Northern High School

Program of Studies

"Intellectually Prepared, Civically Engaged, Personally Responsible"

March 1, 2024

Information in this document is intended to guide decisions for the 2024-2025 school year.

Table of Contents

Principal's Welcome

Northern High School is comprised of grades 9 through 12 and serves approximately 1,000 students with over 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 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 can meet these challenges to the best of their ability. To aid our efforts in having each student realize their 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.

NHS School Counseling Department Welcome

At Northern High School we focus on preparing every student for post-secondary education and career opportunities. These opportunities include attending a 4-year or 2-year college, technical school, vocational or certification program, or pursuing such avenues as enlisting in the military or joining the workforce. As the NHS School Counseling Department, 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 our effectiveness by asking, "How are our students successful as a result of our school counseling program and what could we be doing better to meet our students' needs?"

The purpose of this Course Selection Guide 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.

2024-2025 Counselor/Administration Assignments

To build a student services team that best serves our student body, the school counselor and administrator 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 2025 Grade 12	Mrs. Amber Gunning agunning@northernyork.org	Mr. Michael Walker mwalker@northernyork.org
Class of 2026 Grade 11	Mr. Andrew Sneeringer asneeringer@northernyork.org	Dr. Ryan Edwards redwards@northernyork.org
Class of 2027 Grade 10	Mrs. Mary Hey mhey@northernyork.org	Dr. Ryan Edwards redwards@northernyork.org
Class of 2028 Grade 9	Mrs. Cheyanne Ort cort@northernyork.org	Mr. Steve Lehman slehman@northernyork.org

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 6.25 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 will be operating on an eight-period day with lunch excluded as one of those periods. Generally, one credit represents the completion of work requiring one period per day for one school year. A course that does not meet every day or only part of the year yields a fraction of a credit, depending on the frequency of class meetings. For example, if Health Education meets every other day for one semester, the credit would be different than if it met every day all year. Passing this course would yield .25 credits. Credit allotments are located beside each course description in this manual.

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	3 credits (CPACTC students take 10th grade US History and 11th grade Government at CPATC) 1 credit must be government or an equivalent college course
Math	3 credits (a 4th year is encouraged)
Science	3 credits (a 4th year is encouraged)
Additional Core Credit	Combination of 1 Credit (This can be in any core subject [math, science, social studies, or English] the student wants. CPACTC students who attend CPACTS for 3 years will not need this additional credit.)
Financial Literacy Course	Every student must take a financial literacy course. This can be Personal Finance or Economics.
Phys Ed Health 1.50 }	1.00 credits = Phys Ed (every year) .50 credits = Health (1 semester every other day student's freshman year and 1 semester every other day student's junior year)
Electives	8 credits
Total	23.5 credits

Additional Graduation Requirements

Act 158 of 2018 (Act 158), which was signed into law by Governor Tom Wolf on October 24, 2018, shifts Pennsylvania's reliance on high stakes testing as a graduation requirement to provide alternatives for high school students to demonstrate readiness for postsecondary success. Formerly, Pennsylvania's statewide graduation requirement was more restrictive, requiring most students to pass the Keystone Exams — end of course exams in Algebra I, Literature, and Biology — in order to graduate. Act 158, in conjunction with Act 6 of 2017 (Act 6), expands the options for students to demonstrate postsecondary readiness through four additional pathways that more fully illustrate college, career, and community readiness.

The statewide graduation requirement outlined in Act 6, Act 158, and Act 136 took effect for the graduating class of 2023. Local policies are not preempted by the current moratorium nor are they limited by the statewide requirement. School entities are encouraged to work with their solicitors to ensure that their high school graduation policies comply with Act 6 and Act 158, which amended section 121 of the Pennsylvania Public School Code, 24 P.S. § 1-121 and affected the implementation of Title 22, Chapter 4 of the Pennsylvania Code.

Keystone Exams will continue as the statewide assessment that Pennsylvania uses to comply with accountability requirements set forth in the federal Every Student Succeeds Act (ESSA). Although a student may not be required to achieve proficiency on the Keystone Exams in order to graduate, students are required to take the Keystone Exams for purposes of federal accountability. Failure to do so will affect a Local Education Agency (LEA) and school's participation rate.

Purpose

The purpose of these guidelines is to provide an overview of changes to the statewide graduation requirement as a result of the enactment of Act 158. Future Department of Education (PDE) guidance will provide more detail as to the implementation of Act 158, including the composite Keystone score, established cut scores for alternate assessments, and guidelines to define pathway evidence.

Requirements

For graduating students, the following options exist to meet the statewide graduation requirement:

- Keystone Proficiency Pathway: Scoring proficient or advanced on each Keystone Exam – Algebra I, Literature, and Biology.

- Keystone Composite Pathway (Combined score of 4452): Earning a satisfactory composite score on the Algebra I, Literature, and Biology Keystone Exams (while achieving a proficient score on at least one of the three exams and no less than a basic score on the remaining two).

- Alternate Assessment Pathway: Successful completion of locally established grade-based requirements for academic content areas associated with each Keystone Exam on which the student did not achieve proficiency and one of the following:
    - Attainment of an established score on an approved alternate assessment (SAT (1010), PSAT (970), ACT (21), ASVAB (composite score of 31));
    - Gold Level on the ACT WorkKeys Assessment;
    - Attainment of an established score on an Advanced Placement Program (3) or an International Baccalaureate Diploma Program (4) exam in an academic content area associated with each Keystone Exam on which the student did not achieve at least a proficient score;

- Successful completion of a concurrent enrollment course in an academic content area associated with each Keystone Exam in which the student did not achieve at least a proficient score or successful completion of a pre-apprenticeship program; or
- Acceptance in an accredited 4-year nonprofit institution of higher education and evidence of the ability to enroll in college-level coursework.

- Evidence Based Pathway: Successful completion of locally established grade-based requirements for academic content areas associated with each Keystone Exam on which the student did not achieve proficiency and demonstration of three pieces of evidence consistent with the student's goals and career plans, including one of the following:
  - Attainment of an established score on the ACT WorkKeys assessment (silver level or higher), a SAT subject test (630 or higher), an Advanced Placement Program Exam (3 or higher), or an International Baccalaureate Diploma Program Exam (3 or higher);
  - Acceptance to an accredited nonprofit institution of higher education other than a 4-year institution and evidence of the ability to enroll in college-level coursework;
  - Attainment of an industry-recognized credential; or
  - Successful completion of a concurrent enrollment or postsecondary course; and two additional pieces of evidence, including one or more of the options listed above, or:
    - satisfactory completion of a service learning project; attainment of a score of proficient or advanced on a Keystone Exam; a letter guaranteeing full-time employment; a certificate of successful completion of an internship or cooperative education program; or satisfactory compliance with the NCAA's core courses for college-bound student athletes with a minimum grade point average (GPA) of 2.0.

- CTE Pathway: For Career and Technical Education (CTE) Concentrators, successful completion of locally established grade-based requirements for academic content areas associated with each Keystone Exam on which the student did not achieve proficiency and attainment of an industry-based competency certification related to the CTE Concentrator's program of study or demonstration of a high likelihood of success on an approved industry-based competency assessment or readiness for continued meaningful engagement in the CTE Concentrator's program of study. For further explanation of the CTE Pathway, please see PDE's Act 6 guidance.

***A more detailed description of what these pathways are can be found on the school website under graduation requirements.**

Course Sequence Examples

The table on the next page 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.

Sample for Class of 2025 and Beyond

Grade 9	Grade 10	Grade 11	Grade 12
English			
Aca English I, Hon English I	English II, Aca English II, Hon English II	American Literature, Aca American Literature, Hon American Literature, AP English Lang and Comp	Contemporary Literature, Aca World Literature, Hon World Literature, Media Journalism, AP English Lit and Comp
Social Studies			
Aca World Cultures, Hon World Cultures	US History, Aca US History, Hon US History	Government, Aca Government, Hon Government, AP US Government and Politics, AP US History	Economics, WWII/Holocaust, Psychology, Sociology, History of Sport & Society, Vietnam War
Science			
Hon Biology	AP Biology, Hon Biology II, Chemistry, Aca Chemistry, Hon Chemistry	Aca Chemistry, Hon Chemistry, AP Chemistry, Hon Biology II, AP Biology, Environmental Science, Anatomy and Physiology, Hon Physics	Hon Biology II, AP Biology, AP Chemistry, Hon Physics, AP Physics, Anatomy and Physiology, Environmental Science
Aca Earth Space	Biology, Aca Biology, Hon Biology	AP Biology, Hon Biology II, Chemistry, Aca Chemistry, Hon Chemistry, Environmental Science	AP Biology, Hon Biology II, Chemistry, Aca Chemistry, Hon Chemistry, AP Chemistry, Environmental Science, Hon Physics, Anatomy and Physiology
Mathematics			
Geometry, Aca Geometry, Hon Geometry	Algebra II, Aca Algebra II, Hon Algebra II	Hon Pre-Calculus, Aca Trigonometry, Transitions to College Math, Academic Statistics, AP Statistics	Applied Calculus, AP Calculus AB, Academic Statistics, AP Statistics
Algebra I	Geometry, Aca Geometry	Algebra II, Aca Algebra II, Personal Finance	Aca Trigonometry, Transitions to College Math, Academic Statistics, Personal Finance
World Language			
Spanish I	Spanish II	Spanish III	Spanish IV
Spanish II	Spanish III	Spanish IV	AP Spanish Language
French I	French II	French III	French IV
French II	French III	French IV	AP French Language

*Reminder that one of the courses needs to be either personal finance or economics.

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 that student's 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.

World Language Requirement for College Admissions

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. Students should see their school counselor for more information.

Advanced Placement Course Offerings

Northern High School students can 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.

English	Math	Science	History	World Language	Arts
English Language & Composition	Calculus AB	Biology	United States History	Spanish Language & Culture	2D Art
English Literature & Composition	Statistics	Chemistry	United States Government & Politics	French Language & Culture	3D Art
	Calculus BC	Physics			

Options for Earning College Credits While in High School

- Dual Enrollment – Travel to local colleges (or online) and take courses: HACC (Gettysburg, York, or Harrisburg Campuses), Messiah College, etc.
- Meeting the colleges score requirement on AP exams
- Taking courses at the Cumberland Perry Area Career Technical Center, where 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 as there are risks and benefits associated with taking college courses as a high school student.

Work Programs

Co-Operative Work Program (Semester Based)

Students enrolled in the Co-Operative Work program can receive on-the-job training during their senior year. Students should **secure their own employment** that relates to their career interest. Students in this program must also take a seminar class at Northern that is associated with their work experience. The Co-Operative Work program credit needs to be **above** the 23.5 credits already needed for graduation.

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@northernyork.org) 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 Program (Semester Based)

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 must also take a seminar class at Northern that is associated with their experience. Students in this program are required to complete six (6) hours per school week over multiple days. Students will need to find their own business to do an internship with. The internship credit needs to be above the 23.5 credits already needed for graduation. Except for the technology internship, hours should be earned outside of the high school setting. Academic performance is required to maintain co-op status.

Gifted Program/Special Interest Program

The goal of the gifted program is to provide students with unique learning opportunities involving intellectual enrichment both in and out of the classroom. Students may choose one or multiple pathways within the gifted program. See each description below.

- Gifted Seminar: Gifted Seminar engages students in a variety of activities, involving multiple intelligences. Creativity, divergent thinking, and personal growth are areas of focus as we explore topics that students don't typically encounter in their regular education courses. Students who choose to attend gifted seminar will meet once per cycle and earn 0.17 credits per year with a weighted value of 1.06.

- Competitions: Students may choose to participate in individual or team competitions aligned to their area of interest and strength. Writing, science, history, media, and problem-solving competitions are all available. Students will work with the gifted support teacher to develop goals and timelines that meet their individual needs.

- Independent Study: A student may choose to work with the gifted support teacher and a regular education teacher to design and complete a substantial academic related task. This is a great opportunity to complete a complex project or explore a topic in depth beyond that of which time provides in the regular education classroom. Students selecting this option must be self-motivated and good self-advocates. Credit for an independent study is determined on a case-by-case basis. A pre-project contract and a parent signed form must be turned in before beginning a project.

- Regular Ed. Class Push-In: Students seeking to be further challenged through lessons in their regular education classrooms may benefit from supplemental enrichment materials. Striving to improve a specific focus area, such as grammar or mechanics within one's writing, is another option. The gifted support teacher will work with students individually to determine if setting a core content goal may be appropriate. Opportunities for career focused goals are also available.

- Book Study: Through book study, students will have the opportunity to consider multiple perspectives, engage in open discussions, connect various themes to their lives, and personally reflect.

