Middle and High School Course Offerings

A Program of Study for Grades 6-12: A Planning Guide for Students and Parents

Division of Instruction
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This guide has been prepared to assist students and parents with course selections and with long-term program planning. Students and parents are encouraged to familiarize themselves with this publication and to use it as a resource guide. Counselors, in cooperation with parents and teachers, will assist each student in planning a program of study and in selecting courses for next year.

In addition to required courses, this guide contains a complete list of electives offered in the Chesterfield Schools. Not all electives are available at each high school. Each school publishes a separate list of elective offerings available at that school based on student interest and any specialized programming. For all courses listed in the school's offerings, however, this guide contains the course description and the listing of all prerequisites.

The selection of courses for the upcoming year is an opportunity for each student to think carefully about his or her interests, achievement, and educational and career goals. It is an opportunity for the student to think carefully about how the world is changing, how the workplace is changing, and how the job market is changing. It is an opportunity to visit the College and Career Center at school to learn more about jobs, about post-secondary education, and to think broadly and creatively about the future.

Grouping students on the basis of achievement is standard procedure in most required courses and in some elective courses. The purpose of grouping is to place students in classes where they will be able to work most successfully.

The high school relies heavily on a student's grades, standardized test scores, and teacher recommendations to determine their placement in courses. For grouping purposes, achievement is considered in each individual subject area. Students are not automatically grouped in all classes of the same level. For example, a student could be in an honors level mathematics class and a comprehensive level English class.

Grouping symbols used to indicate levels of instruction are as follows:

- **H** Classes for those students who have been placed in an advanced/honors program based on their having met specific criteria
- **Z** Classes for students who are meeting or exceeding grade level expectations
- **Y** Classes for students who are meeting fundamental grade level expectations
- **X** Classes for students who need more instruction in basic skill
- **C** Comprehensive classes preparatory for higher education or employment upon graduation. This designation is used when Z and Y levels are grouped together for instruction
- **O** Classes in which students are not grouped by achievement and ability levels
**GRADING SCALE/ LETTER GRADE POINTS ASSIGNED BY COURSE LEVEL**

<table>
<thead>
<tr>
<th>Letter Grade</th>
<th>Numerical Range</th>
<th>X,Y,Z,O,C LEVEL</th>
<th>H Level</th>
<th>Comprehensive &amp; Progressing Levels</th>
<th>Honors Level</th>
<th>Advanced Level (AP/IB)</th>
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</thead>
<tbody>
<tr>
<td>A+</td>
<td>99-100</td>
<td>4.5</td>
<td>5.5</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A</td>
<td>94-98</td>
<td>4.0</td>
<td>5.0</td>
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<td>B+</td>
<td>90-93</td>
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<td>4.5</td>
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</tr>
<tr>
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<td>3.0</td>
<td>4.0</td>
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<tr>
<td>C+</td>
<td>80-83</td>
<td>2.5</td>
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<tr>
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<tr>
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<td>below 64</td>
<td>0.0</td>
<td>0.0</td>
<td></td>
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</tbody>
</table>

**Note:**

1. Weighting of letter grades is used for High School Grade Point Average (GPA) and class rank only.
2. Beginning with the class of 2013, Weighting of Letter Grades will change as follows:
EN061 STRATEGIC READING
Strategic Reading offers students the chance to learn and practice reading strategies through teacher modeling, cooperative learning, and independent practice. This strategy-based course helps to improve fluency, reading comprehension, vocabulary, and listening comprehension. Writing is also a component of this class. Target areas include vocabulary and sentence structure. This course lays a foundation for CCPS' English 6 curriculum.

EN106 LANGUAGE ARTS 6
Language Arts 6 is a literature-based curriculum integrating reading, writing, oral communication, and research. Students develop techniques needed for reading, analyzing, studying, writing, and presenting information. Students learn to use grammar, spelling, and vocabulary correctly in all forms of communication. Literature includes short stories, novels, plays, poems, essays, and student-generated writing.

EN106 LANGUAGE ARTS 6 HONORS
Language Arts 6 Honors is an expanded literature-based curriculum integrating reading, writing, oral communication, and research. Students apply strategies necessary to read, analyze, and synthesize information. All subject areas are correlated through activities requiring students to use critical thinking skills in problem solving. Student decision-making involves planning, researching, developing, presenting, and evaluating oral and written final products. Students are accountable for using grammar, spelling, and vocabulary correctly in forms of communication.

