Altoona Area School District

Altoona Area High School

Secondary Education
Course Descriptions
Grades 9-12

2008 – 2009

Altoona, Pennsylvania

ALTOONA AREA SCHOOL DISTRICT
PHILOSOPHY OF SCHEDULING

The Altoona Area High School program of studies has been developed to provide students with an education that will help fulfill their career expectations. The high school desires to provide each student with comprehensive educational skills necessary to survive in our complex society. Every student must be enrolled in a curriculum cluster each year they are in attendance at the Altoona Area High School.

Our administration, teachers, and guidance counselors will assist parents and students in selecting a program of study that will help prepare him/her for the future. We would like to suggest that your child select a curriculum cluster that best represents his/her ability and career expectations.

You should know that the primary mission of the Altoona Area School District is to deliver the written curriculum in a thorough and efficient manner to every school age student and measure said delivery to its purported effect.

The secondary missions are to instruct students on standards of behavior which should include, but not be limited to, manners, responsibility, reliability, dependability, self-discipline, self-esteem and perseverance; and to become partners with our community in economic revitalization and development.

Our district strives for:

SUPERIOR SERVICE

SUPERIOR QUALITY

ACTIVE PARTICIPATION BY ALL

CONSTANT INNOVATION

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THE STUDENT SCHEDULING PROCESS

It is the intention of the Altoona Area High School administration and counselors to select an educational program for your child that is tailored to his/her future career and tested intellectual ability. This more directed approach to the individualized scheduling of your child is based upon comprehensive research and the national studies conducted to improve American Education. The high school must have the support of you and your child to ensure a positive educational program.

This booklet contains the three (3) basic Curriculum Clusters and related fields of study, course descriptions, course outcomes, the duration of the courses, their credit value, and the difficulty level of each course. The Altoona Area High School administration and staff are confident that the student scheduling process will enhance the educational achievement of each student. All courses offered at the high school are available to any student who meets the **Prerequisites** for the course.

During the first half of the second semester, students in conference with their guidance counselor will complete a scheduling sheet showing the schedule desired for the following year. When this has been completed, students should make sure that the required subjects for each grade are entered on their schedules. A great deal of time and effort is expended to provide each student with an appropriate schedule. The Guidance Counselor and Assistant Principal must approve each student schedule.

Students who have in mind a specific objective such as college, trade, technical, business, hospital training, or work should take special care to see that their program of studies will meet the requirements of the field or specific institution they plan to enter. Students should discuss this plan with their parents or guardian.

GRADUATION REQUIREMENTS

Graduation requirement for grades 9-12 require that students earn at least 23 credits and successfully complete the following:

- A high school project as outlined in the District's strategic plan**.**

GRADUATION PROJECT

The Pennsylvania Department of Education passed legislation that requires all students to complete a Graduation Project in order to graduate from any high school in Pennsylvania.

The Altoona Area School District recognizes the value of a student-generated Graduation Project, which demonstrates in both observable and measurable ways the development of individual creativity, skills, and abilities. Allowing students to create a Graduation Project for their education program develops ownership and commitment to lifelong learning.

The Graduation Project is a research project that is produced in Senior English classes. The student will demonstrate the application, analysis, synthesis, and evaluation of knowledge in this project. The student and teacher will determine the subject and specifications of the project. When it is time to present the research findings, the student may select from a variety of presentation styles. Students may give a speech, complete a PowerPoint presentation, create a visual, produce videotape, or complete a role-play or demonstration to name a few presentation choices.

Full details of the Graduation Project are outlined in the District's strategic plan.

★ A minimum of 23 credits or 26 credits of academic work as outlined below:

23 Credit Outline Standard	**26 Credit Outline Merit**
English (4)	English (4)
Social Studies (3)	Social Studies (4)
Mathematics (3)	Mathematics (4)
Science (3)	Science (4)
Physical Education (1)	Physical Education (1)
Health (.5)	Health (.5)
Arts and Humanities (2)	Arts and Humanities (2)
Electives (6.5)	Electives (6.5)

- A student must successfully complete a minimum of 6.5 elective credits which may include approved vocational-technical course credits
- A student must schedule 4.0 units of credit from courses that are used to determine class rank each year from grade 9 to 12. Courses taken during the summer do not count as part of the 4.0 units required during the school year.
- Successful completion shall be defined as passing each planned course with a grade of 70 or higher.
- A student must have advanced proficiency on PSSA for a merit diploma.
- A student must have one biological and one physical science in grades 10 – 12.

SCHEDULING CHANGES

Students should be very careful and thorough when selecting their program of study. Students are expected to complete ALL selected courses. **If a student wishes to request a schedule change prior to the start of the next school year, the deadline for such a request is June 30th.** In the event a parent feels that a change should be made after this deadline, a conference will be required. Parents should schedule a conference appointment by calling 946-8277. **No convenience schedule changes will be made after June 30th.**

Schedule changes are not made after the school year starts unless it can be determined by the teacher, department head, guidance counselor, and the Assistant Principal that the course is above the student's level of comprehension. **If a student drops a course after 30 school days, a "drop-failure" will be recorded on his/her permanent record and will be utilized to determine class rank.**

PROCEDURE FOR SCHEDULE CHANGE

Drop-Add Schedule Form

Step 1 – Teacher notifies parent regarding failing grades; indicates the possibility that student is over-scheduled and/or scheduled above the student's level of comprehension; requests meeting or phone conference with parent. Student failure must be attributed to level of comprehension and/or over-scheduling. Failures because of poor attendance, not doing homework, not making up work or simply not trying are not acceptable reasons for rescheduling.

Step 2 – Parent-Teacher meeting should allow for verbal discussion of academic problem and possible recommendation for transfer to lower level class or study hall because student is over-scheduled and/or scheduling above student's level of comprehension.

Step 3 – If failing grades continue as a result of lack of comprehension and/or over-scheduling, the teacher submits a written and signed request to the Department Chairperson for student transfer; teacher and Department Chairperson recommend what class or study hall student transfers into within the same period if possible. Written recommendation is then sent to the appropriate guidance counselor who will forward to the grade level Assistant Principal for approval/disapproval.

Step 4 – Student is issued grade earned for first marking period and transferred to lower level class. If lower level class does not exist (i.e. foreign language, AP Course, electives, etc.), student will be placed into a study hall for remainder of first semester, no grade will be issued for course, and student will choose alternate course for second semester (**if this occurs prior to the seventh week**). This does not involve students who are failing because of attendance problems and/or simply not completing assigned work (not doing homework, not making up work).

All approved dropped courses that occur during the seventh week or later will remain on the student's permanent record and be utilized to determine class rank.

COURSE "LEVELS" FOR STUDENT RANKING

Each course has been given a 4, 3.5, 3, 2, 1, or no level, depending on the difficulty and work requirements. After the completion of the junior year, students are ranked using these levels. Some courses do not contain levels for class rank. This system protects those students who select the more demanding courses.

COURSE LEVELS AND EXPECTED ACHIEVEMENT

Levels 3, 3.5, 4 – Students in AP, Honors, and Academic classes (Levels 3, 3.5, 4) can expect homework each night. Students will be responsible for a variety of reading, writing, speaking, and listening activities which may include—but not be limited to—essays, projects, reports, research assignments, portfolios. Most work will be completed individually. Higher order thinking skills of synthesis, analysis, and evaluation will be employed by the classroom teacher and will be expected of students as well.

Level 2 – Students in Core Academics will participate in activities preparing them for an associate degree or the world of work. Class activities will include working frequently in groups to encourage interpersonal skills in writing, speaking, listening, problem solving, and decision-making. Assignment of homework may depend on the need for outside work necessary to complete the task (e.g. reading classified ads, observing statistical data). Students will be evaluated from both objective and performance assessments and subjective analysis of group skills and teamwork. Other Level 2 core courses will also assist in preparing students for the world of work.

Level 1 – Students will complete activities in class with occasional homework assignments. Students will be encouraged to participate in a variety of reading, writing, speaking, and listening activities to promote life skills. Students will be evaluated in numerous ways including pencil and paper tests, projects, and completion of other in-class tasks.

PROPER SELECTION OF COURSES

Students MUST take the same level course in English and Social Studies.

SCHEDULING FOR CLASS RANK

A student MUST schedule 4.0 units of credit from courses that are used to determine class rank in each year from grade 9 to 12. Courses taken during the summer do not count as part of the 4.0 units required during the school.

CURRICULUM CLUSTERS

Altoona Area High School has three basic Curriculum Clusters: Honors, Academic, and Core Academics. (Core Academics include Business Education, Family Consumer Science, and GACTC (Greater Altoona Career & Technology Center) students.) The courses listed in the Curriculum Clusters are primarily defined to accommodate the future educational goals of our student body. It should be clearly understood that individual tested skills and ability will still play a vital role in the actual assignment of specific courses regardless of the Curriculum Cluster. Each student is required to be enrolled in a Curriculum Cluster each year at the Altoona Area High School. Students are not limited to the "suggested electives" listed with the Curriculum Clusters and are permitted to take other courses of interest as their academic abilities and prerequisite courses permit.

CAREER MATRIXES

To assist students in choosing courses that would help to meet goals within certain careers, the Altoona Area High School has developed career matrixes that layout the sequence of courses that Core Academics students should schedule during the indicated years. These career matrixes include:

- FAMILY CONSUMER SCIENCES
- OFFICE INFORMATION TECHNOLOGY
- BUSINESS INFORMATION/COMPUTER TECHNOLOGY
- CAREER AND TECHNICAL EDUCATION (at the GACTC)

By following the suggested sequence, it is possible for Core Academics students to obtain training that could be used to acquire valuable employment upon graduation from high school. In addition, students have the opportunity to attend a post-secondary institution to earn an associate degree if they so desire.

SCHOOL-TO-CAREER/COOPERATIVE WORK EXPERIENCE COMPONENT

The Work Experience component is offered to students in the senior year. It gives students a choice of real world job opportunities based on their career interests and their particular academic and skilled training.

Students following the OFFICE INFORMATION TECHNOLOGY Core Academics Career Matrix, BUSINESS INFORMATION/COMPUTER TECHNOLOGY Core Academics Career Matrix, or the FAMILY CONSUMER SCIENCES Core Academics Career Matrix will have the opportunity to obtain valuable hands-on experience and increase their chances of being hired for a job that may lead to a productive and worthwhile career. They will also have the opportunity to attend a post-secondary institution to earn an associate degree.

The School-To-Career Experience also allows Academic and Core Academics students to explore and experience the real world of work in a variety of job situations. It is recommended that students take computer courses that teach such skills as word processing, spreadsheets, database, multimedia, etc. These skills allow students to offer an employable skill to the employer in order to obtain a job.

COURSE AND CREDIT PLANNING GUIDE

The course and credit planning guide is a sample of a similar sheet the guidance office uses and maintains for graduation purposes. The guide should be used by a student to adequately plan their four years at Altoona Area School District. Total credits for each course are noted with the course descriptions in the Course Description Booklet.

		GRADE				
	Merit Diploma Credits	**9**	**10**	**11**	**12**	**Totals**
English	**4**					
Social Studies	**4**					
Science	**4**					
Mathematics	**4**					
Health	**.5**					
Physical Education	**1**					
World Language	**2**					
Arts & Humanities	**2**					
Electives (List Below)	**4.5**					
1.						
2.						
3.						
4.						
5.						
Total	**26**					

COURSE AND CREDIT PLANNING GUIDE

The course and credit planning guide is a sample of a similar sheet the guidance office uses and maintains for graduation purposes. The guide should be used by a student to adequately plan their four years at Altoona Area School District. Total credits for each course are noted with the course descriptions in the Course Description Booklet.

		GRADE				
	Standard Diploma Credits	**9**	**10**	**11**	**12**	**Totals**
English	**4**					
Social Studies	**3**					
Science	**3**					
Mathematics	**3**					
Health	**.5**					
Physical Education	**1**					
Arts & Humanities	**2**					
Electives (List Below)	**6.5**					
1.						
2.						
3.						
4.						
5.						
Total	**23**					

Assessment Program Grades 8 - 12

HONORS	ACADEMIC	CORE ACADEMICS
8TH Grade State Assessments: • PSSA Reading/Math (Spring) • PSSA Writing (February) District Assessments: • Benchmarks/Marking Period	**8TH Grade** State Assessments: • PSSA Reading/Math (Spring) • PSSA Writing (February) District Assessments: • Benchmarks/Marking Period Standardized Assessments: • Iowa Algebra Prognosis (Given to students in Pre-Algebra to determine readiness for Algebra)	**8TH Grade** State Assessments: • PSSA Reading/Math (Spring) • PSSA Writing (February) • PSSA Science (Spring) District Assessments: • Benchmarks/Marking Period Standardized Assessments: • Iowa Algebra Prognosis (Given to students in Pre-algebra to determine readiness for Algebra)
9th Grade District Assessments: • Benchmarks/Marking Period • Core Subjects Semester Finals Standardized Assessments: • DAT and/or Career Interest Survey (Differential Aptitude Test) • NEDT (Optional) (National Education Development Test)	**9th Grade** District Assessments: • Benchmarks/Marking Period • Core Subjects Semester Finals Standardized Assessments: • DAT and/or Career Interest Survey (Differential Aptitude Test) • NEDT (Optional) (National Education Development Test	**9th Grade** District Assessments: • Benchmarks/Marking Period • Core Subjects Semester Finals Standardized Assessments: • DAT and/or Career Interest Survey (Differential Aptitude Test) • NEDT (Optional) • (National Education Development Test)
10th Grade District Assessments: • Benchmarks/Marking Period • Core Subjects Semester Finals	**10th Grade** District Assessments: • Benchmarks/Marking Period • Core Subjects Semester Finals	**10th Grade** District Assessments: • Benchmarks/Marking Period • Core Subjects Semester Finals
11th Grade State Assessments: • PSSA Reading/Math (Spring) • PSSA Writing (February) District Assessments: • Benchmarks/Marking Period • Core Subjects Semester Finals Standardized Assessments: • PSAT (Fall) • SAT or ACT (Required for Higher Education Schools)	**11th Grade** State Assessments: • PSSA Reading/Math (Spring) • PSSA Writing (February) District Assessments: • Benchmarks/Marking Period • Core Subjects Semester Finals Standardized Assessments: • PSAT (Fall) • SAT or ACT (Required for Higher Education Schools)	**11th Grade** State Assessments: • PSSA Reading/Math (Spring) • PSSA Writing (February) • PSSA Science (Spring) District Assessments: • Benchmarks/Marking Period • Core Subjects Semester Finals Standardized Assessments: • PSAT (Fall) • SAT or ACT (Required for Higher Education Schools)
12th Grade State Assessments - Retakes - October: • PSSA Reading/Math • PSSA Writing District Assessments: • Benchmarks/Marking Period • Core Subjects Semester Finals • PSSA Local Assessment Standardized Assessment • SAT or ACT	**12th Grade** State Assessments - Retakes - October: • PSSA Reading/Math • PSSA Writing District Assessments: • Benchmarks/Marking Period • Core Subjects Semester Finals • PSSA Local Assessment Standardized Assessment • SAT or ACT	**12th Grade** State Assessments - Retakes - October: • PSSA Reading/Math • PSSA Writing District Assessments: • Benchmarks/Marking Period • Core Subjects Semester Finals • PSSA Local Assessment Standardized Assessment • SAT or ACT

PSSA Science, Technology, Environment & Ecology (STEE) will be administered at a date and grade determined by the State.