NORTHERN HIGH SCHOOL COURSE DESCRIPTIONS

English

301130- Academic English I- (Grade 9) NCAA Approved	Credit 1	WV 1.06
Academic English requires students of two-tiered learning levels to have accountability, responsibility, and ability to organize time and materials. These students will need to be able to handle outside reading assignments and move at a fast yet differentiated 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 text-based analysis, encourages an exchange of ideas and information among students while creating literature-based research topics for compositions, presentations, and speeches.		

301140- Honors English I- (Grade 9) NCAA Approved	Credit 1	WV 1.10
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.		

301210- English II- (Grade 10) NCAA Approved	Credit 1	WV 1.00
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 with an emphasis on the Keystone exam. In the area of literature, the study of short story, poetry, drama, and novel genres introduces and examines the elements of fiction and nonfiction 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.		

301230- Academic English II- (Grade 10) NCAA Approved	Credit 1	WV 1.06
This college preparatory course with an emphasis on the Keystone exam will focus on different types of skills that are needed for reading, writing, speaking and listening. Students will participate in small group discussion and full class literary discussions in addition to activities that are geared toward qualities of the Profile of a Graduate to analyze texts at a deeper level. They will read, discuss, and analyze short stories, novels, drama, fiction, non-fiction, and poetry. Students will practice various styles of writing, both formally and informally, in MLA format such as essays, criticisms, short stories, and a research paper while improving grammar and vocabulary. Additionally, there will be a strong emphasis on progressing speaking, technology, and critical thinking skills toward college and career level expectations.		

301240- Honors English II- (Grade 10) NCAA Approved	Credit 1	WV 1.10
This honors course with a strong emphasis on the Keystone exam will focus on different types of skills that are needed for reading, writing, speaking and listening. Students will participate in small group discussion and full class literary discussions both in person and virtually in addition to activities that are geared toward qualities of the Profile of a Graduate to analyze texts at a deeper level. They will read, discuss, and analyze fiction, nonfiction, drama, poetry, and novels. Students will practice various styles of writing, both formally and informally, in MLA format such as essays, articles, criticisms, short stories, and a research paper while improving grammar and vocabulary. Some of the student-written products may be eligible for publication. Additionally, there will be a strong emphasis on progressing speaking, technology, and critical thinking skills toward college and career level expectations.		

301310- American Literature- (Grade 11) NCAA Approved	Credit 1	WV 1.00
American Literature requires students to have accountability, responsibility, and ability to organize time and materials in order to refine the ability to accurately comprehend, analyze, and interpret varied works of literature. 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 that allows students to refine student understanding of literary techniques and vocabulary through the study of multiple literary movements as well as the significance of historical and cultural events connected to our national literature. In addition to the course text, multiple full-length novels/dramas are read. Evaluations include objective quizzes and tests, written responses including essay writing, and other creative projects. Students will refine basic writing practices by engaging in research and text-based informal and formal short responses as well as essay style writing in both informative and persuasive modes that require the integration of textual evidence and awareness of style and conventions.		

301330- Academic American Literature (Grade 11) NCAA Approved	**Credit 1**	**WV 1.06**
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 complete assignments in a timely manner. Competency with abstract ideas, problem solving, and vocabulary are integral to these independent learners. This level meets the requirements for any junior planning to pursue post-secondary education. A timeline and thematic approach to our nation's major writers is pursued beginning with the colonial era of the 1600's and concluding with modern day literature; many forms of literature are explored- fiction, nonfiction, poetry, drama, etcetera. In addition to the course text, six full-length novels/dramas are read. Evaluations include speeches/ presentations, analytical compositions including criticisms, objective quizzes and tests, and projects. Students are also required to write a three to five page research paper on an approved topic using three to five sources. Integration of textual evidence in MLA format is mastered. The historical and cultural events connected to our national literature are also primary focuses in addition to college and career readiness for real world application.		

301340- Honors American Literature (Grade 11) NCAA Approved	**Credit 1**	**WV 1.10**
Honors American Literature requires students to have accountability, responsibility, and ability to organize time and materials. This course follows the general AP English Language and Composition reading schedule but does not include CollegeBoard preparation for the AP exam. Mastery with abstract ideas, problem solving, and vocabulary are integral to these independent learners. A timeline and thematic approach to our nation's major writers is pursued beginning with the colonial era of the 1600's and concluding with modern day literature; many forms of literature are explored- fiction, nonfiction, poetry, and drama. In addition to the course text, eight novels, poems, dramas, and other types of supplemental pieces of literature are read. Evaluations include speeches/ presentations, analytical compositions including criticisms, objective quizzes and tests, and projects. Students are also required to write a four to six page research paper on an approved topic using four to six sources. Integration of textual evidence in MLA format is mastered. The historical and cultural events connected to our national literature are also primary focuses in addition to college and career readiness for real world application.		

301350- AP English Language and Composition (Grade 11) NCAA Approved	**Credit 1**	**WV 1.12**
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, specifically the rhetorical analysis, synthesis, and argumentative exam prompts. 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.		

301410- Contemporary Literature- (Grade 12) NCAA Approved	Credit 1	WV 1.00
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.		

301460- Media Journalism - (Grade 12) NCAA Approved	Credit 1	WV 1.06
Media Journalism is a course geared toward college-bound seniors. This course is designed to give students opportunities to obtain, refine, and reflect upon twenty-first century critical-thinking and communication skills via comprehension and analysis of varied media (news, film, narrative, and social media). Students will be provided opportunities to develop personal interests through research, communicate with poise, and master reading, writing, speaking and listening skills. Additionally, students will gain practice analyzing and inferring as a structure for making effective judgment, summarizing a conclusion, or taking action. Students will have multiple opportunities to learn and apply the foundations of communication regarding impacting an audience via discussion, oral presentation, and written response to showcase mastery of journalistic conventions including distinguishing bias, understanding techniques of persuasion, and developing effective word choice with an awareness of varied audiences.		

301431- Academic World Literature- (Grade 12)	Credit 1	WV 1.06
Analyzing world literature from the Middle Ages of the Anglo-Saxons to the Modern Age, this course introduces students to the major periods and movements of world literature and the literary styles of each literary period as students reflect upon the socio-historical context of the time. Integral parts of this course include the following: close reading, literary analysis, and varied formal written response with the integration of textual evidence in both MLA and APA formats, speeches, and class discussion/participation. Geared toward college-bound seniors, students will frequently read independently to think logically, collaboratively, and creatively to complete formative and summative assessments that include refinement of written expression and oratory in preparation for post-high school success. Overall, the course offers students an opportunity to analyze all varied genres and literary styles correlating to each work's cultural and historical events during which they were written while gaining mastery of written and verbal expression.		

301441- Honors World Literature- (Grade 12) NCAA Approved	**Credit 1**	**WV 1.10**
Analyzing world literature from the Middle Ages of the Anglo-Saxons to the Modern Age, this course introduces students to the major periods and movements of World literature and the literary styles of each literary period as students reflect upon the socio-historical context of the time. Cultures include American, British, Chinese, Arabian, and African to name a few. Integral parts of this course include the following: close reading, literary analysis, analytical writing with the integration of textual evidence in APA format, speeches, class discussion, and online participation. The world literature curriculum also gives students the opportunity to experience career exploration, write scholarship and college essays, and practice 21st century skills such as e-mail etiquette, social media presence, blogging, technology enhancement, and possibly grant writing.		

301450- AP Literature and Composition- (Grade 12) NCAA Approved	**Credit 1**	**WV 1.12**
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 AP English Course Description. The literature spans the sixteenth through the twentieth centuries, with an emphasis on written response to and class discussion of reading assignments including short prose, novels, drama, and poetry of literary merit completed at a rapid pace. 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. 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, transitioning, and precise word choice. Throughout this process, students will perfect their writing skills through revision and submittal of drafts.		

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. Personal Finance culminates mathematical studies for preparation of personal financial management needs of post-graduation life. An optional fourth year of mathematical study may be available through Algebra II (302320) and/or meet with your school counselor to discuss other potential options.

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 Trigonometry & Advanced Mathematics.

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.

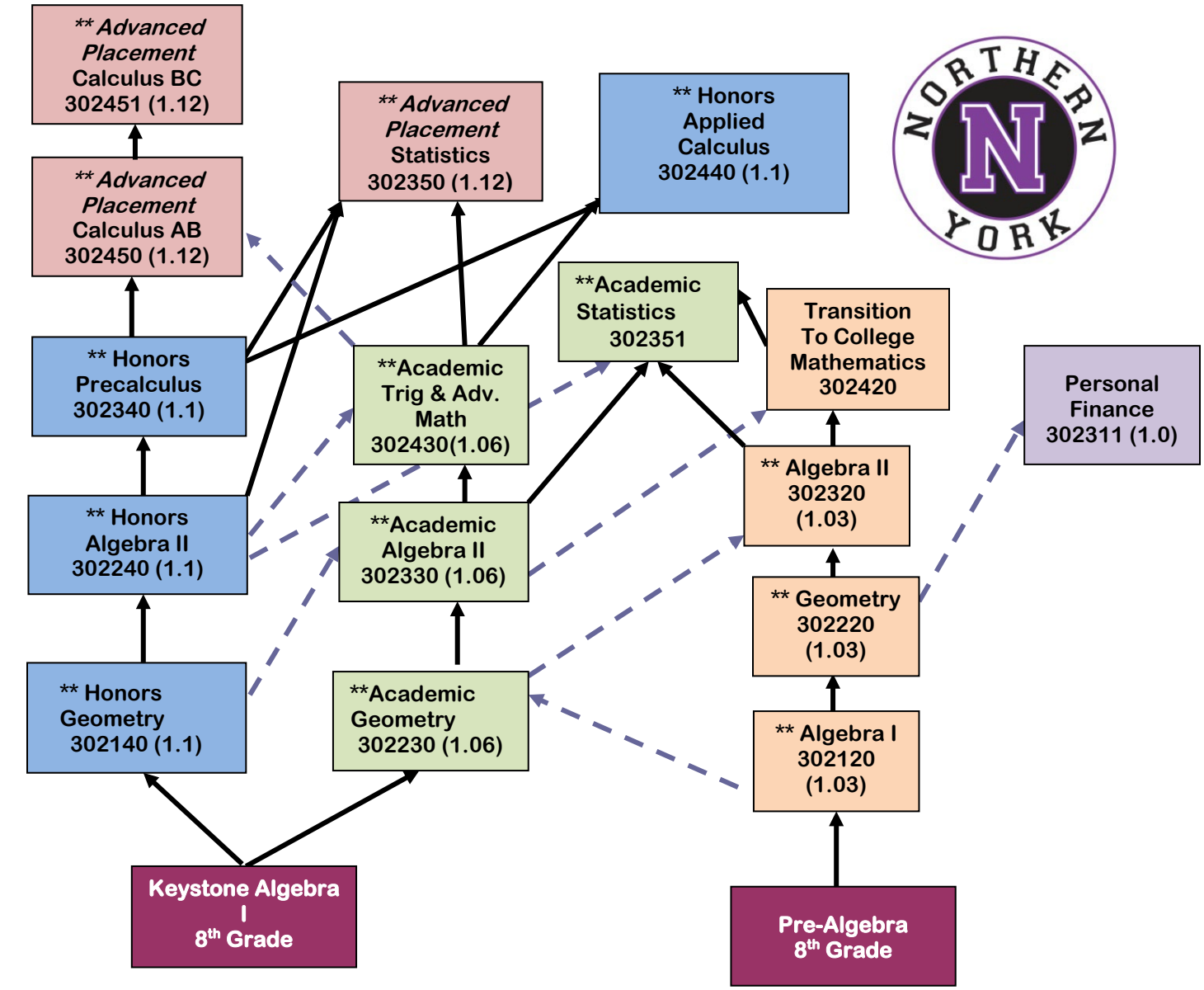
1.10 Honors Level

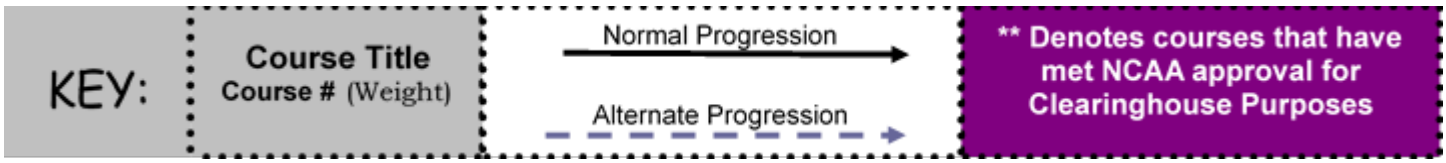
Courses in this sequence aim to accelerate students so they may have the opportunity to earn college mathematics credit(s) while still in high school. Currently, our district offers opportunities through the College Board Testing Program associated with our courses in Advanced Placement Calculus and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

1.12 AP Level

Advanced Placement Calculus AB, BC and Advanced Placement Statistics.