EN107 LANGUAGE ARTS 7
Language Arts emphasizes the structure of language through the study of literature, writing, research, and oral communication skills. Students will be introduced to a variety of literature and literary devices through guided and independent reading. In addition, by modeling and with practice, students will expand the use of writing for appropriate audiences. Research will incorporate the use of organizational skills, source materials, and process-oriented products. Communication skills will also be emphasized as part of the curriculum; this includes listening and speaking skills as well as vocabulary development. Students are expected to exercise reading, writing, and communication skills independently and with teacher direction.

EN107 LANGUAGE ARTS 7 HONORS
Language Arts 7 Honors develops and integrates basic higher level thinking skills within the core curricula. In this course, students will experiment with a variety of writings. In their writing, students will emphasize audience and purpose; develop their own personal styles; and incorporate complexity, depth, and creativity. Through the study of literature, students will explore universal themes, the interconnection of ideas, and many points of view. Also, the appreciation, interpretation, and modeling of literary techniques will encourage the development of the students’ self-understanding and production of new ideas. These new ideas will be supplemental with the process of research that incorporates organizational, analytical, and critical thinking, reading, writing, and learning skills through self-initiated and teacher-directed areas of study.

EN108 LANGUAGE ARTS 8
English 8 emphasizes skill development in writing, vocabulary, oral communication, and literature. Applying the writing process, students will practice various forms of written and oral expression for a variety of audiences and purposes. To enhance clarity of communication, students will augment vocabulary, manipulate word choice, employ correct usage, use proper grammatical structure, and utilize effective editing skills. By studying various genres and literary elements, students will examine novels, short stories, poetry, drama, and nonfiction.

EN108 LANGUAGE ARTS 8 HONORS
English 8 Honors emphasizes skill development in writing, vocabulary, oral communication, literature, and critical thinking. In addition to application of the writing process, students will be actively involved in the selection, planning, organization, refinement, and evaluation of various forms of written and oral expression. Students will direct writing toward specific audiences and purposes. To enhance clarity of communication, students will manipulate word choice and sentence structure, employ correct usage, and use proper grammatical strategies. Students will develop a vocabulary which reflects a more complex and sophisticated thinking. Students will analyze various literary genres to identify theme and literary elements, recognize character motivation, discern author’s purpose and style, articulate possible universal concepts, and effectively present a synthesized critical response.

EN193 STUDY SKILLS 7
Semester
This course is designed for students who need reinforcement in learning skills. Course objectives provide specific learning strategies to assist students in improving classroom practices such as test taking and note taking abilities as well as increasing comprehension and refining organizational skills. Additionally, accessing and utilizing resource materials and mastering effective oral and written communication in a wide variety of subject areas will be included.

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MATHEMATICS

MA301, MA302, MA303  FAST MATH I, II, III
FAST MATH is a mathematics program designed for non-native speakers of English who are two or more years behind in math and have limited experiences in formal educational settings. FAST Math not only provides mathematics instruction for students, but also builds their competence in English with the kinds of language they specifically need to succeed in math classes. FAST Math I and II are designed to address elementary and middle school content. FAST Math III is designed to assist students in developing pre-algebra concepts and skills, preparing them for success in algebra and geometry.

MA 306 MATHEMATICS 6 HONORS
Mathematics 6 Honors provides increased opportunities for students to experience applications-oriented problem solving. Enrichment activities allow students to make mathematical connections to the constantly changing world in which we live. The curriculum focuses upon the properties of the real number system and data analysis techniques. Topics including estimation, number theory, geometry, pre-algebra, measurement, and probability and statistics form the foundation for the study of advanced mathematics. Students investigate and analyze a host of mathematical topics using activities
which foster critical thinking skills while gaining self-confidence in identifying mathematics as a tool for everyday living and lifelong learning.