Honors Curriculum Cluster

9th	10th	11th	12th
Honors Algebra II	Honors Algebra II or Honors Geometry	Honors Algebra III/ Trig w/Calculus	AP Calculus or Calculus or Prob. & Statistics
Honors English 9	Honors English 10	Honors English 11	Honors English 12 or AP English
Honors Biology	Honors Chemistry	Honors Physics or AP Science	Honors Physics or AP Science
Honors Civics	Honors American Studies or AP American Studies	Honors World Studies or AP European History	Elective or AP Government
World Language	World Language	World Language	Elective or AP World Language
Phys. Ed./ Music/Art	Phys. Ed./ Health	Phys. Ed./Elective	Phys. Ed./Elective
Elective	Elective	Elective	Elective

Suggested Electives for Honors Curriculum Cluster

Academic Astronomy
Academic Anatomy & Physiology
Academic Mythology
Advanced Placement Courses
Anthropology
Botany
Calculus
Computer Science
Discrete Mathematics
Engineering Physics
Advanced speech
Introduction to Speech
Law and Citizenship
Microbiology
Probability and Statistics
Shakespeare
Technology Courses
Zoology
MS Word/PowerPoint
MS Excel/Access

*Please verify prerequisites before choosing electives

• **Honors students must complete 3 credits of Advanced Placement courses. Advanced placement courses may be selected in grades 10, 11, and 12 with approval of the Advanced Placement teacher. Students who take AP courses should first refer to the specific requirements listed in the course description booklet. Students must complete 3 years of Foreign Language in grades 9 through 12 for this curriculum cluster.**

Academic Curriculum Cluster

9th	10th	11th	12th
Academic Algebra II	Academic Algebra II or Academic Geometry	Academic Algebra III/Trig.	Calculus
Academic English 9	Academic English 10	Academic English 11	Academic English 12
Academic Biology	Academic Biology or Academic Chemistry	Academic Physics or AP Science	Academic Physics or AP Physics
Academic Civics	Academic American Studies	Academic World Studies or AP	Elective
World Language	World Language	World Language	Elective
Phys. Ed./ Music/Art	Phys. Ed./ Health	Phys. Ed./Elective	Phys. Ed./Elective
Elective	Elective	Elective	Elective

Suggested Electives for Academic Curriculum Cluster

Academic Astronomy
Academic Anatomy & Physiology
Academic Mythology
Advanced Placement Courses
Anthropology
Botany
Calculus
Computer Science
Discrete Mathematics
Engineering Physics
Advanced Speech
Introduction to Speech
Law and Citizenship
Microbiology
Probability and Statistics
Shakespeare
Technology Courses
Zoology
MS Word/PowerPoint
MS Excel/Access

*** Please verify prerequisites before choosing electives.**

• **Academic students may elect Advanced Placement courses depending upon availability of the Advanced Placement Course. Counselors and teachers will recommend the appropriate level of a course for a student by utilizing test assessments and the performance record of the student. Students must complete 3 years of a Foreign Language in grades 9 through 12 for this cluster.**

FAMILY AND CONSUMER SCIENCES
CORE ACADEMICS CAREER MATRIX (Child Care)
(CIP 19.0708)

9th	10th	11th	12th
English*	English*	English*	English*
Algebra II*	Geometry*	Algebra III / Trig.*	Math* or Elective **(NOTE: If not proficient on PSSA math, student must take a math course.)**
Biology*	Chemistry*	Physics*	Science* or Elective
Civics*	**Early Child Dev.** / Child Development****	American Studies*	World Studies *
Elective	**Child Care I** (Preschool I)**	**Child Care II** (Preschool II)**	➢ **Choose a minimum of 2 ½ credits of Family Consumer Science core electives****
Humanities Elective	**Caregiving Challenges**** / Elective	**Child Care III** (Infants & Toddlers)**	
Phys. Ed./Music/ Art	Phys. Ed/Health	Phys. Ed. / **Caregiving Principles****	Phys. Ed.

Family Consumer Science Core Electives:

- Lifetime Nutrition (1/2 cr.)
- Consumer Strategy (1/2 cr.)
- Teen Issues (1/2 cr.)
- School-To-Work/Co-op Work Experience-(2 or 3 credits) (seniors only)
- Food Challenges (1/2 cr.)
- Specialty Fashions (1/2 cr.)
- Adult Issues (1/2 cr.)
- School-Age Parenting (SAP) (1 cr.)--Principal recommendation only

NOTE: Once the requirement for core electives has been met, students may then choose electives in the various curriculums.

***Guidance counselor will assist students in choosing the appropriate level in this course.**

****Required courses for all Family Consumer Science (Child Care) majors to prepare students for:**
-- NOCTI testing and certification
-- Child Development Associate (CDA) test ready upon graduation
-- State mandated 600 hours of child development theory and related supervised experience.

LIST OF OCCUPATIONS – Occupational opportunities for students following the Family Consumer Science (Child Care) matrix would include but are not limited to the following:

Child Care Assistant
Day Care Aide
Preschool School Attendant
Medical Office Children's Assistant
Adult Day Care Worker
Home Health Aide
Certified Nurses Assistant (CNA)
Nursery School Attendant
Head Start Aide
Social Services Worker
Preschool Teacher
Nanny

NOTE: Students following and completing this matrix have the opportunity to attend a post-secondary institution to earn an associate degree or enter the workforce.

BUSINESS EDUCATION
Office Information Technology
CORE ACADEMICS CAREER MATRIX
(CIP 52.0408 or CIP 52.0401)

9th	10th	11th	12th
English*	English*	English*	English*
Algebra II*	Geometry*	Algebra III / Trig.*	Math* or Elective **(NOTE: If not proficient on PSSA math, student must take a math course.)**
Biology*	Chemistry*	Physics*	Science* or Elective
Civics*	**Intro. to Business****	American Studies*	World Studies*
Intro. to Word Processing**	**Adv. Word Processing** or Intro. Word Processing****	**Desktop Publishing & Web Management** or **Adv. Word Processing****	➢ **Choose a minimum of 2 ½ credits of Business Ed. core electives**
Humanities Elective	**Career Preparation✧** / Elective	**Intro. Spreadsheet & Database****	
Phys. Ed./ Music/Art	Phys. Ed. / Health	Phys. Ed./ **Business Law**	Phys. Ed.

Business Education Core Electives:

- Career Preparation (1/2 cr.
- Desktop Publishing & Web Maintenance (1 cr.)
- Advanced Spreadsheet/ Database (1 cr.)
- Accounting I (1 cr.)
- Accounting II (1 cr.)
- Computerized Office (1/2 cr.)
- Business Law (1/2 cr.)
- Emerging Technology (1/2 cr.)
- Multimedia (1/2 cr.)
- School-To-Career/Co-op Work Experience-(2 or 3 credits) (seniors only)

NOTE: Once the requirement for core electives has been met, students may then choose electives in the various curriculums.

***Guidance counselor will assist student in choosing the appropriate level in this course.**

****Required courses for Office Information Technology majors to prepare students for NOCTI testing and certification.**

✧In order to be considered an Administrative Assistant major, a student must take Career Preparation in addition to the courses outline in the above matrix.

LIST OF OCCUPATIONS – Occupational opportunities for students following the Office Information Technology matrix would include but are not limited to the following:

Accounting/Bookkeeping Clerk
Bank/Credit Unions
Billing Clerk
Clerk/Typist
Computer Technician
Correspondence Clerk
Customer Service/Cashier
Data Entry Operator
Data Processing
Desktop Publishing
Dispatcher
Editorial/Production Assistant
Educational Secretary
File Clerk
General Office Clerk
General Secretary
Government Clerk
Insurance Clerk
Microcomputer Applications
Payroll Clerk
Personnel/Human Resources Clerk
Purchasing
Receptionist
Record Management Clerk
Word Processing Clerk/Typist

NOTE: Students following and completing this matrix have the opportunity to attend a post-secondary institution to earn an associate degree or enter the workforce.

BUSINESS EDUCATION
Business Information/Computer Technology
CORE ACADEMICS CAREER MATRIX
(CIP 52.5999 or CIP 52.0302)

9th	10th	11th	12th
English*	English*	English*	English*
Algebra II*	Geometry*	Algebra III / Trig. *	Math* or Elective **(NOTE: If not proficient on PSSA math, student must take a math course.)**
Biology*	Chemistry*	Physics*	Science* or Elective
Civics*	**Intro. to Business****	American Studies*****	World Studies*
Intro. to Word Processing**	**Adv. Word Processing** or **Intro. Word Processing****	**Intro. Spreadsheet & Database****	➢ **Choose a minimum of 2 ½ credits of Business Ed. core electives**
Humanities Elective (Foreign Language)	**Accounting I****	**Accounting II✧** or **Business Ed. Elective (1 credit)**	
Phys. Ed./ Music/Art	Phys. Ed./ Health	Phys. Ed / **Business Law**	Phys. Ed.

Business Education Core Electives:

- Career Preparation (1/2 cr.)
- Accounting II (1 cr.)
- Adv. Word Processing
- Adv. Spreadsheet/ Database (1 cr.)
- Desktop Publishing & Web Maintenance (1 cr.)
- Computerized Office (1/2 cr.)
- Business Law (1/2 cr.)
- Emerging Technology (1/2 cr.)
- Multimedia (1/2 cr.)
- School-To-Career/Co-op Work Experience -- (2 or 3 credits) (seniors only)

NOTE: Once the requirement for core electives has been met, students may then choose electives in the various curriculums.

***Guidance counselor will assist student in choosing the appropriate level in this course.**

****Required courses for Business Information/Computer Technology majors to prepare students for NOCTI testing and certification.**

✧In order to be considered as an Accounting major, a student must take Accounting II in addition to the courses outlined in the above matrix.

LIST OF OCCUPATIONS – Occupational opportunities for students following the Business Information/Computer Technology matrix and completing an associate or baccalaureate degree at a post-secondary institution include but are not limited to the following:

Accountant
Administrative Assistant
Administrative Service Manager
Confidential Secretary
Data Processing
Editorial/Production Manager
Educational Secretary
Government Agency
Supervisor/Manager
Graphic Designer
Human Resources
Insurance
Legal Secretary
Manufacturing Supervisor
Marketing
Medical Secretary
Payroll Supervisor
Purchasing Manager
Real Estate
Retailing
Travel Agent
Webmaster

NOTE: Students following and completing this matrix have the opportunity to attend a post-secondary institution to earn an associate degree or enter the workforce.

Students who follow the career matrix listed below will report to the GACTC for several periods of the day in order to obtain their technical training.

CAREER AND TECHNICAL EDUCATION
CORE ACADEMICS CAREER MATRIX

10th	11th	12th
English at GACTC or English at AAHS*	English at GACTC or English at AAHS*	English at GACTC or English at AAHS*
Geometry*	Algebra III/Trig.*	Math Elective
Chemistry*	Physics*	MS Word & PowerPoint / Phys. Ed.
American Studies*	Phys. Ed./Elective	World Studies*
Phys. Ed./ Health	GACTC Program	GACTC Program
GACTC Program	GACTC Program	GACTC Program
GACTC Program	GACTC Program	GACTC Program

***Guidance counselor will assist student in choosing the appropriate level in this course.**

GREATER ALTOONA CAREER AND TECHNOLOGY CENTER OFFERINGS

THREE-YEAR PROGRAMS

Automotive/HDVM Technology
Collision Repair & Refinishing Technology
Cabinetmaking/Finished Carpentry
Carpentry/ Construction
Commercial Art
Computer Programming/Oracle Academy
Computer Technology/Cisco Academy
Cosmetology
Culinary Art
Dental Assistant
Digital Printing Technologies
Drafting/Design Technology
Electronics Technology
Health Occupations
Heating, Ventilation, Air Cond. & Plumbing
Horticulture & Environmental Sciences
Electrical Trades
Interior Decorating & Finishing
Retail Marketing & Entrepreneurship
Masonry
Multimedia and Web Design Studio
Outdoor Power Equipment Technology
Precision Machining
Logistics & Materials Management
Welding Technology
Emergency Services

ARTS, SCIENCE, MATHEMATICS, AND TECHNOLOGY EMPHASIS

Students may pursue an Arts Curriculum minor with an emphasis in Visual Arts, Music, Drama, Fine Arts, Science, Mathematics, and Technology.

Graduation requirements (grade 9 to grade 12) for the emphasis areas are:

MUSIC	7 or more credits in Music.
VISUAL ARTS	4 or more credits of Visual Arts course (Art I, Art II, and Survey of Art required).
DRAMA	3 or more credits in Drama with active participation in high school drama productions.
FINE ARTS	7 credits from the Arts (any combination) Drama, Music, or Visual Arts.
SCIENCE	6 or more credits in Science Curriculum.
MATHEMATICS	5 or more credits in Mathematics Curriculum.
TECHNOLOGY	4 or more credits from the Technology Curriculum.

Appropriate diploma seals will be provided upon graduation. In addition, notation will be made on your permanent record indicating your involvement.

ENGLISH COURSES

001 ADVANCED PLACEMENT ENGLISH 12

Year Course – Level 4 – 1 Credit

PREREQUISITES: Successful completion of Honors English 10 and Honors English 11 with a combined average grade of 90 percent or a minimum score of 500 on the SAT Verbal.

OBJECTIVES: Upon completion of this course, the student will be able to:

- Understand a variety of major classic novels and dramas
- Write in a more mature fashion in expository form
- Possess the verbal skills to communicate recognized literary techniques, motifs and themes
- Understand traditional and modern poetry, short fiction and non-fiction
- Use advanced research methods in the preparation of debates, essays, and projects
- Know how to record and assimilate lecture notes of relevance and importance
- Read, analyze, and respond completely to passages in prose and poetry on the A.P. test
- Possess skills to abstract, compare and contrast, and evaluate presented writings so as to select the appropriate response on the A.P. test
- Evaluate critiques of studied works in regard to soundness of persuasive points
- Create, organize and participate in projects relative to course work
- Complete a senior project

DESCRIPTION: The course is a college-level course involving extensive and intensive reading of recognized literary classics of both prose and poetry; it also requires the study and practice of writing with the goal of responding critically to the works read with sensitivity and discrimination. Students will be required to do some assigned reading over the summer.

EXPECTATIONS: In addition to the Objectives listed above, students must take the examination provided by the College Entrance Examination Board at the conclusion of the course in May.

002 HONORS ENGLISH 12

Year Course – Level 3.5 – 1 Credit

PREREQUISITE: Successful completion of Honors English 11

OBJECTIVE: Upon completion of this course, the student will be able to:

- Write expository essays after reading various required British literature
- Evaluate criticism of literature and analyze the persuasive points
- Effectively complete the Senior Project that encompasses a research paper and a major oral presentation

DESCRIPTION: Honors English 12 is designed for college-bound seniors who have completed Honors English 11, but have chosen not to study Advanced Placement English for college credit. Students can expect to read, analyze, and write about an extensive variety of literature, which will provide the core for intensive writing.

EXPECTATIONS: The students will develop competent skills in critical thinking, research, and writing.

003 ACADEMIC ENGLISH 12 Year Course – Level 3 – 1 Credit

PREREQUISITE Successful completion of Academic English 11.

OBJECTIVE Upon completion of this course, the student will be able to:

- Study the form and writing of multi-paragraph narrative, persuasive and expository essays language, analysis and genre
- Utilize excellent research practices to prepare for research-based papers, especially the Senior Project
- Prepare and deliver an informative and a persuasive speech
- Study the language structure and its vocabulary

DESCRIPTION Students will explore British literature from its early traditions and poetry to modern day writers. They will be asked to respond to their understanding in discussion, writing, and project formats. Students will study complex grammar structures, prepare their Senior Project and Senior presentation, and learn strong research and organizational skills for college.

EXPECTATIONS The students will discern the evolution of British literature from the oral to the written tradition and examine its form and function. Connections to the present will be made in film and in modern writings. Students will be asked to utilize the terminology of English as well as to interpret and to support their views on both the reading of literature and their own written essays.

004 ENGLISH 12 Year Course – Level 2 – 1 Credit

PREREQUISITE Successful completion of English 10

OBJECTIVE Upon completion of this course, the student will be able to:

- Refine job related skills and develop communications skills in reading, writing, listening and speaking. The goal is to prepare students for either a two-year college program or work. A special school-to-work transitional experience will be offered.
- Complete a senior project.

DESCRIPTION The major focus of this course is the development of effective writing and the appreciation and analysis of British literature. The year is also devoted to the creation of documents related to duties in the workforce. Students also experience and utilize research, communication techniques, problem solving skills, and visuals necessary in the workplace. The students will sharpen a variety of skills beneficial to success. These skills include grammar and usage, discussion, listening, reading for comprehension, and speech presentation.

EXPECTATIONS The students will develop a basic knowledge of the primary functions of the English language. Even more importantly, the students will take the skills they have learned and utilize them in classroom situations that translate into practical real world applications.

005 LANGUAGE ARTS 12 Year Course – Level 1 – 1 Credit

PREREQUISITE Language Arts 11

OBJECTIVE Upon completion of this course, the student will be able to:

- Improve communication skills in speaking, writing, reading, and listening
- Develop vocabulary
- Develop critical thinking skills
- Develop skills intended to prepare the students for success in the world of work

DESCRIPTION The course is designed for students who need extra, practical experience in the fundamentals of writing, reading, and speaking.

EXPECTATIONS The students will learn research skills as well as basic communication skills which will help them be more successful in their lives as workers and citizens.

006 HONORS ENGLISH 11 Year Course – Level 3.5 – 1 Credit

PREREQUISITE Successful completion of Honors English 10

OBJECTIVES Upon completion of this course, the student will be able to:

- Read and analyze world literature orally and in writing for author's purpose, main idea, plot, character, tone, setting, mood, style
- Participate in discussions of literature using synthesis, analysis, and evaluation
- Write in response to the literature, providing insightful analysis (included will be summaries, paraphrases, reflections, and essays)
- Evaluate his/her own writing for vocabulary, tone, and style - adjusting to meet the purpose of the assignment
- Complete a formal, documented research project
- Identify and understand the use of literary terms
- Apply the rules of grammar and mechanics to formal speaking and writing
- Practice test-taking strategies in preparation for the PSSA, PSAT, SAT and learn prefixes, roots, and suffixes to use in developing vocabulary

DESCRIPTION This course is required for Junior Honors students. It is a rigorous course for the serious English student.

EXPECTATIONS The course provides instruction and practice in the writing process with an emphasis on development of a strong thesis statement, support paragraphs and conclusion as well as usage and mechanics taught within the context of writing. The students will read major works in world literature. The reading will be used as a basis for critical writing. Included is a library unit leading to the writing of a documented, typed research paper.

