earned. An example of how course weights impact a student's CWGPA is shown below.

**Course Weight Example:** Assume a student took Advanced Placement Chemistry and her marking period grades were as follows:

**Student's Grades over the Year**

Marking Period (MP)	Grade	MP Grade x the percentage of grade for the year (.225) Final exam = 10% or .10 of grade
MP 1	81%	$(.81 \times .225) = .1825$
MP 2	73%	$(.73 \times .225) = .1643$
MP 3	78%	$(.78 \times .225) = .1755$
MP 4	82%	$(.82 \times .225) = .1845$
Final Exam	80%	$(.80 \times .10) = .08$
Final Course Grade or Report Card Grade	79%	$.1825 + .1643 + .1755 + .1845 + .08 = .79$ or 79%
Weighted Course Grade for CWGPA	88.48%	$.79 \times 1.12 = 88.48\%$

Because this is an Advanced Placement course, it carries a 1.12 weight (see course weight chart on previous page). Therefore, the student's weighted grade for this course is  $79\% \times 1.12 = 88.48\%$ . An 88.48% will factor into the student's CWGPA, which consequently is used for class rank. **But the student's report card will reflect a grade of 79%.** Students should see their school counselor with any questions related to course weights.

**Course Sequence Examples**

The table below is intended to provide a general snapshot of the core course sequences available for students in grades 9 through 12. These are only examples. Not every possible sequence is depicted. A much more detailed description of each course, and its associated levels and weights, can be found in the **Course Description** section of this document. Students and parents should contact the assigned school counselor with questions.

Grade 9	Grade 10	Grade 11	Grade 12
<b>English</b>			
English I	English II	American Literature or AP English Lang & Comp	English Literature, Contemporary Literature, AP English Lit & Comp, or both Media as Lit and Interactive Journalism
<b>Social Studies</b>			
Western Heritage	World Cultures	US History or AP US History	Govern & Econ or AP US Gov& Politics
<b>Science</b>			
Biology	AP Bio, Bio2, or Chem	Chem, AP Bio, Bio2, AP Chem, or Physics	Chem, AP Bio, Bio2, AP Chem, Physics, AP Physics
Earth & Space	Biology	AP Bio, Bio2, Chem, Anatomy and Physiology	AP Bio, Bio2, Chem, AP Chem, Physics, Anatomy and Physiology
*Students who take two of the following agriculture classes (Large Animal Science, Equine Science, Crop and Soil Science, Greenhouse Management) within the same year or vet science their junior or senior year can count them towards their third science credit. Students may also use Principles of Engineering as their third science.			
<b>Math</b>			
Geometry	Algebra 2	Pre Calc, Trig/Adv Math, Transition to College Math, AP Stats	Applied Calc, AP Calc AB, AP Statistics
Algebra 1	Geometry	Algebra 2, Financial Alg	Trig/Advanced Math, Transitions to College Math, Financial Alg
Algebra 1A	Algebra 1B	Geometry	Personal Finance, Alg 2, Financial Alg,
<b>World Language</b>			
Spanish 2	Spanish 3	Spanish 4	AP Spanish Lang
French 2	French 3	French 4	AP French Lang
Spanish 1	Spanish 2	Spanish 3	Spanish 4
French 1	French 2	French 3	French 4

**College Admissions**

### **World Language Requirement**

Most colleges require students to have two years of the same world language with one of the two years permitted to occur in the middle school. Northern's transcript does indicate the grade level in which the world language course was taken.

However, some colleges require the world language courses to be taken in grades 9-12. Also, some colleges require more than two (2) years of a world language. Lastly, the student's major in college could impact her/his world language requirements.

Because of this variability and the uncertainty of which college students may attend at the early stages of their High School Career, we encourage all students considering college as a post-high school goal to take at least three (3) years of the same world language. Students should see their school counselor for more information.

### **Advanced Placement Course Offerings**

Northern High School students have the opportunity to take a variety of Advanced Placement (AP) courses. Below are the AP courses offered at Northern High School. Courses are not offered if the number of student requests for the course is insufficient. Students are encouraged to take the AP exam, but taking the exam is not a requirement. Students should contact their school counselor for more information.

<b>English</b>	<b>Math</b>	<b>Science</b>	<b>History</b>	<b>World Language</b>	<b>Arts</b>
English Language & Composition	Calculus AB	Biology	United States History	Spanish Language & Culture	Art Studio
English Literature & Composition	Statistics	Chemistry	United States Government & Politics	French Language & Culture	
	Calculus BC	Physics			

### **College Credits**

#### **College in the High School**

The number of Northern High School students earning college credits while in High School continues to increase each year. Some of the ways students do so are:

- Dual Enrollment –Travel to local colleges (or on line) and take courses: HACC Gettysburg, York, or Harrisburg, Messiah College, York College, Dickinson College
- Take HS courses where there is an articulation agreement with a college to give college credit for the HS course
- Meeting the colleges score requirement on AP exams
- Taking courses at the Vocational Technical school college credit articulation agreements have been established

Depending on the college courses taken and the courses needed for High School graduation, credits **may** simultaneously count toward Northern High School's 23.5-graduation credit requirement **and** college credit. Conversely, students not passing their college course could simultaneously not meet Northern's graduation requirements. Students who are interested in earning college credits while in High School must coordinate with their school counselor.

### **Special Interest Program (Gifted)**

The goal of the special interest program (SIP) is to provide students with unique learning opportunities that involve intellectual and developmental enrichment both in and out of the classroom. Students engage in a variety of activities involving multiple intelligences. Students are also provided the opportunity to participate in various individual and team competitions that match their strengths and interests. These competitions include: Scholastic Writing, Pennsylvania Junior Academy of Science, National History Day, PA High School Computer Fair, Life Smarts and Future Problem Solving.

Gifted students choosing to attend the SIP class will meet once a cycle and earn 0.17 credits. It is possible to earn additional credit through some of the competitions. Students choosing to do an independent study or competitions only (and not take the class) will work with the teacher to develop timelines and benchmarks that meet the student's schedule and needs. Credit earned will be based upon the number of hours and/or competitions chosen. Gifted credits are weighted 1.06.

### English as a Second Language (ESL)

Students receiving ESL instruction must take their grade level ESL course as determined by their scores on federal and state mandated English language proficiency assessments.

<b>301112- ESL 9 (Grade 9)</b>	<b>Credit 2</b>	<b>WV 1.00</b>
Students enrolled in ESL 9 are English language learners who have not yet acquired English language proficiency at grade level, in accordance with state regulations/requirements. ESL 9 will engage students in challenging, theme-based English Language Arts curriculum designed to develop their social, instructional, and academic language proficiency. This course meets English graduation requirement.		

<b>301212- ESL 10 (Grade 10)</b>	<b>Credit 2</b>	<b>WV 1.00</b>
Students enrolled in ESL 10 are English language learners who have not yet acquired English language proficiency at grade level, in accordance with state regulations/requirements. ESL 10 will engage students in challenging, theme-based English Language Arts curriculum designed to develop their social, instructional and Academic language proficiency. This course meets English graduation requirement.		

<b>301312- ESL 11 (Grade 11)</b>	<b>Credit 2</b>	<b>WV 1.00</b>
Students enrolled in ESL 11 are English language learners who have not yet acquired English language proficiency at grade level, in accordance with state regulations/requirements. ESL 11 will engage students in challenging, theme-based English Language Arts curriculum designed to develop their social, instructional and academic language proficiency in listening, speaking, reading, and writing. This course meets English graduation requirement.		

<b>301412- ESL 12 (Grade 12)</b>	<b>Credit 2</b>	<b>WV 1.00</b>
Students enrolled in ESL 12 are English language learners who have not yet acquired English language proficiency at grade level, in accordance with state regulations/requirements. ESL 12 will engage students in challenging, theme-based English Language Arts curriculum designed to develop their social, instructional, and academic language proficiency in listening, speaking, reading and writing. This course meets English graduation requirement.		



## Northern Online Academy CAOLA

School Districts in the capital area region joined together to form the Capital Area Online Learning Association (CAOLA). The purpose of joining together was to enter into contracts for services to develop courses and to administer a viable, cost-effective and quality online learning solution for students. Northern York County School District is a charter member district for CAOLA. The Northern Online Academy is an optional program in which students can enroll. Enrollment into CAOLA is not automatic even after the student completes an application. This optional program has strict guidelines and expectations. To learn more about the program, please visit [caola.caiu.org](http://caola.caiu.org) or contact Dave Borrell by phone (717-432-8691 X 2002) or by email at [dborrell@nycsd.k12.pa.us](mailto:dborrell@nycsd.k12.pa.us).

### Work Programs

#### Co-Operative Work Program

Students enrolled in the Co-Operative Work program have the opportunity to receive on-the-job training during their **senior** year. It is recommended that students secure employment that relates to their career interest. Students in this program must also take a class at Northern that is associated with their work experience. The courses students can choose from include: Marketing II, Agriculture, Tech Ed, Family Consumer Science, or Diversified Occupations. Students will receive 1 credit for their work experience and 1 credit for their associated course (except Diversified Occupations which is .5 credit). These 2 (or 1.5 credits if Div. Occ. is taken) credits count toward the 23.5 credit graduation requirement.

A minimum of 15 hours per school week (Monday-Friday) of **paid** work is required of all students in the Co-Op program. Students must be scheduled for work at least three (3) of the five (5) weekdays. Students must be gainfully employed by mid-August to be eligible for this program. The district's Co-Op coordinator (Mr. Kluck at [kkluck@nycsd.k12.pa.us](mailto:kkluck@nycsd.k12.pa.us)) will work with the school counselor to coordinate the experience. Mr. Kluck also does routine visits to each student's place of employment to meet with the student and employer.

Transportation to and from the worksite is the responsibility of the student. **Academic performance** is required to maintain co-op status.

#### Internship Work Program

The internship program is for **senior** students interested in gaining practical experience and exposure to a professional career setting. The internship should relate directly to a student's career goal or ambition. Students in this program are required to complete six (6) hours per school week and these hours must be completed in no less than three (3) weekdays of work. The internship is a non-paid experience and yields 1 credit toward the required 23.5 graduation credits. If at all possible, internship hours should be earned outside of the high school setting.

## NORTHERN HIGH SCHOOL COURSE DESCRIPTIONS

### Music

<b>305160- Band (Grades 9-12)</b>	<b>Credit 1</b>	<b>WV 1.00</b>
This year long course is available to any student who can demonstrate a degree of proficiency on a band instrument resulting from previous instrumental experience, through an audition, or by professional recommendation. In addition to daily classroom activities, the band performs at concerts, musical festivals, and community events. Band is designed to teach students to understand musical concepts and band literature, improve instrument-playing techniques, and promote the traditional band performance functions. Concert attendance is required.		
<b>305161- Band (3 Day) (Grades 9-12)</b>	<b>Credit .5</b>	<b>WV 1.00</b>
This year long course is available to any student who can demonstrate a degree of proficiency on a band instrument resulting from previous instrumental experience, through an audition, or by professional recommendation. In addition to daily classroom activities, the band performs at concerts, musical festivals, and community events. Band is designed to teach students to understand musical concepts and band literature, improve instrument-playing techniques, and promote the traditional band performance functions. Concert attendance is required. Students who sign up for this course must also sign up for either 3 day orchestra or 3 day chorus.		
<b>305162- BOC- Band(Grades 9-12)</b>	<b>Credit .33</b>	<b>WV 1.00</b>
Students interested in taking Band as well as Chorus <b>and</b> Orchestra should enroll in this course. Students will have Band 2 days per cycle, as well as Chorus <b>and</b> Orchestra each 2 days per cycle.		
<b>305164- Wind Ensemble(Grades 9-12)</b>	<b>Credit 1</b>	<b>WV 1.00</b>
Wind Ensemble is for instrumentalists that have successfully auditioned and qualified for the ensemble. The Wind Ensemble performs more difficult, collegiate level repertoire, requires more dedication from student instrumentalists in terms of practice and preparation, and has a demanding rehearsal environment. Wind Ensemble is for students that desire a higher level of musicianship out of their high school instrumental ensemble experience. Concert attendance is required.		
<b>305163- Percussion Ensemble(Grade 9)</b>	<b>Credit 1</b>	<b>WV 1.00</b>
Percussion Ensemble is the ensemble that 9th grade percussionists will perform with during their freshman year in high school, rather than Concert Band or Wind Ensemble. Percussion Ensemble allows 9th grade percussionists to receive more individual attention and instruction than those students in the other ensembles. Students in Percussion Ensemble learn rhythm and note reading skills, refine techniques on all percussion instruments, including mallet percussion, and gain ensemble skills that will better prepare them for success in Concert Band or Wind Ensemble their following year. Percussion Ensemble performs on all concerts. Concert attendance is required.		

<b>305170- Chorus(Grade 9-12)</b>	<b>Credit 1</b>	<b>WV 1.00</b>
This organization is open to those students in Grades 9-12 interested in pursuing the art of singing and the study of vocal literature in the choral setting as well as solo and/or small group singing: period, contemporary, and popular music will be emphasized. Proper vocal and breathing techniques will be stressed during rehearsals to prepare for the holiday concert in December, the spring concert in May (which are both required for the course) and any additional performances. There are usually two mandatory rehearsals before each concert. Previous singing experience is helpful but not required. Students choosing this course will meet all 6 days of the cycle.		
<b>305171- Chorus(3 Day) (Grades 9-12)</b>	<b>Credit .5</b>	<b>WV 1.00</b>
Students interested in taking Mixed Chorus as well as <b>either Band or Orchestra</b> should enroll in this course. Students will have Mixed Chorus 3 days per cycle and either Band <b>or</b> Orchestra on the other 3 days of the cycle.		
<b>305172- BOC- Chorus (Grades 9-12)</b>	<b>Credit .33</b>	<b>WV 1.00</b>
Students interested in taking Mixed Chorus as well as Band <b>and</b> Orchestra should enroll in this course. Students will have Mixed Chorus 2 days per cycle, Band 2 days per cycle, <b>and</b> Orchestra 2 days per cycle.		
<b>305180- Orchestra (Grades 9-12)</b>	<b>Credit 1</b>	<b>WV 1.00</b>
This yearlong course is available to any student who can demonstrate a degree of proficiency on an orchestra instrument (violin, viola, cello, string bass) resulting from previous instrumental experience or through an audition. Orchestra is designed to teach students to understand musical concepts and orchestra literature, and improve instrument-playing techniques. This course also requires attendance at and participation in the Winter and Spring concerts.		
<b>305181- Orchestra (3 Day) (Grades 9-12)</b>	<b>Credit .5</b>	<b>WV 1.00</b>
Students interested in taking Orchestra as well as Mixed Chorus <b>or</b> Band should enroll in this course. Students will have Orchestra 3 days per cycle and either 3 days of Band or 3 days of Chorus on the other 3 days of the cycle.		
<b>305182- BOC- Orchestra (Grades 9-12)</b>	<b>Credit .33</b>	<b>WV 1.00</b>
Students interested in taking Orchestra as well as Band <b>and</b> Chorus should enroll in this course. Students will have Orchestra 2 days per cycle, Band 2 days per cycle, and chorus 2 days per cycle		
<b>305165- Music Theory (Grades 9-12)</b>	<b>Credit 1</b>	<b>WV 1.00</b>
The course is designed to help the student understand aspects of music theory, music notation, solfeggio, compositional and part writing techniques, and other music applications. Music reading skills are helpful in this class. REQUIREMENT: STUDENTS MUST BE IN Mixed Chorus, Band, Orchestra, or Wind Ensemble.		

<b>305166- Beginner Guitar- Semester (Grades 9-12)</b>	<b>Credit .5</b>	<b>WV 1.00</b>
<p>This course is for students interested in learning how to play the guitar. Instruction will be in a formal classroom setting. Students will learn the parts of the guitar, chord chart, standard musical notation, and basic music theory as well as a variety of strumming patterns, chord progressions and finger picking. Individual instruction will be provided to assist students in improving their playing skills. Students are responsible for providing their own <b>acoustic guitar and case</b> and for transporting guitars to and from school. Guitars are not permitted on the school bus per the Transportation Department. This course is for <b>BEGINNER guitar</b> students. Class size is limited to 9 students.</p>		

<b>305167- Beginner Piano- Semester (Grades 9-12)</b>	<b>Credit .5</b>	<b>WV 1.00</b>
<p>This course is for students interested in learning how to play the piano. Emphasis will be placed on proper playing position, the Grand Staff, basic music theory, scales and chord progressions. Attention will be given to improving the student's individual playing skills. This course is for <b>BEGINNER piano</b> students. Class size is limited to 9 students.</p>		

## ART

<b>323161—Exploration of Three Dimensional Art- Semester Course (Grades 9-12)</b>	<b>Credit .5</b>	<b>WV 1.00</b>
<p>This is a semester, hands on, introductory course designed for students with a desire to explore three dimensional art. The course will mainly focus on crafts (applied or useable art) and design. Students will learn and apply the language, rules, materials, tools and techniques used by artists to create their own art works. This will help students to develop applied art skills as well as gain an appreciation and understanding of artists and the field of Art.</p>		

<b>323162—Exploration of Two Dimensional Art– Semester Course (Grades 9-12)</b>	<b>Credit .5</b>	<b>WV 1.00</b>
<p>This semester course is designed to enable students to develop basic perceptual, observational, and compositional skills necessary to communicate a range of subject matter, symbols, ideas, and concepts using knowledge of drawing and painting history, media, processes, and techniques.</p>		

<b>323164—Drawing and Painting 1 (Grades 9-12)</b>	<b>Credit 1</b>	<b>WV 1.00</b>
<p>This yearlong introductory course is designed for students with a desire to develop art skills and knowledge. Emphasis is placed on art history, aesthetics, criticism, art vocabulary and production, observational skills, analytical thought, establishing good studio habits, problem solving, and safety. Through a wide variety of media, the course encompasses drawing, two-dimensional design, printmaking, and painting.</p>		

<b>323290—Ceramics and Sculpture 1 (Grades 9-12)</b>	<b>Credit 1</b>	<b>WV 1.00</b>
<p>This yearlong introductory course is designed for students who desire to develop an understanding of 3-dimensional visual art and design. The course will focus on ceramics (hand-building construction techniques and an introduction to potter's wheel throwing practices) and other 3D design medias. Knowledge and practice will include a variety of ceramics practices and techniques (pinch, slab, coil, kneading wedging, glazing, etc) and other 3D media. Students will study and implement 3D visual art and design styles of professional artists' techniques throughout history to develop their own personal style.</p>		