**MA307 MATHEMATICS 7 HONORS**
The rigorous pre-algebra nature of the seventh grade honors mathematics curriculum is designed to prepare students for a demanding first year algebra course. It embellishes traditional topics to provide a challenging treatment of arithmetic, geometric, algebraic, and statistical topics. Students explore and develop concepts related to variable expressions, equations and inequalities, geometry, rational numbers, probability, formulas, and percents. Students are also exposed to solving problems which require higher order thinking skills and the ability to reason mathematically. Connections of mathematical concepts to other disciplines and real-world applications allow students to develop the mathematical power and self-confidence that are essential elements for dealing with the daily challenges of the world in which we live. Connections of mathematical concepts to other disciplines and real-world applications allow students to develop the mathematical power and self-confidence that are essential elements for dealing with the daily challenges of the world in which we live.

**MA320 ALGEBRA 1**
The standard Algebra 1 course incorporates all of the foundation skills that are necessary for students to pursue college preparatory mathematics in high school. The properties of and operations on numbers are extended to include the development of the real number system. Sets, equations, inequalities, exponents, polynomials, functions, graphing, systems of equations, and quadratics are the major topics of study. Additionally, the ability to make comparisons of one-variable data sets using statistical techniques including measures of central tendency, range, stem-and-leaf plots, and box-and-whisker graphs is an expectation for all students in the Algebra 1 program. Instruction in the use of and the development of proficiency with graphing calculators provides students with the visual models that complement the learning of algebraic concepts. Other existing and emerging technologies are used as tools to facilitate the problem solving process, data analysis techniques, and graphing.

**MA320 ALGEBRA 1 HONORS**
The Honors Algebra 1 program incorporates all of the foundation skills that are necessary for students to pursue the study of rigorous advanced mathematics. The arithmetic properties of numbers are extended to include the development of the real number system. Sets, equations, inequalities, polynomials, functions, graphing systems of equations, matrices, quadratics, and radical expressions are topics which are integral to the program. Special attention is given to data analysis and the course is replete with opportunities for students to gather and analyze real-world data. The scope of the activities used to develop thought processes allows for algebra topics to be integrated with other disciplines. Computers and graphing calculators are utilized as tools which enhance the problem solving process and provide students with the visual models that augment the learning of algebraic concepts.

**MA324 ALGEBRA 1 PART 1**
This course is designed to support and promote student success in mathematics coursework necessary to fulfill graduation requirements. While strengthening prerequisite skills in the areas of operations with whole numbers, fractions, decimals, percentages, integers, and rational numbers, students will solidify algebraic concepts through modeling and the use of manipulatives, graphing calculators, and computer software where appropriate. A concentration on improving problem solving and communication in mathematics coupled with an emphasis on standardized test preparation will build mathematical confidence.

**MA330 GEOMETRY**
The Honors Geometry course is a unified study of plane, solid, and coordinate geometry. The curriculum includes the study of lines, planes, congruencies, geometric inequalities, perpendicularity of lines and planes in space, parallel lines and planes, polygons, polyhedral, area, volume, similarity, coordinate and transformational geometry, circles, and spheres. Formal and informal deductive reasoning skills are developed and applied to the construction of formal proof. Every effort is made to incorporate advanced technology into the curriculum through the use of calculators and computers. The intent of this course is to frame a curriculum that ensures the development of broad mathematical power and which cultivates students’ abilities to explore, conjecture, reason logically, formulate and solve problems, and communicate mathematically.

**MA330 GEOMETRY HONORS**
Geometry is a unified study of plane, solid, and coordinate geometric concepts which provides students with the prerequisite skills that will facilitate the study of advanced mathematics. Investigations of lines, planes, congruencies, similarities, geometric inequalities, parallelism, perpendicularity, polygons, areas, volumes, circles, and three-dimensional figures are incorporated to provide a complete course of study. Formal and informal deductive reasoning skills are developed and applied to the construction of formal proof. Opportunities are provided for discovery learning through hands-on activities and experiments that allow students to communicate algebraically, explore major concepts and develop problem solving skills. An emphasis will be placed on proofs throughout the course including 2-column, paragraph, and coordinate proofs. Included will be a continued emphasis on more challenging multi-step problem solving, applications, and review of algebraic concepts incorporating geometry problems that involve quadratic equations and systems of linear equations.

**MA340 ALGEBRA 2**
Algebra 2 extends the concepts that student have encountered in Algebra 1 and Geometry and provides a thorough treatment of advanced algebraic concepts. Emphasis will be placed on practical applications, logic of procedures and interpretation of results. Graphic calculators and computers will enhance the students’ understanding. Students will be expected to communicate and practice mathematical ideas appropriately.