007 ACADEMIC ENGLISH 11 Year Course – Level 3 – 1 Credit

PREREQUISITE Successful completion of Academic English 10

OBJECTIVES Upon completion of this course, the student will be able to:

- Identify the elements of fiction as they occur and are developed in a plot line
- Identify components of figurative language used in various kinds of poetry
- Articulate themes that emerge from the studied literature
- Research a topic in the library using computer resources and print media, organize a paper, and type it using a computer word processing program
- Read, analyze and write a well-organized response to a given writing prompt
- Plan and deliver an informational and a process speech with visuals
- Write multi-paragraph papers with a variety of purposes, including persuasion, literary analysis, and exposition

DESCRIPTION This course is designed for students who plan on entering college after graduation. Students will read extensively a wide variety of world literature, including fiction, non-fiction, poetry, and drama. Accompanying the literature is an intensive study of and application of literary terms and techniques in order to increase students' reading comprehension. Writing is emphasized in this course.

EXPECTATIONS The students will strengthen reading comprehension and writing skills, as well as gain proficiency in public speaking.

008 ENGLISH 11 Year Course – Level 2 – 1 Credit

PREREQUISITE Successful completion of English 10.

OBJECTIVES Upon completion of this course, the student will be able to:

- Develop communications skills in listening, speaking, reading, and writing
- Answer recall and inference questions based on short stories and novels

DESCRIPTION This course is designed for junior students aiming to enter a two-year post secondary institution or the job force after graduation. The focus of this course is advancing communication skills. Students will also locate information for a research project using library resources and the Internet. Students will also make requests and respond to requests that apply to their day-to-day job responsibilities. World literature will continue to be an integral part of the curriculum.

EXPECTATIONS The students will develop a basic knowledge of two pieces of world literature and practice communication skills through listening, public speaking, reading and writing.

009 LANGUAGE ARTS 11 Year Course – Level 1 – 1 Credit

PREREQUISITE Language Arts 10

OBJECTIVES Upon completion of this course, the student will be able to:
- Improve communication skills in speaking, writing, reading, and listening
- Develop vocabulary
- Develop critical thinking skills
- Develop skills intended to prepare the students for success in the world of work

DESCRIPTION The course is intended for students who do not intend to go to college and who would benefit from a focus on basic English skills.

EXPECTATIONS The students will develop basic skills, which will help them be more successful in their lives as workers and citizens.

010 HONORS ENGLISH 10 Year Course – Level 3.5 – 1 Credit

PREREQUISITES Successful completion of Honors English 9

OBJECTIVES Upon completion of this course, the student will be able to:
- Read, analyze, and appreciate the breadth and depth of American literature
- Identify literary devices (e.g. figurative language, allusion, imagery) and incorporate them in one's own writing.
- Develop writing skills that will enhance one's ability to compose analytically in the informative, persuasive, and narrative modes of essay writing.
- Recognize and employ effective speaking skills in formal and informal presentations.
- Build an extensive vocabulary.

DESCRIPTION This course is required for sophomore Honors students. The major focus of the course is learning to think critically about language by reading and analyzing a variety of works from American literature while learning to write effective essays.

EXPECTATIONS Students will be expected to adhere to a demanding reading schedule. Students will enhance their writing styles while mastering basic writing skills through frequent writing assignments. Students will display proficiency in grammar, mechanics, and language usage. Students will deliver a variety of oral presentations and take an active part in classroom discussions.

011 ACADEMIC ENGLISH 10 Year Course – Level 3 – 1 Credit

PREREQUISITE Successful completion of Academic English 9

OBJECTIVES Upon completion of this course, the student will be able to:
- Utilize the writing process, producing narrative, descriptive and expository papers
- Understand the research process, utilize research resources of the library, and recognize plagiarism
- Analyze and critique literary selections and topical readings such as editorials and newspaper articles
- Develop vocabulary through formal and informal units
- Plan and present oral presentations
- Create a career portfolio that can be used in a job search

DESCRIPTION Academic English is designed for college-bound students who need extensive practice in writing. Students will read, analyze, and respond both orally and in writing to selected American literary selections. Grammar and language usage will be taught in conjunction with both literature and composition. Students will create and word-process a resume and cover letter that can be used in a job search

EXPECTATIONS Students will understand the thesis statement and its function in multi-paragraph compositions and produce various writing samples, including a research paper. They will compare and contrast the context and culture of seven literary eras of American writing. They will possess the skills to take notes properly and to prepare adequately for unit tests as well as standardized tests.

012 ENGLISH 10 Year Course – Level 2 – 1 Credit

PREREQUISITE N/A

OBJECTIVES Upon completion of this course, the student will be able to:

- To help students develop and refine job-related communication skills through reading, writing, and speaking.
- Create a career portfolio that can be used in a job search.

DESCRIPTION English 10 is the English component for the sophomore in the Career & Technical (CAT) Academics Curriculum Major. The course will benefit students who wish to enter a two-year technical school, college, or the work force by providing extensive composition and American literature experience. Students will create and word-process a resume and cover letter that can be used in a job search.

EXPECTATIONS Upon completion of this course, the student will be able to:

- Give and follow written and oral directions clearly and concisely
- Communicate his/her point of view through writing and speaking
- Write and word process essays, memos, and business letters
- Write complete sentences with proper punctuation and subject/verb agreement
- Write a paragraph containing a well-defined topic sentence, unity, and coherence
- Read different genres of literature and recognize how the theme relates to the real world/personal experience through response and essay writing
- Answer recall and inference questions based on short stories read in class

013 LANGUAGE ARTS 10 Year Course – Level 1 – 1 Credit

PREREQUISITE Teacher recommendation

OBJECTIVE Upon completion of the course, the student will be able to:

- Improve communication skills in speaking, writing, reading, and listening
- Develop vocabulary
- Improve/develop skills that will help students succeed in the world of work

DESCRIPTION The course is intended for students who need extra concentration on the basic skills in English such as grammar, usage, writing, and reading. It is intended for the students who plan to enter the work force after graduation.

EXPECTATIONS The students will develop basic skills, which will help them in their future as workers and citizens.

ELECTIVE COURSES

014 SHAKESPEARE Semester Course – Level 3 - .5 Credit

PREREQUISITE None

OBJECTIVE Upon completion of this course, the student will be able to:

- Extract thematic ideas explored by William Shakespeare and assess his treatment of them
- Speak and write in response to analytical criticism of Shakespeare's plays
- Recognize connections in Shakespearean literature, past present, and future
- Understand the culture of England during the reign of Elizabeth I

DESCRIPTION The course provides opportunities for any student seriously interested in experiencing an intensive interaction with William Shakespeare's plays. Along with the study of selected comedies, tragedies, histories, and sonnets, students will be encouraged to gain an appreciation for Shakespeare's contributions to the English language and his continuing influence on the culture of today.

EXPECTATIONS The students will develop knowledge of Shakespeare's life and times. More importantly, the students will analyze and interpret Shakespeare's influence on today's world.

024 ADVANCED SPEECH Semester Course – Level 3 -- .5 Credit

PREREQUISITE Introduction to Speech

OBJECTIVES Upon completion of this course, the student will be able to:

- Use a variety of visual aides effectively while presenting.
- Handle questions and answers within the context of a presentation.
- Analyze classic speeches based on organization, content and delivery.
- Analyze the historical and the social impact of classic speeches.
- Understand the role and influence of speech within film and the media.
- Use higher level speech techniques modeled after famous speech writers and presenters.

DESCRIPTION Advanced Speech is a highly participatory class. Students will not only present speeches from the different categories of speech, but will also analyze the role of speech in our modern society. Famous speeches will be analyzed and discussed for form and also for historical and cultural impact. Full text, audio, and video of many significant speeches of the 20^{th} century, along with short audio and video clips illustrating stylist figures of speech will be examined.

EXPECTATIONS Students will participate in presenting speeches, critiquing peer speeches, critiquing classic speeches, and participating in group discussions. Overall, the students will develop an appreciation for the potential power of rhetoric.

015 INTRODUCTION TO SPEECH Semester Course – Level 3 - .5 Credit

PREREQUISITE None

OBJECTIVES Upon completion of this course, the student will be able to:
- Perform all forms of speech from informal group discussion to formal public speaking and debate
- Increase speaking and listening skills necessary to all high school and college courses

DESCRIPTION The purpose of this course is to provide students with an opportunity to present a number of speeches including persuasive, informative, tribute, "how to" and "show and tell." Additionally, the students will analyze famous speeches and speakers to identify important literary devices, will use these literary devices in created speeches and will use the library to research a speech.

EXPECTATIONS The students will develop an understanding of important historical speeches and speakers, the use of literary devices in speech and how the three forms of persuasion can be incorporated into a speech. Most importantly, students will gain tremendous experience in a variety of public speaking experiences.

017 MYTHOLOGY Semester Course – Level 2 - .5 Credit

PREREQUISITE None

OBJECTIVES Upon completion of this course, the student will be able to:
- Become familiar with all of the major gods, heroes and monsters of Greek mythology
- Explain how myths were developed to describe historical events, explain the origin of the world around them, and serve as lessons for behavior
- Recognize, locate, and explain references to mythology in popular culture, art, literature, music, and advertising
- See how mythological characters have been portrayed in movies and art

DESCRIPTION This class is an introduction to Greek mythology for students who may have no background knowledge. Students will read and discuss stories dealing with the Greek gods (such as Zeus), heroes (such as Hercules), and adventures (such as the Trojan War). Students will work on individual and group projects. There will be a variety of graded activities including group work, class work, quizzes, tests, art projects. Since this is a level 2 course, there will be very little homework given.

EXPECTATIONS The students will develop a basic knowledge of Greek mythology. They will engage in hands-on activities about the gods and heroes. They will be able to recognize references to mythology and to define vocabulary which originated with the myths.

0033 ACADEMIC MYTHOLOGY Semester Course – Level 3 - .5 Credit

PREREQUISITE This is a semester elective open to juniors and seniors with a serious interest in mythology. Prior knowledge is not necessary.

OBJECTIVES Upon completion of this course, the student will be able to:
- Become familiar with all of the major gods, heroes and monsters of Greek mythology
- Explain how the history and geography of the Mediterranean world affected the culture of the people

- Explain how myths were developed to describe historical events, explain the origin of the world around them, and serve as lessons for ethical behavior
- Recognize, locate, and explain allusions to mythology in popular culture, art, literature, music, and advertising
- Examine how mythological characters have been portrayed throughout history in literature and art
- Analyze how classical writers used mythology for plots
- Compare/contrast creation stories from various cultures

DESCRIPTION This class will move at a faster pace than General Mythology and cover more material, including myths from around the world. This course is for the student who is interested in a thorough study of classical mythology and all of the ways it has influenced our culture. Students will first become familiar with all of the major gods, heroes and monsters of classical mythology and then be able to apply that knowledge in the writing of a myth or play or the teaching of a group lesson.

EXPECTATIONS The students will develop a thorough knowledge of classical mythology. They will be able to recognize allusions to mythology and to define vocabulary which originated with the myths. They will be comfortable reading and discussing the works of the classical writers.

018 THEATRE ARTS Semester Course - .5 Credit

PREREQUISITE None

OBJECTIVES Upon completion of this course, the student will be able to:

- Explain the origins of drama and the historical evolution of the theatre
- Perceive and evoke emotional and sensory responses in the creation of stage characters
- Identify and employ a variety of vocal techniques in performance
- Utilize mime, gesture, business and blocking to interpret characters on stage
- Understand and incorporate improvisation into scene production
- Explain and demonstrate aspects of technical theatre such as set building, scene painting techniques, lighting, costuming, make-up, sound, and publicity
- Work cooperatively with other students in the performance of scenes
- Understand and use the collaborative nature of theatre in performance and production
- Appreciate , analyze and critique a designated number and variety of theatrical productions
- Adapt, interpret, and present a selection suitable for Reader's Theatre
- Appreciate and practice the art of storytelling

DESCRIPTION This course will introduce students to the techniques of sensory and emotional response, voice, movement, improvisation, character and script analysis needed for theatrical interpretation.

EXPECTATIONS Students will develop and understand aspects of theatrical production. They will apply what they learn in the origination and production of classroom exercises and scenes. They will be expected to participate in several out-of –class projects and to attend and critique out-of –class performances.

019 ADVANCED THEATRE ARTS I Year Course – 1 Credit

PREREQUISITES Theatre Arts I or high school theatre instructor approval

OBJECTIVES Upon completion of this course, the student will be able to:

- Incorporate an intensified level of acting skills into personal performance
- Identify and perform in a variety of acting styles
- Interpret significant plays by recognized playwrights
- Relate aspects of theatre history to its social context
- Analyze scripts and interpret characters in solo and group performance
- Understand and practice the collaborative nature of theatre through participation in production
- Plan and implement theatrical presentations using a variety of technical theatre skills
- Cooperate with fellow students by directing them in production as well as by responding to peer direction
- Explore and participate in various theatrical modes such as live drama, original theatre pieces, film, musical theatre, television, puppetry, etc.
- Comprehend aesthetics by viewing and critiquing a designated number of in-class and out-of-class productions

DESCRIPTION This course is for the student who wants to intensify his or her theatre study. Students will research, select and perform challenging monologues, dialogues, multiple-character scenes, and one-act plays for in-class and out-of-class audiences, using a variety of theatrical literature. Advanced Theatre Arts will include a more in-depth study of voice, movement, character interpretation, script and play analysis. Students will develop a personal canon through reading significant works by recognized playwrights. They will generate original plays, learn and practice directing techniques, and increase their skills in technical theatre.

EXPECTATIONS Students will be required to participate in additional out-of –class school productions, both onstage and backstage. They will continue to attend, analyze and critique theatrical productions, and will have the opportunity to work with guest artists skilled in various aspects of theatre. Students will continue to expand their portfolios.

020 JOURNALISM Semester Course - Level 2 - .5 Credit

PREREQUISITE Interest in journalism; strong writing skills.

OBJECTIVES Upon completion of this course, the student will be able to:

- Heighten student awareness of journalism's place in school and the community
- Write news, feature, sports, and opinion articles
- Design and layout newspaper pages using computer hardware and software

DESCRIPTION The course begins with an in-depth look at the history of the American press and the role of the press in schools. Numerous types of media will be analyzed, including: newspapers, television, radio, magazines, and the Internet. Students will learn to gather news through research and interview, write articles in journalistic style, and copyread systematically. The latter weeks of the course are devoted to the elements of design and layout. Students will work individually and in groups to create and design newspaper pages.

EXPECTATIONS The students will be able to understand and utilize the principles of journalism. Furthermore, students will realize the role of journalism in the school and society. Students will also become critical consumers of media.

021 YEARBOOK PRODUCTION Year Course – 1 Credit

PREREQUISITE Journalism or Junior High Yearbook AND Instructor Approval

OBJECTIVE Upon completion of this course, the student will be able to:

- Provide a laboratory experience culminating in the actual production of the Horseshoe, the school yearbook
- Experience sales and marketing through the selling and designing of print advertisements.
- Practice journalistic principles as they apply to the production of a yearbook.
- Operate desktop publishing software.
- Develop skills in photojournalism.

DESCRIPTION Students are members of the Horseshoe staff and are solely responsible for the production of the school yearbook. Staff members participate in all aspects of the book's creation, including fundraising, book sales, theme development, layout design, reporting on school events, writing copy/articles, and photography. Class time is used to create the publication, but a commitment of time after school is also required to meet publishing deadlines. Students must complete an application and receive instructor approval before registering for the course.

EXPECTATIONS Students must be responsible and able to meet deadlines. Students must also be able to commit time to attending after-school events to both report on activities and take photographs. In addition, the staff must fully fund the book and is required to utilize summer hours to sell advertising prior to the opening of school.

022 NEWSWRITING Year Course – 1 Credit

PREREQUISITE Successful completion of Journalism or recommendation of advisor. A limited number of 10^{th} grade students will be accepted with Junior High Journalism teacher's recommendation.

OBJECTIVE Upon completion of this course, the student will be able to:

- Complete assigned duties to produce monthly school newspaper, which will be distributed to the entire school population.

DESCRIPTION Students will use style sheet to follow rules for writing various types of news stories, i.e. straight news, opinion, sports, features, reviews, headlines, captions, advertising copy. Students will conduct interviews, develop telephone skills, and check "beat" on regular schedule.

EXPECTATIONS The students will use the computer to complete various jobs on the newspaper via word processing and desktop publishing. They will be able to use camera, scanner, and to work independently as well as cooperatively as a member of the staff.