MATHEMATICS Course Selection Guide





Math Course Descriptions

302120- Algebra I- (Grade 9) NCAA Approved	**Credit 1**	**WV 1.03**
Algebra I is one of the broad parts of mathematics, together with number theory, geometry and analysis. In its most general form, algebra is the study of mathematical symbols and the rules for manipulating these symbols; it is a unifying thread of almost all of mathematics. This course is designed to provide students with foundational skills necessary for understanding and applying geometric, trigonometric, and calculus concepts. Upon completion of this course, students will take the Keystone Algebra I exam. The two main modules include: 1) Operations with Linear Equations and Inequalities; and 2) Linear Functions and Data Organization. This course is also designed to address the needs of college bound students.		

302220- Geometry (Grades 9-10) NCAA Approved	**Credit 1**	**WV 1.03**
This course is for 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. A goal of this course is to provide students a basic understanding of Geometry and prepare them for enrollment in post-secondary education in a non-mathematics major/field of study. **Prerequisite:** 8th Algebra I range of 70-76% or Algebra I (1.03) grade of 70%		

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 8th grade (some students may be recommended by 9th 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. The course will include topics in plane geometry including Geometric Properties & Reasoning with emphasis placed on formal proofs and problem-solving involving algebra skills. A goal of this course is to prepare students for the demands of mathematics-related degrees. **Prerequisite:** Algebra I in 8th grade earning 77-89%, successful completion of Keystone Algebra I Exam, AND teacher recommendation required.		

302140- Honors Geometry (Grades 9-10) NCAA Approved	**Credit 1**	**WV 1.10**
This is a year-long course designed to provide students with a basic knowledge of important geometrical concepts and applications which are addressed in the Pennsylvania Core Standards for mathematics. This course is for students who have successfully completed Algebra I in the 8th grade. Honor's 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 including Geometric Properties & Reasoning with focus on formal proofs and utilization of algebra skills (including fractions, factoring, and systems of equations) for problem-solving. 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 as well as prepare them for the demands of mathematics-related degrees. **Prerequisite:** Algebra I in 8th grade earning 90% or above, successful completion of Keystone Algebra I Exam, AND 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 includes a broad spectrum of key Algebra II concepts with an emphasis on the integration of the graphing calculator to support and extend student understandings of the many different functions of Algebra II. **Prerequisite:** Successful completion of Keystone Algebra I exam, Algebra I and Geometry.		

302330- Academic Algebra II (Grades 10-12) NCAA Approved	**Credit 1**	**WV 1.06**
Academic Algebra II will extend many of the topics in Algebra I with a more in-depth approach. This course examines nonlinear functions including quadratics, polynomials, rational exponents, and radical functions. Specific topics this course focuses on include simplifying expressions, factoring, solving techniques, and graphing functions. 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. This course will also prepare students for the math portion of the College Board's SAT. **Prerequisite:** Passing score on Keystone Algebra I exam & Academic Geometry of 77 % or above. Teacher recommendation required.		

302240- Honors Algebra II (Grades 9-10) NCAA Approved	**Credit 1**	**WV 1.10**
Honors Algebra II is designed for students who have successfully completed Algebra I in 7th or 8th grade. This course thoroughly examines nonlinear functions and explores sequences, series, and matrices. Additional topics such as irrational numbers, complex numbers, Pascal's Triangle, rational exponents, conic sections, and advanced factoring techniques are addressed. A goal of this course is to accelerate students, so they have the opportunity to study mathematics at a collegiate level during their junior and/or senior years. Furthermore, this course will prepare students for the Passport to Advanced Math portion of the College Board's SAT. **Prerequisite:** Algebra I grade of 90% or above & Honors Geometry grade of 77% or above is required. Teacher recommendation required.		

302311- Personal Finance (Grade 11-12)	**Credit 1**	**WV 1.00**
The purpose of Personal Finance is to empower students with knowledge and application of basic financial principles so they can make sound financial decisions for life. The goals of this course are to reinforce academic skills such as communication, mathematics, 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; 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. **Prerequisite:** Algebra I and a Geometry course. ***This class satisfies the financial literacy graduation component.**		

302420- Transition to College Mathematics (Grades 11-12)	**Credit 1**	**WV 1.03**
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. **Prerequisite:** Completion of Algebra I, Geometry & Algebra II. Teacher recommendation required.		

302430- Academic Trigonometry/ Advanced Mathematics (Grades 10-12) NCAA Approved	**Credit 1**	**WV 1.06**
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. **Prerequisite:** 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.		

302340- Honors Pre-calculus (Grades 10-12) NCAA Approved	**Credit 1**	**WV 1.10**
This course is designed to lay the foundation for the study of calculus during 11^{th} or 12^{th} grade. Precalculus extends Algebra II skills, 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.		

302440- Honors Applied Calculus (Grades 11-12) NCAA Approved	**Credit 1**	**WV 1.10**
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. This course emphasizes the mechanics of calculus while studying both differential and integral calculus. The primary goal of this course is 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		

302351- Academic Statistics (Grades 10-12) NCAA Approved	**Credit 1**	**WV 1.06**
Statistics is a year-long course designed to provide students with a basic knowledge of important statistical concepts and applications which are addressed in the Pennsylvania Core Standards for mathematics. This course is for students who have an interest in developing skills in statistics but are not interested in studying statistics at the advanced placement (AP) level. The course will address topics in both descriptive and inferential statistics. Topics will include organizing data, measures of center and variation, correlation and regression, probability and probability distributions, sampling distributions, estimation, and inferences using hypothesis tests. **Prerequisite:** Students must have an Algebra II grade of 77% or higher and a Geometry credit.		

302450- AP Calculus AB (Grades 11-12) NCAA Approved	**Credit 1**	**WV 1.12**
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 to follow the AP calculus AB curriculum (A complete course description can be found at 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.		

302451- AP Calculus- BC (Grade 12) NCAA Approved	**Credit 1**	**WV 1.12**
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). 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.		

302350- AP Statistics (Grades 10- 12) NCAA Approved	**Credit 1**	**WV 1.12**
This course is designed to follow the AP statistics curriculum (A complete course description can be found at 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.		

Social Studies

304230- Academic World Cultures (Grade 9) NCAA Approved	**Credit 1**	**WV 1.06**
In World Cultures class the focus of study will be on the geographies, histories, cultures, economic systems, and political systems of the world. The primary areas that will be covered during the course of study are East Asia, South Asia, Southeast Asia, Russia and the former Republics, the Middle East, Sub Sahara Africa, Latin America and a brief look at the United States and Canada. As students examine the different areas of the world, they will gain insight and an appreciation of the many differences that make up the world. Through the study of the many different cultures of the world, students will gain an appreciation and understanding of people outside of the United States, a skill necessary for participation in the growing global community.		

304240- Honors World Cultures (Grade 9) 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.		

304310- U.S. History (Grade 10) NCAA Approved	**Credit 1**	**WV 1.00**
The course will concentrate on American history from 1870 to the present. Students 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.		

304330- Academic U.S. History (Grade 10) NCAA Approved	**Credit 1**	**WV 1.06**
The course will concentrate on American history from 1870 to present. Students 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.		

304340- Honors U.S. History (Grade 10) NCAA Approved	**Credit 1**	**WV 1.10**
The course will concentrate on American history from 1870 to the present. 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 9th grade social studies course and a teacher recommendation.		

304350- AP U.S. History (Grade 11-12) NCAA Approved	**Credit 1**	**WV 1.12**
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 all honors level classes from 9th to 11th grade social studies course and a teacher recommendation.		

304410- American Government (Grade 11-12) NCAA Approved	**Credit 1**	**WV 1.00**
This course is designed to prepare students with the basic skills and knowledge needed for citizens to discuss key issues faced by society. These issues are considered by exploring how government actions have impacted social and economic outcomes. Students will begin to develop their own ideas about politics as they consider what role government should play in the lives of its citizens. Course curriculum includes the fundamental ideas, historical events, and individuals that have influenced the structure and operation of the American federal system of government. Content includes the core principles and key components built into the U.S. Constitution which guide America's constitutional republic. Special consideration is given to understanding government's role in protecting the civil liberties outlined in the Bill of Rights.		

304430- Academic American Government (Grades 11-12) **NCAA Approved**	**Credit 1**	**WV 1.06**
This course is designed to equip students with the skills and knowledge necessary to actively engage in civil discourse regarding key issues faced by our society. These issues are evaluated by examining how government policy has impacted the social and economic outcomes of its citizens. Students will be provided with opportunities to formulate and test their own political ideology as they consider the proper role government in our society and the lives of individuals. Course curriculum is intended to expose students to the fundamental ideas, historical events, and individuals that have influenced the structure and operation of the American federal system of government. Content encompasses the core principles and key components built into the U.S. Constitution which guide America's constitutional republic. **Prerequisite:** An "A" average in an academic or honors level 10th grade social studies course and a teacher recommendation.		

304440- Honors American Government (Grade 11-12) **NCAA Approved**	**Credit 1**	**WV 1.10**
This course is designed to equip students with the skills and knowledge necessary for citizens to actively engage in civil discourse regarding key issues faced by our society. These issues are evaluated by examining how government policy has impacted the social and economic outcomes of its citizens. The course is a writing-intensive experience. Students will be provided with many opportunities to formulate and test their own political ideology as they consider the proper role government should play in the different aspects of society and the lives of individuals. Course curriculum is intended to expose students to the fundamental ideas, historical events, and individuals that have influenced the structure and operation of the American federal system of government. Content encompasses the core principles and key components built into the U.S. Constitution which guide America's constitutional republic. Special consideration is given to understanding government's role in protecting the civil liberties outlined in the Bill of Rights. **Prerequisite:** An "A" average in an academic or honors level 10th grade social studies course and a teacher recommendation.		

304450- AP U.S. Government & Politics (Grade 11-12) **NCAA Approved**	**Credit 1**	**WV 1.12**
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. **Prerequisite:** An "A" average in an honors level 9th and 10th grade social studies course and a teacher recommendation.		

304380- History of Sport & Society- Semester (Grades 10-12)	Credit .5	WV 1.06
In this course, students will examine the development of sports through various historical perspectives. There will be an emphasis on helping students gain a better understanding of the relationship between sport and the social, economic, cultural, and political forces that are at work in the United States as well as the world. Students will examine the historical context of sport in society as well as the significance of gender, race, ethnicity and social class through readings, primary sources, audio, and visual materials as well as class discussions.		

304273- Vietnam War Survey -Semester (Grades 10-12)	Credit .5	WV 1.06
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.		

304360- WWII/ The Holocaust- Semester (Grades 11-12) NCAA Approved	Credit .5	WV 1.06
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. Attention will be given to how the holocaust impacted the lives of individuals and the world collectively. The course also explores how we can use the lessons of WWII and the Holocaust to avoid confront and prevent the repetition of events such as these.		

304370- Psychology- Semester (Grades 11-12) NCAA Approved	Credit .5	WV 1.06
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.		

304372- Sociology -Semester (Grades 11-12) NCAA Approved	**Credit .5**	**WV 1.06**
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.		

304405- Economics – Semester (Grades 11-12) NCAA Approved	**Credit .5**	**WV 1.06**
Economics is a semester course designed to introduce students to basic microeconomics concepts including supply, demand, and the price system. In addition, the course will include personal finance topics including credit cards, taxes, budget, and investment. Economics will prepare students for collegiate macroeconomic theory and applicable strategies for to make responsible decisions regarding their personal finances. ***This class satisfies the financial literacy graduation requirement**		

Science Course Descriptions

303130- Academic Earth and Space (Grade 9) NCAA Approved	**Credit 1**	**WV 1.06**
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 key 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 creative thinking, organization, effective written and verbal communication, and numeric and verbal problem solving.		