<b>323165—Drawing and Painting II (Grades 10-12)</b>	<b>Credit 1</b>	<b>WV 1.00</b>
<p>This yearlong course is designed to enable students to develop basic perceptual, observational skills necessary to communicate a range of subject matter, symbols, ideas, and concepts using knowledge of drawing media, processes, techniques, and history.</p> <p><b>Prerequisite:</b> Drawing and Painting I</p>		
<b>323166—Drawing and Painting III (Grades 11-12)</b>	<b>Credit 1</b>	<b>WV 1.00</b>
<p>This yearlong course is designed to enable students to develop intermediate level perceptual, observational skills necessary to communicate a range of subject matter, symbols, ideas, and concepts using knowledge of drawing media, processes, techniques, and history.</p> <p><b>Prerequisite:</b> Drawing and Painting II</p>		
<b>323391—Ceramics and Sculpture II (Grades 10-12)</b>	<b>Credit 1</b>	<b>WV 1.00</b>
<p>This yearlong course is designed to enable students to develop a basic understanding of 3-dimensional visual art and design, through basic perceptual and observational skills necessary to communicate a range of subject matter, symbols, ideas, and concepts. Students will use their knowledge of ceramics, sculpture, and 3D design media, processes, techniques, and history to develop their own individual artistic voices.</p> <p><b>Prerequisite:</b> Ceramics and Sculpture I</p>		
<b>323392—Ceramics and Sculpture III (Grades 11-12)</b>	<b>Credit 1</b>	<b>WV 1.00</b>
<p>This yearlong course is designed to enable students to develop an intermediate understanding of 3- dimensional visual art and design, through basic perceptual and observational skills necessary to communicate a range of subject matter, symbols, ideas, and concepts. Students will use their knowledge of ceramics, sculpture, and 3D design media, processes, techniques, and history to develop their own individual artistic voices.</p> <p><b>Prerequisite:</b> Ceramics and Sculpture II</p>		
<b>323450—AP Art Studio (Grade 12)</b>	<b>Credit 1</b>	<b>WV 1.12</b>
<p>This program is a college-level course intended for highly motivated seniors committed to serious study in art. Students are expected to develop a portfolio which demonstrates ability to deal with the fundamental concerns of the visual arts: QUALITY, a sense of excellence; SUSTAINED INVESTIGATION, an intensive development of an idea or concept; BREADTH, a variety of experiences in the formal, technical, and expressive means available to an artist. Students will choose between creating a 2 dimensional or 3 dimensional portfolio.</p> <p><b>Prerequisite:</b> 3 credits in art classes</p>		
<b>323163—Intro to Computer Animation - Semester (Grades 9-12)</b>	<b>Credit .5</b>	<b>WV 1.00</b>
<p>The Introduction to Computer Animation course will offer students an overview into the world of three-dimensional rendering and computer animation. Using computers and the Blender software program, students will create three-dimensional scenes, computer graphics, DVD quality animations and gaming programs. This course will focus on creating contemporary art pieces and introducing students to the basics of one of the fastest growing career fields.</p>		

<b>323364—Fall Yearbook - Semester (Grades 11 &amp; 12)</b>	<b>Credit .5</b>	<b>WV 1.00</b>
<p>This course will teach skills necessary to produce the school yearbook. Students will study publishing including layout and design, writing/editing copy, headlines, and captions. This course requires the practice of gathering and analyzing information, interviewing, note taking and photography. Students will learn strategies of planning, marketing and distribution of the yearbook. Students will learn proofing strategies and work independently with photographers. Students will learn good work habits and are responsible for the beginning phases of yearbook publication.</p>		

<b>323365—Spring Yearbook - Semester (Grades 11 &amp; 12)</b>	<b>Credit .5</b>	<b>WV 1.00</b>
<p>This course will teach skills necessary to produce the school yearbook. Students will study publishing including layout and design, writing/editing copy, headlines, and captions. This course requires the practice of gathering and analyzing information, interviewing, note taking and photography. Students will learn strategies of planning, marketing and distribution of the yearbook. Students will learn proofing strategies and work independently with photographers. Students will learn good work habits and are responsible for the second half phases of yearbook publication including the spring supplement.</p>		

<b>323167- Honors Drawing and Painting III (Grades 11-12)</b>	<b>Credit 1</b>	<b>WV 1.10</b>
<p>This yearlong course is designed to enable students to develop intermediate level perceptual, observational skills necessary to communicate a range of subject matter, symbols, ideas, and concepts using knowledge of drawing media, processes, techniques, and history. Students who successfully complete this course will be eligible to earn college credit through Seton Hall University. Students interested in taking AP Studio art as a senior are strongly encouraged to enroll in this course.</p> <p><b>Prerequisite:</b> Drawing and Painting II</p>		

<b>323449- Senior Art Portfolio (Grade 12)</b>	<b>Credit 1</b>	<b>WV 1.00</b>
<p>This program is intended for seniors interested in developing a personal body of work. Students will complete teacher directed and independent pieces of artwork and develop a portfolio which demonstrates the ability to deal with the fundamental concerns of the visual arts: QUALITY, a sense of excellence; SUSTAINED INVESTIGATION, an intensive development of an idea or concept; BREADTH, a variety of experiences in the formal, technical, and expressive means available to an artist.</p> <p><b>Prerequisite:</b> 3 credits in art classes</p>		

## English

<b>301140- Honors English I- (Grade 9)</b> NCAA Approved	<b>Credit 1</b>	<b>WV 1.10</b>
<p>Honors English requires students to have strong verbal skills and excellent reading comprehension and writing skills. Students electing this course need to be self-motivated, inquisitive with a strong work ethic, and have a high level of academic integrity. They have the ability to think logically, independently, and creatively and to complete advanced complex assignments. This college preparatory course encourages independent thinking and creativity through discussion and written analysis of literary works. The writing program strengthens the students' skills in the four areas of composition: exposition, narration, persuasion, and description. By studying the structure of the language (including usage and mechanics), students learn how to refine their writing techniques. This course, as part of the literature program is coordinated with the ninth grade social studies course and enhances the students' appreciation of literature and its historical significance.</p>		
<b>301130- Academic English I- (Grade 9)</b> NCAA Approved	<b>Credit 1</b>	<b>WV 1.06</b>
<p>Academic English requires students to have accountability, responsibility, and ability to organize time and materials. These students are able to handle outside reading assignments and move at a fast pace. Competency with abstract ideas and problem solving are integral to these independent, self-motivated learners. This level meets the requirements for any student planning to pursue post-secondary education. This college preparatory course expands the students' language arts skills. The comprehensive study of composition and grammar (including usage and mechanics) enables students to express their thoughts in a clear and meaningful way through all four modes of writing. The literature program, which includes discussion and analysis, encourages an exchange of ideas and information among students while creating literature-based research topics for compositions, presentations, and speeches.</p>		
<b>301240- Honors English II- (Grade 10)</b> NCAA Approved	<b>Credit 1</b>	<b>WV 1.10</b>
<p>Honors English requires students to have strong verbal skills and excellent reading comprehension and writing skills. Students electing this course need to be self-motivated, inquisitive with a strong work ethic, and have a high level of academic integrity. They have the ability to think logically, independently, and creatively and to complete advanced complex assignments. Tenth-grade English is a full-year course involving a composite of four subject areas: literature, grammar, vocabulary, and composition. In the area of literature, the study of short story, poetry, drama, and novel genres introduces and examines elements of fiction in order to gain appreciation and experience. The grammar portion of the course will review the basics of grammar, advancing to the finer points of language usage. The purpose of the vocabulary area is to enable the student to read, write, and speak with precision. It is also geared for application to the pre-college testing programs. The composition area presents the basic writing skills through process writing. Additionally, students will utilize various forms of writing, including narratives, descriptive informative, and persuasive, in response to literature.</p>		

<b>301230- Academic English II- (Grade 10)</b> NCAA Approved	<b>Credit 1</b>	<b>WV 1.06</b>
<p>Academic English requires students to have accountability, responsibility, and ability to organize time and materials. These students are able to handle outside reading assignments and move at a fast pace. Competency with abstract ideas and problem solving are integral to these independent, self-motivated learners. This level meets the requirements for any student planning to pursue post-secondary education. Tenth-grade English is a full-year course involving a composite of four subject areas: literature, grammar, vocabulary, and composition. In the area of literature, the study of short story, poetry, drama, and novel genres introduces and examines elements of fiction in order to gain appreciation and experience. The grammar portion of the course will review the basics of grammar, advancing to the finer points of language usage. The purpose of both the grammar area and the vocabulary area is to enable the student to read, write, and speak correctly and with precision. The composition area presents the basic writing skills through process writing in all types of writing, including expository, persuasive, narrative, and descriptive. All areas of the course are geared for the college-bound student and for application to the pre-college testing programs.</p>		

<b>301210- English II- (Grade 10)</b> NCAA Approved	<b>Credit 1</b>	<b>WV 1.00</b>
<p>English requires that students understand detailed information, deal with concrete ideas, solve problems, read independently, and write satisfactorily. They have both social and organizational skills and are competent at essay and life skills writing. Tenth-grade English is a full-year course involving a composite of four subject areas: literature, composition, grammar, and vocabulary. In the area of literature, the study of short story, poetry, drama, and novel genres introduces and examines the elements of fiction in order to gain appreciation and experience. The composition area presents the basic writing skills through process writing. The grammar portion of the course covers the basics of grammar as they apply to writing. The course integrates vocabulary studies to enable the student to read and write on grade level and to speak more precisely.</p>		

<b>301350- AP English Language and Composition (Grade 11)</b> NCAA Approved	<b>Credit 1</b>	<b>WV 1.12</b>
<p>An AP course in English Language and Composition engages students in becoming skilled readers of prose written in a variety of rhetorical contexts and in becoming skilled writers who compose for a variety of purposes. Both their writing and their reading should make students who elect this course aware of the interactions among a writer’s purposes, audience expectations, and subjects, as well as the way genre conventions and the resources of language contribute to effectiveness in writing. The class prepares students to take the AP Exam which ordinarily consists of 60 minutes for multiple-choice questions, a 15-minute reading period to read the sources for the synthesis essay and plan a response, and 120 minutes for essay questions. Students should expect that there will be substantial writing to prepare for the exam in the course of the year.</p>		



<b>301340- Honors American Literature (Grade 11)</b> NCAA Approved	<b>Credit 1</b>	<b>WV 1.10</b>
<p>Honors American Literature requires students to have strong verbal skills and excellent reading, comprehension, and writing skills. They are self-motivated, inquisitive with a strong work ethic and a high level of academic integrity. They have the ability to think logically, independently, and creatively and to complete advanced complex assignments. This academic course explores in detail the literature of our country from its colonial origins to modern day in a sequential format. The historical and cultural events connected to our national literature are also primary focuses. Reading twelve major American novels/dramas, in addition to the course text, is a requirement. This course is only for the student who can read independently and comprehensively. Various essays of literary criticism are included. Evaluations include essay tests, analytical compositions, and objective quizzes and tests. Elements of literary style, technique, and structure are discussed. In the second semester students write an eight-to ten-page research paper on an approved topic using a minimum of five sources. The course also includes a vocabulary program designed for college-bound students.</p>		

<b>301330- Academic American Literature (Grade 11)</b> NCAA Approved	<b>Credit 1</b>	<b>WV 1.06</b>
<p>Academic American Literature requires students to have accountability, responsibility, and ability to organize time and materials. These students are able to handle outside reading assignments and move at a fast pace. Competency with abstract ideas and problem solving are integral to these independent, self-motivated learners. This level meets the requirements for any student planning to pursue post-secondary education. This course is designed for college-bound juniors. A timeline approach to our nation’s major writers is pursued beginning with the colonial era of the 1600’s and concluding with modern day literature. In addition to the course text, eight full-length novels/dramas are read. Evaluations include essay tests, analytical compositions, and objective quizzes and tests, and other approved projects. During the second semester, students are required to write an eight-to ten-page research paper on an approved topic using a minimum of five sources. The historical and cultural events connected to our national literature are also primary focuses. A vocabulary program for college-bound students is also a major component of the course.</p>		

<b>301310- American Literature- (Grade 11)</b> NCAA Approved	<b>Credit 1</b>	<b>WV 1.00</b>
<p>American Literature requires students to have accountability, responsibility, and ability to organize time and materials. These students are able to handle outside reading assignments and move at a fast pace. Competency with abstract ideas and problem solving are integral to these independent, self-motivated learners. This level meets the requirements for any student planning to pursue post-secondary education. This course is designed for college-bound juniors. A timeline approach to our nation’s major writers is pursued beginning with the colonial era of the 1600’s and concluding with modern day literature. In addition to the course text, eight full-length novels/dramas are read. Evaluations include essay tests, analytical compositions, and objective quizzes and tests, and other approved projects. During the second semester, students are required to write an eight-to ten-page research paper on an approved topic using a minimum of five sources. The historical and cultural events connected to our national literature are also primary focuses. A vocabulary program for college-bound students is also a major component of the course.</p>		

<b>301450- AP English Literature and Composition- (Grade 12)</b> NCAA Approved	<b>Credit 1</b>	<b>WV 1.12</b>
<p>Designed for students proficient in English, this course will provide an enriching experience in the study of literature and advanced composition, as it fulfills the curricular requirements of the <i>AP English Course Description</i>. The literature spans the sixteenth through the twentieth centuries, with an emphasis on written response to and class discussion of reading assignments. The major works assigned may vary slightly from year to year, but the study of literary elements and the analytical writing process remains the same. A list of alternative novels and dramas are listed at the conclusion of the syllabus. Refining writing technique will be a primary focus through literary analyses (both argumentative and interpretive), which implement various critical approaches, and the study of composition, including varied sentence structure, mechanics, transition, and precise word choice. Throughout this process, students will perfect their writing skills through revision and submittal of second drafts.</p> <p><b>Prerequisite:</b> A recommendation from student's English teacher must be received.</p>		

<b>301440- Honors English Literature- (Grade 12)</b> NCAA Approved	<b>Credit 1</b>	<b>WV 1.10</b>
<p>Honors English Literature requires students to have strong verbal skills and excellent reading, comprehension, and writing skills. They are self-motivated, inquisitive with a strong work ethic and a high level of academic integrity. They have the ability to think logically, independently, and creatively and to complete advanced complex assignments. English Survey is an analysis of masterworks of British literature beginning with the fifth century and following a chronological order to the present day. The course will analyze all types of genre and literary styles and correlate the works to the cultural and historical events during which they were written. This fast-paced course will require students to have and use all of their analytical and communication skills.</p>		

<b>301430- Academic English Literature- (Grade 12)</b> NCAA Approved	<b>Credit 1</b>	<b>WV 1.06</b>
<p>Academic English Literature requires students to have accountability, responsibility, and ability to organize time and materials. These students are able to handle outside reading assignments and move at a fast pace. Competency with abstract ideas and problem solving are integral to these independent, self-motivated learners. This level meets the requirements for any student planning to pursue post-secondary education. English Survey, an analysis of masterworks, spanning the fifth to the twentieth century, is designed to give students an introductory overview of British literature. The emphasis is on selected works of major authors, as well as their chief contemporaries. Attention is also given to the development of the literary tradition through historical periods and literary styles. The analytical and communication skills acquired through the study of literature and writing are essential for the college-bound student.</p>		

<b>301410- Contemporary Literature- (Grade 12)</b> NCAA Approved	<b>Credit 1</b>	<b>WV 1.00</b>
<p>Contemporary Literature is a course designed to enable students to accurately analyze and interpret literature and improve reading comprehension skills. Through key concepts of literary analysis, students will be challenged by works in contemporary literature to evaluate conventions of literary style, incorporate new vocabulary from the diction of accomplished authors, apply key literary terms and concepts to their literary analysis, develop skills in utilizing literary synthesis and application to their reading, improve non-fiction reading for understanding, and by incorporating fictional literature from more modern authors, student engagement will expand student literary appreciation.</p>		

<b>301461- Media as Literature- Semester (Grade 12-Fall)</b>	<b>Credit .5</b>	<b>WV 1.06</b>
<p>Media as Literature is a semester course geared towards college-bound seniors. The course is designed to give students opportunities to refine the ability to apply twenty-first century critical thinking skills by comprehending and analyzing the structures, content, and credibility of literary and informational media (print, television, and web) to comprehend, infer, and predict as a structure for making an effective judgment, reaching a conclusion, or taking action. Students will have multiple opportunities to learn and apply the fundamentals of informational writing and reading as it relates to experiences and interactions with speaking and listening to impact an audience or society. Reading and writing will be used as a platform to participate effectively in group discussion as well as showcase mastery of course concepts pertaining to media conventions, distinguishing fact versus fiction, understanding techniques of persuasion, developing effective word choice, identifying point-of-view (perspective); and recognizing author bias.</p>		

<b>301462- Interactive Journalism- Semester (Grade 12-Spring)</b>	<b>Credit .5</b>	<b>WV 1.06</b>
<p>This speech elective is geared towards college-bound seniors. It is designed to give students the opportunities to communicate with poise, develop personal interests, master speaking and listening skills, and think critically. Students will have opportunities to learn fundamentals of oral presentation, to take notes based on observation, to increase their vocabularies through word study and oral presentations as it relates to speech, to prepare and present various types of speeches, to participate in group discussions, to experience platform reading and speaking, to receive an introduction to debate, and to meet some of the challenges of performing through mass media. Connections can and will be made between speaking and writing which include introducing a topic, maintaining logical progression, formulating an outline, and concluding the speech.</p>		

# Mathematics

## Philosophy

Northern High School's Mathematics Department strongly encourages every student to keep as many future career options open as possible. In the course selection decision process, we advise that each student's ability, academic performance and work ethic be matched with the highest appropriate course level. Since today's students may face multiple career changes, it is important that they increase their marketability by maximizing their mathematical potential. Therefore, it is most prudent for our department to emphasize the importance for each student to maximize their individual mathematical potential by selecting the highest level of study to match their post high school goals and academic ability.