023 ADVANCED THEATRE ARTS II Year Course – 1 Credit

PREREQUISITE Advanced Theatre Arts I

OBJECTIVES (In addition to those of Advanced Theatre Arts I), upon completion of this course, the student will be able to:

- Evoke and share images and apply to creating a theatrical experience
- Select and perfect character movement
- Contribute to movement of ensemble as orchestrated by director
- Convey complex mood and characterization through expressive use of voice
- Communicate with company members
- Interrelate personal vocal skills with those of other actors in achieving ensemble performance
- Appreciate and experience collaboration in a theatre project
- Discover through collaborative activity that the development of artistic discipline leads to quality of expression
- Value personal contributions to a production
- Assimilate creative ideas of others into cooperative group effort
- Use skills of listening, observing, researching, initiating, coordinating, inventing, constructing, acting, or evaluating to solve production problems
- Develop original group theatre productions
- Perform in different modes, styles, and settings before a variety of audiences
- Accept responsibility for and contribute to the planning, preparation, performance, and evaluation of theatre activities
- Demonstrate knowledge of a director's role in preparation and performance of a theatrical production
- Assume the duties of a crew head in staging plays

DESCRIPTION The second-year Advanced Theatre Arts student will have the opportunity not only to practice and sophisticate his own skills both on stage and technically, but to serve as a mentor for first year students who are also serious about continuing their study of theatre arts.

EXPECTATIONS Students will participate in out-of–class productions both onstage and backstage. Additionally, they will be encouraged to participate in community and regional theatre, both onstage and backstage. They will have the opportunity to work with professional and guest artists and will graduate with a portfolio suitable for audition.

030 BROADCASTING I Semester Course – Level 3 – .5 Credit

PREREQUISITE Instructor approval

OBJECTIVES Upon completion of this course, the student will be able to:

- Interview someone on camera
- Conduct an on-camera demonstration
- Understand all of the functions of the field camera and studio camera
- Understand picture composition as it relates to the video camera
- Understand the need for proper lighting in regards to safety, placement, and control
- Understand the need for proper manipulation of microphones and sound editing in the television studio
- Understand how to plan, organize, and evaluate a television production
- Create, edit, and utilize a television script and understand the concept of storyboarding

- Understand production terminology and hand signals used in the field
- Work effectively as a member of a television crew
- Understand the history of television production
- Identify and demonstrate the proper use of all available studio equipment
- Become familiar with the many career opportunities in the television industry

DESCRIPTION This course aims to equip students with the skills necessary to function in a media-oriented society and in the application of a television broadcasting center. The course will provide experiences in television production: in-front and behind the –scenes operations including editing, studio presentation, sound mixing, video graphic design, camera operation, etc.

EXPECTATIONS Students will develop a basic knowledge of audio and video techniques used in Broadcasting.

031 BROADCASTING II Year Course – Level 3 – 1 Credit

PREREQUISITE Broadcasting I and instructor approval

OBJECTIVES Upon completion of this course, the student will be able to:

- Produce and disseminate morning and public service announcements
- Produce and direct promotional video packages
- Research emerging trends in the broadcasting industry
- Develop the management skills necessary to work effectively as a member of a team

DESCRIPTION This course is designed for the student who wants to intensify his or her television production study. In this course, production teams will build upon the skills learned in Broadcasting I to create various video packages related to the students and faculty of both elementary and secondary schools within the Altoona Area School District. Advanced Broadcasting may be taken more than once for credit, first as Broadcasting II and then again as Broadcasting III.

EXPECTATIONS Students will further develop their knowledge of audio and video techniques used in live and studio productions. Most importantly, students will be required to work within a team environment.

032 BROADCASTING III Year Course – Level 3 – 1 Credit

PREREQUISITE Broadcasting I, Broadcasting II and instructor approval

OBJECTIVES Upon completion of the course, the student will be able to:

- Produce and disseminate morning and public service announcements
- Produce and direct promotional video packages
- Research emerging trends in the Broadcasting industry
- Develop the management skills necessary to work effectively as a member of a team
- Direct and produce promotional packages for community based organizations
- Develop a greater understanding of how television production affects the community
- Develop higher level technical skills in postproduction and multi-camera studio production

DESCRIPTION This course is designed for the student who wants to continue with an intensive performance-based learning approach to television production. In this course, production teams will build upon the skills learned in Broadcasting I and Broadcasting II to create various video packages related to the students and faculty of both elementary and

secondary schools within the Altoona Area School District. Advanced Broadcasting students may also work together with community-based organizations to produce a variety of programming.

EXPECTATIONS — Students will further develop their knowledge of audio and video techniques used in live and studio broadcast productions. Most importantly, students will be required to work within a team environment. Students will also be expected to demonstrate quality leadership skills within production groups.

025 READING — Semester Course – Level 2 -- .5 Credit

PREREQUISITE — None

OBJECTIVES — Upon completion of this course, the student will be able to:

- Identify and apply the meaning of vocabulary.
- Identify and apply word recognition skills.
- Make inferences, draw conclusions, and make generalizations based on text.
- Identify and explain main ideas and relevant details.
- Summarize a fictional and nonfictional text as a whole.
- Identify, describe, and analyze genre of text (purpose of text).
- Identify components within and between texts (setting, character, plot, theme, tone, style, mood, symbolism).
- Identify, interpret, and describe figurative language and literary structures in fiction and nonfiction.
- Distinguish between essential and nonessential information within or between texts.
- Identify and interpret the point of view of the narrator in text.
- Distinguish between facts and opinions in nonfictional text.
- Identify and describe text organization.
- Identify and apply prereading, during reading, and after reading strategies to enhance comprehension.

DESCRIPTION — This course is intended for students who need extra concentration on developing reading skills and comprehension. Students will interact with nonfictional/fictional text to construct meaning through strategic instruction.

EXPECTATIONS — Students will strengthen reading comprehension skills. Students will take the skills they have learned and utilize them in classroom situations. This will help them be more successful in their lives as workers and citizens.

WORLD LANGUAGE COURSES

040 FRENCH I — Year Course – Level 3 – 1 Credit

PREREQUISITE — This is an introductory course in which basic listening, speaking, reading, and writing skills are developed

OBJECTIVES — Upon completion of this course, the student will be able to:

- Demonstrate basic listening, speaking, reading and writing skills
- Demonstrate an appreciation for contemporary life in French-speaking areas of the world

DESCRIPTION Using specific language structures and structural patterns, students will use expressions with the present tense; ask questions for general and specific information, describe surroundings, discuss sports, discuss likes and dislikes, school subjects, French cuisine and aspects of French-speaking cultures.

EXPECTATIONS The student should be able to develop basic conversational, reading, listening, and writing skills that would allow survival in a French-speaking setting. Also, the student should demonstrate an awareness and tolerance of French cultural aspects.

041 FRENCH II Year Course – Level 3 – 1 Credit

PREREQUISITE Successful completion of French I, with at least a grade of 80%; desire to master course expectations.

OBJECTIVES Upon completion of this course, the student will be able to:

- Extend fluency with spoken French
- Increase comprehension of spoken French
- Enhance writing skills in French
- Increase awareness of cultural differences between French and English

DESCRIPTION The major focus of the course is to enhance the skills begun in French I as to speaking, writing, reading, and comprehension of spoken French. Emphasis will be given to the cultural differences between the U.S.A. and France through discussion, videos, and readings. Students will practice spoken French in class and in the multi-media laboratory.

EXPECTATIONS Students will be expected to speak French in class and to participate actively in all classroom activities. In addition, students will be expected to complete course requirements as outlined in the course curriculum.

042 FRENCH III Year Course – Level 3.5 – 1 Credit

PREREQUISITE Students shall have successfully passed French I and French II

OBJECTIVES Upon completion of this course, the student will be able to:

- Demonstrate all of the first and second year outcomes with greater depth and complexity
- Carry out spoken and written activities in French
- Respond to listening activities
- Analyze written passages in French in order to enhance reading skills
- Gain an awareness and appreciation of French-speaking cultures.

DESCRIPTION Students will express themselves in the following areas:

- Pass-times and hobbies, country life, city life, cultural contrasts, holidays, future life, ecological concerns, other cultures, and the world of animals.

EXPECTATIONS Pupils shall continue to develop speaking, listening, reading, and writing skills, using grammatical and syntactical structures and vocabulary presented in the study of the topics described.

043 ADVANCED PLACEMENT FRENCH Year Course – Level 4 – 1 Credit

PREREQUISITE Successful completion of Level III French and a desire to master course expectations.

OBJECTIVES Upon completion of this course, the student will be able to:

- Extend fluency with spoken and written French, using the language primarily to speak and to write
- Drill and reinforce vocabulary, grammar, and syntax from an advanced perspective.

DESCRIPTION The major focus of the course is to enhance the skills taught in Levels I, II, III, as to speaking, writing, reading, and comprehension of spoken French. The students will practice spoken French in the awareness of French culture.

EXPECTATIONS Students will be expected to speak French in class and to participate actively in all classroom activities leading to proficiency in French. Additionally, students will be expected to complete course requirements as outlined in the course curriculum. Students may opt to take the French Language Advanced Placement examination in May, the cost of which (approximately $80.00) will be paid by the individual student.

050 GERMAN I Year Course – Level 3 – 1 Credit

PREREQUISITE None

OBJECTIVES This course will:

- Provide students with a sound basis for learning German as it is spoken and written today.
- Enable students to use and understand German in all its communication forms.

DESCRIPTION Students will be able to describe daily activities, likes and dislikes, give directions and commands, express themselves in present and future tenses, discuss school and leisure activities, discuss the weather, and ask questions. Students will also be able to follow directions and give logical responses to questions in German. They will also demonstrate an awareness and tolerance of the German culture.

EXPECTATIONS Students will gain competency in the four areas of language acquisition, speaking, listening, reading and writing. They will be expected to participate in class and group activities.

051 GERMAN II Course – Level 3 – 1 Credit

PREREQUISITE Successful completion of German I

OBJECTIVES Upon completion of this course, the student will be able to:

- Develop further fluency in each of the four language skills; listening, speaking, reading and writing

DESCRIPTION Students will be able to express themselves not only in the present and future tenses, but also in past tenses. Students will describe daily activities, discuss sport/leisure activities, music, and travel by rail and air, and describe clothing and shopping. Students will also be able to follow directions given in German and give logical responses to questions in German. They will be able to determine major and minor details in reading and continue to expand their knowledge of German culture.

EXPECTATIONS Students will continue to gain further competency in the four areas of language acquisition: speaking, listening, reading, and writing. They will be expected to participate in class and group activities.

052 GERMAN III Year Course – Level 3.5 – 1 Credit

PREREQUISITE Successful completion of German II

OBJECTIVES Upon completion of this course, the student will be able to:

- Extend students' usage of German I and II in more active skills (writing and speaking).
- Increase their passive skills of listening comprehension and reading.
- Extend their knowledge of German culture/way of life
- Begin developing the thinking skills necessary to produce authentic German, recognizable by a native speaker.

DESCRIPTION The major focus of the course is the further development of all skills/structures that students learn in German I and II. Successful students will extend their language skills from novice/beginner status to beginner/intermediate level, so that they can use German in a more independent manner. An increased use of German by the teacher and the students is expected in daily classroom procedures; language usage will not simply be out of a textbook.

EXPECTATIONS The students will listen, read, write, and speak German in greater depth. Some students will determine that they should pursue the Advanced Placement Course in German.

053 ADVANCED PLACEMENT GERMAN Year Course – Level 4 – 1 Credit

PREREQUISITE Successful completion of German III

OBJECTIVES Upon completion of this course, the student will be able:

- To extend students' usage of German III to that of a college student who deals with college level materials.
- To increase all skill levels, so that authentic materials (newspapers, videos/ extended aural discourse) at near native level can be used.
- To further develop the thinking skills necessary to produce authentic German, recognizable by a native speaker.
- To extend students' skills in such a manner, that they can successfully pass the Advanced Placement Test in German given by the College Board in the spring.
- To accelerate students' knowledge of German, so that they can advance in their language credits upon entrance to college.

DESCRIPTION The major focus of the course is the extended development of all skills/structures/vocabulary to that which young German adults use. Successful students will extend their language skills from the parameters of a text series to many kinds of materials that can be found in German life. Students will also deal with the kinds of activities/depth of materials found on the Advanced Placement Test in German.

EXPECTATIONS The students will listen, read, write, and speak German to a greater depth and with advanced independence. Most students will elect to take the AP test for credit. Students will exempt or advance out of introductory college level courses, or they will continue to study there above freshman status. The cost of the advanced placement test is approximately $86.00 (paid by the student).

060 SPANISH I Year Course – Level 3 – 1 Credit

PREREQUISITE Some knowledge of English grammar and previous foreign language experience is helpful, but not required.

OBJECTIVES Upon completion of this course, the student will be able:

- To demonstrate basic reading, writing, speaking, and listening skills in Spanish
- To have an appreciation of the culture and an awareness of the geography of the Spanish speaking world

DESCRIPTION Using appropriate grammatical structures and vocabulary, students will be able to accomplish a variety of everyday tasks such as introducing themselves to another person, discussing the weather, asking the prices of various items in a store, etc. They will practice identifying the main topic and supporting details of texts and taped conversations related to these same topics. Finally they will also gain awareness of the culture and geography of the countries where Spanish is spoken.

EXPECTATIONS Students are expected to actively participate in all class activities and conscientiously complete all assigned homework on a daily basis. Students will also be expected to prepare for and take all assigned tests and quizzes given during the course. They will also complete one benchmark project related to material they learned in class during each of the first three marking periods. Students will take a cumulative final exam at the end of the fourth marking period.

061 SPANISH II Year Course – Level 3 – 1 Credit

PREREQUISITE Successful completion of Spanish I.

OBJECTIVES Upon completion of the course, the student will be able to:

- Expand the speaking, listening, reading, and writing skills acquired in Spanish through review and expanded practice. In this process the student will acquire an expanded vocabulary and grammar base. The class will be conducted in both Spanish and English with an increasing emphasis on the use of Spanish.

DESCRIPTION The focus of this course is to move the student from the novice level of language ability toward the intermediate levels. There will be increased opportunities to speak Spanish and hear spoken Spanish in class in paired and group activities, with the teacher and classmates in oral responses and conversation and on tape in the classroom or Media Lab. In addition the non-verbal communication skills of reading and writing will be enhanced through practice. The above objective will require the student to review previously presented vocabulary, to acquire new vocabulary from various sources and to review previously presented grammar and syntax and expand and deepen the grammar base.

EXPECTATIONS In this course the students can expect to speak Spanish in class for a variety of functions; to ask and answer questions, react to statements, to express feelings, to narrate and to make requests. The student can expect to hear spoken Spanish in class and will be required through repetition and practice to be able to understand and respond appropriately. The students will be required to analyze the language and structures and apply them to new situations and to use logic and context clues to increase understanding oral and printed materials. A student can expect written assignments daily, study and analysis assignments, projects, tests and quizzes, writings and readings as well as daily oral participation and making of tapes in the grading process.

062 SPANISH III Year Course – Level 3.5 – 1 Credit

PREREQUISITE Successful completion of Spanish II

OBJECTIVES Upon completion of this course, the student will be able:

- To expand the speaking, listening, reading, and writing skills acquired in Spanish I and II through review and expanded practice. This year is an extension and refinement of Spanish II grammar and vocabulary with emphasis on the development of increased

skills in the areas of speaking, listening, reading and writing. An expanded vocabulary for these functions will be incorporated into the course. Spanish III is largely conducted in Spanish.

DESCRIPTION The focus of this course is to move the student from the novice high level of language ability toward the intermediate levels. There will be increased opportunities to speak Spanish and hear spoken Spanish in class in paired and group activities, with the teacher and classmates in oral responses and conversation and on tape in the classroom or Media Lab. In addition the non-verbal communication skills of reading and writing will be enhanced through practice. The above objective will require the student to review previously presented vocabulary, to acquire new vocabulary from various sources and to review previously presented grammar and syntax and expand and deepen the grammar base. In addition to the communication skills, an increased awareness of the history and culture of the Spanish-speaking people is incorporated in this course.

EXPECTATIONS In this course the students can expect to speak Spanish in class for a variety of functions; to ask and answer questions, react to statements, to express feelings, to narrate and to make requests in various ways and on various topics. Class or group discussion will also be required. The student can expect to hear spoken Spanish in class and will be required through repetition and practice to understand and respond appropriately. The students will be required to analyze the language and structures and apply them to new situations and to use logic and context clues to increase understanding oral and printed materials. A student can expect written assignments daily, study and analysis assignments, projects, tests and quizzes, writings and readings as well as daily oral participation and making of tapes and presentations in the grading process.

063 ADVANCED PLACEMENT SPANISH IV Year Course – Level 4 – 1 Credit

PREREQUISITE Successful completion of Spanish III

OBJECTIVES Upon completion of this course the student will be able:

- To expand and enhance the speaking, listening, reading, and writing skills acquired in Spanish III through review and expanded practice. This year is an extension and refinement of Spanish III grammar and vocabulary with emphasis on the development of increased skills in the areas of speaking, listening, reading and writing. Learning advanced grammar and syntax is an integral part of the course. An expanded and deepened vocabulary for these functions will be incorporated into the course. Advanced Placement Spanish IV is largely conducted in Spanish.