**MA340 ALGEBRA 2 HONORS**
The Algebra 2 Honors curriculum extends the concepts that student have encountered in Algebra 1 and Geometry, provides a thorough treatment of advanced algebraic concepts, and includes additional content. This additional content is noted in italics. Emphasis will be placed on practical applications, logic of procedures and interpretation of results. Graphing calculators and computers will be utilized to enhance the students’ understanding and provide a powerful tool for solving and verifying solutions. Students will be expected to communicate and practice mathematical ideas appropriately. Opportunities are provided for discovery learning through activities, applications, and experiences that foster exploration of major concepts and develop problem solving skills. Other existing and emerging technologies are used as tools to facilitate the problem solving process, data analysis techniques, and graphing.

**MA377 MS MATHEMATICS 1**
Middle School Mathematics 1 is the first of two courses in middle school preparing students for the study of algebra. The two-year sequence logically connects content found in traditional three-year pre-algebra programs and compacts it into two years with daily extended time periods in mathematics. Problem solving, proportional reasoning, and mathematical applications are emphasized throughout the two-year sequence. Problem solving is integrated throughout all areas of study so students can develop a wide range of skills and strategies for solving a variety of problem types. Emphases will be placed on problems involving consumer applications, proportional reasoning, and computation with integers. Opportunities for the student to acquire the specialized vocabulary and language patterns of mathematics are provided throughout each strand.
As they carry out these investigations, students will engage in scientific instruction within the context of experimental design and application of school science honors classes, inquiry and discovery are central to at least 50% of the instructional time and are the framework within which students can expect to study the key concepts. Laboratory experiences make up at least 50% of the instructional time and are the framework within which students can expect to study the key concepts. In middle school science honors classes, inquiry and discovery are central to instruction within the context of experimental design. Honors students at this level will apply the concepts of experimental design using research skills, incorporating the collection, analysis, and interpretation of quantitative data and will use such skills to draw connections between the subject matter and real-life situations. Research activities may be done independently or cooperatively. Students will recognize and understand applications of technology to scientific inquiry.

SCIENCE

SC406 SCIENCE 6
The sixth grade science program is a laboratory-based program whose content incorporates such basic concepts as scientific investigation, sources of energy, matter, properties and characteristics of water, properties of air and the Earth's atmosphere, watersheds, the solar system and environmental issues. Introductory principles of matter, energy, and forces are studied and related. Students investigate relationships between earth/space systems and living things. Topics include the Earth's atmosphere, watersheds, and astronomy. Natural resources management and its relation to public policy and cost/benefits trade-offs are analyzed.

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SC407 LIFE SCIENCE 7
The seventh grade life science program is a laboratory-based program whose content incorporates such basic concepts as the cell, the characteristics of living things, classification, utilization and flow of matter and energy, ecology, and genetics, as well as science, technology and society, and career awareness. Laboratory experiences make up at least 50% of the instructional time and are the framework within which students can expect to study the key concepts.

SC407 LIFE SCIENCE 7 HONORS
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SC408 PHYSICAL SCIENCE 8
The eighth grade physical science program is a laboratory-based program whose content includes the characteristic properties of matter; atomic structure and theory; energy; electricity and magnetism; work, force, and motion; science, technology, and society; and career awareness. Laboratory experiences make up at least 50% of the instructional time and are the framework within which students can expect to study the key concepts.

SC408 PHYSICAL SCIENCE 8 HONORS
The eighth grade physical science program is a laboratory-based program whose content includes the characteristic properties of matter; atomic structure and theory; energy; electricity and magnetism; work, force, and motion; science, technology, and society; and career awareness. Laboratory experiences make up at least 50% of the instructional time and are the framework within which students can expect to study the key concepts. For middle school science honors classes, inquiry and discovery are central to instruction within the context of experimental design. Honors students at this level will be able to design and implement investigations independently and/or collaboratively and student investigations will result in some product whose scope is to be determined by the teacher.

SC416 INTEGRATED SCIENCE 6
Integrated 6th grade science is an inquiry-based course introducing major concepts in and relationships among the four science disciplines—chemistry, physics, life science, and earth/space science. Introductory principles of matter, energy, and forces are studied and related. Students investigate relationships between earth/space systems and living things. Topics include the Earth's atmosphere, watersheds, and astronomy. Natural resources management and its relation to public policy and cost/benefits trade-offs are analyzed.