### 1.00 Level

The 1.0 sequence aims to provide students who plan to enter the work force immediately following high school graduation with foundational mathematics skills. Algebra and geometry are enhanced with a variety of career applications throughout the three year sequence. A fourth year of optional study is possible through a course in Personal Finance.

### 1.03 Level

Courses in this sequence aim to prepare students for collegiate majors that are not math intensive. The 1.03 level would be most suitable for high school students pursuing a traditional four-year program, an associate program, or a two-year technical program. The study of topics and depth consistent with a College Algebra course are addressed in our Transition to College Mathematics course. Students completing this course as a junior *may* continue collegiate level study in Financial Algebra (or, in rare cases, Honors Applied Calculus).

### 1.06 Level

A goal of these courses is to prepare students who are interested in pursuing a mathematics related field in college. Depending on a particular student's entry level into the program, both Advanced Placement Statistics and Honors Applied Calculus may be an option for studying collegiate level mathematics while still in high school.

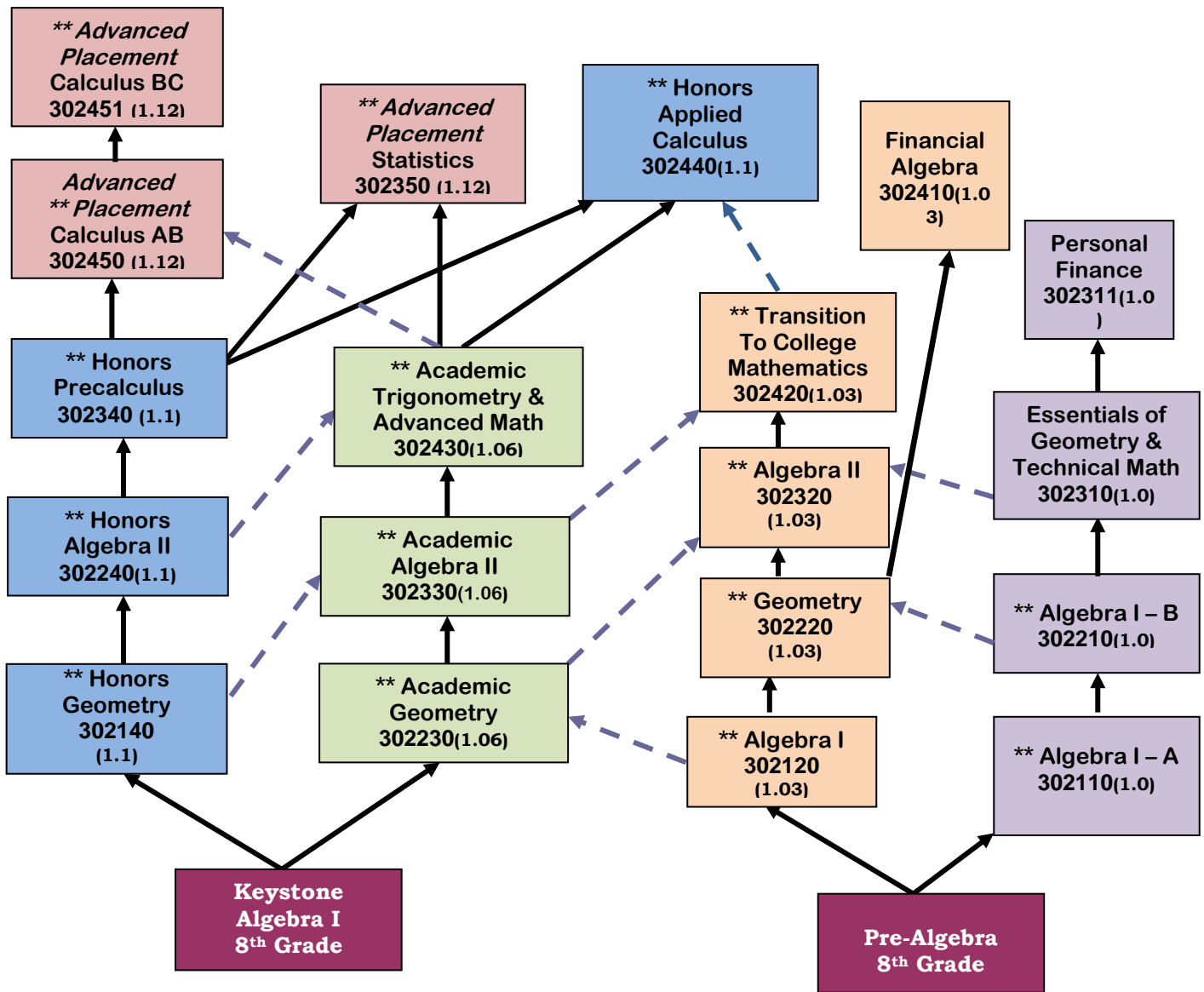
### 1.10 Honors Level

Courses in this sequence aim to accelerate students so they may have the opportunity to earn college mathematics credit(s) while still in high school. Currently, our district offers opportunities through the College Board Testing Program associated with our courses in Advanced Placement Calculus and Advanced Placement Statistics.

### 1.12 AP Level

Advanced Placement Calculus AB, BC and Advanced Placement Statistics.

## Northern High School MATHEMATICS Course Selection Guide



\*\* Denotes courses that have meet NCAA approval for clearing house purposes.

### Math Course Descriptions

302120- Algebra I- (Grade 9) <small>NCAA Approved</small>	Credit 1	WV 1.03
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The first course in the college preparatory pathway, Algebra I is designed to provide students with foundational skills necessary for understanding and applying geometric, trigonometric, and calculus concepts. The two main modules include: 1) Operations with Linear Equations and Inequalities; and 2) Linear Functions and Data Organizations. This course is designed to address the needs of college bound students who plan to pursue a non-mathematics related degree. The Keystone Algebra I Exam will be required for all students in this course.

**Prerequisite:** Pre-Algebra range from 77-99% and teacher recommendation.

**302110- Algebra I-A (Grade 9)**NCAA Approved

**Credit 1**

**WV 1.00**

This course provides the first part of a two-year effort. Algebra I-A addresses topics covered on the Keystone Exam. Included are: Expressions, Equations, Functions, and Inequalities.

**302210- Algebra I-B (Grade 10)**NCAA Approved

**Credit 1**

**WV 1.00**

This course provides a second portion of a two-year study of Algebra I. Algebra I-B finalizes the study of topics contained on the Keystone Exam. Included topics are: Systems of Equations & Inequalities, Polynomials & Factoring, Data Analysis, and Probability. Upon the completion of this course, students will take the Keystone Algebra I exam.

**Prerequisite:** Successful completion of Algebra I-A

**302140- Honors Geometry (Grades 9-10)**NCAA Approved

**Credit 1**

**WV 1.10**

This course is for students who have successfully completed Algebra I in the 8<sup>th</sup> Grade. Honors Geometry provides students with instruction in the logical reasoning used for drawing correct conclusions from definitions, postulates, corollaries, and theorems. The course will include topics in plane geometry along with related topics in the Keystone modules: 1) Geometric Properties and Reasoning; and 2) Coordinate Geometry and Measurement. A goal of this course is to accelerate students so they may have an opportunity to study mathematics at a collegiate level their junior and/or senior years.

**Prerequisite:** Algebra I in 8<sup>th</sup> grade earning 90% or above, successful completion of Keystone Algebra I Exam, and teacher recommendation required.

**302230- Academic Geometry (Grades 9-10)**NCAA Approved

**Credit 1**

**WV 1.06**

This course is for those students who have successfully completed Algebra I in the 8<sup>th</sup> grade (some students may be recommended by 9<sup>th</sup> grade Algebra teachers). Geometry is the study of logical reasoning. Points, lines, and planes are used as the building blocks of geometric figures, and as the basic models from which to reason. Emphasis is placed on formal proofs and problem-solving involving algebra skills. The course will include topics from Keystone modules: 1) Geometric Properties and Reasoning; and 2) Coordinate Geometry and Measurement. A goal of this course is to prepare students for the demands of mathematics related degrees.

**Prerequisite:** Successful completion of Algebra I Keystone Exam and Algebra I grade ranging 77-89%. Teacher recommendation required.

**302220- Geometry (Grades 10-12)**NCAA Approved

**Credit 1**

**WV 1.03**

This course is for those students who have successfully completed Algebra I. Geometry is the study of logical reasoning. Points, lines, and planes are used as the building blocks of

geometric figures, and as the basic models from which to reason. Emphasis is placed on formal proofs and problem-solving involving algebra skills. This course will include topics from Keystone modules: 1) Geometric Properties and Reasoning; and 2) Coordinate Geometry and Measurement.

**Prerequisite:** 8<sup>th</sup> Algebra I range of 70-76% or Algebra I grade of 77%.

**302310- Essentials of Geometry (Grades 11-12)**

**Credit 1**

**WV 1.00**

This course will provide practical vocational and technical applications of mathematical concepts with a focus on the essential skills and concepts of geometry. Technical applications and problems presented will be drawn from diverse occupational fields. Many problems will require students to work with illustrations found in trade and technical manuals, handbooks and drawings. The mathematical concepts presented in this course will draw from principles developed in Keystone Algebra I.

**Prerequisite:** Minimum completion of Keystone Algebra I-A – Algebra I-B sequence or Algebra I.

**302240- Honors Algebra II (Grades 10-11)** NCAA Approved

**Credit 1**

**WV 1.10**

Honors Algebra II is designed for those students who have successfully completed Keystone Algebra I in 8<sup>th</sup> grade. This course presents a more in-depth approach of many of the topics introduced in Algebra I. Additional topics such as irrational and complex numbers, polynomial equations, and exponential and logarithmic functions are based on the Keystone Algebra II modules – Module 1: Number Systems & Non-Linear Expressions and Equations – Module 2: Functions and Data Analysis. A goal of this course is to accelerate students so they may have an opportunity to study mathematics at a collegiate level their junior and/or senior years.

**Prerequisite:** Algebra I grade of 90% or above & Honors Geometry grade of 77% or above is required. Teacher recommendation required.

**302330- Academic Algebra II (Grades 10-12)** NCAA Approved

**Credit 1**

**WV 1.06**

This course will extend many of the topics in Algebra I with a more in-depth approach. New topics are based on the Keystone Algebra II modules – Module 1: Number Systems & Non-Linear Expressions and Equations – Module 2: Functions and Data Analysis. Students should understand this 1.06 level course has expectations consistent with its goal – to provide students the opportunity to meet the demands of math related degree in college.

**Prerequisite:** Passing score on Keystone Algebra I exam & Academic Geometry of 77 % or above. Teacher recommendation required.

**302320- Algebra II (Grades 10-12)** NCAA Approved

**Credit 1**

**WV 1.03**

This course will extend many of the topics in Algebra I with a more in-depth approach. Algebra II is recommended for the student who has successfully completed prior courses or students who find their collegiate plans shifting to a career that does not depend upon mathematics. Content material is based on the Keystone Algebra II modules – Module 1: Number Systems & Non-Linear Expressions and Equations – Module 2: Functions and Data Analysis.

**Prerequisite:** Successful completion of Keystone Algebra I exam, Algebra I and Geometry.

**302340- Honors Pre-calculus (Grades 11-12)** NCAA Approved

**Credit 1**

**WV 1.10**

This course is designed to lay the foundation for the study of calculus at the 12<sup>th</sup> grade level. There are immediate extensions of algebra II skills. Pre-calculus places a strong emphasis on

unit circle trigonometry and addresses such topics as exponential and logarithmic functions, matrices, sequences, probability, and analytic geometry. A goal of this course is to accelerate students so they may have an opportunity to study mathematics at a collegiate level their junior and/or senior years.

**Prerequisite:** An Honors Algebra II grade of 77% is recommended. Teacher recommendation required.

<b>302430- Academic Trigonometry/ Advanced Mathematics (Grades 11-12)</b> <small>NCAA Approved</small>	<b>Credit 1</b>	<b>WV 1.06</b>
<p>Trigonometry / Advanced Mathematics is designed to bridge the gap between Algebra II and Calculus. A strong emphasis is placed on trigonometric functions using an approach based on the definition of the basic functions with respect to the unit circle. Reinforcement of algebraic skills and concepts is an additional outcome of the course. Successful completion of this course will result in more adequate preparation for the study of collegiate level mathematics and/or a math dependent collegiate major.</p> <p><b>Prerequisite:</b> Students must have a teacher recommendation and an Academic Algebra II grade of 77% or higher. Students who have taken Algebra II require a parental override to enroll in this course.</p>		

<b>302420- Transition to College Mathematics (Grades 11-12)</b> <small>NCAA Approved</small>	<b>Credit 1</b>	<b>WV 1.03</b>
<p>This course is designed to bridge the gap between Algebra II, Geometry, and collegiate courses in mathematics. Emphasis will be placed on linear, polynomial, rational, trigonometric, exponential, and logarithmic functions, matrices, systems of equations and inequalities, and other algebraic and geometric concepts. Students may use graphing calculators and computer software for various mathematical applications. Both topics and depth of study aim to be consistent with the expectations of a traditional College Algebra course required for many non-math dependent collegiate majors or many associate degree programs.</p> <p><b>Prerequisite:</b> Completion of Algebra I, Geometry &amp; Algebra II. Teacher recommendation required.</p>		

<b>302410- Financial Algebra (Grades 11-12)</b>	<b>Credit 1</b>	<b>WV 1.03</b>
<p>Financial Algebra is an algebra-based, technology-dependent, application-driven course. This course addresses mathematics topics under seven financial umbrellas: Banking, Investing and Modeling a Business, Employment and Income Taxes, Automobile Ownership, Independent Living, and, Retirement Planning and Budgeting. Students will use a variety of problem solving skills and strategies in real-world contexts. All units will have increased emphasis on algebraic representations, graphical displays, verbal descriptions and the interrelationships of these three approaches.</p> <p><b>Prerequisite:</b> Keystone Algebra I and a Geometry Course.</p>		

<b>302450- AP Calculus AB (Grades 11-12)</b> <small>NCAA Approved</small>	<b>Credit 1</b>	<b>WV 1.12</b>
<p>Advanced Placement Calculus provides those students who began the study of algebra at the eighth-grade level the opportunity to gain an additional year's work in mathematics. There is a concentration on theory as well as application of calculus principles. This course is designed</p>		



to follow the AP calculus AB curriculum (A complete course description can be found at [www.collegeboard.com](http://www.collegeboard.com)). The course will address topics in both derivative and integral calculus. Topics will fall under one of four major headings: (1) Limits; (2) Continuity; (3) Derivatives; and (4) Integration. (Note: AP Calculus AB is designed to prepare students for the advanced placement calculus AB test administered by the College Board. Institutions of higher education may or may not recognize a passing score on this exam for credit.)

**Prerequisite:** Teacher recommendation and completion of Honors Pre-calculus.

<b>302440- Honors Applied Calculus (Grade 12)</b> NCAA Approved	<b>Credit 1</b>	<b>WV 1.10</b>
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Applied Calculus provides those students who have successfully completed Trig / Advanced Mathematics in their junior year with the opportunity to build a fundamental understanding of calculus. The emphasis of this course will be on the mechanics of calculus. Both differential and integral calculus will be studied. The primary goal of this course will be to provide a solid base for the study of calculus at the collegiate level.

**Prerequisite:** Completion of Trig/ Advanced Mathematics or Pre-calculus. Teacher recommendation required.

<b>302350- AP Statistics (Grades 11- 12)</b> NCAA Approved	<b>Credit 1</b>	<b>WV 1.12</b>
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This course is designed to follow the AP statistics curriculum (A complete course description can be found at [www.collegeboard.com](http://www.collegeboard.com)). It will provide an introduction to statistical methods and data analyses that are common to a first level collegiate course. The course will address topics in both descriptive and inferential statistics. Topics will fall under one of four major headings: (1) Exploring Data – Observing patterns and departures from patterns; (2) Planning a Study – Deciding what and how to measure; (3) Anticipating patterns – Producing models using probability theory and simulation; and (4) Statistical Inference – Confirming models. (Note: AP Statistics is designed to prepare students for the advanced placement statistics test administered by the College Board. Institutions of higher education may or may not recognize a passing score on this exam for credit.)

**Prerequisite:** Successful completion of Academic Algebra II or higher and teacher recommendation required.

<b>302311- Personal Finance (Grade 10-12)</b>	<b>Credit 1</b>	<b>WV 1.00</b>
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The purpose of Personal Finance is to empower students through knowledge and application of basic financial principles to enable skills for making sound financial decisions through life. The goals of this course are to: Enhance students’ financial literacy skills; Enable students to develop informed money-management strategies; Stimulate interest in financial management; Inspire students from all backgrounds to achieve financial well-being; Foster an understanding and appreciation of ethical money management; Reinforce academic skills such as communication, computation, reading, research and writing; Help students develop flexible knowledge, effective problem-solving skills, effective collaboration skills, and intrinsic motivation through the use of a variety of individual and group activities.

**Prerequisite:** Algebra I (or both Algebra 1A & Algebra 1B) and a Geometry course.

<b>302451- AP Calculus- BC (Grade 12)</b> NCAA Approved	<b>Credit 1</b>	<b>WV 1.12</b>
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AP Calculus BC provides our most talented mathematical students an additional year's work in collegiate mathematics. There is a concentration on theory as well as application of calculus principles. This course is designed to follow the AP Calculus BC curriculum (A complete course description can be found at [www.collegeboard.com](http://www.collegeboard.com)). The course will address topics in both derivative and integral calculus. Topics will fall under one of five major headings: (1) Limits; (2) Continuity; (3) Derivatives; (4) Integration; and (5) Sequence & Series. (Note: AP Calculus BC is designed to prepare students for the advanced placement calculus BC test administered by the College Board. Institutions of higher education may or may not recognize a passing score on this exam for credit.)

**Prerequisite:** Invitation by instructor only.

**302212- Algebra I Remediation- Semester (Grades 9-12)**

**Credit .25**

**WV 1.00**

This course is designed to provide students with tools to help them master topics found on the Keystone Algebra I Exam. This course also meets the state requirement of supplemental instruction for any student who does not pass the Keystone Algebra I exam. This course will be assigned to students once the Keystone Algebra I exam results are received from the state (July). Credit from this course does not count toward the district's math graduation requirement, but does count toward the district's requirement of 23.5 credits to graduate.