DESCRIPTION The focus of this course is to move the student from the intermediate low level of language ability toward the intermediate high or advanced low level. There will be increased requirements to speak Spanish and hear spoken Spanish in class in paired and group activities, with the teacher and classmates in oral responses, conversations, discussions and debates. There will be required specific taped responses, descriptions and narrations in the classroom or Media Lab. In addition, the non-verbal communication skills of reading and writing will be enhanced through practice. The above objective will require the student

to review previously presented vocabulary, to acquire new vocabulary from various sources and to review previously presented grammar and syntax and expand and deepen the grammar base. In addition to the communication skills, an increased awareness of the history and culture of the Spanish-speaking people is incorporated in this course. The use of authentic materials such as newspapers, sources from the Internet, and literature are part of this course. The students will practice the skills and analysis required to successfully take the AP Spanish Language Exam.

EXPECTATIONS — In this course the students can expect to speak Spanish in class for a variety of functions; to ask and answer questions, react to statements, to express feelings, to narrate in all tenses and to make requests in various ways and on various topics. Class or group discussion, debate and analysis will also be required. The student can expect to hear spoken Spanish in class from a variety of sources and will be required through repetition and practice to understand and respond appropriately. The students will be required to analyze the language and structures and apply them to new situations, understand nuances of words and structures, understand advanced grammar and to use logic and context clues to increase understanding oral and printed materials. A student can expect written assignments daily, study and analysis assignments, projects, tests and quizzes, writings, essays and readings as well as daily oral participation and making of tapes and presentations in the grading process. Increased accuracy in culturally appropriate communication will be emphasized. The cost of the Advanced Placement exam is approximately $86.00. (paid by student)

SOCIAL STUDIES COURSES

100 ADVANCED PLACEMENT AMERICAN HISTORY

Year Course – Level 4 – 1 Credit

PREREQUISITE — Students should have achieved a combined average minimum of 93% in Honors Civics in ninth grade and Honors American in eighth grade.

OBJECTIVES — This course has four basics objectives:

- Students will trace American History from the development of the colonies to the modern era.
- Students will develop an ability to write not only to communicate but also to persuade.
- Students will develop critical thinking skills using history as the basic tool.
- Students will develop the skills necessary to succeed on the National Test given in May each year by ETS.

DESCRIPTION — This is a college level history course designed for high achieving high school students. The course will examine all aspects of history including but not limited to political, social, intellectual, technological and economic history of the United States. The course will chronologically address all of the major eras of history from the colonization era to modern American History.

EXPECTATIONS — This is a college level course so the difficulty level is established so students may succeed on the national test, which is actually more intense than a standard college history exam. As a result homework assignments are frequent and involve complex readings, writing essays and analyzing documents. Homework is given most nights and students are consistently challenged to demonstrate their best work. This will best prepare students to take the Advanced Placement Test for awarded college credits. The cost of the exam is approximately $86.00 (paid by the individual student).

101 ADVANCED PLACEMENT U.S. GOVERNMENT Year Course – Level 4 – 1 Credit

PREREQUISITE Note: This course will be offered in odd numbered years (06-07; 08-09). Must be a junior or senior that has taken AP American History and maintained an average grade of 90 percent.

OBJECTIVES Upon completion of this course, the students will be able to:

- Analyze the American system with reference to political power, the Constitution, federalism, and political culture.
- Contrast opinions, political participation, political parties, elections, campaigns, interest groups, and the media.
- Compare the institutions of governments such as the Congress, the Presidency, the Bureaucracy, and the Judiciary.

DESCRIPTION Students will divide the course into six units focused around the six areas of the U.S. Government and Politics the National exam cover. Each quarter we will cover two thematic units. They will include:

- Constitutional Underpinnings of the U.S. Government
- Political beliefs and behaviors
- Political parties, interest groups and the mass media
- Institutions of the National Government
- Public Policy
- Civil Rights and Liberties

The fourth marking period will be dedicated to a comprehensive review of all materials covered and test preparations.

EXPECTATIONS The purpose of this course is to help each student become familiar with all aspects of our system of government. The students will become well informed about a number of national issues and this will in turn create a better citizen. The College Board examination taken in May, will give students the opportunity to earn college credits for their hard work. The cost of the Advanced Placement is approximately $ 86.00 (paid by the student).

123 ADVANCED PLACEMENT COMPARATIVE GOVERNMENT Year Course – Level 4 – 1 Credit

PREREQUISITE Note: This course will be offered in even numbered years (07-08; 09-10)
Must be a junior or senior that has taken either AP American or AP European History and maintained a 90 percent.

OBJECTIVES Upon completion of the course, students will be able to:

- Compare the political systems and government models of Great Britain, Russia, China, Mexico, Nigeria, and Iran.
- Understand the various functions of International organizations such as the United Nations.
- Understand and compare the various Economic systems of the six countries listed above.

DESCRIPTION Students will divide the course into six units focused around the six countries the Comparative national exam cover. Each marking period we will cover the following areas that pertain to each country.

- Introduction to Comparative Politics
- Sovereignty, Authority, and Power
- Political Institutions
- Citizens, Society, and State
- Political and Economic Change
- Public Policy

The fourth marking period will be dedicated to comprehensive review of all materials and test preparations.

EXPECTATIONS The purpose of this course is to help students become more familiar with the governments and political systems around the globe. The College Board examination taken in May will give students the opportunity to earn college credits for their hard work. The cost of the AP Exam is $86.00, which is to be paid by the student.

102 ADVANCED PLACEMENT EUROPEAN HISTORY Year Course – Level 4 – 1 Credit

PREREQUISITE Academic Civics (ninth grade) **and Advanced Placement American History with a combined average grade of 90 percent.**

OBJECTIVES Upon completion of this course, the student will be able to:

- Analyze multiple choice questions about material to select the best answer available to a given question.
- Write timed analytical essays at length on given essay questions.
- Using a group of short historical documents, write a timed analytical essay using all the documents on a given question.
- Trace how technology made an impact on economic systems and everyday life in different historical periods.
- Trace and analyze the role of religion in European education, science, warfare, politics, government and everyday life. Show the development of
- democratic institutions in one area (Western Europe) vs. absolutism in the other (Eastern Europe).
- Evaluate changes in goals and outcomes of conflicts over the period of the Renaissance to present Europe (up to the present).
- Describe how the arts and architecture reflect the given historical period.
- Relate National, European, and world current events to the periods studies.
- Utilize the library to develop student independent research skills.

EXPECTATIONS At the end of the course the student must take the examination provided by the College Entrance Examination board to receive Advanced Placement on their permanent record. The cost of the Advanced Placement exam is approximately $86.00 (paid by the student).

103 ACADEMIC AMERICAN STUDIES Year Course – Level 3 – 1 Credit

PREREQUISITE Must be of good academic standing.

OBJECTIVES Upon completion of this course, the student will be able to:

- Describe and evaluate the economic, political and social changes in America between 1890 and the present.
- Assess the major economic, political and social problems encountered by America between 1890 and the present.
- Analyze America's involvement in regional and global wars.
- Appreciate and comprehend the need for responsible citizenship.
- Assess how America has moved from isolationism to internationalism.
- Recognize the importance of Pennsylvania as our nation developed into a world power.

DESCRIPTION This course is offered to students who wish to make an analytical study of the history of the U.S. from 1890 to the present. Overall, the course will present the concept that American

history's first purpose must be to help students understand the essence of democracy and forces that have either promoted or obstructed it in our country.

EXPECTATIONS Students will develop an understanding of what factors were responsible for making the U.S. the world power it is today.

104 AMERICAN STUDIES Year Course – Level 2 – 1 Credit

PREREQUISITE None

OBJECTIVES Upon completion of this course the student will be able:

- To describe the dramatic economic and social changes of the late 1800's.
- To describe the personal motivations and the political challenges to the three progressive Presidents of the early 1900s.
- To identify and analyze growing American involvement in international affairs during the early 1900s.
- To identify and analyze the major political, social and economic aspects of American society during the 1920s.
- To identify and analyze the immediate impact and the long-term effects of the New Deal on American society and on American government.
- To identify and analyze how America emerged from isolationism to become a world leader.
- To assess the major political and social upheavals of the 1960s and 1970s.
- To examine the struggles associated with the civil rights movement of the 1950s and 1960s.
- To identify the major accomplishments of Pennsylvania in both business and industry.
- To assess the role of the United States in a global society.

DESCRIPTION This course will provide the students with an understanding of the major political, social and economic forces that contributed to the development of America during the period from 1890 to the present. This course will highlight the following concepts: 1. Industrialization, 2. Progressivism, 3. Foreign Policy—world leadership, 4. Economic and domestic policy, 5. the New Deal, 6. The cold war, and 7. current issues.

EXPECTATIONS The students will develop a basic knowledge and appreciation of the political, social, and economic history of America from 1890 to the present. The students will analyze America's role in international affairs as well as its domestic policies over the years.

105 ESSENTIALS OF AMERICAN STUDIES Year Course – Level 1 – 1 Credit

PREREQUISITE Enrollment in this course will be based upon referral by counselor and/or Social Studies teachers.

OBJECTIVES Upon completion of this course, the student will be able:

- To identify and analyze the economic, political and social problems and changes in America between 1890 and the present.
- To summarize American foreign policy from 1890 to the present.
- To summarize America's involvement in all foreign wars from 1890 to the present.
- To describe the changes in post WWII America

- To recognize the importance of Pennsylvania, as our country developed into a world power
- To develop an understanding of the American Economic system
- To analyze and appreciate law enforcement organizations
- To understand and appreciate the need for responsible citizenship.

DESCRIPTION This course is recommended for students to meet the minimum state requirements for graduation. This is a remedial course that uses materials that are easy to read and understand and allows the student to explore (a) American History from 1890 to the present, including the periods of: Industrialization, the Progressive Era, World War I, the Great Depression, World War II, the Cold War, and Contemporary America; and (b) the American Legal System.

EXPECTATIONS The students will develop a basic knowledge of America's past. Also, students will analyze and evaluate historical events and how they have influenced our present society.

106 ACADEMIC WORLD STUDIES Year Course – Level 3 – 1 Credit

PREREQUISITE None

OBJECTIVES Upon completion of this course, the student will be able to:

- Trace the historical development of civilizations, national states and political regimes.
- Explain how geography has influenced the course of history and how people have adapted to their environment.
- Describe how people have organized socially and developed an economic system to fit.
- Analyze religious differences and determine the influence on society
- Evaluate how nations have settled conflict.
- Compare and contrast the growth and change of society from time period to time period.

DESCRIPTION This course will involve a detailed analysis of major historical, political, economic and cultural aspects of the advance of civilizations worldwide. The course traces this advance from the civilizations of Mesopotamia through the imperialistic expansion of the European nations to the twentieth century comparative examination of world civilizations.

EXPECTATIONS The students will develop a basic background of world history from Pre-history to present day. The students will also analyze how history has influenced the world through time and have changed the world in which we live.

107 WORLD STUDIES Year Course – Level 2 – 1 Credit

PREREQUISITE None

OBJECTIVES Upon completion of this course, the student will be able to:

- Identify the major elements of a culture.
- Describe the kinds of governments and economies that different societies have developed.
- Identify the factors that cause cultures to change.
- Understand why people often have trouble understanding one another's cultures.
- Describe how cultural diffusion has influenced all civilizations.
- Identify the causes and effects of imperialism in the world's different cultural regions.

DESCRIPTION This course is designed to provide the student with an understanding of eight of their world neighbors. The course will present to the student materials associated with the historical, political, economic, and cultural institutions of Africa, China, Japan, India, Latin America, the Middle East, Euro-Asia, and Western Europe.

EXPECTATIONS The students will develop a basic knowledge of the various cultures and people throughout the world. Students will be able to show and understand the uniqueness of each culture in order to gain a better understanding in the world in which they live.

108 ESSENTIALS OF WORLD STUDIES Year Course – Level 1 – 1 Credit

PREREQUISITE Enrollment in this course will be based upon referral by counselors and/or Social Studies teachers

OBJECTIVES Upon completion of this course, the student will be able:

- To define, compare and contrast different cultures throughout the world.
- To identify the basic themes of geography.
- To determine a relationship between geography and the culture of a people.
- To identify and locate on a map the world's continents and oceans as well as other land forms.
- To utilize graphs, charts, maps and library resources.
- To explain how people have adapted to and changed their environment.
- To differentiate between the many political and economic systems throughout the world.
- To identify the world's major religions and the role they play in a people's culture.
- To explain ways in which countries are working to overcome challenges they will face in the future.
- To analyze how and why people of all cultures are interdependent.

DESCRIPTION This course is recommended for students to meet the minimum state requirements for graduation. This is a remedial course that uses materials that are easier to read and understand and allows the student to explore the historical, political, and cultural institutions of many regions throughout the world, including, Africa, Asia, the Middle East, Europe, and Latin America.

EXPECTATIONS The students will develop a basic knowledge of the various cultures throughout the world. In addition, students will analyze the interdependence of those cultures, both historically and presently.

118 HONORS WORLD STUDIES Year Course – Level 3.5 – 1 Credit

PREREQUISITE Must be a Junior within the Honors Curriculum Cluster

OBJECTIVE Upon completion of this course, the student will be able:

- To develop an appreciation for the art, architecture, literature, government, religion, and social structure of the worlds civilizations and nations.
- To trace the roots of societal problems through past historical events.
- To learn to examine primary source materials of key historical figures and topics.
- To identify major historical figures and their role in history.
- To develop map skills and historical geography skills.

DESCRIPTION This course will be a comprehensive introduction to major civilizations and movements in the history of the world from the cradle of civilization to the Cold War.

EXPECTATIONS The students will develop knowledge of the history of the world from the birth of civilization to the present. In addition, students will learn how to critically analyze how the events of the past impact on the world today.

121 HONORS AMERICAN STUDIES Year Course – Level 3.5 – 1 Credit

PREREQUISITE Required of all Sophomore Honors Students who have taken Honors Social Studies in Junior High School.

OBJECTIVES Upon completion of this course, the student will be able to:

- Research appropriate historical documents.
- Describe and evaluate the economical, political, and social changes in America between 1890 and the present.
- Assess the major economical, political, and social problems encountered by America between 1890 and the present.
- Analyze America's involvement in regional and global wars.
- Appreciate and comprehend the need for responsible citizenship.
- Assess how America moved from isolationism to internationalism from 1890 to the present.
- Recognize the importance of Pennsylvania as our nation developed into a world power.
- Explain the five geographical themes (location, place, human/environment interaction, movement, and regions) and apply these themes to appropriate areas of study.

DESCRIPTION The course is offered to the student who wishes to make an analytical survey of American History from 1890 to the present. Materials dealing with the five areas of: 1) America's development into an industrial giant: 2) America's development into a world leader: 3) America's participation in World War I and the New Deal: 4) America's participation in World War II and the Cold War: and 5) America's development in the unprecedented period of recent years will be presented. The course will present the concept that America's history's first purpose must be to help students understand the essence of democracy and forces that have either promoted or obstructed it in our nation.

EXPECTATIONS Students will be expected to engage in historical study in a critical manner. They should be able to present ideas clearly and persuasively orally and in written form.

125, 126 ADVANCED PLACEMENT ECONOMICS Year Course – Level 4 -- 1 Credit

PREREQUISITE Successful completion of either AP European History or Honors World History AND Honors Algebra II.

OBJECTIVES This course provides instruction in the eleven areas as established by the College Board for Microeconomics and Macroeconomics:

- Basic macroeconomic concepts
- Measurement of economic performance
- National income and price determination
- Financial sector
- Inflation, unemployment and stabilization policies
- Economic growth and productivity
- Open economy: international trade and finance
- Basic microeconomic concepts
- The nature and functions of product markets
- Factor markets
- Market failure and the role of government

This course provides understanding of economic decision making and its factors, such as marginal analysis and opportunity costs.
The course promotes the understanding of aggregate economic activity; the utilization of resources within and across countries; and the critical evaluation of determinants of economic progress and economic decisions made by policymakers.
The course teaches how to generate, interpret, analyze and label graphs, charts and data specific to economics.

DESCRIPTION — This is a college level course for the year in which Microeconomics and Macroeconomics are integrated into one course. Macroeconomics is designed to give students a framework of understanding of the principles of economics that apply to a market-based economic system as a whole. Microeconomics provides a thorough understanding of the principles of economics that apply to individual decision makers, both consumers and producers, within the economic system.

EXPECTATIONS — This is a college level course in the field of economics with a high level of difficulty which will require students to complete college-level readings and assignments in economics. Students should also have a solid foundation in mathematics as graphing is an integral part of the course. Upon completion of the course, students will be able to take both the Advanced Placement tests in Macroeconomics and in Microeconomics with an opportunity to earn college credits.

124 ACADEMIC ECONOMICS — Semester Course – Level 3 -- .5 Credit

PREREQUISITE — Must be a junior or senior who has completed the American Studies Course

OBJECTIVES — Upon completion of this course, the students will be able to:

- Identify and explain basic Micro and Macro Economic concepts
- Analyze development of the Banking Industry and Financial markets
- Evaluate the role of government on the individual and the business world
- Analyze International trade
- Apply sound decision making to the concepts of financial planning and household budgeting

DESCRIPTION — This course is designed as a general introduction to economics as well as providing a foundation for future college level courses. Using a microeconomic view, students will examine the factors influencing individuals and small groups. In addition, utilizing a macroeconomic view, students will assess the impact of government and business on the economy. The course will culminate with a study of household's economics dealing with budgeting, banking, investing, taxes and credit.