SC416 INTEGRATED SCIENCE 6 HONORS
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Students will use skills of historical and geographical analysis to explore the early history of the United States and understand ideas and events that strengthened the union. This course of study follows the history of the United States from pre-Columbian times until 1877. Students will continue to learn fundamental concepts in civics, economics, and geography as they study United States history in chronological sequence and learn about change and continuity in our history. They also will study documents and speeches that laid the foundation of American ideals and institutions and will examine the everyday life of people at different times in the country’s history through the use of primary and secondary sources.

**SS207 SOCIAL STUDIES 7**
United States History: 1865 to the Present
Students will continue to use skills of historical and geographical analysis as they examine American history since 1877. This course of study follows the history of the United States from the end of the Reconstruction era to the present. Students continue to learn fundamental concepts in civics, economics, and geography within the context of United States history. Political, economic, and social challenges facing the nation reunited after civil war will be examined chronologically as students develop an understanding of how the American experience shaped the world political and economic landscape.

**SS208 SOCIAL STUDIES 8**
Civics and Economics
Civics and Economics examines the roles citizens play in the political, governmental, and economic systems in the United States. Students examine the constitutions of Virginia and the United States; identify the rights, duties, and responsibilities of citizens; and describe the structure and operation of government at the local, state, and national levels. Students investigate the process by which decisions are made in the American market economy and explain the government’s role in it. The standards identify personal character traits, such as patriotism, respect for the law, and a sense of civic duty, that facilitate thoughtful and effective participation in the civic life of an increasingly diverse democratic society. Civic education must emphasize the intellectual skills required for responsible citizenship. Students practice these skills as they extend their understanding of the essential knowledge defined by the standards for Civics and Economics.

**WORLD LANGUAGES**

**WL006 INTERNATIONAL STUDIES 6 EXPLORATORY**
All languages offered in Chesterfield County—French, Spanish, German, Latin and Japanese—are introduced to the students with coordinating cultural information and experiences relating to food, customs, clothing, music, art, geography, history, holidays, life-styles, and recognized contributions to the world. The use of technology is encouraged to implement and enhance the student’s study.

**WL063 INTERNATIONAL STUDIES 7**
No credit
**WL064 INTERNATIONAL STUDIES 7**
Semester
**WL065 INTERNATIONAL STUDIES 7**
One credit
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**WL081 FOUNDATIONS OF WORLD LANGUAGE**
No credit
This world language class allows students to begin the study of Spanish. In addition to learning to speak and write the basics of a second language, students will learn about the cultural characteristics of the communities where the language is spoken. Students will also learn essential study skills to help them master a second language. The use of technology will enhance the student’s study.

**WL082 FOUNDATIONS OF WORLD LANGUAGE 2**
No credit
This world language class allows students to begin the study of Spanish. In addition to learning to speak and write the basics of a second language, students will learn about the cultural characteristics of the communities where the language is spoken. Students will also learn essential study skills to help them master a second language. The use of technology will enhance the student’s study.
WL501 FRENCH 1A  
No credit  
This academic elective focuses on the basic skills of reading, writing, listening, and speaking in French. The goal is for students to increase their cultural awareness through various thematic units; i.e., school, family, food, and friends. This course will require nightly homework, ongoing studying, memorization, and practice in order to build the foundation necessary to succeed. Students must complete WL501 (French I A) and WL502 (French I B) to continue to the second level of French. After successful completion of French 1A and 1B, students will earn on full credit.

WL502 FRENCH 1B  
One credit  
This academic elective focuses on the basic skills of reading, writing, listening, and speaking in French. The goal is for students to increase their cultural awareness through various thematic units; i.e., school, family, food, and friends. This course will require nightly homework, ongoing studying, memorization, and practice in order to build the foundation necessary to succeed. Students must complete WL501 (French I A) and WL502 (French I B) to continue to the second level of French.

WL503 GERMAN 1A  
No credit  
This academic elective focuses on the basic skills of reading, writing, listening, and speaking in German. The goal is for students to increase their cultural awareness through various thematic units; i.e., school, family, food, and friends. This course will require nightly homework, ongoing studying, memorization, and practice in order to build the foundation necessary to succeed. Students must complete WL503 (German I A) and WL504 (German I B) to continue to the second level of German. After successful completion of German 1A and 1B, students will earn on full credit.