303210- Biology (Grade 10)	**Credit 1**	**WV 1.00**
This course is recommended for a student who is not planning to major in science in college. **Students interested in pursuing a career in a health, medical, science, technology, engineering, or math related field are advised to select academic or honors.** 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. Long-term team and individual projects may be assigned to reinforce course concepts and their connection to the real world. ****Biology Keystone Preparatory Course**		

303230- Academic Biology (Grade 10) NCAA Approved	**Credit 1**	**WV 1.06**
This college preparatory course is offered to motivated students with a desire to have biological information presented in detail. Any student interested in pursuing a career in a health, medical, science, technology, engineering, or math field would benefit from this class. Critical thinking and analytical skills will be developed. The mastery of factual knowledge is required. Inductive reasoning will be used. ****Biology Keystone Preparatory Course**		

303140- Honors Biology (Grades 9-10) NCAA Approved	**Credit 1**	**WV 1.10**
This college preparatory course is offered to highly motivated students seeking an academic challenge by having biological information presented in maximum detail at an accelerated pace. Any student interested in pursuing a career in a health, medical, science, technology, engineering, or math field would benefit by taking this class. 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. ****Biology Keystone Prep Course** **Prerequisite:** Must have already taken and received at least a 77% in Algebra I.		

303440- Honors Biology 2 (Grades 11-12) NCAA Approved	**Credit 1**	**WV 1.10**
This course is an advanced college preparatory level course which will introduce students to major specialty areas of Biology including, but not limited to: Detailed Anatomy and Physiology, Molecular Biology, Ecology, Evolution and Creation Science, Cell Biology, Advanced Biochemistry, Genetics, Microbiology, Botany, Immunology. The curriculum is rigorous and requires the application of higher-level thinking skills and writing proficiency. The aim of this course is to provide students with the conceptual framework, factual knowledge, and analytical skills necessary to deal critically with the rapidly changing science of biology. This course will consist of in-depth study and independent research throughout the year. Students will learn using a variety of educational approaches, such as; lectures, discussions, lab activities, experiments, research, independent study, and cooperative learning activities. Some college-based laboratory activities will be conducted. Honors Biology II is strongly recommended for anyone pursuing a future in a biological related field and/or in the medical field of study. **Prerequisites:** Minimum honor grade (85%) in Biology I and Chemistry I		

303250- AP Biology (Grades 10-12) NCAA Approved	**Credit 1**	**WV 1.12**
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. *Course is designed to prepare students to take the AP exam. For more information, visit: https://apstudent.collegeboard.org/home **Prerequisite:** 93% or higher Biology I and recommendation from instructor.		

303455- Anatomy and Physiology (Grades 10-12) NCAA Approved	**Credit 1**	**WV 1.06**
This class is designed for students who want to learn about the intricacies of the structure and function of the human body. In this course, students will learn about the systems and physical structures 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, and effective written and verbal communication. **Prerequisites:** Must have a minimum of a 77% in Biology (or recommendation of Biology Teacher), Chemistry (can be taken concurrently).		

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303320- Chemistry (Grades 10-12) NCAA Approved	Credit 1	WV 1.03
This course is recommended for a student who is not planning to major in science in college. **Students interested in pursuing a career in a health, medical, science, technology, engineering, or math related field are advised to select academic or honors.** The mathematics component of this course is less rigorous than Academic Chemistry (303330), but basic algebra skills are needed for scientific problem solving. The content covers traditional Chemistry topics with more drill and review than Academic Chemistry. A scientific calculator is required and is used almost daily. **Prerequisite:** Algebra I		

303330- Academic Chemistry (Grade 10-12) NCAA Approved	Credit 1	WV 1.06
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. This course is also recommended for students interested in attending college and/or pursuing a career in a health & 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. **Prerequisite:** Must have already taken and received at least a 77% in Algebra I.		

303240- Honors Chemistry (Grades 10-12) NCAA Approved	Credit 1	WV 1.10
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. It is expected that students who elect this level are planning to take four or more science credits toward graduation. All students will be considered with the recommendations of their previous science teachers and with consideration of strong performance in math classes. Students will reinforce the scientific method through independent projects. Examples may include science fair, ExploraVision, or other science contests and projects. A graphics calculator is recommended. The instructor uses a TI-84 model. **Prerequisite:** 86% or higher in Honors Biology (or teacher recommendation)		

303350- AP Chemistry (Grades 11-12) NCAA Approved	Credit 1	WV 1.12
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 and for students who simply wish to challenge themselves with an upper-level science course. The course emphasizes quantitative studies with integrated lab work in topics including molecular structure and polarity, states of matter and phase changes, thermodynamics, electrochemistry, chemical kinetics, equilibrium, acid-base chemistry, buffers and more. Experience with graphing calculator will be helpful for this course. (Instructor uses Model TI-84.) *Course is designed to prepare students to take the AP exam. For more information, visit: https://apstudent.collegeboard.org/home **Prerequisite:** Honors Chemistry or exemplary success in Academic Chemistry		

303300- Academic Environmental Science (Grades 10-12)	**Credit 1**	**WV 1.06**
Environmental Science is a year-long course designed to show thematic connections between a variety of science disciplines including Earth and Space Science and Biology. This course surveys key topic areas including the application of scientific processes to environmental analysis; ecology; energy flow; ecological structures; natural resources; and climate, land, and water science. It gives students a coherent and realistic picture of the applications of a variety of scientific concepts as they manifest in our environment as well as includes discussions of the management of natural resources and analysis of private and governmental decisions involving the environment. This course is largely project-based allowing students to dive deeper into topics discussed in class. This course is for students who are highly motivated to work independently or in groups to research environmental topics. **Prerequisite:** Biology (Earth and Space Science is recommended, but not required.)		

303340- Honors Physics (Grade 11-12) NCAA Approved	**Credit 1**	**WV 1.10**
This physic 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. **Prerequisite:** Trigonometry (or concurrent with Trigonometry)		

303450- AP Physics (Grade 12) NCAA Approved	**Credit 1**	**WV 1.12**
This course offers an advanced study of physics for those students who have exhibited strengths in science and math and wish to pursue pre-med, engineering, or other science related careers. Topics for this course will include Angular Motion, Sound and Light Waves, Momentum, DC Electricity and Circuits, and other related topics. *Course is designed to prepare students to take the AP exam. For more information, visit: https://apstudent.collegeboard.org/home **Prerequisite:** Honors Physics		

World Languages

306110- Spanish I (Grades 9-12) NCAA Approved	**Credit 1**	**WV 1.00**
Spanish I focuses on the basic elements necessary for effective communication. Emphasis is placed on fundamental vocabulary, grammar and culture with the goal of building a foundation for further language study. Students are encouraged to use Spanish daily in class and are expected to follow classroom commands and directions in the language. This is an academic elective that meets every day of the year. Note: Student should have a good foundation of English grammar concepts and terminology before enrolling in this course.		

306120- Spanish II (Grades 9-12) NCAA Approved	**Credit 1**	**WV 1.03**
Spanish II further develops the necessary elements of effective communication. Emphasis is placed on the expansion of reading, writing, listening and speaking skills with the goal of preparing students for further language study. In addition to studying essential vocabulary and grammar, students will explore elements of Hispanic culture throughout the world. Students are encouraged to use Spanish daily in class. This is an academic elective that meets every day of the year. **Prerequisite:** Student must have a cumulative average of 77% or higher and the recommendation of the Spanish I teacher to enroll in Spanish II.		

306130- Spanish III (Grades 10-12) NCAA Approved	**Credit 1**	**WV 1.06**
Spanish III continues developing more advanced skills necessary for effective communication. Emphasis is placed on self-expression through the interpretation and use of reading, writing, listening and speaking skills. The course is designed to prepare students for further language study at the high school or collegiate level. In addition to increasing essential vocabulary and grammar, students will explore the influence of Hispanic culture in a global setting and in the United States. Students are expected to use Spanish daily in class. This is a fast-paced academic elective that meets every day of the year. **Prerequisite:** A student must have a cumulative average of 77% or higher and the recommendation of the Spanish II teacher to enroll in Spanish III.		

306140- Honors Spanish IV (Grades 11-12) NCAA Approved	**Credit 1**	**WV 1.10**
Spanish IV is for the serious language student who intends to refine and enhance the advanced skills necessary for effective communication. Emphasis is placed on the use of the language within the three modes of communication (interpretive, interpersonal, and presentational) with the intent of preparing students for success in both the AP Spanish course and at the collegiate level. Complex vocabulary and grammar will be further developed and perfected through the study of relevant Hispanic cultural topics and a variety of authentic resources. Students are required to use Spanish daily in class. This is a rigorous and fast-paced academic elective that meets every day of the year. **Prerequisite:** Student must have a cumulative average of 77% or higher and the recommendation of the Spanish III teacher to enroll in Spanish IV.		

306150- AP Spanish (Grade 12) NCAA Approved	**Credit 1**	**WV 1.12**
AP Spanish is the culmination of a student's study in the Spanish program at Northern. Emphasis is placed on the four aspects of a language (reading, writing, listening, and speaking) within the three modes of communication (interpretive, interpersonal, and presentational) with the intent of preparing students to use Spanish in real-world scenarios. Complex vocabulary and grammar are reviewed and refined through the study of current events, relevant cultural topics and themes, and a variety of authentic resources. This course is also designed to prepare interested students for the AP Spanish Language and Culture exam. Students are required to use Spanish daily in class. **Prerequisite:** Student must have a cumulative average of 77% or higher and the recommendation of the Spanish IV teacher to enroll in AP Spanish.		

306210- French I (Grades 9- 12) NCAA Approved	**Credit 1**	**WV 1.00**
French I focuses on the basic elements necessary for effective communication. Emphasis is placed on fundamental vocabulary, grammar and culture with the goal of building a foundation for further language study. Students are encouraged to use French daily in class and are expected to follow classroom commands and directions in the language. This is an academic elective that meets every day of the year. Note: Student should have a good foundation of English grammar concepts and terminology before enrolling in this course.		

306220- French II (Grades 9-12) NCAA Approved	**Credit 1**	**WV 1.03**
French II further develops the necessary elements of effective communication. Emphasis is placed on the expansion of reading, writing, listening and speaking skills with the goal of preparing students for further language study. In addition to studying essential vocabulary and grammar, students will explore elements of French culture throughout the world. Students are encouraged to use French daily in class. This is an academic elective that meets every day of the year. **Prerequisite:** Student must have a cumulative average of 77% or higher and the recommendation of the French I teacher to enroll in French II.		

306230- French III (Grades 10- 12) NCAA Approved	**Credit 1**	**WV 1.06**
French III continues developing more advanced skills necessary for effective communication. Emphasis is placed on self-expression through the interpretation and use of reading, writing, listening and speaking skills. The course is designed to prepare students for further language study at the high school or collegiate level. In addition to increasing essential vocabulary and grammar, students will explore the influence of French culture in a global setting and in the United States. Students are expected to use French daily in class. This is a fast-paced academic elective that meets every day of the year. **Prerequisite:** Student must have a cumulative average of 77% or higher and the recommendation of the French II teacher to enroll in French III.		

306240- Honors French IV (Grades 11- 12) NCAA Approved	**Credit 1**	**WV 1.10**
French IV is for the serious language student who intends to refine and enhance the advanced skills necessary for effective communication. Emphasis is placed on the use of the language within the three modes of communication (interpretive, interpersonal, and presentational) with the intent of preparing students for success in both the AP French course and at the collegiate level. Complex vocabulary and grammar will be further developed and perfected through the study of relevant French cultural topics and a variety of authentic resources. Students are required to use French daily in class. This is a rigorous and fast-paced academic elective that meets every day of the year. **Prerequisite:** Student must have a cumulative average of 77% or higher and the recommendation of the French III teacher to enroll in French IV.		

306250- AP French (Grade 12) NCAA Approved	**Credit 1**	**WV 1.12**
AP French is the culmination of a student's study in the French program at Northern. Emphasis is placed on the four aspects of a language (reading, writing, listening, and speaking) within the three modes of communication (interpretive, interpersonal, and presentational) with the intent of preparing students to use French in real-world scenarios. Complex vocabulary and grammar are reviewed and refined through the study of current events, relevant cultural topics and themes, and a variety of authentic resources. This course is also designed to prepare interested students for the AP French Language and Culture exam. Students are required to use French daily in class. **Prerequisite:** Student must have a cumulative average of 77% or higher and the recommendation of the French IV teacher to enroll in AP French.		

Music

305160- Concert Band (Grades 9-12)	Credit 1	WV 1.00
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.		

305161- Concert Band (3 Day) (Grades 9-12)	Credit .5	WV 1.00
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.**		

305162- BOC- Band (Grades 9-12)	Credit .33	WV 1.00
Students interested in taking Band as well as Chorus and Orchestra should enroll in this course. Students will have Band 2 days per cycle, as well as Chorus and Orchestra each 2 days per cycle.		

305164- Wind Ensemble (Grades 10-12)	Credit 1	WV 1.03
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. **Prerequisite: Must have at least one year of HS Concert band**		

305170- Chorus (Grade 9-12)	Credit 1	WV 1.00
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.		