EXPECTATIONS — Students will be able to develop a solid foundation in economics, as well as practical economic information for making sound financial decisions in the future.

122 CONSUMER ECONOMICS AND PERSONAL FINANCE Semester Course – Level 2 - .5 Credit

PREREQUISITE Must be junior or senior who has successfully completed the American Studies course

OBJECTIVES Upon completion of this course, the student will be able to:

- Identify and explain the emerging economic issues impacting their daily lives.
- Apply sound decision making to the concepts of financial planning and household budgeting.
- Utilize practical consumer techniques necessary to handle economic realities such as debt, purchasing necessities, taxes, credit, etc.
- Analyze the economic factors that pertain to employment such as withholding, benefits, and pensions.
- Evaluate a given situation, and then select investment or banking strategies that will stabilize their financial well being.

DESCRIPTION This course is designed to introduce students to the basics of our economic system that will impact the consumer's life on a daily basis. Students will explore issues such as: banking, investments, insurance, workplace benefits, real estate, financial planning, credit, household budgeting, etc. Community professionals will be invited to serve as guest speakers on some of the aforementioned issues.

EXPECTATIONS Students will be provided with practical information and problem-solving opportunities that will enable them to develop sound knowledge and skills for economic survival in our consumer-based society.

109 LAW AND CITIZENSHIP Semester Course – Level 3 - .5 Credit

PREREQUISITE Must be a junior or senior who has not previously completed Teenagers and the Law.

OBJECTIVES Upon completion of this course, the student will be able:

- To differentiate between types and kinds of laws.
- To compare and contrast the law-making power of each branch and level of government
- To explain the basic structure and function of the state and federal court systems
- To identify and analyze the individual rights guaranteed in the Bill of Rights.
- To assess current issues and controversies related to the law and the legal system
- To choose and evaluate effective methods of citizen participation in our legal system
- To differentiate between the formal and informal dispute resolution mechanisms within our system of law.
- To evaluate a given situation and propose the most appropriate course of action based on current law.

DESCRIPTION This course will present the students with an academic study of our legal system that should be of assistance in developing a better comprehension of their role within our law-based society. Students will have an opportunity to interact with various community resource people who will serve as guest speakers.

EXPECTATIONS Students will be provided with practical information and problem-solving opportunities that will help students to develop the knowledge and skills necessary for survival in our law-based society.

110 ANTHROPOLOGY Semester Course – Grade 12 – Level 3 - .5 Credit

PREREQUISITE Seniors only.

OBJECTIVES Upon completion of this course, the student will be able to:

- Describe the various fields and sub-fields within the discipline of Anthropology, and how Anthropology relates to other disciplines (science, geography, psychology, etc.)
- Explore the beginning (pre-history) of humans, by looking at the fossil record, archeological evidence, and classification of humans.
- Compare the similarities and differences of cultures, past and present.
- Utilize resource material to complete a project or report.
- Distinguish why modern humans are classified in the order primates and what characteristics are unique to humans.
- Interpret various important archeological finds such as the Incas, Egyptians, etc.
- Describe different occupational opportunities in the field of Anthropology.
- Create, excavate, and analyze a student-made culture.

DESCRIPTION This course is designed to present a general introduction to Anthropology as well as provide a foundation for future college level courses. Anthropology, "the study of man", is divided into two main areas – physical anthropology and cultural anthropology. Physical anthropology explores the origins of people with a strong emphasis on archeology as the basis for such evidence. Cultural anthropology explores the origins and development of cultural traits such as customs, religion, technology, language, etc. Students will develop a better understanding of their own cultural identity as well as cross-cultural comparison.

EXPECTATIONS The students will develop a better understanding of the world's various ethnic groups, and their cultural differences. This will broaden student's outlook on the interesting diversity of humans. Students will also analyze the special role humans play, in our place in nature. They will be familiarized with various job opportunities available in Anthropology such as forensics, genetics, museum work, archeology, and journalism.

111 SOCIOLOGY Semester Course – Level 2 - .5 Credit

PREREQUISITE None

OBJECTIVES Upon completion of this course, the student will be able:

- To provide a basic understanding of the society and culture(s) with which we live.
- To develop an understanding of the interaction of human relationships within our society.
- To improve their understanding the structure and foundation of the institutions of society.
- To gain an understanding of the effects of socialization on all groups within our society.
- To promote an awareness and understanding of current societal problems, issues, controversies, and the effects of each.

DESCRIPTION The course is designed to explore social groups and the interaction of people in everyday life. Included will be a study of: 1) social institutions such as the family, education, and religion; 2) the problems of our society such as crime and poverty; 3) cultures and cultural diversity; 4) social norms and values; and 5) social class systems.

EXPECTATIONS A community service learning project is encouraged in this course.

112 TEENAGERS AND THE LAW Semester Course – Level 2 - .5 Credit

PREREQUISITE Must be a junior or senior who has not previously completed Law & Citizenship

OBJECTIVES Upon completion of this course, the student will be able:

- To differentiate between types of law
- To describe the lawmaking process of each branch and level of government.
- To explain the basic structure and function of the state and federal court systems.
- To analyze our Constitutional rights.
- To evaluate the consumer, housing and family legal issues facing Americans today.
- To compare and contrast the adult and juvenile justice systems.

DESCRIPTION This course will introduce students to the basics of the legal system and its impact on their everyday life. Students will explore the structure of the legal system, citizen rights and responsibilities, consumer and family legal issues, and the criminal justice system. Community legal professionals will be invited to serve as guest speakers on various topics.

EXPECTATIONS The students will develop a basic knowledge of the law-based society in which we live. In addition, the students will analyze the constantly changing nature of law, its influence on history, as well as the present, and the importance of being an active citizen.

MATHEMATICS COURSES

200 ADVANCED PLACEMENT CALCULUS Year Course – Level 4 – 1 Credit

PREREQUISITE Academic Geometry, Academic Algebra II, Academic Algebra III/Trig, or Honors Algebra III/Trig., with at least a 90% average in these courses and at least a 630 on the math portion of the SATs.

OBJECTIVES Upon completion of this course, the student will be able to:

- Have a good understanding of calculus
- Be prepared to take the AP calculus test

DESCRIPTION This is a college level calculus course involving the study of elementary functions, limits, derivatives, integration, and physics-related problems that require calculus to solve. This course is for students who are strong math students and are willing to learn new and abstract topics that sometimes require extra effort on their part. Specific objectives include:

- Use derivatives to find the rates of change of particles, falling bodies, and other objects
- Find limits of functions as x goes to 0, infinity, as well as other values
- Determine if functions are continuous as well as differentiable
- Use differentiation to solve related rate problems, max-min problems, and other problem involving rates of change
- Integrate functions by using udu as well as other methods of integration
- Use integration to solve problems involving areas under, as well as between, curves
- Use integration to find the volumes of solids generated by rotating areas around the coordinate axis
- Integrate the transcendental functions, such as Ln x, log x, e^x, and the six trig functions

EXPECTATIONS Upon completion of this course, the students should have a good understanding of calculus and be well prepared for the Advanced Placement Calculus test. The cost of the exam is approximately $86.00 (paid by student).

201 ADVANCED PLACEMENT COMPUTER SCIENCE WITH JAVA Year Course – Level 4 – 1 Credit

PREREQUISITE Completion of the elective "Computer Science with JAVA."

OBJECTIVE Upon completion of this course, the student will be able to:

- Design and implement computer-based solutions to problems in several application areas.
- Demonstrate well-known algorithms and data structures.
- Develop and select appropriate algorithms and data structures to solve problems.
- Code fluently in a well – structured fashion using JAVA.
- Understand and develop an appreciation of the uses of:
  - Text processing
  - Simulation and modeling
  - Data analysis
  - Data management
  - Games and puzzles
  - System software
  - Graphics

DESCRIPTION This advanced placement computer course utilizes the JAVA programming language and is meant to be the equivalent of a first semester college course in Computer Science. The major emphasis is on programming methodology, algorithms, and data structures. This course may be applied towards the Mathematics Emphasis Seal on diplomas.

EXPECTATIONS At the conclusion of the course in May, students should be prepared to take the examination provided by the College Entrance Examination Board to receive Advanced Placement on their permanent record. Students may also elect to enroll in the College in High School program offered by the University of Pittsburgh and receive three (3) credits for CS0007, Introduction to Computer Programming, from that institution. These credits may be transferred to most other colleges and universities upon graduation.

231 ADVANCED PLACEMENT STATISTICS Year Course – Level 4 – 1 Credit

PREREQUISITE Honors Algebra II and/or Academic/Honors Algebra III/Trigonometry with at least a 90% average in these courses

OBJECTIVES Upon completion of this course, the student will be able to

- Have a thorough understanding of statistics
- Be prepared to take the AP Statistics Exam

DESCRIPTION This is a college level statistics course involving the study of four (4) major statistical themes:

(1) Exploratory Analysis (Exploring Data: Describing patterns and departures from patterns)
(2) Planning and Conducting a Survey (Sampling and Experimenting)
(3) Probability (Exploring random phenomena using probability and simulation)
(4) Statistical Inference (Estimating population parameters and testing hypotheses)

This course is for students who are strong in mathematical computations and reasoning and reading comprehension. Specific objectives include:

- Display and describe categorical and quantitative data
- Analyze and compare distributions
- Interpret correlation and linear regression
- Develop, organize, and analyze surveys and experiments

- Use probability to anticipate/describe distribution models
- Draw conclusions from data
- Develop confidence intervals and testing hypotheses about proportions
- Create inferences and comparisons about means

EXPECTATIONS Upon completion of this course, the student should have a thorough understanding of Statistics and be well prepared for the Advanced Placement Statistics examination.

202 ACADEMIC ALGEBRA III / TRIGONOMETRY Year Course – Level 3 – 1 Credit

PREREQUISITE Academic Geometry and Academic Algebra II.

OBJECTIVES Upon completion of this course, the student will be able to:

- Evaluate linear and absolute value functions for given values of the domain, determine the inverse of certain functions, solve linear and absolute value equations, and perform operations on polynomial expressions
- Graph and solve quadratic equations, using a variety of methods
- Graph and solve special rational functions, calculate in direct and inverse variation relations and decompose rational expressions
- Graph exponential and logarithmic functions and solve exponential and logarithmic equations
- Graph radical functions and solve radical equations
- Apply right triangle trigonometry to solve relevant exercises and use trigonometric identities to verify statements
- Identify trigonometric functions, evaluate in degree and radian measure, solve and graph trigonometric equations, and determine inverse trigonometric functions
- Apply the laws of sine and cosine to related problems
- Graph polar equations
- Solve linear systems using matrices, perform operations on matrices, and evaluate determinants
- Identify a sequence and calculate the sum of a finite, arithmetic, and geometric series

DESCRIPTION This course will begin with a review of the topics from Academic Algebra II. The course will then proceed into the more advanced topics in Algebra, including the study of algebraic and trigonometric functions; the rectangular coordinate system, with graphing techniques applied to linear, quadratic, logarithmic and trigonometric equations; and problems that require the application of each concept studied. Specific topics include: fundamentals of Algebra, linear functions and inequalities, quadratic functions, polynomial and rational functions, radical and inverse functions, exponential and logarithmic functions, right angle trigonometric functions, laws of trigonometry, and sequences and series.

EXPECTATIONS Upon successful completion of this course, a student will have a good understanding of Algebra and Trigonometry and be well prepared to accept the challenges of college mathematics.

203 ALGEBRA III / TRIGONOMETRY Year Course – Level 2 – 1 Credit

PREREQUISITE Geometry and Algebra II

OBJECTIVES Upon completion of this course, the student will be able to:

- Review and advance algebra skills
- Introduce and study the trigonometric functions
- Prepare the student for college math

DESCRIPTION This course will review and advance concepts taught in Algebra II. There will also be an emphasis on the study of functions and their graphs in order to prepare the student for trigonometry. During the trigonometry portion of the course a review of right triangles and the circle topics will enable the student to apply these concepts to the study of the trigonometric functions. Specific objectives include: fundamentals of Algebra, quadratic equations and functions and inequalities, polynomial and rational equations and functions, inverse functions, exponential functions, the six trigonometric functions, trigonometric identities and equations.

EXPECTATIONS Upon completion of this course, the student should have a good understanding of algebra and trigonometry and be well prepared for their first math course in college.

205 ACADEMIC ALGEBRA II Year Course – Level 3 – 1 Credit

PREREQUISITE Academic Algebra I, Academic Geometry

OBJECTIVES This course is designed to:

- Provide a review of Algebra I
- Further the topics of Algebra I
- Introduce and master the concepts of Algebra II
- Prepare students for Academic Algebra III / Trig classes
- Prepare students for the algebra problems on standardized tests (PSSA, SAT, etc.)

DESCRIPTION The course will review Algebra I concepts and expand upon these topics. The course will also cover the concepts of Algebra II listed below with problem solving being stressed throughout the course. Specific objectives include:

- Review of the real number system
- Solve and use first degree equations to solve problems,
- Solve and graph linear inequalities
- Solve and graph absolute value equations and inequalities
- Use the Cartesian Coordinate System to graph linear equations and inequalities,
- Find domains and ranges of relations and functions and form composition of functions
- Solve and use systems of two and three linear systems of equations to solve problems
- Add, subtract, multiply, and factor polynomials
- Add, subtract, multiply, and divide rational expressions
- Simplify complex fractions
- Simplify and performs operations using rational exponents and radical expressions
- Simplify and perform operations with complex numbers
- Graph, solve, and use quadratic equations to solve problems.

EXPECTATIONS Upon completion of this course, the students should have a good understanding of many algebra topics, be good problem solvers, and be prepared for Algebra III/Trigonometry and algebra problems in testing situations.

206 ALGEBRA II Year Course – Level 2 – 1 Credit

PREREQUISITE Algebra I, Geometry

OBJECTIVES Upon completion of this course, the student will be able to:

- Provide a review of algebra
- Introduce quadratic formula
- Introduce simultaneous equations
- Introduce basic concepts of Algebra III
- Prepare students for Algebra III/Trigonometry

DESCRIPTION This course integrates many different types of problem-solving and critical-thinking situations throughout the text. The ability to identify and formulate problems, as well as the ability to propose and evaluate ways to solve them is a top priority of the course. Topics include a study of absolute value, factoring operations with polynomials, graphs of linear equations, and solving linear, quadratic and simultaneous equations. Many of these topics were introduced in algebra I and are expanded upon in this course. Algebraic proofs are not included in this course, and the study of relations and functions is dependent upon available time and other considerations. Specific objectives include: calculate with real numbers, using the four operations and functions, in appropriate order, evaluate linear equations in two variables with values from the domain to form ordered pair relations which, in turn, will be graphed, simplify algebraic expressions using the four operations including those that are rational, identify types of word problems, develop equations, solve, and check reasonability of solution, solve quadratic equations by factoring, by using the quadratic formula, or by graphing methods and then check their solutions by a method different than that used to solve.

EXPECTATIONS Upon completion of this course, the students should have a good understanding of Algebra and be well prepared for Algebra III/ Trigonometry.

208 ALGEBRA I Year Course – Level 2 – 1 Credit

PREREQUISITE None

OBJECTIVE Upon completion of this course, the student will be:

- Introduced to basic concepts of algebra
- Prepared for Algebra II and Geometry

DESCRIPTION

- Solving of equations and inequalities in one variable algebraically and graphically.
- Solving of equations and inequalities in two variables algebraically and graphically.
- Solving system of equations in two variables algebraically and graphically.
- Addition, subtraction, multiplication, and division using signed numbers.
- Writing English phrases as algebraic expressions.
- Simplifying expressions and evaluating them when numerical values are given.
- Translating word problems into equation and solving the equations for the unknown.
- Solving inequalities in one variable and graphing the solution set.
- Performing the basic real number operations using polynomials.
- Factoring polynomials including binomials and trinomials.

EXPECTATIONS Upon completion of this course, students should have a good understanding of the basic concepts of algebra and how they apply to the real world. They should also be well prepared for Algebra II and Geometry.

211 HONORS GEOMETRY Year Course – Level 3.5 –1 Credit

PREREQUISITE Honors Algebra II

OBJECTIVES Upon completion of this course, students will be able to have a thorough understanding of plane and solid geometry, be able to reason inductively and deductively in relation to geometry, and have developed the skills to organize and complete a geometric proof.

DESCRIPTION This course will include a detailed study of the topics listed below:

- Points, Lines, Planes, Segments and Rays
- Angles and Special Angle Pairs
- Parallel and Perpendicular Lines
- Angle-Relationships in Triangles and Polygons
- Special Quadrilaterals
- Pythagorean Theorem and Special Right Triangles
- Perimeters/Areas of Polygons and Circles
- Surface Area and Volumes of Geometric Solids
- Angles and Segments Related to Circles

EXPECTATIONS Upon completion of this course, students should be able to reason deductively and recognize and apply most geometric concepts in problem-solving situations.