**Social Studies**

**304140- Honors Western Heritage (Grade 9)NCAA Approved**

**Credit 1**

**WV 1.10**

The course will present information pertaining to the various ancient civilizations, medieval/early modern times, and modern/contemporary times. Students will analyze, synthesize, and evaluate course information in order to examine the impact of the various types of government, social structure, and religion. An emphasis will be placed on how religions and governments affected the social structure of various time periods. Students will be able to apply the information they have learned to global situations. As a result, students will gain a better understanding of the world in which they live and how they fit into not only their small social sphere but the world and its history as a whole.

**304130- Academic Western Heritage (Grade 9)NCAA Approved**

**Credit 1**

**WV 1.06**

During the course of study students will learn how civilizations developed, the development and influence of religion on society, the structure and relevance of society, and the impact of government. Students will focus on the development of philosophical views involving man's interaction with the environment and the influence of man on future civilizations. Students will learn cause and effect relationships of major events. Differing points of view concerning major events will be discussed. Students will gain a better understanding of where our world is today by learning about the past. By learning about the history of man, students will develop an understanding of how the world has become the place it is today.

**304240- Honors World Cultures (Grade 10)NCAA Approved**

**Credit 1**

**WV 1.10**

World Cultures focuses on the major areas of the Eastern Hemisphere including the former Soviet Union, China, Middle East, Africa, Southeast Asia, Japan, and India. Each of these regions will be studied by examining its geography, history, culture, economic system, and political system. The result of taking this course should be greater awareness of why other cultures are different from ours, an appreciation of these differences, and an acute awareness of the need to understand each other in a shrinking world.

**Prerequisite:** An “A” average in an academic or honors level 9<sup>th</sup> grade social studies course and a teacher recommendation.

<b>304230- Academic World Cultures (Grade 10)</b> NCAA Approved	<b>Credit 1</b>	<b>WV 1.06</b>
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World Cultures focuses on the major areas of the Eastern Hemisphere including the former Soviet Union, China, Middle East, Africa, Southeast Asia, Japan, and India. Each of these regions will be studied by examining its geography, history, culture, economic system, and political system. The result of taking this course should be greater awareness of why other cultures are different from ours, an appreciation of these differences, and an acute awareness of the need to understand each other in a shrinking world.

<b>304210-World Cultures (Grade 10)</b> NCAA Approved	<b>Credit 1</b>	<b>WV 1.00</b>
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World Cultures focuses on the major areas of the Eastern Hemisphere including the former Soviet Union, China, Middle East, Africa, Southeast Asia, Japan, and India. Each of these regions will be studied by examining its geography, history, culture, economic system, and political system. The result of taking this course should be greater awareness of why other cultures are different from ours, an appreciation of these differences, and an acute awareness of the need to understand each other in a shrinking world.

<b>304350- AP U.S. History (Grade 11)</b> NCAA Approved	<b>Credit 1</b>	<b>WV 1.12</b>
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AP U.S. History is a comprehensive course, covering America’s history from discovery to present and is designed to be taught at the college level. Accordingly, all books, materials, readings, and discussions will be comparable to those used in a 100 level college course. The course will require students to think, write, read and express themselves at advanced levels. The basic curriculum guidelines are established by the College Board, enabling students who so desire to take the advanced placement test at the end of the year. Students are strongly encouraged and advised to participate in this testing and placement program, which can result in college credit, depending upon the major selected and institution attended.

**Prerequisite:** An “A” average in a honors level 10<sup>th</sup> grade social studies course and a teacher recommendation.

<b>304340- Honors U.S. History (Grade 11)</b> NCAA Approved	<b>Credit 1</b>	<b>WV 1.10</b>
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The course will concentrate on American history from 1900 to the present with a brief review of events leading up to the 20th Century. The students will examine the major historical, political, social, and economic events from each decade and/or era. The honors level will require extensive reading and writing as a means to provide critical analysis of the topics covered. Students will examine events and characters from a cultural, time appropriate perspective and will be challenged to compare and contrast this view with a modern, present day perspective. The intent is for students to understand how America’s history has shaped our present day culture, economy, and political system.

**Prerequisite:** An “A” average in an academic or honors level 10<sup>th</sup> grade social studies course and a teacher recommendation.

<b>304330- Academic U.S. History (Grade 11)</b> NCAA Approved	<b>Credit 1</b>	<b>WV 1.06</b>
<p>The course will concentrate on American history from 1900 to the present, with a brief review of events leading up to the 20th Century. The student will examine the major historical, political, social, and economic events from each decade and/or era. Students will examine and evaluate various key events in the growth of America throughout the 20th century. There will be a specific focus on how historical events and figures have influenced and shaped the present age. Students will also be encouraged to analyze how the history of the United States has impacted their individual lives, thoughts, and circumstances.</p>		

<b>304310-U.S. History (Grade 11)</b> NCAA Approved	<b>Credit 1</b>	<b>WV 1.00</b>
<p>The course will concentrate on American history from 1900 to the present, with a brief review of events leading up to the 20th Century. The student will examine the major historical events from each decade and/or era. Students will examine various key events in the growth of America throughout the 20th century. There will be a specific focus on how historical events and figures have influenced and shaped the present age. Students will also be encouraged to recognize how the history of the U. S. has impacted their individual lives, thoughts, and circumstances.</p>		

<b>304450- AP U.S. Government &amp; Politics (Grade 12)</b> NCAA Approved	<b>Credit 1</b>	<b>WV 1.12</b>
<p>During the course of study students will critically examine politics and government in the United States. The course will focus on 1) the constitutional underpinnings of the United States government; 2) the institutions of national government; 3) civil liberties and civil rights; 4) political beliefs and behaviors; 5) political parties, interest groups and the mass media; and 6) public policy. During the course of study students will gain an understanding of the foundations of government, federalism, the powers of the three branches of government, the electoral process, political parties, the influence of interest groups and the media. Students will study historical and current events issues involving civil liberties and civil rights to determine the legal, political and social ramifications of these events.</p> <p><b>Prerequisite:</b> An “A” average in an academic or honors level 11<sup>th</sup> grade social studies course and a teacher recommendation.</p>		

<b>304440- Honors American Government &amp; Economics (Grade 12)</b> NCAA Approved	<b>Credit 1</b>	<b>WV 1.10</b>
<p>This course will be comprised of one semester of government &amp; one semester of economics. The semester on American government focuses on a highly critical examination of the foundations of American government, the development of the United States political system, the three branches of government and civil rights &amp; liberties. Utilizing current articles, primary source documents &amp; other higher level readings we examine our government &amp; apply classroom knowledge to current situations. The semester on economics is an analytical introduction to both micro and macroeconomics, using a college level text. It focuses on economic systems, supply &amp; demand, the determination of prices, market structures, &amp; personal finance. Students will be expected to do an involved project researching &amp; participating in the stock market.</p> <p><b>Prerequisite:</b> An “A” average in an academic or honors level 11<sup>th</sup> grade social studies course and a teacher recommendation.</p>		

<b>304430- Academic American Government &amp; Economics (Grade 12)</b> NCAA Approved	<b>Credit 1</b>	<b>WV 1.06</b>
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This course will be comprised of one semester of government & one semester of economics. The semester on American government focuses on the foundations of American government, the three branches of government & the current workings of the United States political system. Included in the analysis are current articles & other documents to supplement the text. The semester on economics is an introduction to both micro and macroeconomics with an emphasis on microeconomics. It focuses on economic systems, supply & demand, the price system & personal finance.

<b>304410-American Government &amp; Economics (Grade 12)</b> NCAA Approved	<b>Credit 1</b>	<b>WV 1.00</b>
This course will focus on the United State economy, contemporary issues, and federal government. Students will utilize a variety of learning methods to gain a more thorough understanding of foundations, organization and purpose of government, civic responsibilities, and fundamental economic systems.		

<b>304360- WWII/ The Holocaust- Semester (Grades 11-12)</b> NCAA Approved	<b>Credit .5</b>	<b>WV 1.06</b>
There is a great deal of interest in WWII and the events leading up to and including the Holocaust. This course will concentrate on the events leading up to the war, the European theater of the war, and explore possible reasons for the Holocaust and the aftermath of both the war and the Holocaust.		

<b>304370- Psychology- Semester (Grades 11-12)</b> NCAA Approved	<b>Credit .5</b>	<b>WV 1.06</b>
Psychology is the study of behavior and mental processes. This course is an opportunity to become more self-aware, improve critical thinking skills & be introduced to this field of study before post-secondary education. Topics covered include approaches to psychology, the life span, the working of the mind & body, learning & cognitive processes, and personality & individuality. Class participation is a critical element of this course. This course cannot be used toward the required social studies credits for graduation.		

<b>304271- American Civil War Survey-Semester (Grades 10-12)</b>	<b>Credit .5</b>	<b>WV 1.06</b>
Sometimes called the "War Between the States", was a civil war fought over the secession of the Confederate States. Eleven southern slave states declared their secession from the United States and formed the Confederate States of America; the other 25 states supported the federal government ("the Union"). In this class we will examine the historical causes of the war, the political, military, social, and cultural facets of the war itself, and the period of Reconstruction.		

<b>304372- Sociology -Semester (Grades 11-12)</b> NCAA Approved	<b>Credit .5</b>	<b>WV 1.06</b>
Sociology is the study of the development, structure, and functioning of human society. In this course, students will explore how and why people interact with each other the way they do both in American society and in other cultures. Since we are all social beings living in an increasingly interconnected world, it is imperative that we understand the effects that society has on each of us as well as the consequences of human behavior. This course is a great way to be introduced to this field of study before post-secondary education. Class participation is a critical element of this course. This course cannot be used toward the required social studies credits for graduation.		

<b>304273- Vietnam War Survey -Semester (Grades 10-12)</b>	<b>Credit .5</b>	<b>WV 1.06</b>
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One of the most divisive military efforts in United States history since the Civil War was the Vietnam War. The Vietnam War has been a subject of widely-differing opinions over whether or not America should have involved itself in this bloody and hard-fought conflict. This course will examine the history of the Vietnam War. It will provide the historical background that set the stage for the conflict, the events that led directly to the war, the major issues involved at home and abroad, and an overview of the major battles. Further, this course will also cover the non-military aspects of the war, such as the changing political climate in the United States during the late 1960s that had a profound impact on the outcome of the struggle.

## Science

<b>303140- Honors Biology (Grades 9-10)</b> NCAA Approved	<b>Credit 1</b>	<b>WV 1.10</b>
This college preparatory course is offered to highly motivated students seeking an academic challenge by having biological information presented in maximum detail going beyond the scope of the book. Critical thinking skills will be maximized. The analytical processing of factual knowledge is expected. Inductive reasoning is required. Students will be provided the opportunity to maximize the science and math curriculum. Only students with a strong academic background should investigate this course.		
<b>303130- Academic Earth and Space (Grade 9)</b> NCAA Approved	<b>Credit 1</b>	<b>WV 1.06</b>
Earth Science is the name for all the sciences that collectively seek to understand Earth and its neighbors in space. Students will learn about the forces that have shaped the Earth and how our planet continues to change. Many of these have a direct influence on the inhabitants of our world and play a major role in how and where we live. In addition to a basic understanding of geology, meteorology and astronomy, the academic level course will emphasize developing critical and creativethinking, organization, effective written and verbal communication, and numeric and verbal problemsolving.		
<b>303240- Honors Chemistry (Grades 10-12)</b> NCAA Approved	<b>Credit 1</b>	<b>WV 1.10</b>
This college preparatory course is recommended for a student with a strong math background and a commitment to extensive study,and is intended for students interested in pursuing a career in a health & medical, science, technology, engineering, or math related field. Application and interpretation of information is stressed,not mere memorization of facts. Lab performances constitute a large part of a student's grade. Itis expected that students who elect this level are planning to take four or more science creditstoward graduation. All students will be considered with the recommendations of their previousscience teachers. Students will reinforce the scientific method through independent projects.Examples may include science fair, ExploraVision, or other science contests and projects. Agraphics calculator is recommended. The instructor uses a TI-84 model. <b>Prerequisite:</b> A or B in Honors Biology, or teacher recommendation		
<b>303230- Academic Biology (Grade 10)</b> NCAA Approved	<b>Credit 1</b>	<b>WV 1.06</b>
This college preparatory course is offered to motivated students with a desire to have biological information presented in detail going beyond the scope of the book. Critical thinking and analytical skills will be developed. The mastery of factual knowledge is required. Inductive reasoning will be used. Only students with an academic background should investigate this course.		

<b>303210-Biology (Grade 10)</b>	<b>Credit 1</b>	<b>WV 1.00</b>
<p>This course deals with descriptive and quantitative information in Biology and incorporates the importance of Biological fundamentals in everyday life. A basic understanding of biological processes and generalizations is expected. Critical thinking, analytical skills and inductive reasoning will be introduced.</p>		

<b>303340- Honors Physics (Grade 11-12)</b> NCAA Approved	<b>Credit 1</b>	<b>WV 1.10</b>
<p>This physics course is designed for the honors-level student. The course will cover the traditional topics of physics with an emphasis on abstract thinking, a high level of problem solving, and conceptual understanding. The course is designed to challenge the highest-level student.</p> <p><b>Prerequisite:</b> Trigonometry (or concurrent with Trigonometry)</p>		

<b>303330- Academic Chemistry (Grade 10-12)</b> NCAA Approved	<b>Credit 1</b>	<b>WV 1.06</b>
<p>This college preparatory course content is similar to the honors course, but the pace is somewhat slower and there is less emphasis on independent projects. However, this course is also recommended for students interested in pursuing a career in a health &amp; medical, science, technology, engineering, or math related field. A solid foundation in algebra is needed for this level. A graphics calculator is recommended, but at least a scientific calculator is required. The instructor uses a TI-84 model.</p> <p><b>Prerequisite:</b> Minimum of a C in Algebra II</p>		

<b>303320- Chemistry (Grades 11-12)</b> NCAA Approved	<b>Credit 1</b>	<b>WV 1.03</b>
<p>This course is recommended for a student who is not planning to major in science in college. <b>Students interested in pursuing a career in a health, medical, science, technology, engineering, or math related field are advised to select academic or honors.</b> The mathematics component of this course is less rigorous than Chemistry 4320, but basic algebra skills are needed for scientific problem solving. The content covers traditional Chemistry topics with more drill and review. Long-term team and individual projects may be assigned to reinforce course concepts and their connection to the real world. A serious work ethic is required for success in this course. A scientific calculator is required and is used almost daily.</p> <p><b>Prerequisite:</b> Algebra I</p>		

<b>303350- AP Chemistry (Grades 11-12)</b> NCAA Approved	<b>Credit 1</b>	<b>WV 1.12</b>
<p>This course offers an advanced study of chemistry for those students who have exhibited strengths in science and math and wish to pursue pre-med, engineering, or other science related careers. Students who succeed in this course will be prepared to take the Advanced Placement Chemistry exam in May. The course emphasizes quantitative studies with integrated lab work in topics including molecular structure, energy, and states of matter, stoichiometry, gas law calculations, colligative properties of solutions, reaction rates, equilibrium, and electrochemistry. Experience with graphing calculator will be helpful for this course. (Instructor uses Model TI-84.)</p> <p><b>Prerequisite:</b> Chemistry</p>		

<b>303250- AP Biology (Grades 10-12)</b> NCAA Approved	<b>Credit 1</b>	<b>WV 1.12</b>
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This course focuses on conceptual understandings and the content that supports them. Students will spend less time on factual recall and more time on inquiry-based learning of essential concepts. Students in this course will develop advanced inquiry and reasoning skills, such as designing a plan for collecting data, analyzing data, applying mathematical routines, and connecting concepts in and across domains. The result will be readiness for the study of advanced topics in subsequent college courses.

**Prerequisite:** 93% or higher Biology I and recommendation from instructor.

<b>303440- Honors Biology 2 (Grades 10-12)</b> NCAA Approved	<b>Credit 1</b>	<b>WV 1.10</b>
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This course is offered to students seeking a second year of biology study.

**Prerequisite:** 86% or higher in Biology I and recommendation from instructor.

<b>303450- AP Physics (Grade 12)</b> NCAA Approved	<b>Credit 1</b>	<b>WV 1.12</b>
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This course is for the student that successfully completed honors or academic Physics and would like to further study Physics. Topics will include Special Relativity, Angular Motion, Nuclear Physics, Momentum in Two Dimensions, AC Electricity, and other related topics.

<b>303455- Anatomy and Physiology (Grades 10-12)</b>	<b>Credit 1</b>	<b>WV 1.06</b>
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This academic level class is designed for students who want to learn about the intricacies of the human body. This course is designed for students who are interested in learning about the human body but are not necessarily pursuing a bachelor's degree or higher in a science field. If you are pursuing a bachelor's degree or higher in a science field, you are encouraged to select from the honors or AP science electives rather than this course. In this course, students will learn about the systems of the human body and how all of these systems work together from both an anatomical and physiological perspective. This class will be lab and dissection based and will require both memorization and application of material. There will be an emphasis of critical thinking, effective written and verbal communication, and work ethic.

**Prerequisites:** Biology, Chemistry (can be taken concurrently), Recommendation of Biology Teacher

<b>303212- Biology Remediation (Grade 10-11)</b>	<b>Credit 1</b>	<b>WV 1.00</b>
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This course is designed for students who did not reach proficiency on the Keystone Biology exam. It will meet every other day for one semester.