305171- Chorus (3 Day) (Grades 9-12)	Credit .5	WV 1.00
Students interested in taking Mixed Chorus as well as either Band or Orchestra should enroll in this course. Students will have Mixed Chorus 3 days per cycle and either Band or Orchestra on the other 3 days of the cycle.		

305172- BOC- Chorus (Grades 9-12)	Credit .33	WV 1.00
Students interested in taking Mixed Chorus as well as Band and Orchestra should enroll in this course. Students will have Mixed Chorus 2 days per cycle, Band 2 days per cycle, and Orchestra 2 days per cycle.		

305180- Orchestra (Grades 9-12)	Credit 1	WV 1.00
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.		

305181- Orchestra (3 Day) (Grades 9-12)	Credit .5	WV 1.00
Students interested in taking Orchestra as well as Mixed Chorus or 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.		

305182- BOC- Orchestra (Grades 9-12)	Credit .33	WV 1.00
Students interested in taking Orchestra as well as Band and 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		

305165- Music Theory (Grades 10-12)	Credit 1	WV 1.03
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. Students must have already had a year of high school music. **REQUIREMENT: Student must be in Chorus, Band, Orchestra, or Wind Ensemble.**		

305166- Beginner Guitar- Semester (Grades 9-12)	**Credit .5**	**WV 1.00**
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 acoustic guitar and case and for transporting guitars to and from school.** Guitars are not permitted on the school bus per the Transportation Department. This course is for BEGINNER guitar students. Class size is limited to 9 students.		

305167- Beginner Piano- Semester (Grades 9-12)	**Credit .5**	**WV 1.00**
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 BEGINNER piano students. Class size is limited to 9 students.		

ART

323164—Drawing and Painting I (Grades 9-12)	Credit 1	WV 1.00
Drawing and Painting 1 is a yearlong introductory course for students interested in exploring a variety of drawing and painting approaches. This is a class for students seriously interested in creating and learning about art. Students will learn how to paint and draw portraits, objects, spaces, and places. Students will experiment with graphite, charcoal, pen & ink, acrylic paint, watercolor, and more. Drawing and Painting 1 is a perquisite for students who want to continue taking art classes in Drawing and Painting pathway		

323165— Drawing and Painting II (Grades 10-12)	Credit 1	WV 1.03
Drawing and Painting II is a yearlong course for students who want to continue advancing their skills in drawing and painting. This is a class for students seriously interested in creating and learning about art. Students will have the opportunity to explore a variety of drawing mediums and will focus on painting techniques using watercolor and acrylic paint. Students are provided with opportunities to draw and paint from observation and references. Drawing and Painting II is required for students interested in taking Honors Drawing & Painting and AP 2D Studio Art. Prerequisite: Drawing and Painting 1		

323167- Honors Drawing and Painting III (Grades 11-12)	Credit 1	WV 1.10
This course is designed for students who have taken Drawing & Painting I and Drawing & Painting II who are interested in refining and strengthening their drawing and painting skills. Students will draw and paint using advanced techniques and more experimental approaches. Students are provided with continued opportunities to paint and draw from observation and references. In addition, students will develop their own ideas and compositions based on teacher supplied concepts. Students are expected to work on assignments outside of class, keep a sketchbook, research ideas, and discuss their work, ideas, and inspiration as well as the work of other students and master artists. Honors Drawing & Painting is required for students who are interested in taking AP 2D Art Studio. **Prerequisite:** Drawing and Painting II		

323290 – Introduction to Sculpture (Grades 9-12)	Credit 1	WV 1.00
This year-long introductory course is for students interested in developing an understanding of three-dimensional visual art and design. Students will study the world of sculpture through a broad range of found object mediums, paper mache, elements and principles of design, hand-building techniques, and an introduction to the potter wheel. Introduction to Sculpture is prerequisite for art students who wish to take intermediate and advanced level Ceramic and Sculpture courses.		

323391— Ceramics and Sculpture II (Grades 10-12)	Credit 1	WV 1.03
This year-long course will explore intermediate sculpting techniques. Students will have the opportunity to expand their ceramic and sculpture knowledge through different mediums that enhance student expression and technical proficiency. Topics covered are wheel throwing, hand-building, and sculpting in a variety of mediums. Ceramics and Sculpture II is a prerequisite for students who wish to take intermediate and advanced level Ceramic and Sculpture courses. Prerequisite: Introduction to Sculptures I		

323392— Ceramics and Sculpture III (Grades 11-12)	Credit 1	WV 1.06
This year-long course provides students with the opportunity to expand technical skills and conceptual approaches to three-dimensional mediums. Students will develop quality artwork, creative thinking skills, and a personal style of expression. Recommended for the art student who intends on applying for the AP-3D studio art class and/or those serious about pursuing art beyond school. A variety of materials and techniques will be explored and utilized in the sculpture processes to encourage creative problem-solving. Ceramics and Sculpture III is a prerequisite for the AP 3D Art Studio course. Prerequisite: Ceramics and Sculpture II		

323449- Senior 2D Art (Grade 12)	Credit 1	WV 1.10
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. Students will be guided through the process of preparing a portfolio to showcase their skills and abilities. Students must be committed to working outside of the classroom and meeting deadlines. Students are expected to work on assignments outside of class, keep a sketchbook, experiment with materials, research ideas, and discuss their work, ideas, and inspiration as well as the work of other students and master artists. **Prerequisite:** Honors Drawing and Painting		

323451-AP 2D Art Studio (Grade 12)	Credit 1	WV 1.12
AP 2D Studio Art is designed for advanced art students who are interested in 2-Dimensional design. Students will create a sustained investigation focusing on a personal area of interest. This course is designed to guide students in preparing a portfolio or body of work equivalent to a college level studio course for submission to the College Board. Students must be committed to working outside of the classroom and meeting deadlines. Students are expected to work on assignments outside of class, keep a sketchbook, experiment with materials, research ideas, and discuss their work, ideas, and inspiration as well as the work of other students and master artists. **Prerequisite:** Honors Drawing and Painting		

323452- AP 3D Art Studio (Grade 12)	Credit 1	WV 1.12
This course is for experienced art students interested in exploring three-dimensional materials. Students will engage in self-directed and designed art experiences that encourage reflection on the art-making process. Written analyses, sketchbooks, artist statements, out-of-class work, and a portfolio are required. Students must be motivated, cooperative, responsible, and willing to engage in critiques and self-evaluations throughout the year. This course is for those preparing art portfolios for college entrance and interested in art beyond the classroom. **Prerequisite:** Ceramics and Sculpture III		

FAMILY AND CONSUMER SCIENCE

324160- Culinary Arts I (Grades 9- 12)	**Credit 1**	**WV 1.00**
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.		

324261- Culinary Arts II (Grades 10- 12)	**Credit 1**	**WV 1.03**
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. **Prerequisite:** Culinary Arts I		

324264- Multicultural Foods (Grades 10- 12)	**Credit 1**	**WV 1.03**
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 9- 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.		

Agricultural Science and Engineering

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 in an agricultural class are automatically FFA members, at no cost, and are encouraged to participate in FFA activities. Students are encouraged to participate in FFA activities if they are enrolled in an agricultural course. SAE requirements apply.

318488- Agricultural Leadership Development (Recommended for any student in Grade 9 taking an agricultural course) - Semester (Grades 9-11)	**Credit .5**	**WV 1.00**
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.		

318261- Small Gas Engines Repair and Overhaul- Semester (Grades 9-12)	**Credit .5**	**WV 1.00**
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.		

318496- Introduction to Agricultural Mechanics and Engineering (Grades 9-11) - Semester	**Credit .5**	**WV 1.00**
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.		

318487- Agricultural Building & Construction (Grades 10-12)	**Credit 1**	**WV 1.03**
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, lazar and optics surveying, concrete and masonry and building principles used today in construction. **Prerequisite:** Introduction to Agricultural Mechanics and Engineering		

318495- Introductory Electric ARC and Gas Welding (Grades 10-12)	Credit 1	WV 1.03
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. **Prerequisite:** Introduction to Agricultural Mechanics and Engineering		

318497- Advanced Welding and Pipe Fitting (Grade 11-12)	Credit 1	WV 1.06
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. **Prerequisite:** Introductory Electric ARC and Gas Welding		

318182- Small Animal Pet Care (Grades 9-12) - Semester	Credit .5	WV 1.00
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.		

318493- Wildlife (Grades 10-12) - Fall Semester	Credit .5	WV 1.00
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!		

318492- Equine Science (Grades 10-12) – Spring Semester	Credit .5	WV 1.00
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.		

318486- Fisheries (Grades 11-12) – Spring Semester	Credit .5	WV 1.00
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.		

318490- Large Animal Science (Grades 11-12) – Fall Semester	Credit .5	WV 1.00
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.		

318383- Veterinary Science (Grade 12)	Credit 1	WV 1.06
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. This course articulates for college elective credit through Delaware Valley College.		

318489- Agricultural Economics and Sales (Grade 12)	Credit 1	WV 1.06
This course articulates for college elective credit through Delaware Valley College. This full year course is the senior level course for students completing approved program requirements for vocational agriculture. It covers all aspects of managing agricultural businesses, deals with the influences of economics in agricultural industries, and strategies for successful agricultural sales.		

318192- Landscaping (Grades 9-12) – Semester	Credit .5	WV 1.00
Landscape design, construction and maintenance will be the focus of this course as students investigate landscape history and careers, design drafting basics, elements and principals of design, and identification of nursery plants, equipment, and pests and disorders. Practical experience will be gained through projects and lab exercises in designing, installing, and maintaining campus landscapes.		

318193- Floral Design/ Marketing- Semester (Grades 10-12)	**Credit .5**	**WV 1.00**
This semester course will discuss primary aspects of the floral industry in preparing students to enter 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 floral sales, make-and-take home their personal creations, and participate in district events requiring floral services.		

318491- Crops and Soil Science (Grades 10-12) – Fall Semester	**Credit .5**	**WV 1.00**
This course will focus on the local and global sustainable food systems. Soil science, pest management, and weed science will be covered as students investigate and implement emerging crop production systems of fruit, vegetables, grains, and forages on campus.		

318485- Greenhouse Management (Grades 11-12) – Spring Semester	**Credit .5**	**WV 1.00**
Greenhouse management is an applied- knowledge course designed to prepare students for employment in the greenhouse industry. This course covers principles of greenhouse structures, plant health and growth, growing media, greenhouse crop selection and propagation, and management techniques. Upon completion of this course, proficient students will be equipped with the technical knowledge and skills needed to prepare for further education and careers in horticulture production.		

318494- Forestry (Grades 11-12) – Fall Semester	**Credit .5**	**WV 1.00**
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.		

(318164 – 318167)- SAE I-IV (Grades 9- 12)	**Credit 1**	**WV 1.00**
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.		

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 **PRODUCTION AGRICULTURE**

Required

9th Grade	10th Grade	11th Grade	12th Grade
-SAE I -Agricultural Leadership	-SAE II - Crop and Soil Science	-SAE III - Large Animal Science	-SAE IV - Ag Economics

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

-Small Animal Pet Care - Landscaping	-Floral - Equine Science - Wildlife	-Forestry - Greenhouse Management -Fisheries

Business and Computers

312180- Introduction to Business and Finance (Grades 9- 12)	Credit 1	WV 1.00
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.		

312360- Marketing I (Grades 10-12)	Credit 1	WV 1.00
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.		

312460- Marketing II (Grade 11-12)	Credit 1	WV 1.03
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. Prerequisite: Marketing I		

312470– Entrepreneurship (Grade 12)	Credit 1	WV 1.06
This course will provide students the opportunity to explore the benefits and risks of self-employment as well as develop competence in starting a small business. The course will expand upon their knowledge of business and marketing principles related to ownership and management of a business, traits and characteristics of successful entrepreneurs, and strategies of business management and marketing. At the conclusion of the course students will develop a business plan related to their area of entrepreneurial interest. **Prerequisite:** Must have successfully complete Marketing I & Marketing II (w/ a final grade of B or higher).		

312181- Accounting I- Semester (Grades 9-12)	Credit .5	WV 1.00
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 Microsoft Excel and Automated Accounting (QuickBooks), students will learn the 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.		

312182- Accounting II- Semester (Grades 9-12)	Credit .5	WV 1.03
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.		

312160- Sports & Entertainment Marketing- Semester (Grades 9-12)	Credit .5	WV 1.00
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 "The Dream Team" package as well as a virtual simulation program called Virtual Business – Sports and Entertainment 2.0. "The Dream Team" 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. Virtual Business – Sports and Entertainment 2.0 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.		