WL504 GERMAN 1B  
One credit  
This academic elective focuses on the basic skills of reading, writing, listening, and speaking in German. The goal is for students to increase their cultural awareness through various thematic units; i.e., school, family, food, and friends. This course will require nightly homework, ongoing studying, memorization, and practice in order to build the foundation necessary to succeed. Students must complete WL503 (German I A) and WL504 (German I B) to continue to the second level of German.

WL505 LATIN 1A  
No credit  
This academic elective focuses on the basic skills of reading, writing, listening, and speaking in Latin. The goal is for students to increase their cultural awareness through various thematic units; i.e., school, family, food, and friends. This course will require nightly homework, ongoing studying, memorization, and practice in order to build the foundation necessary to succeed. Students must complete WL505 (Latin I A) and WL506 (Latin I B) to continue to the second level of Latin. After successful completion of Latin 1A and 1B, students will earn on full credit.

WL506 LATIN 1B  
One credit  
This academic elective focuses on the basic skills of reading, writing, listening, and speaking in Latin. The goal is for students to increase their cultural awareness through various thematic units; i.e., school, family, food, and friends. This course will require nightly homework, ongoing studying, memorization, and practice in order to build the foundation necessary to succeed. Students must complete WL505 (Latin I A) and WL506 (Latin I B) to continue to the second level of Latin.

WL508 SPANISH 1A  
No credit  
This academic elective focuses on the basic skills of reading, writing, listening, and speaking in Spanish. The goal is for students to increase their cultural awareness through various thematic units; i.e., school, family, food, and friends. This course will require nightly homework, ongoing studying, memorization, and practice in order to build the foundation necessary to succeed. Students must complete WL500 (Spanish I A) and WL508 (Spanish I B) to continue to the second level of Spanish. After successful completion of Spanish 1A and 1B, students will earn on full credit.

WL509 SPANISH 1B  
One credit  
This academic elective focuses on the basic skills of reading, writing, listening, and speaking in Spanish. The goal is for students to increase their cultural awareness through various thematic units; i.e., school, family, food, and friends. This course will require nightly homework, ongoing studying, memorization, and practice in order to build the foundation necessary to succeed. Students must complete WL500 (Spanish I A) before enrolling in WL508 (Spanish I B) and must complete both courses with a passing grade to continue to the second level of Spanish.

WL511 FRENCH 1  
One credit  
The world language program provides students the opportunity to develop proficiency in a language in addition to English. Proficiency is the learner's ability to understand, speak, read, and write the language within an authentic cultural setting. Upon completion of the BEGINNING STAGE, students are able to effectively handle basic task-oriented and social situations. They can ask and answer questions, initiate and respond to simple statements, and maintain a conversation in a restricted manner. Their vocabulary is adequate to express elementary needs. Their efforts at communication are comprehensible to a sympathetic audience. As much as possible, the class is conducted in French.

WL512 FRENCH 2  
One credit  
The world language program provides students the opportunity to develop proficiency in a language in addition to English. Proficiency is the learner's ability to understand, speak, read, and write the language within an authentic cultural setting. Upon completion of the BEGINNING STAGE, students are able to effectively handle basic task-oriented and social situations. They can ask and answer questions, initiate and respond to simple statements, and maintain a conversation in a restricted manner. Their vocabulary is adequate to express elementary needs. Students at this level can generally be understood by a sympathetic audience. As much as possible, the class is conducted in French.  
Pre-requisite: French 1

WL513 FRENCH 3  
One credit  
Linguistic skills and grammatical concepts are strengthened, while cultural concepts are expanded to enable students to understand cultural differences. The goal is for students to communicate with increasing proficiency by discussing the world of work, travel in France, the Francophone world and the French cuisine. Many opportunities for oral and written communications are expanded through the use and application of technology. Upon completion of the DEVELOPING STAGE, students are able to handle effectively basic task-oriented and social situations. They can ask and answer questions, initiate and respond to simple statements, and maintain a conversation in a restricted manner. Their vocabulary is adequate to express elementary needs. The speaker can generally be understood by a sympathetic audience. French 3 classes are conducted almost entirely in French. Pre-requisite: French 2