*An Agricultural Science and Engineering Education at Northern High School will provide students with an understanding of and an appreciation for the production, utilization, and management of food, feed, fiber, and natural resources through experiential and inquiry-based learning opportunities. A complete Agricultural Science and Engineering Education at Northern High School has three essential components: Classroom/Laboratory Instruction, FFA, and Supervised Agricultural Experience. Students are encouraged to participate in FFA activities if they are enrolled in an agricultural course. SAE requirements apply.*

<b>318488- Agricultural Leadership Development (REQUIRED for any student in Grade 9 taking an agricultural course) - Semester</b>	<b>Credit .5</b>	<b>WV 1.00</b>
<p>The purpose of this course is to provide students with opportunities to develop knowledge, skills, and abilities to realize their fullest potential to be premier leaders, grow personally, and ultimately be successful in their chosen career. Students in the course will be responsible for successfully organizing and conducting FFA, school, and community-based activities. Public speaking, teamwork, communication, and parliamentary procedure will be emphasized. Students in the agricultural science or engineering programs desiring to develop their leadership skills are encouraged to take this course. All students are FFA members through this course.</p>		
<b>318496- Introduction to Agricultural Engineering (Grades 9-12) - Semester</b>	<b>Credit .5</b>	<b>WV 1.00</b>
<p>This hand-on course of Introductory Agriculture Engineering is the prerequisite course for all future Agriculture Engineering courses. This course includes both the safety instruction and certification of equipment used in both metal and wood processes, drawing and designs and construction of various engineering projects used today with the Agricultural Industry. All students are FFA members through this course.</p>		
<b>318495- Introductory Electric ARC and Gas Welding (Grades 10-12)</b>	<b>Credit 1</b>	<b>WV 1.00</b>
<p>Introductory Electric ARC and Gas Welding buildings on instruction learned in Introductory Agricultural Engineering and combines basic instruction with hands-on training in the field of metal working. This course includes instructions in sheet metal working, welding, metal cutting and fabrication. Instruction includes gas welding processes and shielding, AC and DC welding. All students are FFA members through this course. <b>Prerequisite: Introduction to Agricultural Engineering</b></p>		
<b>318487- Agricultural Building &amp; Construction (Grades 11-12)</b>	<b>Credit 1</b>	<b>WV 1.00</b>
<p>Combining modern approaches in the construction of Agricultural Building and systems is the basis of this course. Students selecting this course will find hands-on instruction and practice in areas of building site set-up, laser and optics surveying, concrete and masonry and building principles used today in construction. <b>Prerequisite: Introduction to Agricultural Engineering</b></p>		
<b>318489- Agricultural Business &amp; Finance (Grade 12)</b>	<b>Credit 1</b>	<b>WV 1.00</b>

In this course, students will analyze food, feed, fiber and natural resource production systems through the study of economics, marketing, business planning, public relations, and politics involved with the day-to-day operations of any agriculturally related business. Area of study and research will focus on efficient and sustainable production and processing models that are competitive in today's global markets. Students will gain an understanding of the economic value of agriculture in York County, Pennsylvania, and the United States and the world. All students are FFA Members through this course.

<b>318497- Advanced Welding and Pipe Fitting (Grade 12)</b>	<b>Credit 1</b>	<b>WV 1.00</b>
Advanced Metal Engineering combines advanced instruction in Introductory Electric ARC and gas welding with hands-on training in the field of today's world of advanced metal working. This course includes instructions in welding processes including MIG, TIG, and Plasma processes in metal shaping and construction. Piper fitting will be the second part of this course and will include the use and joining on PVC, steel, copper tubing used today in the Agricultural Industry. All students are FFA Members through this course. <b>Prerequisite: Introductory Electric ARC and Gas Welding</b>		

<b>318383- Veterinary Science (Grade 12)</b>	<b>Credit 1</b>	<b>WV 1.00</b>
Students will use knowledge and skills in veterinary terminology, cellular biology and tissue biology to study the anatomy and physiology of the cardiovascular, musculoskeletal, and respiratory systems in common agricultural and companion animals. Students will intensely study comparative anatomy and physiology of the digestive, reproductive, endocrine and neurological systems through lab exercises and projects. Modern biotechnology and genetics will be studied to assess how procedures such as artificial insemination and embryo transplant can lead to increased production efficiency. All students are FFA members through this course.		

<b>318182- Small Animal Pet Care (Grades 9-12) - Semester</b>	<b>Credit .5</b>	<b>WV 1.00</b>
Today, the pet industry is growing large and growing. This course will focus on the science behind the care and management of companion animals. Small and companion animals such as dogs, cats, rabbits, rodents, reptiles, amphibians, fish, birds, and other exotic species will be studied. Basic anatomy, reproduction, nutrition, health care, and related careers will be examined throughout the course for each species. Common diseases and conditions will also be studied through lab exercises and projects, which may include dissections, injections, surgical procedures and basic first-aid. All students are FFA members through this course.		

<b>318485- Greenhouse Management (Grades 11-12) – Spring Semester</b>	<b>Credit .5</b>	<b>WV 1.00</b>
This course will focus on plant sciences as students understand environmental control systems for maximum crop productivity. Lab exercises and projects will be the major forms of assessment in this course as students work in the greenhouse and laboratory to research, cultivate and market fall mums, holiday poinsettias, hanging baskets, spring bulbs and spring bedding plants/vegetables, and other seasonal marketable products. All students are FFA members through this course.		

<b>318491- Crops and Soil Science (Grades 10-12) – Fall</b>	<b>Credit .5</b>	<b>WV 1.00</b>
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<b>Semester</b>		
<p>This course will focus on Pennsylvania’s sustainable food systems and the common agricultural crops grown in York County, including hay, corn, and small grains. Soil science, pest management, and weed science will be included in this course. Students will investigate biotechnology and plant pathology through grain, fruit, and vegetable production systems on campus. All students are FFA members through this course.</p>		

<b>318193- Floral Design/ Marketing- Spring Semester (Grades 10-12)</b>	<b>Credit .5</b>	<b>WV 1.00</b>
<p>This semester course will discuss primary aspects of the floral industry for the purpose of preparing students to enter into the wholesale or retail floral industry. Units of study include floral tool and supply safety and identification, flower identification, principles and elements of design, introduction to design techniques, marketing, post-harvest physiology, greenhouse plants and their care. Students will participate in various floral sales, create a Mother’s Day arrangement to take home, and other district events. All students are FFA members through this course.</p>		

<b>318494- Forestry (Grades 11-12) – Fall Semester</b>	<b>Credit .5</b>	<b>WV 1.00</b>
<p>This course will focus on the science and management of trees as a natural resource. Topics of study include: tree biology, tree identification, tree production, forest management, forestry products, and forestry equipment. Students will work outside, in the lab, and in the greenhouse to identify the most common trees in Pennsylvania, measure trees, calculate the value of a timber stand, develop plans to manage existing stands of trees, and safely use basic forestry equipment to care for trees. All students are FFA members through this course.</p>		

<b>(318164 – 318167)-SAE I-IV (Grades 9- 12)</b>	<b>Credit 1</b>	<b>WV 1.00</b>
<p>This course does not meet during the regular school day, but credits outside-of-class experiences incorporated into the agricultural science or engineering course the student is currently taking. An SAE or a Supervised Agricultural Experience is a student-managed project where FFA members own and operate an agricultural business, get a job or internship, plan and conduct scientific experiments or explore careers within the agricultural industry. The agricultural science and engineering instructors supervise these outside of class projects as students maintain accurate records within the online Agricultural Experience Tracker (AET) record keeping system. Experiences are based off of the knowledge and skills taught in the agricultural science and engineering courses and customized to the student’s selected career objective. All students are FFA members through this course.</p>		

<b>318192- Landscaping (Grades 9-12) – Fall Semester</b>	<b>Credit .5</b>	<b>WV 1.00</b>
<p>Landscape design, construction and maintenance will be the focus of this course as students investigate landscape architecture, hardscaping techniques, turfgrass management, and sustainable land use planning. Practical experience will be gained through projects and lab exercises as students will design, install, and maintain new and existing landscapes throughout the school and community. All students are FFA members through this course.</p>		

<b>318261- Small Gas Engines Repair and Overhaul- Semester (Grades 9-12)</b>	<b>Credit .5</b>	<b>WV 1.00</b>
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Small Gas Engine Repair instructs students with theory and hands-on instruction in small gas engines. This course includes instruction on small engines, (2 cycle and 4 cycle) gasoline and diesels along with hands-on overhaul and repair instructions. Students electing this course will be instructed in overhaul procedures, engine testing and ordering of engine parts. All students are FFA members through this course.

<b>318493- Wildlife (Grades 10-12) - Semester</b>	<b>Credit .5</b>	<b>WV 1.00</b>
<p>This course focuses on the observation and identification of various species of mammals, birds, reptiles, amphibians, and plants of Pennsylvania. Emphasis will be placed on conservation, habitat evaluation, environmental analysis, game management, and possible careers. Projects and laboratory exercises will be the major forms of assessment within the course including the monitoring of wildlife and wildlife habitats. Students will study whitetail deer, hunting regulations, tracking, and more! All students are FFA members through this course.</p>		

<b>318490- Large Animal Science (Grades 11-12) – Fall Semester</b>	<b>Credit .5</b>	<b>WV 1.00</b>
<p>This course will focus on the science behind the care and management of agricultural animal species. Students will study the classification and naming of key livestock species, such as beef, dairy, poultry, sheep and swine used in agriculture and in everyday life. Basic anatomy, reproduction, nutrition, health care, and related careers will be examined throughout the course. Students will also become familiar with animal-based industries in York County and Pennsylvania. Lab exercises and projects will allow students to gain experience nutrition by formulating feed rations, as well as the diagnosis, treatment, and prevention of diseases and conditions through the prescription of medications and treatments. All students are FFA members through this course.</p>		

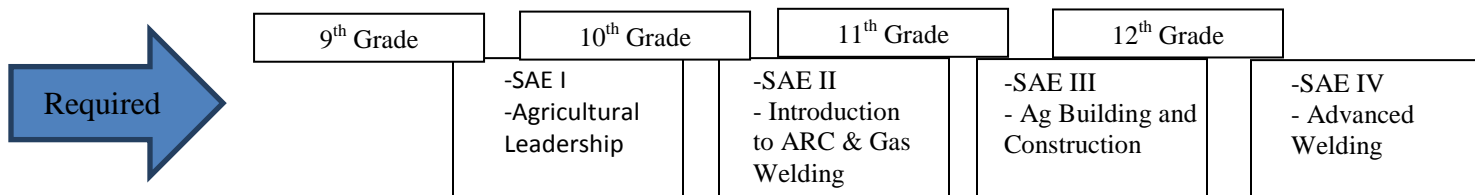
<b>318492- Equine Science (Grades 10-12) – Spring Semester</b>	<b>Credit .5</b>	<b>WV 1.00</b>
<p>In this course, students will study the functional anatomy and physiology, evaluation, management, care, and training of horses. Through class lectures, guest speakers, hands-on lab exercises, and field experiences, students will gain an understanding of the science and business behind the equine industry. This will lead to career and college readiness for those equestrians interested in further equine studies, equine careers, and/or lifelong horsemanship. All students are FFA members through this course.</p>		

<b>318486- Fisheries (Grades 11-12) – Spring Semester</b>	<b>Credit .5</b>	<b>WV 1.00</b>
<p>This semester course focuses on the identification of various shellfish, warm and cold finfish species, boating and boating safety. Students will look at different water ways and habitats. Emphasis will be placed on conservation, habitat evaluation, environmental analysis, game fish management, and possible careers. Projects and laboratory exercises will be the major forms of assessment within the course. All students are FFA members through this course.</p>		

Certifications show employers that applicants have acquired specific skills. Employers can determine the amount of training on this basis. Over the course of 4 years in the agricultural

programs at Northern High School, students will have the ability to obtain multiple industry certifications throughout many of our courses. Selection to stay within our agricultural program for 4 years and following the suggested sequence of classes will allow students to take an exam through the National Occupational Competency Testing Institute (NOCTI) during their senior year to obtain a certification in PRODUCTION AGRICUTLURE or AGRICULTURAL MECHANICS. The Agricultural Production certificate and Agricultural Mechanics certificates are professional credentials, of high value to businesses and industries, which helps make individuals more employable. Those who hold certificates will often be selected for employment sooner, paid higher starting salaries, and require less onsite training than others applying for the same positions. As industry certifications continue to gain importance in the work world, more and more are added to the thousands of certifications available. The certificate may also be transferable to credits in a degree program. Currently, up to 5 college credits are transferable to participating colleges and universities in the United States and over 100+ in Pennsylvania.

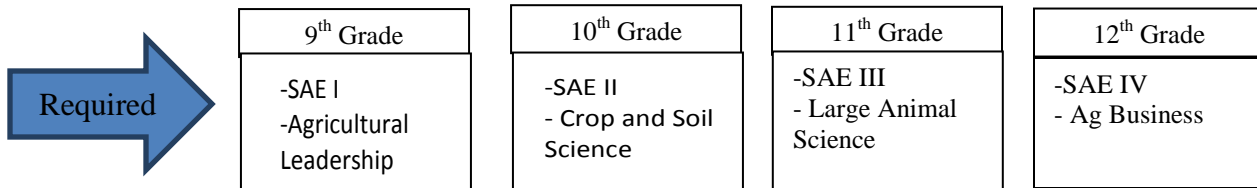
**REQUIRED Course Sequence for Students Seeking Credentials in AGRICUTLRUAL MECHANICS**



\*Students will take **REQUIRED** courses and **ONE** or more of the following\*

- |   |
|---|
| -Small Gas Engines<br>- Intro to Ag Engineering |
|---|

**REQUIRED Course Sequence for Students Seeking Credentials in PRODUCTION AGRICULTURE**



\*Students will take **REQUIRED** courses and **ONE** or more of the following\*

- |   |   |  |
|---|---|--|
| -Small Animal Pet Care<br>- Landscaping | -Floral<br>- Equine Science<br>- Wildlife | -Forestry<br>- Greenhouse Management<br>-Fisheries |
|---|---|--|

**World Languages**

<b>306110- Spanish I (Grades 9-12)</b> NCAA Approved	<b>Credit 1</b>	<b>WV 1.00</b>
<b>306120- Spanish II (Grades 9-12)</b> NCAA Approved	<b>Credit 1</b>	<b>WV 1.03</b>
<p>Spanish I and Spanish II are basic foreign language classes for the college-bound student who understands the value and importance of doing daily out-of-class preparation. These classes provide the foundation for further language study at either the high school or collegiate level. It should be noted that this is a high-level class that meets every day of the six-day cycle. Students who have successfully mastered the vocabulary and grammar of Spanish I may enroll in Spanish II with a recommendation by the instructor. Students will learn the basic parts of a foreign language: rules for good pronunciation, vocabulary words, and grammar. Emphasis is placed on the development of listening, speaking, reading, and writing skills. In addition, students will study important elements of Hispanic culture: geography, history, traditions, customs, music, art, clothing, foods, and school life. Students are encouraged to use Spanish on a daily basis.</p> <p><b>Prerequisite:</b> A student must have a cumulative average of 77% or higher and the recommendation of the Spanish I teacher to enroll in Spanish II.</p>		

<b>306130- Spanish III (Grades 10-12)</b> NCAA Approved	<b>Credit 1</b>	<b>WV 1.06</b>
<p>This course builds on the vocabulary and grammar skills mastered in Spanish I and II and focuses on basic elements of effective communication, both oral and written. Students have an opportunity to practice listening, speaking, reading, and writing on a daily basis. While the activities are similar to those used in Spanish I and II, language is faster and more diverse and grammar is presented in greater depth. Emphasis is placed on encouraging students to express themselves in the language. Cultural information from Spanish I and II is recycled and reviewed and provides the foundation for further study. The cultural content of Spanish III focuses on the influence of Spain in the New World, contemporary Hispanic cultures, and their impact on American culture and the English language. Students are encouraged to use Spanish on a daily basis.</p> <p><b>Prerequisite:</b> A student must have a cumulative average of 77% or higher and the recommendation of the Spanish II teacher to enroll in Spanish III.</p>		

<b>306140-Honors Spanish IV (Grades 11-12)</b> NCAA Approved	<b>Credit 1</b>	<b>WV 1.10</b>
<p>This course is designed for the serious language student who has developed an appreciation for foreign language study and has been successful with skill development. It will provide a solid foundation for success in college-level language classes. It will concentrate on the acquisition of vocabulary and idiomatic expressions, pronunciation refinement, oral fluency, aural comprehension, and grammatical knowledge. Literary works of varying length will be read and discussed. The geography, history, art, music and other cultural aspects of Spain and the Hispanic world will continue to be studied in greater depth. In order to prepare students for college-level placement tests, class time throughout the year will be devoted to practicing for these exams in Spanish. It is expected that students will use Spanish daily in class.</p> <p><b>Prerequisite:</b> A student must have a cumulative average of 77% or higher and the recommendation of the Spanish III teacher to enroll in Spanish IV.</p>		

<b>306150- AP Spanish (Grade 12)</b> NCAA Approved	<b>Credit 1</b>	<b>WV 1.12</b>
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AP Spanish is the culmination of a student's study in the Spanish program at Northern. This course is for seniors who have successfully completed Spanish I, II, III, and IV. The AP Spanish course develops all aspects of language: listening, speaking, reading, writing and culture. The course is designed to focus on real world events, vocabulary and problems. This course is also designed to prepare students for the AP Spanish Language and Culture examination. In the AP Spanish Language and Culture course, Spanish is used exclusively in the classroom by both teacher and students. Prerequisite: 77% in Spanish IV and the teacher's recommendation.