312170- Broadcast Media (Grades 9-12)	Credit 1	WV 1.00
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. *Please note 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.		

312275- TV Studio Production (Grades 10-12)	Credit 1	WV 1.00
This course is the second year 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. **Prerequisite:** Broadcast Media and prior approval from the instructor.		

Technology Education

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

317261- Introduction to Graphic Design (Grades 9-12)	**Credit .5**	**WV 1.00**
This half-year entry-level course introduces students to the essential elements of graphic design using Adobe Illustrator & Adobe Photoshop. Students are introduced to the seven elements of graphic design, using shapes and font typography, selecting, cutting, and blending of photographs and images in Adobe Photoshop. Students are taught to creatively communicate their vision and/or message professionally. Students will enhance their creativity through hand on learning, design, and production		

317262- Advertisement and Promotion (Grades 10-12)	**Credit 1**	**WV 1.06**
Through lectures, demonstrations, and hands-on projects, students will develop a professional digital portfolio showcasing their graphic design abilities. Areas of study will expound on various Adobe Suites techniques in text creation, illustration, and photography adjustment. Students will work directly with "customers" and community partners to create unique posters, shirts, and other graphic medians. Students will learn the value and benefit of teamwork, managing workflow, making deadlines, and vital people skills. Advertisement & Promotion prepares students to be a successful professional in the graphics field. **Prerequisite:** Introduction to Graphic Design		

317263- Packaging Engineering Design (Grades 10-12)	**Credit 1**	**WV 1.06**
The Packaging Engineering & Design course introduces students to the ever-growing packaging design and printing field. Students will learn how to engineer and design various shaped packages. These processes develop the critical-thinking and problem-solving skills necessary for preparation to meet the always every changing industry needs. Students who are looking to investigate their creative skills and / or prepare for potential future employment in this field will benefit greatly from this course. **Prerequisite:** Introduction to Graphic Design		

317264- Motion Graphics (Grades 9-12)	**Credit .5**	**WV 1.06**
This semester-based course introduces students to the world of motion graphics using Adobe Illustrator, Adobe Photoshop, Adobe Dimension & Adobe After Effects. Students will expand their knowledge on the seven elements of graphic design, dive deeper into photo & vector editing and be introduced to the relationship between movement & 2D or 3D design elements. This course is intended to allow students to take their advertisement/promotional ideas and put them into motion, not as a traditional computer animation/game design course. **Prerequisite:** Introduction to Graphic Design		

317169- Introduction to Home Repair (Grades 9-12)	**Credit 1**	**WV 1.00**
This course provides students the opportunity to develop skills necessary to fix basic problems most commonly found around a house. The course is an excellent basis for home repair skills or future employment in several skilled trades. Students will learn the basics of home safety, measurement, tool selection and care, residential wiring, PVS and copper plumbing, drywall repair and HVAC. Students will demonstrate proper safety techniques in a variety of home repair situations.		

323163 – Intro to Computer Animation (Grades 10-12)	**Credit .5**	**WV 1.06**
The Intro to Computer Animation course is a semester course which will offer students an overview into the world of three-dimensional rendering and computer animation. Using 2D/3D graphic design software, students will create 2D/3D graphics that will be used in various animations throughout the course. The animations are then ready for use in applications including computer gaming, video creation, and internet content among others. **Prerequisite:** Introduction to Graphic Design		

317170- **Materials Technology Wood (Grades 9-12)**	**Credit .5**	**WV 1.00**
This course is the pre-requisite for all other wood shop courses. Material Tech – Wood is an introductory course for woodworking. Students will spend half a year learning about the wood shop, machine, and tool safety, measuring, technical drawing, different species of wood, and wood processing. The course will stress the following: tool identification, machine parts, problem solving, reading and drawing project plans and layout work. Students will have the opportunity to work on individual projects and partner projects throughout the course. Students will need to complete several projects before designing and creating their own project.		

317171- **Materials Technology Metal (Grades 9-12)**	**Credit .5**	**WV 1.00**
This one semester courses will introduce the student to the metal materials area. Students will spend approximately 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. All projects created by the students can be taken home by the student. This course can potentially lead to courses at vo-tech if students apply and meet the requirements of Cumberland Perry Area Career and Technical Center.		

317172- Manufacturing & CNC (Grades 10-12)	**Credit 1**	**WV 1.06**
This full-year course introduces students to the fundamentals of the manufacturing process. Areas of emphasis include shop safety, measuring techniques, use of woodworking tools and machines, use of a CNC machine/lathe and plasma cutter, budget projects and assembly line projects. Students will gain experience in technical processes associated with wood, metal and other composites. Students will be able to manufacture projects by themselves and with their classmates. Students will create files and be able to operate the CNC Machine/Lathe and Plasma Cutter. **Prerequisite:** Material Technology - Wood		

317173- Furniture and Joinery (Grades 10-12)	Credit 1	WV 1.06
This full-year course is designed for students who wish to further their exploration of furniture design and joinery techniques. This class stresses the proper usage of wood joinery, shop safety, technical drawings, material lists, usage of tools and machines. Students incorporate fine woodworking techniques to complete furniture projects. Students will have two assigned projects assigned by the teacher followed by instructor-approved independent projects to meet the class requirements. **Prerequisite**: Material Technology - Wood		

317174- Design & Fine Woodworking (Grade 12)	Credit 1	WV 1.10
Design & Fine woodworking is the highest and last level course of woodworking. Students must have completed and passed the following courses ***Material Tech Woodworking, Furniture & Joinery and Manufacturing & CNC*** to take Design & Fine Woodworking. Students will take everything they have learned over the last three years and complete teacher-approved projects. Students will also complete a Capstone Project which will involve critical thinking and problem-solving skills to create a service project for the community. Students will review measurement, shop, machine and tool safety, problem solving, Fustion360, project planning, joinery & furniture design and manufacturing & CNC work to complete their projects. Each project must relate to the previous courses they have taken. Students will create a portfolio on Microsoft PowerPoint of their projects and present a final report at the end of year. **Prerequisite:** Material Tech Woodworking, Furniture & Joinery, and Manufacturing & CNC		

STEM

321184- Introduction to Engineering (Grades 9-12)	Credit .5	WV 1.00
This semester-long course, which is a prerequisite for Computer-Aided Drafting & Design, Engineering Design, and Architectural Design, introduces students to the foundational components of our S.T.E.M. program. Students begin by learning how to create simple 2-D drawings and 3-D models using AutoCAD and Autodesk Inventor. Next, they learn the steps of the engineering design process and work through those steps as they design a solution to a basic real-world engineering problem. While doing so, students are introduced to a variety of basic engineering principles, including measuring, accuracy, precision, measurement devices, density, and simple machines. Finally, students are introduced to the fundamentals of architectural design, as they apply what they've learned about the design process to design and model a simple residential structure using Autodesk Revit.		

321185- Computer Aided Drafting & Design (Grades 9- 12)	Credit .5	WV 1.06
Computer-Aided Drafting & Design is a semester-long course focusing on 3-D software design for applications in engineering and manufacturing. This course is designed for students who are interested in engineering, manufacturing, and/or related fields. Students taking Computer-Aided Drafting & Design will receive an introduction to 3-D design using advanced 2-D and 3-D modeling and visualization technologies such as AutoCAD and Inventor. What's more, students will be introduced to the idea of 3-D models that are suitable for 3-D printing and will learn about the different models and drawing specifications that are required by the different manufacturing technologies available today. **Prerequisite:** Introduction to Engineering		

321186- Engineering Design (Grades 9 - 12)	Credit .5	WV 1.06
Engineering Design is a semester-long course introducing students to the world of engineering product design. Students learn the steps of the engineering design process and then work through those steps as they complete various structural, mechanical, electrical, hydraulic, and/or pneumatic design challenges. As students generate their design solutions, a heavy emphasis is placed on the use of AutoCAD and Autodesk Inventor for developing and presenting their solutions, as well as 3-D printing technology as a means of manufacturing prototype designs. **Prerequisite:** Introduction to Engineering		

321187- Architectural Design (Grades 9-12)	Credit .5	WV 1.06
Architectural Design is a semester-long course emphasizing the use of AEC (Architecture/Engineering/Construction) software including computer-aided drafting (CAD), building information modeling (BIM), and three-dimensional modeling and rendering software applications such as AutoCAD and Revit. Utilizing various architectural drawing types, such as floor plans, foundation plans, plot plans, detail drawings, section views, and elevations, students learn to plan and prepare construction documents appropriate to the architecture, interior design, and construction industries. While doing so, they develop a fundamental knowledge of building systems and a familiarity with basic residential building codes. **Prerequisite:** Introduction to Engineering		

321188- Robotics Engineering (Grades 9-12)	**Credit .5**	**WV 1.00**
Robotics Engineering leverages the “coolness” of robotics, and the excitement of head-to-head competition to inspire and engage students. Students use a design process and build a mobile robot capable of playing a sport-like game. Students learn key S.T.E.M. principles and robotics concepts. At the culmination of the course, students compete head-to-head against their peers in the classroom! This modular and project-based course teaches the design process in an engaging, hands-on manner to challenge, motivate, and inspire students.		

317265- Web Design and Development (Gr 9-12)	**Credit .5**	**WV 1.06**
Hypertext Markup Language (HTML) is the foundation of website and web application development. It allows you to ensure that your content is understood by both segments of your audience: the people who watch, read, or listen to your content, and the computers that display it. In this course, learn how to craft excellent HTML with the pieces that HTML itself has to offer, including all the fundamental concepts you need to use HTML thoughtfully. Cascading Style Sheets (CSS) is a stylesheet language that allows you to control the appearance of your webpages. In this course, learn the concepts that form the foundation of CSS and what you need to know to tweak existing CSS and write your own. At the end of the course, you'll walk away with a portfolio of HTML- and CSS-based webpages/sites of your own design and development! **Pre-requisite:** Introduction to Graphic Design		

PHYSICAL EDUCATION, HEALTH, AND DRIVER EDUCATION

308160- Phys Ed – Semester (Grade 9) **308260- Phys Ed – Semester (Grade 10)**	**Credit .25** **Credit .25**	**WV 1.00** **WV 1.00**
Grade 9/10 Physical Education provides students with a program consisting of group and individual activities. This class meets every other day for a semester. 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 Physical Education.		

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; the reproductive system; and mental health. This course meets every other day for a semester.		

308280- Driver Education- Semester (Grade 10)	**Credit .25**	**WV 1.00**
This course is offered face to face as an elective. 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. Students who take this course may qualify for insurance discounts through their insurance provider.		

308360 – Phys Ed – Semester (Grade 11) **308463 – Phys Ed – Semester (Grade 12)**	**Credit .25** **Credit .25**	**WV 1.00** **WV 1.00**
Grade 11/12 Physical Education is designed to instruct students in a variety of individual and lifetime activities. This course meets every other day for a semester. 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 in the area of fitness, strength and cardiovascular conditioning.		

308361- Health Education- Semester (Grade 11)	**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 eleventh-grade curriculum include a deeper look at mental health, healthy relationships, drug education, and the reproductive system. This course meets every other day for one semester.		

308365- Advanced Fitness (Grades 11-12)	Credit .25	WV 1.00
Advanced progressive training techniques are implemented through our Physical Education courses to improve students' overall level of fitness and help prevent injury. This is an elective course where students will engage in an in-depth study of exercise science and varied fitness program development. Evaluation of students will be conducted through initial assessment results that will be compared to their quarterly performances testing their strength and fitness levels as well as their knowledge of exercise science principles being studied. Through the development of skills and practices, students will become proficient based on the PA Core Standards.		

308265- American Red Cross Lifeguarding (Grades 10-12)	Credit .17	WV 1.00
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 **MUST pass a pre-screening test**. This includes **a 300 meter swim (12 laps freestyle or breaststroke), treading water for 2 minutes without using arms, and retrieve a 10-lb dive weight from 7-10 ft deep, surface and swim 20 yds with the weight, using legs only and exit the pool without using a ladder within 1 minute 40 seconds. Candidates will have 2 attempts for each.** 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. Students must also get approval from their 9th and 10th grade PE teacher who can vouch for their swimming abilities.**		

Cumberland Perry
Area Career & Technical Center

Whether you are planning to attend college, seek employment, join the military, or pursue other options, **Cumberland Perry Area CTC programs give students an advanced career pathway by the time they graduate high school.**

Cumberland Perry Area Career & Technical Center (CPACTC) is jointly owned and operated by thirteen regional school districts. The programs are an extension of your high school electives, offering comprehensive instruction in 22 career and technical programs. Students attend CPACTC 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 CPACTC are taught over a three-year course sequence. However, students may also attend CPACTC for one or two years to support their career goals.