232 PRE-ALGEBRA II Year Course – Level 2 – 1Credit

PREREQUISITE Intermediate Geometry

OBJECTIVES This course is designed to:

- Provide an incremental approach to developing algebraic and problem solving skills
- Provide students with the prerequisite mathematics skills for “consumer, technical, or vocational math courses”

DESCRIPTION In this course, students will study various topics in mathematics which include:

- Real Numbers
- Operations on Real Numbers
- Conversions
- Expressions and equations involving variables
- Expressions and equations involving exponents
- Expressions and equations involving ratio and proportion
- Expressions and equations involving roots and radicals
- Basic word problems
- Topics in geometry
- Basic probability concepts
- Topics in consumer math

EXPECTATIONS Upon completion of this course, students should have a solid understanding of fundamental algebra and geometry skills, and good problem-solving skills. Students should be well prepared for the PSSA examination and/or consumer, technical, or vocational math.

209 ACADEMIC GEOMETRY Year Course – Level 3 – 1 Credit

PREREQUISITE Academic Algebra I

OBJECTIVES The objective of this course is to:

- Provide students with a comprehensive study of plane and solid geometry
- Have students develop powers of spatial visualization
- Have students perceive the role of inductive and deductive reasoning in both mathematical and nonmathematical situations
- Further strengthen students basic algebra skills
- Prepare students to successfully complete SAT and ACT exams

DESCRIPTION The course will include a detailed study of the topics listed below. There will be an emphasis on clarity and precision of language, proof writing, and geometric constructions involving compasses and straightedges. Specific topics include:

- Points, lines, planes, segments and rays
- Angles and special pairs of angles (complementary, supplementary and vertical)
- Parallel lines and angles of triangles and polygons
- Special Quadrilaterals (parallelograms, rectangles, rhombuses, squares, and trapezoids)
- Pythagorean Theorem, Pythagorean Triples, and special right triangles
- Areas of polygons and circles
- Surface area and volumes of geometric solids
- Angles and segments related to circles

EXPECTATIONS Upon completion of this course, students should be able to reason deductively, recognize most geometric concepts, and apply these concepts in mathematical and nonmathematical situations.

210 GEOMETRY Year Course – Level 2 – 1 Credit

PREREQUISITE Algebra I

OBJECTIVE This course is designed to:

- Provide a basic study of geometry

DESCRIPTION This course is designed to provide students with the study of basic geometric definitions and terms, geometric constructions. Properties of polygons and parallel lines, congruence, area, the Pythagorean Theorem, volume, similarity, deductive reasoning and geometric proof. Problem-solving with geometric figures is stressed. Students will be expected to participate orally, complete classroom assignments work in groups and complete homework assignments. Specific objectives include:

- Language of Plane Geometry
- Angles
- Polygons and polyhedrons
- Triangles and inequalities
- Congruent Triangles
- Parallel Lines
- Properties of Quadrilaterals
- Perimeter and area
- Similarity
- Similar Triangles

- Square roots and Right triangles
- Circles
- Volume and surface area

EXPECTATIONS Upon completion of this course, the students should have a good understanding of geometry concepts and apply these concepts to Mathematical situations.

212 INTERMEDIATE ALGEBRA Year Course – Level 2 – 1 Credit

PREREQUISITE None

OBJECTIVES This course is designed to:
- Provide skills in problem solving.
- Provide applications of mathematics to real-life situations

DESCRIPTION **This course is for the non-college student needing a third credit in mathematics**. This course is a survey of many topics in mathematics which include: measurement, estimation, real-world connections, word-problems, rates, powers and roots, scientific notation, quantitative comparisons, algebraic terms, irrational numbers, substitution, geometric construction, scale factor and indirect display, and analysis, probability and statistics. Specific objectives include:
- Use the common equivalences in the U.S. Customary System and the Metric System to convert units of measure.
- Write fraction-decimal-percent equivalencies
- Evaluate powers and roots
- Convert numbers between scientific notation and standard form
- Distinguish between the sets of numbers
- Use calculators to solve problems
- Apply problem-solving strategies to solve non-routine problems
- Evaluate a formula by replacing letters in the formula with numbers and then simplifying
- Recognize common geometric shapes and terms
- Identify and measure angles
- Apply problem-solving strategies to solve applications involving geometry, plane and solid figures, and direct and indirect measurements
- Solve perimeter, area, and volume problems dealing with common figures
- Identify similar and congruent figures by their corresponding parts

EXPECTATIONS Upon completion of this course, the students should have a good understanding of fundamental Algebra skills and an appreciation for problem solving skills. Students will be well prepared for INTERMEDIATE GEOMETRY.

213 INTERMEDIATE GEOMETRY **Year Course - Level 2 - 1 Credit**

PREREQUISITE Intermediate Algebra

OBJECTIVE This course is designed to:
- Provide a basic study of geometry
- Prepare students for the geometry problems associated with the PSSA exam

DESCRIPTION This course is designed to provide students with the study of basic geometry. Students will explore the principles of plane geometry through traditional and hands-on educational techniques. Specific topics include:

- Segments and Rays
- Angles
- Angles of a Triangle
- Isosceles Triangle
- Congruent Triangles
- Parallelograms
- Special Quadrilaterals
- Pythagorean Theorem
- Pythagorean Triples, Special Right Triangles
- Midsegments
- Area
- Surface Area, Volume
- Similarity

EXPECTATIONS Upon completion of this course, students should have a good understanding of geometry and be well prepared for the PSSA examination.

214 CALCULUS Semester Course – Level 3 - .5 Credit

PREREQUISITE Academic Algebra III/Trigonometry

OBJECTIVES This course is designed to:

- Introduce many basic concepts of differential calculus
- Introduce several basic concept of integral calculus
- Give students a preview of the first semester of college calculus

DESCRIPTION The course begins with a very brief review of slope of a line and writing equations of lines and proceeds to the study of limits and continuity. The derivative is then defined by use of limits before proceeding to develop basic rules for differentiation. Applications are studied following development of the basic rules. The course concludes with a short unit on integration, time permitting. Specific objectives include:

- Limits and continuity
- Definition of the derivative
- Power rule and derivatives of trig functions
- Product rule, quotient rule, reciprocal rule
- Chain rule and implicit differentiation
- Higher derivatives and differentials
- Approximations of changes in areas and volumes
- Approximation of roots
- Derivatives of inverse trig functions
- Derivatives of logarithmic and exponential functions
- Curve sketching applications
- Maxima/minima and velocity/acceleration applications
- Definite and indefinite integrals and areas under curves

EXPECTATIONS Upon completion of this course, students should have a good understanding of some basic concepts of calculus and be well prepared to enter their first semester of college calculus.

215 PROBABILITY AND STATISTICS Semester course – Level 3 - .5 Credit

PREREQUISITE Academic Algebra II and Academic Geometry

OBJECTIVES The course is designed to:

- Summarize data
- Draw pictures of data
- Determine measures of central tendency, dispersion, and position
- Introduce basic concepts of probability
- Test hypotheses

DESCRIPTION This course involves the analysis of data, displaying data visually, computing probability, and hypothesis testing. It is taught from an elementary approach with practical examples. Calculators are an important part of the course. Anyone planning on attending college should consider taking this course. Specific objectives include:

- Summarizing data
- Representing data visually
- Determining the mean, median, mode, midrange, standard deviation, and percentile of data sets
- Finding the probability of an event
- Finding odds
- Work with probability distributions
- Binomial distributions
- Normal distributions
- Test claims about a mean, proportion or standard deviation

EXPECTATIONS Upon completion of this course, the students should have a basic understanding of statistics and probability and be well prepared for a similar course in college.

216 DISCRETE MATH Semester Course – Level 3 - .5 Credit

PREREQUISITE Academic Algebra III/Trig

OBJECTIVE This course is designed to:

- Use different methods of voting and apportionment
- Solve routing problems
- Solve traveling salesman problems
- Determine the shortest network between points
- Schedule tasks efficiently
- Analyze different growth models and apply them to real life
- Use different methods of “fair” division

DESCRIPTION This course involves real life applications of mathematics. Topics that could be included are graph theory, election theory, apportionment, codes, fractals, and fair division. Experiments, hands-on activities and group work are used. Specific objectives include:

- Analyzing different voting methods
- Dividing objects and estates fairly
- Different ways of apportionment
- Using different algorithms to find the shortest or cheapest routes
- Scheduling people or machines efficiently
- Analyzing growth models and applying them to real life

EXPECTATIONS Upon completion of this course, the students should have a basic understanding of some of the different ways mathematics is applied to real life situations.

219 HONORS ALGEBRA III/TRIGONOMETRY WITH CALCULUS Year Course-Level 3.5-1Credit

PREREQUISITE Academic Geometry and Honors Algebra II with recommendation from Honors Algebra II teacher.

OBJECTIVE This course is designed to:

- Provide a review of algebra
- Introduce trigonometry
- Introduce basic concepts of calculus
- Prepare students for AP Calculus and AP physics

DESCRIPTION The course will begin with a brief review of the more advanced topics of Algebra II. It will then proceed to master more advanced algebraic concepts. The remainder of the course will cover trigonometry, as well as, an introduction to calculus. Calculus will also be taught throughout the course so that a calculus approach to many of the algebra and trigonometry problems may be employed. Specific objectives include :

- Fundamentals of algebra
- Quadratic functions and inequalities
- Polynomial and rational functions
- Inverse functions
- Exponential functions
- The six trig functions and their graphs
- Trig identities and equations
- Sequences and series
- Theory of limits and continuity
- Basic rules for differentiation
- Curve sketching using calculus

EXPECTATIONS Upon completion of this course, the students should have a good understanding of algebra and trigonometry and be well prepared for AP Calculus and /or AP Physics with Calculus.

223 ADVANCED GEOMETRY Semester Course – Level 3 - .5 Credit

PREREQUISITE Academic Geometry, Academic Algebra II and/or III

OBJECTIVE This course is designed to:

- Provide a Historical Foundation of Geometry
- Review Euclidean 2-Space Concepts
- Review Euclidean 3-Space Concepts
- Introduce Coordinate Geometry
- Introduce Vector Geometry
- Introduce Conical Geometry
- Introduce Non-Euclidean Concepts

DESCRIPTION This course is for the advanced math student who has successfully completed Academic Geometry and Academic Algebra II and/or III. It will provide a historical background of Geometry; a review of Euclidean 2-Space and 3-Space concepts; and introduce advanced Geometry ideas, including Non-Euclidean concepts.

EXPECTATIONS Upon completion of this course, the students should have a historical basis for geometry, be quite knowledgeable on Euclidean ideas, and have a basic understanding of Non-Euclidean concepts: and be prepared to enter a college level geometry course.

ELECTIVE COURSES

217 COMPUTER SCIENCE WITH *JAVA* Semester Course – Level 3 - .5 Credit

PREREQUISITE None. An average of 86% or better in Algebra I is recommended.

OBJECTIVE Upon completion of this course, the student will be able to:

- Construct a valid *Java* program:
  - To output the results of simple mathematical calculations
  - To input data from the keyboard and process it
  - Utilizing logical branching statements
  - Containing a looping structure to process large amounts of data
  - To demonstrate the use of methods
- Create, edit, save, print and format documents on a word processor or spreadsheet program
- Create short computer based presentations using PowerPoint.

DESCRIPTION **RECOMMENDED FOR ALL HONORS MAJORS** – A prerequisite for Advanced Placement Computer Science. This course is designed to introduce students to computer programming, with a short introduction/review of word processing and spreadsheet applications and features. In the programming portion of the course, emphasis is placed on problem solving. Programs are written in the *Java* language, which is widely used by colleges and universities in freshman computer science courses. The word processor and spreadsheet programs are meant to be used to facilitate the completion of assignments in other courses through all three years of high school. The lab will be open for use in the mornings to students who have completed this course. This course does not fulfill the Mathematics requirements for graduation, but does count towards the Mathematics Emphasis seal.

EXPECTATIONS Upon completion of this course, the students will have an understanding of the basic design and construction of computer programs. They will also be able to apply the fundamental structures of the *Java* language.

BIOLOGICAL SCIENCE COURSES

300 ADVANCED PLACEMENT BIOLOGY Year Course – Level 4 – 1.5 Credits

PREREQUISITE Academic or Honors Biology with a 90% minimum; Academic or Honors Chemistry; SAT scores with a minimum of 1000 combined.

OBJECTIVES Upon completion of this course, the student will be able to:

- Explain how cellular processes are based on physical and chemical changes, which are controlled for the most part by enzymatic processes.
- Understand why cells are the structural and functional units of life.
- Analyze the cellular energetics of photosynthesis and cellular respiration in terms of the laws of thermodynamics.
- Predict how heredity and genetics control the passage of structural and functional information from one generation to the next.
- Compare/contrast the current models of cellular origins, and the mechanisms of evolution.
- Survey the diversity of organisms in the plant, animal, fungi, protist and moneran kingdoms.
- Distinguish the structural and functional attributes of plants and animals.

- Understand the ecological concepts of population dynamics, trophic levels of ecosystems, and nature's biogeochemical cycles.

DESCRIPTION Advanced Placement Biology is a full year; double period course designed to meet the needs of students who plan to enter college science career fields.

EXPECTATIONS Students are expected to take the Advanced Placement Exam provided by the College Entrance Examination Board in May. The cost of the exam is approximately $86.00. (paid by student)

301 MICROBIOLOGY Year Course – Level 3 – 1 Credit

PREREQUISITE Successful completion of Academic Biology and Academic Chemistry.

OBJECTIVES Upon completion of this course, the student will be able to:

- Explain how the cell is the basic unit of life and distinguish between prokaryotic and eukaryotic cells.
- Relate basic biochemistry to cell life.
- Identify the characteristics of microbial groups.
- Learn how to control and/or eliminate microbial growth.
- Practice proper aseptic techniques.
- Assess the nature of infections and disease transmission
- Distinguish human defense systems and human immunity.
- Manipulate laboratory equipment used in microbiology.

DESCRIPTION This course studies those organisms not visible to the human eye and their effects on human beings. The course parallels an introductory college level course. Students will learn proper procedures handling and identifying microbes. In addition, they will develop a good understanding of how microbes affect our lives and the methods for controlling microbes. The course is designed for those students, who plan to enter fields in microbiology, medical technology, nursing, medical secretary, science related industry and science teaching.

EXPECTATIONS The student will develop medical technology, laboratory skills, and a working knowledge of various microbes. They will be expected to carry out proper aseptic techniques at all times to insure the safe handling of microbes.

302 ACADEMIC BIOLOGY Year Course – Level 3 – 1 Credit

PREREQUISITE Successful completion of Academic Earth and Space Science.

OBJECTIVES Upon completion of this course, the student will be able to:

- Analyze our place in the living world, considering all organisms are interrelated and affect one another.
- Describe the structure of the cell and basic cell processes.
- Identify and analyze patterns of heredity.
- Realize the importance of DNA and its use in biotechnology.

DESCRIPTION This course an in depth introduction to Biology and is required for Academic grade 10 students. The major areas of emphasis are cellular biology, molecular biology, genetics, biodiversity and ecology. Laboratory work is a vital part of this course. Students should take Academic Biology as preparation for other level 3 or level 4 high school science courses and science related college programs.

EXPECTATIONS The students will develop their knowledge of life processes. They will also develop laboratory skills that can be applied to scientific careers. In addition they will see the importance and applications of biotechnology in today's world.

303 BIOLOGY Year Course – Level 2 – 1 Credit

PREREQUISITE None

OBJECTIVES Upon completion of this course, the student will be able to:

- Distinguish between living and non-living things.
- Explain the structure of a typical cell.
- Describe the similarities and differences between the six kingdoms of life.
- Discuss the importance of DNA, biotechnology, and current events in DNA research.
- Explain how traits are inherited.
- Describe food webs and working relationships between the kingdoms.
- Discuss the roll of nutrients in the body, proper nutrition and food handling.
- Identify diseases, transmission, prevention and treatment of those diseases.

DESCRIPTION This course is an activity-based experience with an emphasis on biological principals. The course emphasizes hands on laboratory activities and is rigorous enough to allow entry into a two or four college program as well as the skills necessary to enter the work force after graduation. The course is part of the Career & Technical (CAT) Academics curriculum and allows students to see how biology affects everyday, real-life situations.

EXPECTATIONS The students will develop awareness in the following areas: classification, ecology, cells, reproduction, heredity and evolution.

305 BIOLOGICAL SCIENCE Year Course – Level 1 – 1 Credit

PREREQUISITE None

OBJECTIVES Upon completion of this course, the student will be able to:

- Distinguish between living and non-living things.
- Compare the five main kingdoms of living things.
- Explain the basic process of reproduction and how traits are inherited.
- Discuss several ways that organisms interact within the environment.

DESCRIPTION This course is designed to provide the student with a basic knowledge of biology. The course content stresses the natural order of living things, their life processes and their ecological importance. Complicated scientific terminology is kept to a minimum in order to give the student the opportunity to understand the overall significance of living things. This course is designed for students who do not plan to continue their formal education after high school.