<b>306210-French I (Grades 9- 12)</b> NCAA Approved	<b>Credit 1</b>	<b>WV 1.00</b>
<b>306220- French II (Grades 9-12)</b> NCAA Approved	<b>Credit 1</b>	<b>WV 1.03</b>
<p>French I and French II are basic foreign language classes for the college-bound student who understands the value and importance of doing out-of-class preparation. These classes provide the foundation for further language study at either the high school or collegiate level. Any student, regardless of curriculum, is permitted to enroll in French I; however, it should be noted that this is a high-level class that meets every day of the six-day cycle. Students who have successfully mastered the vocabulary and grammar of French I may enroll in French II with a recommendation by the instructor. In both these classes, students will learn the basic parts of any modern world language: vocabulary words, simple rules of grammar, elementary rules of good pronunciation, and attack strategies for reading short literature selections. Students will also study important parts of the French culture: geography, life styles, history, foods, clothing, high school life, and music.</p> <p><b>Prerequisite:</b> A student must have a cumulative average of 77% or higher and the recommendation of the French I teacher to enroll in French II</p>		

<b>306230- French III (Grades 10- 12)</b> NCAA Approved	<b>Credit 1</b>	<b>WV 1.06</b>
<p>French III is a continuation of the skills studied in French I and II: listening, speaking, reading, and writing. This course builds on the vocabulary and grammar skills mastered in French I and II and focuses on basic elements of effective communication, both oral and written. Students have an opportunity to practice listening, speaking, reading, and writing on a daily basis. While the activities are similar to those used in French I and II, language is faster and more diverse and grammar is presented in greater depth. Emphasis is placed on encouraging students to express themselves in the language. The course will also study French art, the French provinces, holidays, customs, leisure activities, and short literary selections.</p> <p><b>Prerequisite:</b> A student must have a cumulative average of 77% or higher and the recommendation of the French II teacher to enroll in French III.</p>		

<b>306240- Honors French IV (Grades 11- 12)</b> NCAA Approved	<b>Credit 1</b>	<b>WV 1.10</b>
<p>French IV is a language course designed for the serious student who has developed an appreciation for foreign language study and has been successful with skill development. Enrolling in French IV provides the student with a solid foundation for success in college-level language courses. This course will concentrate mainly on vocabulary acquisition, pronunciation refinement, oral fluency, and grammatical knowledge. Literary works of varying length and genre will be read and discussed. Brief compositions on appropriate topics will also be required. The geography, history, art, music, and other cultural aspects of France and the francophone world will continue to be studied in greater depth. In order to prepare the student for college-level placement tests, class time will be devoted to practicing for these exams in French. It is expected that students will use French daily in class.</p> <p><b>Prerequisite:</b> A student must have a cumulative average of 77% or higher and the recommendation of the French III teacher to enroll in French IV.</p>		

<b>306250- AP French (Grade 12)</b> NCAA Approved	<b>Credit 1</b>	<b>WV 1.12</b>
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AP French is the culmination of a student's study in the French program at Northern. This course is for seniors who have successfully completed French I, II, III, and IV. The AP French course develops all aspects of language: listening, speaking, reading, writing and culture. This course is designed to prepare students for the AP French Language and Culture examination. In the AP French Language and Culture course, French is used exclusively in the classroom by both teacher and students.

**Prerequisite:** A student must have a cumulative average of 77% or higher and the recommendation of the French IV teacher to enroll in AP French.

## Business and Computers

<b>312180- Introduction to Business and Finance (Grades 9- 12)</b>	<b>Credit 1</b>	<b>WV 1.00</b>
Introduces students to the world of business and prepares them for economic roles of consumer, worker, and citizen. The course serves as a background for other business courses taken in high school and college and as a tool for consumer decision-making. It will help the student prepare for future employment and to become a responsible citizen. Topics covered include financial institutions and banking services, savings and investment strategies, risk management (insurance), fundamentals of credit, our economy, international business, budgeting techniques, and consumer awareness.		
<b>312360- Marketing I (Grades 10-12)</b>	<b>Credit 1</b>	<b>WV 1.00</b>
In this course, students will learn how company's market their products and services. Students will be introduced to marketing strategies used by companies such as Coca-Cola, Pepsi, Starbuck's, Nike and Mattel. Also, students will learn basic concepts in event promotions from NASCAR to the unveiling of the latest ads on Super Bowl Sunday. Students will also develop a written advertising campaign for a product or service. These advertising campaigns can be a consideration for DECA's Competitive Events Program. DECA is the student organization for marketing students and membership, although optional, is encouraged. Students must be enrolled in a Marketing class to be eligible for DECA. DECA provides competitive events at the district, state, and international levels.		
<b>312460- Marketing II (Grade 11-12)</b>	<b>Credit 1</b>	<b>WV 1.00</b>
This course is designed for students interested in continuing their studies in marketing. In this course, students will actually plan, organize, implement and evaluate marketing campaigns. These campaigns focus around creating awareness for a new product line or raising awareness for a nonprofit organization. Students can enter such campaigns in DECA's competitive events program. Students will also be responsible for overseeing the day-to-day operations of the student store. Marketing II students can also participate as a Co-op student their senior year. <b>Prerequisite: Marketing I</b>		
<b>312181- Accounting I- Semester (Grades 9-12)</b>	<b>Credit .5</b>	<b>WV 1.00</b>
This course will allow students to learn accounting terminology, principles, and procedures as they relate to proprietorships. Through hands-on applications and the integration of computer technology, using <i>Microsoft Excel</i> and Automated Accounting ( <i>QuickBooks</i> ), students will learn the basic fundamentals of accounting. By taking Accounting I students will be given the opportunity to explore the accounting field and determine if a career in Accounting may be of interest to them. Upon successful completion of the Accounting I course students will be given the opportunity to move on to Accounting II, where they will build on the knowledge they gained from Accounting I.		
<b>312182- Accounting II- Semester (Grades 9-12)</b>	<b>Credit .5</b>	<b>WV 1.00</b>



This course will allow Accounting I students to expand their knowledge and further explore the Accounting field as it relates to partnerships and corporations. Students will continue to learn through hands-on applications and the integration of computer technology, using *Microsoft Excel* and Automated Accounting (*QuickBooks / Peachtree*). This course is designed for students who have a serious interest in pursuing an Accounting career.

**Prerequisite: Accounting I**

<b>312160- Sports &amp; Entertainment Marketing- Semester (Grades 9-12)</b>	<b>Credit .5</b>	<b>WV 1.00</b>
<p>Sports and Entertainment Marketing is a unique and innovative course designed for students with an interest in the sports and entertainment industry. This course stresses the utilization of fundamental marketing concepts and will include an orientation to the sports and entertainment industry. Marketing strategies along with topics in sponsorship, pricing, marketing research, endorsements, and promotions will be part of this course. Sports and Entertainment Marketing students will work with “<i>The Dream Team</i>” package as well as a virtual simulation program called <i>Virtual Business – Sports and Entertainment 2.0</i>. “<i>The Dream Team</i>” is a fun and exciting new simulation, where students assume the role of a Microsoft Office Sports Marketing Specialist to create and promote a new sports team franchise. <i>Virtual Business – Sports and Entertainment 2.0</i> is a highly visual computer simulation of a sports and entertainment venue that lets students handle promotions, ticket pricing, stadium operations and staffing, sponsors, concessions, concert booking and promotion, and more.</p>		

<b>312190- Professional Computer Applications (Grades 9-12)</b>	<b>Credit 1</b>	<b>WV 1.00</b>
<p>This is a newly revamped class where students get a taste of different software and the physical workings of the computer. After exploring those workings, students will become proficient with the Microsoft Office, learning Microsoft Word and such things as applying character effects, finding/replacing text, creating headers/footers, moving text, creating envelope/labels/tables, changing fonts, alignments, and page numbering. Students will then get out of the book to get familiar with basic graphic design, learning how to use Photoshop and its photo editing capabilities, as well as its role in business marketing. Students will then tackle Microsoft Excel and learn to manage finances, work with formulas, utilize introductory programming for conditional formulas and functions, and create charts and graphics. Microsoft PowerPoint will be used to create presentations with text, clip art, and sound, as well as, build and modify charts and tables. Microsoft Publisher will be used to create and edit projects such as brochures with text, clip art images, and Design Gallery objects. Students will delve even deeper into and intro programming language, Visual Basic. Students will learn to organize, manage, and secure a database and use Microsoft Access to build tables, queries, forms, and reports. Students will utilize other software as time allows.</p>		

<b>312292- Web Design (Grades 10-12)</b>	<b>Credit 1</b>	<b>WV 1.00</b>
<p>In this course, students will learn to design and develop a Web site utilizing PhotoShop and Image ready for Web graphics and animations, Hypertext Markup Language and CSS for exact placement, and Dream Weaver and Flash for more professional results. Skills will be taught using a variety of methods and emphasis will be placed on “real life” correlations. All the basics and much of the advanced Web design functions will be covered, so this class is recommended for any student interested in computer science, graphics, computer/tech communications, or other Web related careers.</p> <p><b>Prerequisite: Professional Computer Applications</b></p>		

<b>312394- C++ Programming (Honors) (Grades 11-12)</b>	<b>Credit 1</b>	<b>WV 1.10</b>
<p>The C++ programming language will be used as a model to teach structured and object oriented programming with the emphasis on creating computer programs to solve problems. Students will learn the coding syntax to needed to help a computer make decisions, and they will write, compile, and execute programs using deductive reasoning. Student will be encouraged to work independently as well as with a partner with limited amount of direction. There will also be an introduction to Java, a web based programming language, as time allows. The course is recommended for any student planning a career in computer science, computer software and engineering, mathematics, or any science/information technology field.</p> <p><b>Suggested Prerequisite: Web Design</b></p>		

<b>312170- Broadcast Media (Grades 9-12)</b>	<b>Credit 1</b>	<b>WV 1.00</b>
<p>This course is designed as a group workshop and requires students to possess a high level of enthusiasm, problem solving, creativity, and the ability to be a productive team member. Skills taught include news reporting, storyline development, video production, and story boarding, and all members will help run the morning news show. It is recommended that interested students also sign up for Marketing I because these classes often work together on projects.</p> <p><b>*Please note:</b> although students in this course are encouraged to try anchoring the morning news, doing so is not a requirement. More students are needed to run the technology involved with producing a live news show.</p>		

<b>312275- TV Studio Production (Grades 10-12)</b>	<b>Credit 1</b>	<b>WV 1.00</b>
<p>This course is the <b>second year</b> follow up class to Broadcast I. It is designed as a group workshop in which students' primary responsibilities lie in the production of the morning news program. Features such as production planning, equipment competencies, utilization of advanced Adobe software for graphics and video editing, writing for an interview, and developing acuity for a visual medium will be taught with an emphasis on a broadcast code of ethics. Students will also learn how to produce quality podcast shows, and are encouraged to participate in several other opportunities for live shows. Students participating in this class need to report to the broadcast studio prior to 7:40 to prepare for the live news report.</p> <p><b>Prerequisite: Broadcast Media and prior approval from the instructor.</b></p>		

<b>312480- Diversified Occupations (Grade 12)</b>	<b>Credit .5</b>	<b>WV 1.00</b>
<p>The Diversified Occupations Program is offered to seniors interested in learning a vocation and gaining practical on-the-job training while still enrolled in high school. It can prepare students for a broad range of occupational fields and enable the student to relate education directly to his career interests through actual employment situations. The course meets every other day for the year and is a cooperative arrangement between local employers and the school. Students are dismissed from school to participate in an on-the-job training program. Programs must be confirmed prior to the end of the junior year.</p>		

## Technology Education

**With instructor approval, students may provide their own safety glasses.**

<b>317260- Graphic Communications I (Grades 9-12)</b>	<b>Credit 1</b>	<b>WV 1.00</b>
This course is a one-year entry-level course in communications. Students are introduced to the following areas: photo conversion, black-and-white photography, image assembly, screen printing, and numerous printing techniques. This course is a study through lecture, demonstration, and hands-on learning.		
<b>317361-Applied Graphics(Grades 10-12)</b>	<b>Credit 1</b>	<b>WV 1.03</b>
This one-year course is for students who desire communication skills capable of providing career opportunities. Students will take an in-depth look at desktop publishing, photography, digital photography, advanced plate making, and advanced printing techniques. <b>Prerequisite:</b> Graphic Communications I		
<b>317363- Advanced Graphics(Grades 11-12)</b>	<b>Credit 1</b>	<b>WV 1.10</b>
Through lecture, demonstration, and hands-on projects, students will develop a professional digital portfolio that will showcase their abilities. Areas of study will include Photoshop techniques in text creation, illustration, and photography adjustment. Students will also learn advanced methods of color separation using Separations Studio to produce professional quality poster and shirt art. In addition, students will learn digital video capturing techniques and methods of editing to create short movie clips. Concentration will be on entertainment, sports, and marketing. Photography, both digital and film-based, will round out this course to provide students with a solid background so that they can be successful in the graphics field. <b>Prerequisite:</b> Applied Graphics		
<b>317170- Materials Technology Wood (Grades 9-12)</b>	<b>Credit .5</b>	<b>WV 1.00</b>
<b>317171- Materials Technology Metal (Grades 9-12)</b>	<b>Credit .5</b>	<b>WV 1.00</b>
These two semester courses are linked together to form a one-year experience that introduces the student to the materials area. Students will spend approximately 18 weeks in the Wood Lab and 18 weeks in the Metal Lab, dealing with hand and machine tool operation, safety, and layout. Students work on instructor-designed independent projects to meet the class requirements.		
<b>317272- Wood Technology I (Grades 10-12)</b>	<b>Credit 1</b>	<b>WV 1.00</b>
This full-year course is designed for students who wish to further their exploration of the manufacturing and design of furniture and cabinetry. This class stresses the proper usage of tools and machinery incorporating fine woodworking techniques. Students work on instructor-approved independent projects to meet the class requirements. <b>Prerequisite:</b> Material Technology		
<b>317373- Wood Technology II (Grades 11-12)</b>	<b>Credit 1</b>	<b>WV 1.00</b>
This course is designed for the student to further their knowledge and exploration of wood technology and cabinet making. Safe and proper use of tools and machinery are stressed as the students work on independent projects with advanced joinery. Credit 1 <b>Prerequisite:</b> Wood I		
<b>317474- Wood Technology III (Grade 12)</b>	<b>Credit 1</b>	<b>WV 1.00</b>

This course is designed for the advanced student who wishes to further their woodworking experience. Each student will investigate areas of woodworking beyond his/her achievements in Wood Tech II. Students that reach this level may become involved in a work-study program.

**Prerequisite:**Wood II

<b>317275- Metal/ Power Technology I (Grades 10- 12)</b>	<b>Credit 1</b>	<b>WV 1.00</b>
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This full-year course is designed for students who wish to further their exploration of the manufacturing and design of products in the metalworking industry. This class stresses the safe and proper usage of tools and machinery incorporating machinist set-up and jointing techniques. Students work on instructor-approved independent projects to meet the class requirements.

**Prerequisite:**Material Technology

<b>317376- Metal/ Power Technology II (Grades 11- 12)</b>	<b>Credit 1</b>	<b>WV 1.00</b>
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This course is designed for the student to further her/his knowledge and exploration of the metal working industry. Safe and proper use of tools and machinery are stressed as the students work on independent projects involving advanced techniques. Credit 1

**Prerequisite:**Metal Technology I

<b>317477- Metal/ Power Technology III (Grade 12)</b>	<b>Credit 1</b>	<b>WV 1.00</b>
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This course is designed for the advanced student who wishes to further their metal working/power experience. Each student will investigate areas beyond her/his achievements in Metal/Power Tech II. Students that reach this level may become involved in a work-study program.

**Prerequisite:**Metal Technology II

<b>317178- Electricity/ Electronics (Grades 9- 12)</b>	<b>Credit 1</b>	<b>WV 1.00</b>
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This course provides any student, regardless of future plans and goals, with an exceptional opportunity to develop modern residential wiring skills. Students will learn the basics of residential wiring and will construct working circuits. The electronics portion of this course will provide students with an in-depth explanation of the electronic world. This class will emphasize electrical theory and offer students hands-on experiences, which will include electronic components, circuit boards, soldering techniques and Lab Volt PEET Trainer activities.

<b>317383- Concepts of Residential/Commercial Design and Construction (Grades 11 &amp; 12)</b>	<b>Credit 1</b>	<b>WV 1.00</b>
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Course content and experiences will encompass design and the construction of small structures such as sheds, new home construction, and renovation of existing structures. The course will provide learners the opportunity to design and construct various projects in residential and commercial settings. Networking with local organizations and businesses such as “Habitat for Humanity “and our own local contractors, students and staff will witness and participate in all phases of construction including: Needs planning (primary considerations), Residential – Commercial application, Site planning and preparation, Foundation, Framing systems, Building utilities, Door and windows, Cabinetry and trim Room planning and home design, Interior and Exterior Finished, Deck and patios.

**Prerequisite:** Materials Tech

## STEM / PLTW Design and Engineering

<b>321180- Engineering Graphics I (Grades 9- 12)</b>	<b>Credit 1</b>	<b>WV 1.00</b>
<p>This course is designed to introduce the student to basic drafting principle and includes instruction in sketching, orthographic, pictorial views and introduction to 3D drawing. Student will be actively engaged in solving design challenges through various drafting processes. In this course you gain an understanding of CAD software.</p>		
<b>321281- Engineering Graphics II (Grades 10- 12)</b>	<b>Credit 1</b>	<b>WV 1.03</b>
<p>This course is designed for the student to enhance their knowledge through an exploration of advanced drafting design. Creating 3D objects and complete sets of production drawings are the main focus for this course.</p> <p><b>Prerequisite:</b> Must have successfully completed Engineering Graphics I or IED.</p>		
<b>321183- Introduction to Engineering Design (Grades 9- 12)</b>	<b>Credit 1</b>	<b>WV 1.03</b>
<p>This course is a high school level course that is appropriate for any students who are interested in design and engineering. The major focus of the IED course is to expose students to design process, research and analysis, teamwork, communication methods, global and human impacts, engineering standards, and technical documentation. Students will develop problem-solving skills and apply their knowledge of research and design to create solutions to various challenges that increase in difficulty throughout the course. In addition, students use 3D modeling design software to help them design solutions to solve proposed problems. The course assumes no previous knowledge. This is a required foundational course for Project Lead the Way. Currently the course sequence for the engineering pathway is Introduction to Engineering Design, Principles of Engineering, Civil Engineering and Architecture, and Engineering Design and Development.</p> <p><b>Prerequisite:</b>Enrolled in or completed Algebra I (Not appropriate for Algebra IA students)</p>		
<b>321284- Principles of Engineering (POE) (Grades 10- 12)</b>	<b>Credit 1</b>	<b>WV 1.06</b>
<p>This survey course introduces students to many of the major topics found in general college engineering courses. Topics include mechanisms, energy, statics, control of robotics systems, materials, and motion. Students develop problem-solving skills and apply their knowledge of research and design to create solutions to various challenges, document their work, and communicate solutions. This is a required foundational course for Project Lead the Way.</p> <p><b>Prerequisite:</b> Completed IED (or EG1), or 10th grade enrolled in Algebra II</p>		
<b>321385- Honors Civil Engineering and Architecture (CEA) (Grades 10- 12)</b>	<b>Credit 1</b>	<b>WV 1.10</b>
<p>Students learn about various aspects of civil engineering and architecture and apply their knowledge to the design and development of residential and commercial properties and structures. In addition, students use 3D design software to design and document solutions for major course projects. Students communicate and present solutions to their peers and members of a professional community of engineers and architects. This is a Specialization Course for Project Lead the Way.</p> <p><b>Prerequisite:</b> Completed POE or EG2</p>		