CPACTC has a competitive application process that includes attendance, grades, teacher recommendations, and a career readiness interview. CLICK HERE TO APPLY, or go to http://www.cpatech.org
Clicking on the program names below will connect you to the program web page at www.cpatech.org.

2024-2025 CAREER PATHWAYS AND PROGRAMS AT CPACTC

CONSTRUCTION AND MAINTENANCE Carpentry Electrical Construction and Maintenance Heating/Ventilation/Air Conditioning (HVAC) Horticulture/Landscaping Masonry	**ARTS & TECHNOLOGY** Advertising Art & Design Computer Networking Computer Programming
MANUFACTURING Advanced Manufacturing Technology Automation, Robotics & Electronics Welding Technology	**HEALTH SCIENCES** Dental Assisting Healthcare Pathways Emerging Health Professionals
HUMAN SERVICES AND HOSPITALITY Cosmetology Criminal Justice Culinary Arts Early Childhood Education	**TRANSPORTATION & LOGISTICS** Auto Collision Technology Automotive Technology Diesel Technology Logistics & Warehouse Management

*Cumberland Perry also offers a DIVERSIFIED OCCUPATIONS Program. This is a work-based learning program for students not enrolled in a traditional Career and Technical Education Program. Please refer to the description at the end of this booklet for more information.

ADVANTAGES FOR STUDENTS ATTENDING CPACTC

Learn Real World Skills

Students learn real world skills using the same tools and equipment as industry professionals. By demonstrating their knowledge and abilities, student can earn a Pennsylvania Skills Certificate through the PA Department of Education. 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 – theory and performance. The Theory portion covers factual knowledge, technical information, understanding of academic principals and problem solving related to the technical field. The Performance portion of the NOCTI test allows students to demonstrate their skills to industry professionals who proctor the exam.

Earn College Credits

College in the High School Program

The College in the High School (CHS) program allows high school students to take college classes while enrolled at the CTC during the regular school day. Students who are eligible to take College in the High School courses can earn credits toward high school graduation and credits towards a college degree at the same time. Depending on the program, participating colleges and universities include HACC, Pennsylvania College of Technology (Penn College), and Harrisburg University (HU). The courses are taught by CPACTC instructors, who have been approved by the college/university to teach these courses. HACC, Penn College, and HU award college credits and a college transcript to students who complete the courses with a passing grade. These credits are often eligible to transfer to other colleges and universities that a student may attend. For College in the High School course details go to www.cpatech.org.

College Credit Articulation Agreements

EVERY PROGRAM at CPACTC has the opportunity to earn articulated credit at a participating post-secondary school. This means that college credits are awarded when students meet certain requirements and enroll at a participating school. Program specific articulation agreements can be found at www.cpatech.org.

SOAR Program

Twenty programs at CPACTC (visit www.cpatech.org) qualify under the Pennsylvania Department of Education's SOAR program, which grants college credit at various post-secondary schools in Pennsylvania when students meet the following requirements:

1. Graduate from high school with a 2.5 in the CTC program
2. Achieve a score of "Advanced" or "Competent" on the NOCTI exam
3. Successfully complete all tasks on the Program of Study task list (generally requires student to complete all three years of a program)

Earn Industry-Recognized Credentials

CPACTC students have the opportunity to earn industry credentials which employers recognize and indicate a student has achieved particular skills and knowledge. There are MANY CREDENTIALS offered at CPACTC and they are specific to a student's program and career pathway. Examples include PA State Inspection certification for Auto Tech students and Certified Nursing Assistant certification for nursing students. A complete list of credentials is listed under each program at www.cpatech.org. description. During the 2022-2023 school year, CPACTC students earned 1428 credentials!

Additional information on curriculum, college credit opportunities, and uniform requirements is available online at www.cpatech.org.

Suggested Course Sequence for
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	**CPACTC Program**	**CPACTC Program**	**CPACTC Program**

CONSTRUCTION AND MAINTENANCE PROGRAMS

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.

Potential Career Pathways
(w/ 2023 Median Wage)

Carpenters-$50,815
Construction Laborers-$46,185
Construction Managers-$95,260*
Supervisors-Construction & Ext. Workers-$68,310*
Construction and Building Inspectors-$59,800
Cabinet Makers & Bench Carpenters-$36,410
…and many more!

Industry Credentials

OSHA10-Construction
ASHI Basic First Aid
ASHI CPR & AED
JLG Aerial Work Platform
JLG Material Handler
JLG Scissor Lift
PA Builders Association

College Credits

(Visit our website to view all college articulation partners)

2023 PA Dept. of Labor In-Demand Occupation List
2023 PA Dept. of Labor High Priority Occupation
*ONET Online Bright Outlook Occupation 2023

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 industrial electrical construction projects.

Potential Career Pathways
(w/ 2023 Median Wage)

Electrical Engineers-$98,530*
Electrical Power-Line Installers & Repairers -$81,380
Supervisors-Construction & Ext. Workers -$68,310*
Electricians-$66,270
Security and Fire Alarm Installer-$48,970*
…and many more!

Industry Credentials

OSHA 10-Construction
NJATC 1st Year Apprenticeship
IEC 1st Year Apprenticeship
PA Builder's Assoc. Skills Cert

College Credits

(Visit our website to view all college articulation partners)

2023 PA Dept. of Labor In-Demand Occupation List
2023 PA Dept. of Labor High Priority Occupation
*ONET Online Bright Outlook Occupation 2023

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 these students interested an opportunity to pursue a career in plumbing.

Potential Career Pathways
(w/ 2023 Median Wage)

Energy Engineers-$99,040
HVAC Mechanics & Installers-$51,105
Geothermal Technicians-$39,830
…and many more!

Industry Credentials

OSHA 10-Construction
EPA 608
Pa Builder's Association Skills Cert.

College Credits
(Offered Thru HACC)

HVAC 100-EPA Refrigeration
HVAC 101-Basic Elec. Func.
HVAC 103-Fund. Of A/C
HVAC 109-Heating Systems

(Visit our website to view all college articulation partners)

2023 PA Dept. of Labor In-Demand Occupation List
2023 PA Dept. of Labor High Priority Occupation
*ONET Online Bright Outlook Occupation 2023

HORTICULTURE AND LANDSCAPING

There are several career pathways in the **Horticulture & Landscaping** 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!

Potential Career Pathways
(w/ 2023 Median Wage)

Farmworkers/Laborer (Greenhouse)-$31,985
Landscaper/Groundskeeper-$36,600
Supervisor-Landscapers and Groundskeepers-$49,370*
Pesticide Handler, Sprayer, Applicator-$35,840
Grounds Maintenance Workers-$32,090*
Soil and Plant Scientist-$63,200
…and many more!

Industry Credentials

OSHA 10-Construction
PA Certified Horticulturalist Assoc.
Pesticide Certification

College Credits
(Offered thru Pennsylvania Coll. Of Tech.)

HORT 101-Intro. Ornamental Horticulture
HORT 113-Ornamental Plants

(Visit our website to view all college articulation partners)

2023 PA Dept. of Labor In-Demand Occupation List
2023 PA Dept. of Labor High Priority Occupation
*ONET Online Bright Outlook Occupation 2023

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.

Potential Career Pathways
(w/ 2023 Median Wage)

Brickmason and Blockmason-$55,320
Cement Masons/Concrete Finishers-$54,910
Tile and Stone Setters-$50,865
Helpers-Brick/Block/Stonemason-$46,130
…and many more!

Industry Credentials

OSHA 10-Construction
Rough Terrain Forklift Class 7
PA Builder's Assoc. Skills Cert.
Mobile Elevating Work Platform (MEWPS)

College Credits

(Visit our website to view all college articulation partners)

2023 PA Dept. of Labor In-Demand Occupation List
2023 PA Dept. of Labor High Priority Occupation
*ONET Online Bright Outlook Occupation 2023

ARTS AND TECHNOLOGY PROGRAMS

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.

Potential Career Pathways
(w/ 2023 Median Wage)

Graphic Designers-$50,855
Desktop Publishers-$45,390
Special Effects Artists and Animators-$75,270
Commercial and Industrial Designer-$68,890
…and many more!

Industry Credentials

Adobe Photoshop
Adobe InDesign
Adobe Illustration

College Credits

(Visit our website to view all college articulation partners)

2023 PA Dept. of Labor In-Demand Occupation List
2023 PA Dept. of Labor High Priority Occupation
*ONET Online Bright Outlook Occupation 2023

COMPUTER NETWORKING

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.

Potential Career Pathways
(w/ 2023 Median Wage)

Information Security Analyst-$89,795
Network/Comp. System Admin.-$81,995
Web Developer-$72,190*
Computer User Support Spec.-$55,400
…and many more!

Industry Credentials
CompTiA A+
CompTiA Net+
CCNA
Linux+
Server+
Security+

College Credits
(Offered thru HACC)

CNT 120-Network Tech. Communications

CNT 125-Network Tech. Communications

(Visit our website to view all college articulation partners)

2023 PA Dept. of Labor In-Demand Occupation List
2023 PA Dept. of Labor High Priority Occupation
*ONET Online Bright Outlook Occupation 2023

COMPUTER PROGRAMMING

In **Computer Programming** students will learn to write, develop, and test code for applications to run on computer systems. In addition, they will learn about analyzing and designing solutions to troubleshoot software issues. Students will cover the following topics: understanding computer basics, interpret logical expressions using Boolean Algebra, create simple programs using algorithms, apply program analysis for evaluating algorithms and testing and debugging systems, and learn about computing practice focusing on data structures and object-oriented program design. Emphasis will be on completing college level course work leading to earning college credits through our agreement with Harrisburg University of Science and Technology.

Potential Career Pathways
(w/ 2023 Median Wage)

Software Developers-$99,280*
Web Developer-$72,190*
Computer Net. Supp. Spec.-$55,400
…and many more!

Industry Credentials
PCEP Certified Entry Level Python Programmer - Python Institute

2023 PA Dept. of Labor In-Demand Occupation List
2023 PA Dept. of Labor High Priority Occupation
*ONET Online Bright Outlook Occupation 2023

College Credits
(Offered thru Harrisburg University)

CISC 120-Fund. Of Computing
CISC 160-Data Structures
CISC 300- Web Technologies

(Visit our website to view all college articulation partners)

HEALTH SCIENCES PROGRAMS

DENTAL ASSISTING

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 transferal, 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.

Potential Career Pathways
(w/ 2023 Median Wage)

Dental Assistant-$42,010
Dental Lab Technician-$42,200
Dental Hygienist-$71,900
…and many more!

Industry Credentials

DANB Radiation Health and Safety
DANB Infection Control
ASH CPR & AED
ASHI Basic First Aid
OSHA 10-Healthcare

2023 PA Dept. of Labor In-Demand Occupation List
2023 PA Dept. of Labor High Priority Occupation
*ONET Online Bright Outlook Occupation 2023

College Credits

(Visit our website to view all college articulation partners)

HEALTHCARE PATHWAYS

The Healthcare Industry employs over 600,000 Pennsylvanians and is the largest private employer in Cumberland County. Employment is projected to increase 15% by 2026 and there is a tremendous need for skilled workers to fill the current and future skills gap. The Healthcare Pathways Program at Cumberland Perry Area CTC prepares students with the theoretical knowledge and tangible skills needed for a variety of different pathways within the Healthcare Industry, including employment and post-secondary education opportunities.

After a core curriculum that includes an Introduction to Healthcare, Patient Care Skills, Anatomy and Physiology, and Medical Terminology, students will have the ability to select options within the program that best fit their future career goals, including the potential attainment of stackable credentials and college credits. Elective options include Phlebotomy, EKG, CNA, Office Procedures, and Pharmacy Technician courses, Cooperative Education, and seniors may apply for the Emerging Health Professionals program.

Potential Career Pathways
(w/ 2023 Median Wage)

Nursing Assistants-$35,020
Home Health Aide-$27,485
Registered Nurse-$75,995
…and many more!