EXPECTATIONS The students will develop a basic knowledge of the types of living things, cells, reproduction, DNA, heredity and ecology.

306 ENVIRONMENTAL SCIENCE Year Course – Level 1 – 1 Credit

PREREQUISITE None

OBJECTIVES Upon completion of this course, the student will be able to:

- Classify and discuss the interdependency of living things.
- Understand how our earth impacts survival.
- Classify the world climates and the biomes they produce.
- Analyze the effect of population growth and explain the limiting factors of population growth.
- Debate the environmental problems that exist on a local, national and global level.
- Develop a global environmental awareness.
- Relate the loss of natural resources to daily life.

DESCRIPTION The major focus of this course is man and the daily decisions that are made involving his environment. Student will investigate the way living things interact with other living things as well as with their environments. This will lead to discussions of environmental problems and their possible solutions.

EXPECTATIONS The students will develop a basic understanding of ecological principles and environmental issues. They will investigate and analyze how environmental problems have occurred and how they can reduce the impact of man on his natural environment.

307 BOTANY Semester Course – Level 3 – .5 Credit

PREREQUISITE Successful completion of Academic Biology.

OBJECTIVES Upon completion of this course, the student will be able to:

- Develop an awareness of the importance of plants to human life.
- Learn the structure and function of the leaf, stem, root, flower and seed.
- Germinate seed to seedlings.
- Propagate and maintain plants.
- Research care requirements for ten different propagated plants.
- Identify six common plant pests and their control.

DESCRIPTION This course is designed as an introductory course in botany, the study of plants. It includes sufficient information for students who will major in science, but yet practical information for all. This course will cover the technical side of botany, dealing with structure and function of plants. In addition, the course will allow a hands-on approach to the growing, identifying and caring for plants.

EXPECTATIONS Students are expected to exit this course with an understanding of how plants are important to human life, knowledge of the anatomical and physiological aspects of plant structures and the skill to identify, grow and maintain plants.

308 ZOOLOGY Semester Course – Level 3 - .5 Credit

PREREQUISITE Successful completion of Academic Biology.

OBJECTIVES Upon completion of this course, the student will be able:

- To present to the student a detailed study of the animal kingdom using a phylogenic approach.
- To develop an understanding on the physiology and morphology of selected representatives from the ten major animal phyla.
- To introduce the student to laboratory work to give them a good background of the animal kingdom.

DESCRIPTION After the introductory chapters on the composition of the cell, protoplasm and cellular organization and mitosis and meiosis, the student will study and work with specimens from the ten major animal phyla. The four major classes of the one celled Protozoa will be studied. The student will work with the multi-celled Porifera and the cellular specialization of the Coelenterata. The student will compare and contrast the systems of the worm phyla namely the Platyhelminthes, Nemathelminthes and Annelida. The classes of the Arthropods and Mollusks will be studied next. The student will analyze the Echinodermata both externally and internally. The student will finally recognize and compare various members of the phylum Chordata with emphasis on the frog and shark.

EXPECTATIONS The students will develop a basic understanding of the variety of life in the animal kingdom by studying a few representatives from each of the ten major animal phyla. They will be able to compare and contrast the make-up and functioning of the representatives chosen from the different phyla by performing necessary laboratory work. The students will get an appreciation and an understanding of the animal kingdom by comparing the variety of form and function of the animals to themselves.

325 ACADEMIC ANATOMY AND PHYSIOLOGY Semester Course – Level 3 - .5 Credit

PREREQUISITES Successful completion of Academic or Honors Biology and Academic or Honors Chemistry

OBJECTIVES Upon completion of this course, the student will be able to:

- Explain the principle parts of each body system and how they function.
- Describe various disorders that affect the body and their underlying causes.
- Explain how different disorders are treated.
- Explain how the body systems work together and function as a whole.

DESCRIPTION This course includes a detailed survey of the systems that make up the human body and the functions performed by each system. This will involve observing models, doing dissections and using computer simulations. The course uses many lab activities and classroom demonstrations. The goal of this course is to help provide a sufficient background for those students interested in any area of the medical field, criminal investigations, forensics, and health-related fields.

EXPECTATIONS At the completion of this course, students will have an understanding of how each body system works. They will also understand how all the systems function together and the effects of one system on another. The lab skills and knowledge students obtain will be very useful in preparing them for higher education in scientific and medical fields of study.

326 ANATOMY AND PHYSIOLOGY Semester Course – Level 2 - .5 Credit

PREREQUISITE Successful completion of Biology and Chemistry

OBJECTIVES Upon completion of this course, the student will be able to:

- Explain the principle parts of each body system and how they function.
- Explain different system disorders and how they are treated.
- Explain how all the systems work together to maintain the body.

DESCRIPTION This course will survey the systems that make up the human body and how each system carries out its various functions. Lab activities including dissections, computer simulations and models will be used to illustrate structure and function. The goal of this course is to help provide working backgrounds for those students interested in any medical and/or health-related field.

EXPECTATIONS At the completion of this course, students will have an understanding of the structure and function of the human body. It is expected the students will develop the lab skills and knowledge necessary for entering a health professions program at a college or technical school.

PHYSICAL SCIENCE COURSES

311 ADVANCED PLACEMENT CHEMISTRY Year Course – Level 4 - 1.5 Credits

PREREQUISITES Academic or Honors Biology with a 90% minimum; Academic or Honors Chemistry; SAT scores with a minimum of 1000 combined.

OBJECTIVES Upon completion of this course, the student will be able to:

- Predict elemental properties and interactions on the basis of atomic structure.
- Predict bond type and molecular shape based on the VSEPR theory.
- Explain solid, liquid and gas behavior and structure and apply it to materials.
- Apply principles of aqueous equilibria and acid/base theory to numerical calculations.
- Apply principles of oxidation – reduction, balance complex redux reactions and perform electrochemical calculations.
- Predict products of nuclear reactions and nuclear chemical reactions.

DESCRIPTION This course is designed to be similar to freshman college chemistry, and is intended to prepare students for the Advanced Placement test if they desire to take it. In some cases where a student scores sufficiently high on the AP test, they can receive credit for completing freshman chemistry at the college they attend. Laboratory work will be a large and important part of this course.

EXPECTATIONS Students will gain a wide knowledge base of chemical principles. They will use problems with multiple solutions to separate essential and nonessential information. The students will also be able to explain reaction and physical phenomenon that was previously overlooked. Students are expected to take the Advanced Placement Exam provided by the College Entrance Examination Board in May, at a cost of approximately $86.00. (paid by student)

312 HONORS CHEMISTRY Year Course – Level 3.5 – 1 Credit

PREREQUISITES Academic or Honors Biology, Honors Algebra II.

OBJECTIVES Upon completion of this course, the student will be able:

- To develop an understanding of chemical composition and the chemical, physical and energy changes that occur in matter.
- To utilize the language and systems of chemistry, including equations, formulas, charts and mathematical application.
- To develop connections between chemical matter, structure, molecular geometry, and practical uses.
- To develop critical thinking skills to solve problems posed in the chemical arena.

DESCRIPTION Honors chemistry is a rigorous course designed for college bound students who are ready for a challenge. It is especially designed for students who are looking for a career in the science, medical, engineering, or related fields. It has an emphasis in laboratory work where students will team with one another to analyze chemical phenomena.

EXPECTATIONS Students will be expected to move through the information at an accelerated pace in order to study each issue in more depth than detailed in Academic Chemistry. Students will be expected to analyze and interpret diverse information both in lab and the classroom.

313 ACADEMIC CHEMISTRY Year Course – Level 3 – 1 Credit

PREREQUISITES Successful completion of Academic Biology, and concurrently with or successful completion of Academic Algebra II.

OBJECTIVES Upon completion of this course, the student will be able:

- To develop a thorough understanding of chemical composition and chemical and physical changes that occurs in nature.
- To utilize the language of chemistry including formula and equation writing and mathematical applications.
- To develop connections between a sample of matter's chemical structure, molecular geometry, resulting properties and practical uses.

DESCRIPTION This course is intended for college-bound students, especially those thinking of going into science, medical, engineering or related fields. Student will study matter, its properties, composition and structure and changes it undergoes. Laboratory activities are an integral part of this course and students must be prepared to work in lab using proper safety techniques.

EXPECTATIONS Students are expected to develop analysis and problem-solving skills through independent and group assignments. Students will analyze and interpret laboratory data and draw conclusions from charts, tables and graphs showing a relationship between data and real life situations.

314 CHEMISTRY Year Course – Level 2 – 1 Credit

PREREQUISITES Successful completion of Biology; Algebra II (currently taking or successful completion).

OBJECTIVES Upon completion of this course, the student will be able:

- To develop a connection between chemistry and personal and professional lives.
- To develop a general understanding of a chemical composition and chemical and physical changes that occurs in matter.
- To utilize the language of chemistry including formula and equation writing and mathematical applications.

DESCRIPTION Students will study matter, its physical properties, composition, structure, and the changes it undergoes. Laboratory activities are an integral part of this course and the students must be prepared to work in the lab using proper safety techniques.

EXPECTATIONS Students are expected to develop analysis and problem solving skills through independent and group assignments. Students will also be expected to conduct labs in a safe manner, collect accurate data and use proper methods to analyze data.

327 FORENSIC CHEMISTRY Semester Course – Level 2 - .5 Credit

PREREQUISITE Chemistry

OBJECTIVES Upon completion of this course, the student will be able to:

- Explain the role of forensic science in investigations.
- Analyze organic, inorganic and physical evidence.
- Utilize tools, equipment and procedures of forensic science.
- Apply knowledge to solve mock investigations.
- Understand and apply the language, terminology and vocabulary of the forensic profession.

DESCRIPTION This is an activity-based course in which students study the basics of forensic science and apply their knowledge to investigations. Students will process evidence and utilize various technologies to solve problems.

EXPECTATIONS The students will develop analysis and problem solving skills through independent and group assignments. Students will analyze and interpret forensic data and draw conclusions based upon evidence. Students will apply chemical principles and language associated with investigation.

315 HONORS PHYSICS Year Course – Level 3.5 – 1 Credit

PREREQUISITES Successful completion of Honors Chemistry and Honors Algebra I and II

OBJECTIVES Upon completion of this course, the students will be able:

- To apply the laws and principles of physics to physical phenomena.
- To integrate mathematics and physics in the understanding of the physical world.

DESCRIPTION This rigorous introductory physics course is designed for the college bound student who is strong in the sciences and mathematics. Students are also expected to express themselves clearly in writing. This course will include the in-depth study of mechanics,

thermodynamics, wave phenomena and optics. Physical phenomena will be explored conceptually, mathematically and experimentally.

EXPECTATIONS Students will cover the same concepts as Academic Physics, but in greater detail and in a more interconnected manner.

316 ADVANCED PLACEMENT PHYSICS B* Year Course – Level 4 – 1.5 Credits

PREREQUISITES Academic Physics, Academic Algebra III/Academic Trigonometry AND teacher recommendation OR Honors Physics, Honors Algebra III/Academic Trigonometry with Calculus

OBJECTIVES Upon completion of this course, the student will be able:

- To apply the laws of physics to complex physical phenomena.
- To develop a strong understanding of nature through experimentation.
- To develop an insight into the application of calculus to the world of physics

DESCRIPTION The focus of this course is the advanced study of mechanics, thermodynamics, wave phenomena, optics, electricity, magnetism, and modern physics. These topics will be explored using mathematics and experimentation.

EXPECTATIONS The student will develop an in-depth understanding of physical phenomena and be able to analyze complex situations conceptually and mathematically. Students are also expected to take the Advanced Placement Exam provided by the College Entrance Examination Board in May, at a cost of approximately $86.00. The cost is to be paid by the student.

*Students will have the opportunity to enroll in the University of Pittsburgh's College in high school course Basic Physics for Science and Engineering I (Physics 0174), a 4 credit course.

317 ACADEMIC PHYSICS Year Course – Level 3 – 1 Credit

PREREQUISITES Successful completion of Academic or Honors Chemistry and Academic Algebra II.

OBJECTIVES Upon completion of this course, the student will be able:

- To apply the basic laws and principles of physics to common physical phenomena.
- To use mathematics as a tool for the understanding of the behavior of nature.

DESCRIPTION The focus of this course is the study of mechanics, thermodynamics, wave phenomena and optics. Many physical phenomena will be explored conceptually, mathematically and experimentally.

EXPECTATIONS The student will develop a basic understanding of the behavior of the physical world and be able to analyze this conceptually and mathematically.

318 PHYSICS Year Course – Level 2 – 1 Credit

PREREQUISITES Successful completion of Biology and Chemistry

OBJECTIVES Upon completion of this course, the student will be able:

- To develop skills in analyzing, organizing and presenting scientific information.
- To use the method of science to solve problems and to improve the ability to think critically.
- To develop knowledge of the principles of physics as they relate to motion, matter, and energy.

DESCRIPTION This course is designed to meet the needs of the college-bound (non-science major) student as well as the technical school student. It will provide an opportunity to apply science concepts that assist problem-solving and job-related skills. It begins with the study of motion, which will lead to the concepts of force and energy. It then studies the properties of sound and wave phenomena, followed by a study of future technology.

EXPECTATIONS Students are expected to apply their knowledge of physics principles to the solving of problems. The comprehensive content offers computational reinforcement that will help build conceptual understanding.

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320 PHYSICAL SCIENCE Year Course – Level 1 – 1 Credit

PREREQUISITES Biology

OBJECTIVES Upon completion of this course, the student will be able to:
- Investigate basic physical and chemical principles and apply them to their everyday lives.
- Use tools, such as calculators and laboratory equipment, to collect and analyze scientific data.

DESCRIPTION A broad range of topics from the disciplines of physics and chemistry are explored. Complicated terminology and mathematics are kept to a minimum while practical applications of science are emphasized. This course is designed for students who will enter the work force after high school graduation.

EXPECTATIONS The students will use the scientific method to investigate their world through various activities. Work will often be completed in cooperative groups.

321 ACADEMIC ASTRONOMY Course – Level 3 – 1 Credit

PREREQUISITE None

OBJECTIVES Upon completion of this course, the student will be able to:
- Identify 54 constellations, 9 asterisms, and 62 stars/objects seen in the night sky throughout the year.
- Describe the orientation, movements, and discoveries of the sky, and distinguish the early and modern peoples that helped this knowledge grow and develop
- Distinguish the types and functions of telescopes, space probes, and manned missions that further built upon this foundation
- Predict the Earth's future space hazards, chances of finding new civilizations, and place in the Cosmos on the whole

DESCRIPTION Academic Astronomy is a yearlong course designed for students that are college-bound, or have a deep inherent interest in Astronomy. The following 11 topics are covered: Scale

and Sky Movement; Night Sky Orienteering; Origins of Astronomy; Newton & Einstein; Light, Telescopes, and Observatories; Sun/Earth/Moon System; Stars and Galaxies; Solar System: In Depth; Asteroids, Meteors, and Comets; History of Space Exploration; Search for Extraterrestrial Life. Students will complete 1 group assignment per section, and complete both group and individual evaluations on the 5 part of the night sky, as learned on the planetarium dome.

EXPECTATIONS Students must be able to take class notes, and be proficient in algebra but calculators are permitted. There is less actual lab work than in most science courses, but students are expected to work proficiently in groups throughout the year. Students subscribe to an online Astronomy newsletter, to maintain current knowledge of the ever-changing universe of Astronomy.

322 ASTRONOMY Semester Course – Level 2 – .5 Credit

PREREQUISITE None

OBJECTIVES Upon completion of this course, the student will be able:

- Identify 26 constellations, 9 asterisms, and 35 stars/objects seen in the night sky throughout the year.
- Describe the movements and discoveries of the sky, and distinguish the early peoples that helped this knowledge grow and develop.
- Distinguish earth's place in the solar system and galaxy on the whole.
- Predict the Earth's future space hazards and chance of finding new civilizations.

DESCRIPTION Astronomy is a semester course designed for average students, or those that cannot fit a full year of Academic. The following 6 topics are covered: Scale and Sky Movement; Origins of Astronomy; the Solar System; Stars and Galaxies; Asteroids, Meteors, and Comets; Search for Extraterrestrial Life. Students will complete 1 group assignment per section, and complete both group and individual evaluations on the 5 parts of the night sky, as learned on the planetarium dome.

EXPECTATIONS Students must be able to take class notes, and be capable in algebra, but calculators are permitted. There is less actual lab work than in most science courses, but students are expected to work proficiently in groups throughout the semester.

323 PHYSICS OF SPORTS Semester Course – Level 2 - .5 Credit

PREREQUISITES Physics (Have taken or currently are taking) and Algebra II

OBJECTIVES Upon completion of this course, the student will be able:

- To read, understand, and interpret physical information (verbal, mathematical, and graphical).
- To apply the basic laws and principles of physics to sports activities.
- To perform various athletic events; then analyze their motion in terms of kinematics, dynamics, work, energy, and momentum.

DESCRIPTION This course focuses on the application of basic physics concepts to athletic events. The performance of athletes will be analyzed in order to show how improvements in athletic performance are governed by the laws of nature. Students will gain an understanding of