<b>321487- Honors Engineering Design and Development (EDD) (Grade 12)</b>	<b>Credit 1</b>	<b>WV 1.10</b>
<p>The knowledge and skills students acquire throughout their PLTW Engineering courses come together in EDD as they identify an issue and then research, design, build and test a solution, ultimately presenting their solution to a panel of engineers. Students apply the professional skills they have developed to document a design process to standards, ready to take on any postsecondary program or career. EDD is the capstone course for the PLTW engineering pathway and is only be available to seniors who have participated in the PLTW engineering pathway in grades 9, 10, and 11.</p> <p><b>Prerequisite:</b> IED or EG1, POE, CEA, and completed or concurrently enrolled in Materials Tech.</p>		

### STEM / PLTW Computer Science

<b>312395- Computer Science Essentials (CSE) (Gr 9-12)</b>	<b>Credit 1</b>	<b>WV 1.03</b>
<p>Computer Science Essentials exposes students to a diverse set of computational thinking concepts, fundamentals, and tools, allowing them to gain understanding and build confidence. Students use visual, blockbased programming and seamlessly transition to text-based programming with languages such as Python to create apps and develop websites, and learn how to make computers work together to put their design into practice. They apply computational thinking practices, build their vocabulary, and collaborate just as computing professionals do to create products that address topics and problems important to them.</p>		

<b>321386- Honors Computer Science Principles(CSP) (Gr 10-12)</b>	<b>Credit 1</b>	<b>WV 1.10</b>
<p>Open doors in any career with computer science! Students create apps for Android mobile devices, manipulate images, explore the internet, explore the world of data, and intelligent computing. Using tools like Scratch, Python, HTML, and CSS students collaborate to create and present solutions that can improve people’s lives. The overarching question in this course is: <i>How will computing and connectivity transform your world?</i> This course is aligned with the College Board’s new AP CS Principles framework.</p>		

### FAMILY AND CONSUMER SCIENCE

<b>324160- Culinary Arts I (Grades 9- 12)</b>	<b>Credit 1</b>	<b>WV 1.00</b>
<p>Culinary Arts I is an introductory foods course designed for the student who enjoys the experience of food preparation. The course is intended to develop measuring skills, improve the use and handling of equipment and practice the preparation of a variety of foods and evaluate food preparation. The course will incorporate basic nutrition and explain the relationship between good nutrition and good health, state the functions and food sources of major nutrients, and explain why a varied diet is the best diet.</p>		

<b>324261- Culinary Arts II (Grades 10- 12)</b>	<b>Credit 1</b>	<b>WV 1.00</b>
<p>Culinary Arts II is an advanced foods course designed to meet the needs of students wanting additional and more challenging work in food preparation. Students will learn techniques and methods that can be used in various entry-level food service positions.</p> <p><b>Prerequisite:</b> Culinary Arts I</p>		

<b>324264- Multicultural Foods (Grades 10- 12)</b>	<b>Credit 1</b>	<b>WV 1.00</b>
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Multicultural Foods is a course designed to help students develop an appreciation for the diversity of foods from other cultures. By understanding the origin of traditional foods through culture, geography, and history, the student will become familiar with a variety of meals and food preparation methods.

**Prerequisite:** Culinary Arts I

**324371- Child Development- Semester (Grades 11- 12)**

**Credit .5**

**WV 1.00**

Child Development is designed for the student who is interested in understanding the development and the care of young children. It incorporates the topics of responsible parenting, childcare, pregnancy and birth, and the development of infants and preschool children.

**324372- Human Relations- Semester (Grades 11- 12)**

**Credit .5**

**WV 1.00**

The Human Relations course is designed to help young people gain perspective through understanding themselves and others. Students will explore their attitudes, expectations, and questions concerning various individual, family, and societal issues.

**PHYSICAL EDUCATION, HEALTH, AND DRIVER EDUCATION**

**308280- Driver Education- Semester (Grade 10)**

**Credit .25**

**WV 1.00**

This course is offered on-line and is a graduation requirement. It is recommended that students complete this 30-hour course by the end of the second marking period. It must be completed by the end of the grade 10 year. Students will receive a pass/fail for this course. This course covers a wide range of issues pertinent to safe driving practices and the responsibilities an individual must assume when operating an automobile on the public highways.

The second phase is a voluntary behind-the-wheel driving program that is available to any district student holding a valid learner's permit or license. The district contracts with an outside vendor (the Capital Area Intermediate Unit) for this service. The driving program does not assure students of receiving a valid driver's license when the course is completed.

Preference is given to seniors, then juniors and sophomores. The instruction is scheduled during a student's study hall or outside of school hours; including weekends and summer. A per student lab fee of \$200, \$100, or \$50 is charged based on student need (determined from school lunch program guidelines).

**308170- Health Education- Semester (Grade 9)**

**Credit .25**

**WV 1.00**

The goal of this course is to educate students with the knowledge and skills to make healthy lifestyle choices. The key concepts addressed by the ninth grade curriculum include nutrition and fitness; tobacco, alcohol, and drug education; human sexuality; and mental health. This course meets every other day for one semester.

**308160-Phys Ed (Grade 9)**

**Credit .33**

**WV 1.00**

**308260-Phys Ed (Grade 10)**

**Credit .33**

**WV 1.00**

Grade 9/10 Physical Education provides students with a program consisting of group and individual activities. This class meets twice per cycle for the full year. The focus of the class is to promote fitness, along with developing skills that will provide the opportunity for students to participate in a variety of activities in their adult life. Students will be introduced to activities in strength training and cardiovascular conditioning which will be further developed in Grade 11/12 Physical Education. All students will be evaluated in aquatics and then grouped by ability level for further instruction.

**308360-Phys Ed (Grade 11)**

**Credit .33**

**WV 1.00**

<b>308463-Phys Ed (Grade 12)</b>	<b>Credit .33</b>	<b>WV 1.00</b>
<p>Grade 11/12 Physical Education is designed to instruct students in a variety of individual and lifetime activities. This course meets twice per cycle for the year. This course will explore in more depth a variety of activities introduced in Level I Physical Education. In addition, a variety of activities will be introduced to students that offer participants a means of dealing with stress and maintaining a level of fitness that will encourage a healthy lifestyle. Further instruction will be provided to students in the area of strength training and cardiovascular conditioning, as well as aquatic fitness.</p>		

<b>308265- American Red Cross Lifeguarding (Grades 10-12)</b>	<b>Credit .17</b>	<b>WV 1.00</b>
<p>This course is the nationally recognized American Red Cross (ARC) program. It is a semester course that meets twice per cycle. This course prepares students to become professional lifeguards by introducing them to concepts and skills necessary to both prevent and to respond to aquatic emergencies. The content of this course includes water rescue, cardiopulmonary resuscitation (CPR), automated external defibrillator (AED) and first aid. Successful candidates will receive ARC certification in Lifeguarding, CPR/AED for Lifeguards and First Aid. Candidates must be strong swimmers and be able to pass a pre-screening test. This includes being able to swim 12 laps freestyle or breast stroke, treading water for 2 minutes, and being able to get a brick off the bottom of the deep end of the pool. There is a \$35.00 fee for students desiring ARC certification. The student must be 15 years of age on the last day of the class to be eligible for certification test.</p>		



Cumberland Perry Area Vocational Technical School (CPAVTS) serves students from fourteen high schools in Cumberland, Perry, York, and Adams County. CPAVTS is an extension of your high school, offering comprehensive instruction in 21 career and technical programs. Students attend CPAVTS for half of their school day, taking courses in their technical program plus social studies. Students attend their sending high school for English, science, mathematics, physical education, and other graduation requirements.

The full scope of skills and competencies in the technical programs at CPAVTS are taught over a three year course sequence. However, students may attend CPAVTS for one or two years to support their career objectives.

CPAVTS students are expected to be responsible and respectful, demonstrating safe work habits at all times. **Students must be able to understand and comply with all school rules and procedures.**

CPAVTS has a competitive application process. Students are admitted based on their application score and school district enrollment quotas. See your sending school guidance counselor for an application. Clicking on the program names below will connect you to the program web page at [www.cpavts.org](http://www.cpavts.org).

**2017-2018 CAREER PATHWAYS AND PROGRAMS AT CPAVTS**

<p align="center"><b><u>CONSTRUCTION AND MAINTENANCE</u></b></p> <p align="center"> <a href="#">Carpentry</a>  <a href="#">Electrical Construction and Maintenance</a>  <a href="#">Heating/Ventilation/Air Conditioning</a>  <a href="#">Horticulture/Landscaping</a>  <a href="#">Masonry</a> </p>	<p align="center"><b><u>ARTS &amp; TECHNOLOGY</u></b></p> <p align="center"> <a href="#">Advertising Art &amp; Design</a>  <a href="#">Computer Networking</a>  <a href="#">Graphic Communications</a> </p>
<p align="center"><b><u>MANUFACTURING</u></b></p> <p align="center"> <a href="#">Electronics Technology</a>  <a href="#">Precision Machine Technology</a>  <a href="#">Welding Technology</a> </p>	<p align="center"><b><u>HEALTH SCIENCES</u></b></p> <p align="center"> <a href="#">Dental Assistant</a>  <a href="#">Nurse/Nursing Assistant</a> </p>
<p align="center"><b><u>HUMAN SERVICES AND HOSPITALITY</u></b></p> <p align="center"> <a href="#">Cosmetology</a>  <a href="#">Criminal Justice</a>  <a href="#">Culinary Arts</a>  <a href="#">Early Childhood Education</a> </p>	<p align="center"><b><u>TRANSPORTATION &amp; LOGISTICS</u></b></p> <p align="center"> <a href="#">Auto Collision Technology</a>  <a href="#">Auto Technology</a>  <a href="#">Diesel Technology</a>  <a href="#">Logistics &amp; Warehouse Management</a> </p>

Additional information on curriculum, college credit opportunities, and uniform requirements is available online at [www.cpavts.org](http://www.cpavts.org).

## ADVANTAGES FOR STUDENTS ATTENDING CPAVTS

### Earn College Credit - College in the High School Program

The College in High School (CHS) program, also called dual enrollment, allows high school students to take college classes while enrolled at CPAVTS during the regular school day. CHS is considered *dual enrollment* because students earn credits toward high school graduation and a college degree at the same time. Classes are taught by CPAVTS teachers who are approved by Harrisburg Area Community College or Pennsylvania College of Technology to teach these classes. The college credits are awarded by HACC or Penn College, but the credits may transfer to other colleges and universities. Details on College in the High School courses can be found at [www.cpavts.org](http://www.cpavts.org).

### Earn College Credit - Program of Study (POS) College Articulation Agreements

Twenty-one programs at CPAVTS are recognized by the Pennsylvania Department of Education as a “Program of Study”. Students in these programs have the opportunity to earn college credit at various post-secondary schools in Pennsylvania provided they meet the following requirements:

1. Graduate from high school
2. Earn at least 2.5 GPA in your program courses
3. Achieve a score of “Advanced” or “Competent” on the NOCTI exam
4. Successfully complete all tasks on the Program of Study task list – requires all three years of a program.

Suggested Course Sequence by the Pennsylvania Department of Education for Programs of Study  
For Students Enrolled in Career and Technical Programs:

Grade 9	Grade 10	Grade 11	Grade 12
English	English	English	English
Earth Science	Biology	Chemistry	Elective
Social Studies	Social Studies	Social Studies	Social Studies
Algebra I or Pre-Algebra	Geometry or Algebra I	Algebra II or Geometry	Additional Math
Physical Education	Physical Education	Physical Education	Physical Education
Electives	<b>CPAVTS Program</b>	<b>CPAVTS Program</b>	<b>CPAVTS Program</b>

Additional information on Program of Study and which colleges are participating can be found at [www.cpavts.org](http://www.cpavts.org).

### **Earn a Pennsylvania Skills Certificate**

The Pennsylvania Skills Certificate was created by the PA Department of Education to recognize career and technical education students who have shown advanced skill achievement in their career and technical program.

To earn the Pennsylvania Skills Certificate, students must achieve at the advanced level on the end of program NOCTI test. The test consists of two parts – written and performance. The written test covers factual knowledge, technical information, understanding of academic principals and problem solving related to the technical field. The performance test allows students to demonstrate their skills to industry professionals who proctor the exam.

### **Earn Industry-Recognized Certifications**

CPAVTS have the opportunity to earn industry certifications which are specific to their career program. Examples include PA State Inspection certification for Auto Tech students and Certified Nursing Assistant certification for nursing students. A complete list of certifications is listed under each program description. During the 2015-2016 school year, over 300 CPAVTS students earned at least one industry certification.

## CONSTRUCTION AND MAINTENANCE

### CARPENTRY

There are two types of carpentry work: rough and finish. Rough carpentry includes framing, boarding, sheathing, bracing, roofing, and studding; finish carpentry includes the installation of finished flooring, stair work, siding, trim, wallboards, windows, and hardware. Students in the **Carpentry** program will learn the basics of both rough and finish carpentry, including such areas as blueprint reading, using power and hand tools, framing techniques, installing trim and hardware, estimating, and identifying materials. Many of these skills are developed through live work projects performed throughout the school. Safety instruction is emphasized throughout the program.

#### Carpenter

2014 Median Wage in PA  
\$45,138 per year

#### Industry Certifications

OSHA – 10  
PA Builders Association

#### Related Occupations

Estimator  
Dry wall installer  
Construction & building  
inspector

Program of Study Approved

2015 High Priority  
Occupation

### ELECTRICAL CONSTRUCTION AND MAINTENANCE

Students in the **Electrical Construction & Maintenance** program receive classroom training and practical experience in the installation of circuits, switches, conduits, circuit breakers, and other electrical devices; instruction includes the proper use and care of hand tools and equipment used to install electrical systems on a construction site. Students learn to connect and disconnect electrical equipment and determine proper installation and operation of electrical work, apply procedures used in interior circuits and outlets, and troubleshoot electrical malfunctions. Special emphasis is placed on the National Electric Code Specifications used in residential, commercial, and in industrial electrical construction projects.

#### Electrician

2014 Median Wage in PA  
\$57,042 per year

#### Industry Certification

OSHA – 10  
PA Builders Association

#### Related Occupations

Electrical engineer  
Avionics technicians  
Construction & building  
inspector

Program of Study Approved

2015 High Priority  
Occupation

## **HEATING, VENTILATION, AIR CONDITIONING, AND REFRIGERATION**

The **Heating, Ventilation and Air Conditioning (HVAC)** program provides the fundamentals of installation, repair, and maintenance of equipment and accessory parts used for heating, air conditioning, and cooling systems. Students learn basic electricity as it applies to the electrical power source and activities used in air conditioning, heating, and refrigeration units. Various equipment and training simulators are used to teach basic refrigeration in chilling and freezing systems. They will learn to solder and braze while developing skills required for the installation, repair, and maintenance of air conditioning, heating, and refrigeration units. Instruction includes: connecting ducts, refrigerant lines, and electrical hookups to power sources; the removal and/or replacement of parts by using torches, electrical meters, testing equipment, gauges, and hand tools; diagnosing unit breakdowns; disassembling and reassembling systems; making adjustments to ensure efficient operations; and reading basic blueprints and writing diagrams. The program also covers many of the basic skills needed in the plumbing trade, providing those students interested an opportunity to pursue a career in plumbing.

### **HVAC-R Technician**

2014 Median Wage in PA  
\$46,254 per year

Program of Study Approved

### **Industry Certification**

EPA 608, PA Builders  
Association, OSHA - 10

2015 High Priority  
Occupation

### **Related Occupations**

Service technician  
Plumber  
Sheet metal or pipe fitter

## **HORTICULTURE AND LANDSCAPING**

There are several career pathways in the **Horticulture** program. Greenhouse managers, soil and plant scientists, groundskeepers, and landscape designers are just a few of the occupations in this wide-ranging field. Students spend time in the greenhouse, classroom, and outdoors as they learn identification, botany, proper plant care, and other factors impacting care and growth of plant materials. This knowledge is then utilized in the design and preparation of decorative and functional sites. Topics include sustainable practices such as hydroponics and environmental issues facing today's society, design and installation of plants, ponds, and hardscaping, laws and zoning regulations, business ethics and practices, safety and equipment operation, floral design, turf management and irrigation, and other related areas. We also offer college in the high school along with certifications for OSHA. Come explore the opportunity waiting for you!

### **Landscaping & Groundskeeper**

2014 Median Wage in PA  
\$26,600 per year  
Program of Study Approved

### **Industry Certification**

OSHA- 10

### **Related Occupations**

Floral designer  
Groundskeeper  
Landscape

## MASONRY

The **Masonry** program provides the fundamental skills needed to work with bricks, blocks, and concrete. Students learn brick and block laying; mortar mixing; scaffold construction; building construction; the proper use of masonry tools; and how to read blueprints to determine an accurate brick layout following the builder's specifications. Additionally, students check alignment and positioning of bricks by using a dry course; check for horizontal or vertical straightness by using a mason's level; gauge lines, and plumb lines; and use story gauge rods to check work. Special emphasis is placed on mortar mixing and proper spreading of mortar to ensure accurate spacing of the joints. Students learn the safe use and proper care of hand tools such as trowels, jointers, rules, squares, brick hammer, mason levels, and gauge lines.

### Brick and Block Mason

2014 Median Wage in PA  
\$48,983 per year

### Industry Certification

OSHA – 10  
Rough Terrain Forklift

### Related Occupations

Tile setter  
Cement finisher  
Construction supervisor

Program of Study Approved      2015 High Priority Occupation

## ARTS AND TECHNOLOGY

### ADVERTISING ART & DESIGN

A large percentage of merchandising and advertising for modern promotion is done through the medium of **Advertising Art and Design**. The purpose of this course is to help prepare students for an entry-level job or to prepare the student to advance into post-secondary training at colleges and art schools. Throughout the program, students will maintain a portfolio to promote their work and talent when they graduate. The major emphasis is on the basic principles of design: color, development of skills, exploration of media, and Advertising Art and Design practices. Special emphasis is placed on manual illustration and layout skills in the area of art production, technical features of design, layout and composition, and color theory. Students will prepare graphic and advertising projects from the idea stage through to pre-press using the current Adobe Creative Suite software.