Industry Credentials

Certified Nursing Assistant
Personal Care Aide
ASHI CPR & First Aid + Basic First Aid
Act 31 Mandated Reporter
OSHA 10-Healthcare
AMCA Phlebotomy Technician
NHA Pharmacy Technician

2023 PA Dept. of Labor In-Demand Occupation List
2023 PA Dept. of Labor High Priority Occupation
*ONET Online Bright Outlook Occupation 2023

College Credits

(Visit our website to view all college articulation partners)

EMERGING HEALTH PROFESSIONALS

The Emerging Health Professionals Programs is SENIOR ONLY program that combines college level dual enrollment courses, job shadowing in various healthcare facilities, and a skills-based patient care curriculum. The program is designed for high school seniors interested in a pathway towards careers requiring post-secondary education in the healthcare industry. The Emerging Health Professionals Program is a half-day program that runs the duration of the school year in conjunction with required high school curriculum. Students spend two days a week taking college courses, two days a week in a health care setting and one day a week developing skills. Students in this program take Anatomy and Physiology I and II at our partner college for a total of eight college credits. Applicants must have completed one year of high school Biology and Chemistry with a GPA of 3.0 (or % equivalent) as well as Pre-Calculus/Trigonometry (or equivalent) with a GPA of a 3.0 or intends to be enrolled senior year. Students must provide their own transportation and are responsible for college dual-enrollment costs. This program has a separate application, which may be found at www.cpatech.org →Programs →Health Sciences → Emerging Health Professionals.

Potential Career Pathways
(w/ 2023 Median Wage)

Family and General Practitioners-$210,220*
Physician Assistants-$102,775
Nurse Practitioners-$101,950*
Physical Therapists-$88,450

Program offers various other health career pathways as well.

Industry Credentials

Personal Care Aide
ASHI CPR & First Aid + Basic First Aid
Act 31 Mandated Reporter
OSHA 10-Healthcare

2023 PA Dept. of Labor In-Demand Occupation List
2023 PA Dept. of Labor High Priority Occupation
*ONET Online Bright Outlook Occupation 2023

College Credits
(Offered thru Messiah College)

BIO185/185L-Anatomy and Phys. I
BIO186/186l-Anatomy and Phys. II
(Each Course is 4 Credits)
MTR 100-Medical Terminology

(Visit our website to view all college articulation partners)

HUMAN SERVICES AND HOSPITALITY PROGRAMS

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 Area CTC.

Potential Career Pathways
(w/ 2023 Median Wage)

Chefs/Head Cooks-$57,040
Food Service Manager-$55,320
Supervisor-Food Prep. & Servers-$37,180
Cooks, Ins. & Café.-$31,840
Cooks-Restaurant-$29,330
…and many more!

Industry Credentials

Servsafe Manager
Servsafe Allergens
ProStart I & II
ACF Certified Fundamentals Cook

College Credits

(Visit our website to view all college articulation partners)

2023 PA Dept. of Labor In-Demand Occupation List
2023 PA Dept. of Labor High Priority Occupation
*ONET Online Bright Outlook Occupation 2023

COSMETOLOGY

The **Cosmetology** program at CPACTC gives students a great head start to a lucrative career. Our curriculum is rigid, however, by the time student's graduate they will have skills desirable to employers in the Cosmetology industry. Students in the program learn all aspects of hair care, 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.

Potential Career Pathways
(w/ 2023 Median Wage)

Spa Manager-$110,630
Skincare Specialist-$34,090*
Cosmetologist-$30,580
Manicurist and Pedicurist-$25,705
…and many more!

Industry Certifications

PA State Board of Cosmetology License
Barbicide

College Credits

(Visit our website to view all college articulation partners)

2023 PA Dept. of Labor In-Demand Occupation List
2023 PA Dept. of Labor High Priority Occupation
*ONET Online Bright Outlook Occupation 2023

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 PA Crime Code and Pennsylvania Vehicle Code, first aid, and firearms training. Special emphasis is given towards 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, Criminal Justice or Police Science.

Potential Career Pathways
(w/ 2023 Median Wage)

Supervisor-Police & Detectives-$91,090*
Detectives and Criminal Investigators-$83,170
Emergency Management Directors-$74,590*
Police/Sheriff Patrol Officer-$68,975
Correctional Officers/Jailers-$54,580
…and many more!

Industry Credentials

NIMS IS 100 SERIES
NIMS IS 200 SERIES
NIMS IS 700 SERIES
NIMS IS 800 SERIES
ASHI CPR/AED Pro
ASHI Basic First Aid

College Credits

(Visit our website to view all college articulation partners)

2023 PA Dept. of Labor In-Demand Occupation List
2023 PA Dept. of Labor High Priority Occupation
*ONET Online Bright Outlook Occupation 2023

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 and 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 while teaching. 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.

Potential Career Pathways
(w/ 2023 Median Wage)

Elementary School Teacher-$64,640
Childcare Admin.-Preschool & Daycare-$48,210
Preschool Teachers-$31,370
Childcare Workers-$25,820
…and many more!

Industry Credentials

Health and Safety Basics/Better Kid Care
Act 31 Mandatory Reporter Training
ASHI CPR & AED Pro
Child Development Associate (Ready)

2023 PA Dept. of Labor In-Demand Occupation List
2023 PA Dept. of Labor High Priority Occupation
*ONET Online Bright Outlook Occupation 2023

College Credits
(Offered thru Shippensburg University)

ECH 204-Child Development
ECH 205-Positve Behavior
ECH 206-Early Childhood

(Visit our website to view all college articulation partners)

TRANSPORTATION AND LOGISTICS PROGRAMS

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. Various techniques of metal finishing used to fill the damaged areas of vehicles with body plastics and how to grind and sand until the body is smooth are also covered. Our students also learn to replace auto body parts by installing new sections, and by welding new pieces and panels. Instruction in braising, soldering, and welding practices are stressed. Students develop skills in the preparation of surfaces to be painted, matching and mixing paint, and various spraying techniques. In addition, students install trim and glass, use gauges necessary for frame straightening, and estimate the cost of the repair service.

Potential Career Pathways
(w/ 2023 Median Wage)

Automotive Body & Related Repairers-$46,200
Insurance Appraiser-$64,950
Claims Adjuster, Examiner, Investigator-$66,790
…and many more!

Industry Credentials

I-CAR (various)
PA Emissions Inspection
PA Safety Inspection
SP/2 Automotive
EPA 609-A/C
OSHA 10-Transportation

College Credits
(Offered thru Penn. Coll. Of Tech)

ABC 100-Intro. to Non-Structural Repair
ABC 104-Intro.to Non-Structural Repair Apps.

(Visit our website to view all college articulation partners)

2023 PA Dept. of Labor In-Demand Occupation List
2023 PA Dept. of Labor High Priority Occupation
*ONET Online Bright Outlook Occupation 2023

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 Department of Transportation (PENNDOT) safety and emissions inspection program and test. 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.

Potential Career Pathways
(w/ 2023 Median Wage)

Automotive Service Technicians-$43,805
Automotive Engineers-$88,430
Automotive Engineering Technicians-$56,980
Auto Parts Salesperson-$31,710
…and many more!

Industry Credentials

I-CAR (various)
PA Emission Inspection
PA Safety Inspection
EPA 609-A/C
OSHA 10-Transporation

College Credits
(Offered thru Penn. Coll. Of Tech)

AMT 109-Auto Elec Fund
AMT 112-Brake Systems
AMT 113-Steering & Suspension
AMT 126-Engine Elec Systems

(Visit our website to view all college articulation partners)

2023 PA Dept. of Labor In-Demand Occupation List
2023 PA Dept. of Labor High Priority Occupation
*ONET Online Bright Outlook Occupation 2023

DIESEL TECHNOLOGY

Students in the **Diesel Technology** course will receive training in all areas of diesel engine construction, operation, troubleshooting and repair. Students also received instruction in maintenance, servicing, and repair of over-the-road trucks, trailers and transportation equipment. The first year of instruction will focus on diesel powered engines that are 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 such as 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 State Department of Transportation (PENNDOT) safety and emissions inspection program and test for mechanics. They will also be eligible to gain the EPA, type 609 air conditioning certification.

Potential Career Pathways
(w/ 2023 Median Wage)

Transportation Vehicle, Equipment, Sys. Inspector-$75,820
Bus/Truck Mechanic & Diesel Engine Spec.-$49,925
Automotive Service Technicians-$42,010
…and many more!

Industry Credentials

Cat 1-7 Safety Inspector
PA Emissions
EPA 609-A/C
OSHA 10-General Industry

College Credits

(Visit our website to view all college articulation partners)

2023 PA Dept. of Labor In-Demand Occupation List
2023 PA Dept. of Labor High Priority Occupation
*ONET Online Bright Outlook Occupation 2023

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 also a learned skill. 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 the use of data base (computer) entry system for stored materials

Potential Career Pathways
(w/ 2023 Median Wage)

Material Handlers-$30,290
Forklift Operators-$36,800
Stock Clerks and Order Fillers-$32,465
Shipping, Receiving, Inventory Clerk-$39,040
Transportation, Storage and Distrib. Mgr-$103,260
Supply Chain Manager-$94,560
Logistics Analyst-$74,750
…and many more!

Industry Credentials

NSC Forklift Operator
OSHA 10-General Industry

College Credits

(Visit our website to view all college articulation partners)

2023 PA Dept. of Labor In-Demand Occupation List
2023 PA Dept. of Labor High Priority Occupation
*ONET Online Bright Outlook Occupation 2023

MANUFACTURING PROGRAMS

AUTOMATION, ROBOTICS & ELECTRONICS

Automation, Robotics & Electronics (also commonly called “Electromechanical Technology” or “Mechatronics”) is a three-year program that prepares students for employment and for continued education. Students will learn to design, install, troubleshoot, and repair today’s modern automation, robotic, and industrial equipment. Instructional topics include: industrial motor controls, robotics and electronics, programmable logic controls, mechanical power transmission systems, fluid power systems/hydraulics/pneumatics, blueprints and schematics, electricity and electrical systems, and A/C and D/C Circuitry.

Potential Career Pathways
(w/ 2023 Median Wage)

Industrial Machinery Mechanics-$54,730
Electrical and Electronic Engineering Tech.-$65,260
Robotics Technician-$58,350
Industrial Engineering Tech.-$56,550
Electromechanical Technician-$46,960
…and many more!

Industry Credentials

OSHA 10-Manufacturing

College Credits

(Visit our website to view all college articulation partners)

ADVANCED MANUFACTURING TECHNOLOGY

The **Advanced Manufacturing Technology** program prepares students for a challenging and rewarding career in the manufacturing industry. In this program, students learn to use tools to shape the parts and components used in virtually every industry in the world. 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 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.

Potential Career Pathways
(w/ 2023 Median Wage)

CNC Machine Tool Programmers-$56,520
Machinists-$47,030
CNC Machine Tool Operators-$45,190
…and many more!

Industry Credentials

National Institute of Metalworking Skills (NIMS) – Various (11)
OSHA 10-Manufacturing

College Credits
(Offered thru HACC)

MDES 207-Mach Shop Theory
IA 205-Numerical Control CNC

(Visit our website to view all college articulation partners)

2023 PA Dept. of Labor In-Demand Occupation List
2023 PA Dept. of Labor High Priority Occupation
*ONET Online Bright Outlook Occupation 2023

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.

Potential Career Pathways
(w/ 2023 Median Wage)

Welders, Cutters, Solderers, & Brazers-$47,140
Structural Metal Fabricators & Fitters-$40,390
…and many more!

Industry Credentials

AWS Shielded Metal Arc Welding (SMAW)-3G
AWS Shielded Metal Arc Welding (SMAW)-4G
AWS Gas Metal Arc Welding (GMAW)-3G
AWS Gas Tungsten Arc Welding (GTAW)-3G
AWS Fluxcore Arc Welding D1.1 A100
OSHA 10-Manufacturing

College Credits
(Offered thru HACC)

WELD 102-Oxy Fuel W & C
WELD 103-Shielded Metal Arc I
WELD 120-Gas Metal Arc I

(Visit our website to view all college articulation partners)

2023 PA Dept. of Labor In-Demand Occupation List
2023 PA Dept. of Labor High Priority Occupation

DIVERSIFIED OCCUPATIONS

The Diversified Occupation (DO) Program provides training in a career and technical field that may not be offered at CPACTC or as an alternative form of education to meet a student's unique needs.

This program combines classroom instructions in employability skills with on-the-job training through an employer that will align with the career interest of high school students. Career competencies are developed by the employer under the direction of a designated supervisor.

Students in this program attend Cumberland Perry 1 half-day per week learning employability skills and spend 4 half-days per week working at least 15 hours in a paid, supervised work experience. More information can be found at http://www.cpatech.org

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)

- NCAA Division I requires 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.

- A Division I college-bound student-athlete can 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 and II uses a sliding scale to match test scores and core grade-point averages (GPA).
- The SAT score used for NCAA purposes includes critical reading and math sections.
- The ACT score used for NCAA purposes is a composite 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). 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 GPA required to be eligible for competition 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.eligiblitycenter.org.