### Graphic Designer

2014 Median Wage in PA  
\$44,000 per year

### Industry Certification

Adobe® Certification

### Related Occupations

Web page designer  
Graphic illustrator

Program of Study Approved

## GRAPHIC COMMUNICATIONS

The **Graphic Communications** program provides students with practical instruction in the basics of producing a wide variety of printed materials. They learn the offset printing process by preparing projects from the initial design to finished product, and the theory of photography is taught: Students use a digital camera and digital plate-setting to produce plates used in the reproduction of printed materials. This program also provides students with practical experience in learning the techniques of layout and design of a printing assignment, as well as computer skills, which are learned through the use of Windows and Macintosh operating systems. Additionally, students learn how to proofread their work, which is an important part of preprint operations to ensure accuracy before work is sent to press. Other activities included in the curriculum are: paper selection; cutting and binding; and collating and finishing. Competencies in printing press operations on a wide variety of equipment are stressed in the program; work orders from a variety of sources provide students with opportunities to experience actual production work.

**Printing Press Operator**

2014 Median Wage in PA  
\$35,600 per year

**Industry Certification**

Adobe® Certification

**Related Occupations**

Printer  
Graphic designer

Program of Study Approved

**COMPUTER NETWORKING** – *new for 2016-2017*

The **Computer Networking** program is designed to give students a broad background in the fundamentals of designing, installing, and maintaining a computer network. Specifically, students will cover the following topics: Computer hardware, troubleshooting, repair, and maintenance, operating systems and software, network technologies, network media and topologies, network devices, network management, network tools and troubleshooting, and security fundamentals. Emphasis will be placed on preparing students to test for industry credentials and certifications.

**Computer Network Administrator**

2014 Median Wage in PA  
\$66,794 per year

**Industry Certification**

To be determined

**Related Occupations**

Network Administrator  
Systems Analyst  
Security Specialist

Program of Study Approved

2015 High Priority  
Occupation

## HEALTH SCIENCES

### DENTAL ASSISTANT

Students in the **Dental Assisting** program learn how to properly aid dentists and dental hygienists. During the course of the program, they will learn the proper techniques that go into every aspect of assisting in a dental office, from taking x-rays to scheduling appointments. To ensure that students are trained as accurately as possible, they practice on modern dental equipment and become familiar with tools common to the profession. Other asks assigned in this program include learning proper sterilization, instrument transferral, infection control, and preventative healthcare techniques; and assisting with basic dental procedures. While students emerge from the Dental Assisting program fully equipped to work as a dental assistant, further education is required before the student can achieve other positions in the field.

#### Dental Assistant

2014 Median Wage in PA  
\$33,719 per year

#### Industry Certification

PA Dental Radiographic  
First Aid/CPR/AED

#### Related Occupations

Dental hygienist

Program of Study Approved      2015 High Priority Occupation

### NURSING/NURSING ASSISTANT

Students in the **Nursing** program explore a variety of health professions to develop an awareness of job opportunities in the field. They develop the skills needed to perform effectively in entry-level positions and to receive a good foundation for continued study. Nursing program students learn patient care, first aid, and laboratory skills, and receive simulated work experiences such as assisting doctors with physical exams; demonstrating laboratory skills; assisting with patient care in the office or hospital; and practicing long-term care settings. Special emphasis is placed on personal hygiene; instrument and equipment identification; telephone training; correspondence and record keeping; basic nursing procedures; infection control; standard precautions; sterilization; and OSHA standards. Students are also given instruction in the sciences related to this field including medical terminology, anatomy, pharmacology, and laboratory techniques. This program will provide students with an opportunity to learn advanced functions, including clinical experience with patients through affiliation with Bethany Village Retirement Center.

#### Certified Nursing Assistant

2014 Median Wage in PA  
\$27,884

#### Industry Certification

C.N.A.  
First Aid/CPR/AED

#### Related Occupations

Nurse practitioner

Program of Study Approved      2015 High Priority Occupation



## HUMAN SERVICES AND HOSPITALITY

### CULINARY ARTS

**Culinary Arts** is a program that offers a broad range of skills and knowledge concerning the selection, preparation, and handling of foods. Skill development will focus on: safety and sanitation; dining room service; preparation of food; buffet service; meat cutting; baking; store room procedures; and basic management skills. Unlike the home economics courses offered by most general high schools, the instruction and on-the-job training will be conducted in a fully equipped cafeteria and restaurant at Cumberland Perry AVTS.

#### Chef

2014 Median Wage in PA  
\$43,049

#### Industry Certifications

ServSafe®

#### Related Occupations

Cook, Pastry chef  
Butcher, Meat cutter

Program of Study Approved    2015 High Priority Occupation

### COSMETOLOGY

The **Cosmetology** program at CPAVTS gives students a great head start to a lucrative career. Our curriculum is rigid, however, by the time the student graduates, they will have skills desirable to employers in the Cosmetology industry. Students in the program learn all aspects of haircare, skin care, and nail care, and not only do they practice on mannequins but they practice on each other as well. Once the student earns 300 hours they are ready to apply skills to customers in the Cosmetology clinic. Instruction also includes resume writing, interviewing, marketing and retailing so students are prepared to start the job search process. Students need to earn 1250 hours to be eligible to test for the PA Cosmetology License Exam.

#### Cosmetologist

2014 Median Wage in PA  
\$23,900 per year

#### Industry Certification

State Board of Cosmetology

#### Related Occupations

Barber  
Makeup artist

### CRIMINAL JUSTICE

Students in the **Criminal Justice** program learn administrative procedures; vehicle code and accident investigation; crime codes and criminal investigation; prevention of crime; laboratory procedure; and supplemental activities. Simulated activities develop skills in procedures used in police patrol, criminal investigations, accident investigation, report writing, use of Crime Code and Pennsylvania Vehicle Code, first aid, and firearms training. Special emphasis is given toward each student's career objectives. Students develop skills needed to perform effectively in police departments and security agencies, and receive a good foundation for continued study in Police Administration or Criminal Justice.

#### Police Officer

2014 Median Wage in PA  
\$60,200 per year

#### Industry Certification

First Aid/CPR  
National Incident  
Management

#### Related Occupations

Police officer  
Fire Marshall

Program of Study Approved

## EARLY CHILDHOOD EDUCATION

The **Early Childhood Education** program instructs students in the preparation and presentation of nutritional snacks, instructional materials, schedules, and curriculum plans. They will also cover how to manage parent involvement, enrollment, safety/health factors, and discipline. A portion of the program is devoted to child development and preschool child growth patterns. Students will develop techniques that will be applied in the preschool program. Time will be provided to do classroom observations of the preschool children, as well as peer observations of fellow teachers. The student will be responsible for supervising the entire preschool laboratory school program including the children's schedule, attendance, greeting children, enrollment, art, music, science, and indoor/outdoor play activities. Students have a portion of the preschool day set aside for "Learning Centers", a time in which they work independently with an assigned preschool child in an area that the child is currently strengthening.

### Pre-School Teacher

2014 Median Wage in PA  
\$24,800 per year

### Industry Certification

CDA Ready Certification  
First Aid/CPR

### Related Occupations

Group supervisor  
Head start specialist  
Child care director

Program of Study approved

## TRANSPORTATION AND LOGISTICS

### AUTOMOTIVE COLLISION TECHNOLOGY

The **Automotive Collision Technology** Program provides students with the training necessary to repair damaged automotive vehicles. Instruction includes the repair and replacement of defective parts to restore a vehicle to good condition. Students learn how to operate hydraulic jacks; how to use pry bars, dolly blocks, and mallets for the removal of dents; the techniques of metal finishing used to fill the damaged areas of the vehicle with body plastics; and how grind and sand until the body is smooth. Our students also learn to replace auto body parts by installing new sections, and by welding new pieces and panels. Instructions in braising, soldering, and welding practices are stressed. Students develop skills in the preparation of surfaces to be painted, matching and mixing paint, and in spraying techniques. In addition, students install trim and glass, use gauges necessary for frame straightening, and estimate the cost of the repair service.

### Autobody Repair Technician

2014 Median Wage in PA  
\$40,923 per year

### Industry Certification

PA Inspection and Emissions

### Related Occupations

Painters & customizers  
Insurance adjuster

Program of Study Approved

2015 High Priority  
Occupation

## **AUTOMOTIVE TECHNOLOGY**

The **Automotive Technology** program provides students with the entry-level skills and knowledge needed for a career in the automotive field. Specialized classroom and shop exercises are designed to provide instruction in the following areas: engine repair, suspension and steering, brakes, electrical/electronic systems, heating and air conditioning, engine performance, manual drive train and axles, automatic transmission/transaxle, emissions control, hybrid technology, and alternative fuels. Students are taught to use computerized technical service manuals and are also trained to participate in the Pennsylvania state safety and emissions inspection program. Qualified level 3 students are able to participate in the cooperative education program. This program allows students to gain paid work experience at participating repair facilities while attending school.

### **Automotive Technician**

2014 Median Wage in PA  
\$37,568 per year

### **Industry Certification**

PA Inspection and Emissions

### **Related Occupations**

Repair estimator  
Safety or emissions inspector

Program of Study Approved

2015 High Priority  
Occupation

## **DIESEL TECHNOLOGY**

Students in the **Diesel Technology** course will receive training in all areas of diesel engine construction, operation, troubleshooting and repair, and in the maintenance, servicing, and repair of over-the-road trucks, trailers and transportation equipment. The first year of instruction will focus on diesel powered engines (this is primarily related to transportation equipment, but can also be applied to diesel powered construction equipment, high lifts, farm machinery and other diesel-powered equipment). Electrical systems, turbo chargers, engine speed governors and lubrication systems are a few examples of the engine subsystems that are covered. Students will be assisted in developing a keen attention to detail, which is necessary for success in this trade. The second and third year students study the other components and systems of the truck: transmissions, rear axles, clutches, drive lines, batteries, starters, alternators, steering, suspension, alignment and air conditioning, just to name a few. Instruction will be provided in oxyacetylene, AC/DC and MIG welding operations. Students who qualify will also be eligible to take the Pennsylvania Vehicle State Safety Inspection Program for mechanics and EPA, type 609 air conditioning certification is also offered.

### **Diesel Technician**

2014 Median Wage in PA  
\$42,589 per year

### **Industry Certification**

PA Inspection and Emissions  
Air conditioning 609, OSHA  
10

### **Related Occupations**

Mobile heavy equipment  
repair  
Farm equipment repair

Program of Study Approved

2015 High Priority  
Occupation

## LOGISTICS AND WAREHOUSE MANAGEMENT

**Logistics & Warehouse Management** students will receive training in the technical and "hands on" aspects of operating a warehouse. Instruction will center on "inventory control", which is a plan for supply needs; control of goods received; efficient accessible storage; and proper distribution of materials. Effective record keeping is stressed. Additional activities will include: materials organization; inspection of goods and accounting for warehouse merchandise; receiving and shipping practices; and the use of power equipment such as forklifts, electric pallet jacks, rollers, and conveyor belts for loading, unloading, or placement of packaged merchandise in warehouse or storage areas. Students will receive actual training in "live" work situations. His/her experience will be comprised of working in a warehouse area that stores in excess of \$100,000 of stock merchandise a year and will become familiar with handling merchandise that ranges in weight from one ounce to three tons. The program also offers use of data base (computer) entry system for stored materials

### Shipping and Receiving Clerk

2014 Median Wage in PA  
\$36,146 per year

### Industry Certification

OSHA – 10

### Related Occupations

Stock supervisor  
Distribution clerk  
Forklift operator

Program of Study Approved      2015 High Priority Occupation

## MANUFACTURING

### ELECTRONICS TECHNOLOGY

The **Electronics Technology** program provides a foundation in the principles of basic electronics and an in depth background in the field. This program will introduce the student to computers and many of the popular operating systems. This program includes instruction beginning with the structure of the atom, units of measurement, and most of the formulas required to understand basic electronics. For all theory presented, the student will construct circuits and do experiments to help them to understand the theories learned. The student will apply learned theories to testing electronic components and diagnosing circuit problems. The student is also introduced to digital electronics where they build and analyse logic circuits, and will learn how microprocessors function and how they can be used to control electronic systems. Other activities include rebuilding a (PC) computer (identifying all major components and determining their function); installing and studying most Windows operating systems; and learning how to diagnose many of the common computer problems encountered.

### Electronics Engineering Technician

2014 Median Wage in PA  
\$55,800

### Industry Certification

Student Electronics Technician  
OSHA 10

### Related Occupations

Broadcast technician  
Avionics technician  
Data system technician

Program of Study Approved

## PRECISION MACHINE TECHNOLOGY

The **Precision Machine Technology** program prepares students for a challenging and rewarding career and provides them entry level training for the manufacturing industry. Students will begin with bench work, blueprint reading, and layout. They will then progress to learning precision measuring tools and techniques to ten thousandths of an inch (.0001”). Students will also learn machining techniques on manual vertical milling machines and manual lathes before progressing on to CNC (Computer Numerical Control) machines. An emphasis on the programming and set up are also included in the CNC training along with instruction on MasterCam and SolidWorks computer software. The course is designed to prepare students for a career as a machinist but is an excellent choice for a student with the desire to become an engineer.

### Machinist

2014 Median Wage in PA  
\$39,530

### Industry Certification

NIMS - multiple

### Related Occupations

CNC operator  
Tool and die maker  
Maintenance Technician

Program of Study Approved      2015 High Priority Occupation

## WELDING TECHNOLOGY

**Welding** offers training in oxyacetylene and AC/DC arc welding, semiautomatic MIG, plasma cutting, and TIG welding systems. Starting with planning and layout work, the student progresses to setting up and operating welding, brazing, and cutting equipment, oxyacetylene welding light gauge metals in all positions, and shielded metal arc welding in all positions. Emphasis is placed on blueprint reading to identify properties of metal; metal types; types and use of electrodes and welding rods; electrical principles; and welding symbols. The use of manuals and specifications charts and the understanding of welding standards established by the American Welding Society are stressed. Training will be offered in the planning, layout, forming, joining and fabrication of various shapes in light and heavy gauge metals and pipe. Students learn to use specialized hand tools and to operate shears, forming and shaping machines, drill presses, and metal cutting saws.

### Welding Technician

2014 Median Wage in PA  
\$37,999 per year

### Industry Certification

AWS®

### Related Occupations

Sheet metal worker  
Boilermaker

Program of Study Approved      2015 High Priority Occupation

**Junior Reserve Officers' Training Corps (JROTC)  
Enrollment Exception Program  
Northern York County School District & West Shore School District**

Northern York County School District (NYCSD) has an enrollment exception agreement with the West Shore School District (WSSD). This agreement permits two NYCSD students to attend a West Shore School District High School for the purpose of enrolling in their Junior Reserve Officers' Training Corps (JROTC) program.

This program is limited to students entering grades 9 or 10 and requires the student to attend WSSD for the remainder of her/his High School career.

Each student accepted into the JROTC program through this agreement shall become a full-time student of the WSSD. Accordingly, should the student complete all graduation requirements of the WSSD, she/he will earn a diploma from WSSD. Transportation to and from Red Land or Cedar Cliff High School shall be the responsibility of the student or the student's parents/guardians.

Students should meet with their school counselor for more information on this program.

**NCAA Eligibility  
Divisions I and II Initial-Eligibility Requirements**

Core Courses

- NCAA Divisions I and II require 16 core courses

**Division 1 (16 Core Courses with a minimum of 10 Core Courses completed by the end of the student's junior year)**

- 4 years of English
- 3 years of Mathematics (Algebra I or higher)
- 2 years of Natural/Physical Science (1 year of lab if offered by the high school)
- 1 year of additional English, Mathematics or Natural/Physical Science
- 2 years of Social Science
- 4 years of additional courses (from any area above, foreign language, or comparative religion/philosophy)

**Division 2 (16 Core Courses)**

- 3 years of English
- 2 years of Mathematics (Algebra I or higher)
- 2 years of Natural/Physical Science (1 year of lab if offered by high school)
- 3 years of additional English, Mathematics or Natural/Physical Science
- 2 years of Social Science
- 4 years of additional courses (from any area above, foreign language, or comparative religion/philosophy)

- Beginning August 1, 2016, NCAA Division I will require 10 core courses to be completed prior to the seventh semester (seven of the 10 must be a combination of English, Math or Natural/ Physical Science that meet the distribution requirements below). These 10 courses become "locked in" at the start of the seventh semester and cannot be retaken for grade improvement.
- *Beginning August 1, 2016, it will be possible for a Division I college-bound student-athlete to still receive athletics aid and the ability to practice with the team if he or she fails to meet the 10 course requirement, but would not be able to compete.*

#### Test Scores

- Division I uses a sliding scale to match test scores and core grade-point averages (GPA).
- Division II requires a minimum SAT score of 820 or an ACT sum score of 68.
- The SAT score used for NCAA purposes includes only the critical reading and math sections. The writing section of the SAT is not used.
- The ACT score used for NCAA purposes is a sum of the following four sections: English, Mathematics, Reading, and Science.
- When you register for the SAT or ACT, use the NCAA Eligibility Center code of 9999 to ensure all SAT and ACT scores are reported directly to the NCAA Eligibility Center from the testing agency. Test scores that appear on transcripts will not be used.

#### Grade-Point Average

- Be sure to look at our high school's List of NCAA Courses on the NCAA Eligibility Center's website ([www.eligibilitycenter.org](http://www.eligibilitycenter.org)). Only courses that appear on your school's List of NCAA Courses will be used in the calculation of the core GPA. Use the list as a guide. Students should work closely with their school counselor throughout this process
- Division I students enrolling full time **before August 1, 2016**, should use Sliding Scale A to determine eligibility to receive athletics aid, practice and competition during the first year.
- Division I GPA required to receive athletics aid and practice on or after August 1, 2016, is 2.000-2.299 (corresponding test-score requirements are listed on Sliding Scale B).
- Division I GPA required to be eligible for competition on or after August 1, 2016 is 2.300 (corresponding test-score requirements are listed on Sliding Scale B).
- The Division II core GPA requirement is a minimum of 2.000.
- Remember, the NCAA GPA is calculated using NCAA core courses only.

Again, not all courses meet the requirements for NCAA eligibility. It is imperative that student athletes work closely with their school counselor. For the NCAA Division I and II Sliding Scales, or for more information, please visit the NCAA Eligibility Center website at [www.eligibilitycenter.org](http://www.eligibilitycenter.org).