WL521 GERMAN 1  
One credit  
The world language program provides students the opportunity to develop proficiency in a language in addition to English. Proficiency is the learner's ability to understand, speak, read, and write the language within an authentic cultural setting. Upon completion of the BEGINNING STAGE, students are able to effectively handle basic task-oriented and social situations. They can ask and answer questions,
initiate and respond to simple statements, and maintain a conversation in a restricted manner. Their vocabulary is adequate to express elementary needs. Their efforts at communication are comprehensible to a sympathetic audience. As much as possible, the class is conducted in German. Pre-requisite: German 2

WL522 GERMAN 2 One credit
The world language program provides students the opportunity to develop proficiency in a language in addition to English. Proficiency is the learner’s ability to understand, speak, read, and write the language within an authentic cultural setting. Upon completion of the BEGINNING STAGE, students are able to effectively handle basic task-oriented and social situations. They can ask and answer questions, initiate and respond to simple statements, and maintain a conversation in a restricted manner. Their vocabulary is adequate to express elementary needs. Their efforts at communication are comprehensible to a sympathetic audience. As much as possible, the class is conducted in German.

WL523 GERMAN 3 One credit
Linguistic skills and grammatical concepts are strengthened, while cultural and grammatical concepts are deepened enabling the students not only to survive in German-speaking societies, but also to deal with complications. The goal is for students to increase their creative comprehension and communication skills in questioning, narrating, describing, and discussing possibilities in functional activities. Such activities include organizing a travel itinerary for exploration of German-speaking countries, comparing educational options and career plans, and discussing feelings and moods. Many opportunities for oral and written communications are expanded through the use and application of technology. Upon completion of the DEVELOPING STAGE, students are able to handle effectively basic task-oriented and social situations. They can ask and answer questions, initiate, and respond to simple statements, and maintain a conversation in a restricted manner. Their vocabulary is adequate to express elementary needs. Their efforts at communication are comprehensible to a sympathetic audience. German 3 classes are conducted almost entirely in German.

WL531 LATIN 1 One credit
The world language program provides students the opportunity to develop proficiency in a language in addition to English. Proficiency is the learner’s ability to understand, speak, read, and write the language. Upon the completion of the BEGINNING STAGE, students are able to read and understand simple passages and their cultural context. They can ask and answer questions, initiate and respond to simple statements and commands. Their vocabulary is adequate to understand elementary Latin passages. Their efforts at communication are comprehensible to a sympathetic audience.

WL532 LATIN 2 One credit
The world language program provides students the opportunity to develop proficiency in a language in addition to English. Proficiency is the learner’s ability to understand, speak, read, and write the language. Upon the completion of the BEGINNING STAGE, students are able to read and understand simple passages and their cultural context. They can ask and answer questions, initiate and respond to simple statements and commands. Their vocabulary is adequate to understand elementary Latin passages to a sympathetic audience.

WL533 LATIN 3 One credit
(May be taken in 3rd, 4th, or 5th year) The third level reviews and completes the study of grammar. Additional vocabulary is introduced through the readings. Latin prose reading selections, featuring the Republic and the Empire, include such authors as Cicero, Caesar, Entropies, Augustus, and Petronius. The use of technology is encouraged to implement and enhance the students’ studies. Upon completion of the DEVELOPING STAGE, students are able to recognize and understand most grammatical structures found in Latin prose. With enhanced vocabulary, students are able to read passages from the works of selected authors. Pre-requisite Latin 2

WL541 SPANISH 1 One credit
The foreign language program provides the students the opportunity to develop proficiency in a language in addition to English. Proficiency is the learner’s ability to understand, speak, read, and write the language within an authentic cultural setting. Upon the completion of the BEGINNING STAGE, students are able to effectively handle task-oriented and social situations. They can ask and answer questions, initiate and respond to simple statements, and maintain a conversation in a restricted manner. Their vocabulary is adequate to express elementary needs. Their efforts at communication are comprehensible to a sympathetic audience. As much as possible, the class is conducted in Spanish.

WL542 SPANISH 2 One credit
The four linguistic skills, culture and grammatical concepts continue to be emphasized and practiced in real-life situations. The goal is for students to communicate with increasing proficiency by discussing weather, lodging, daily routines, health and fitness, and Spanish-speaking regions. Many opportunities for oral written communication are expanded through the use and application of technology. Their efforts at communication are comprehensible to a sympathetic audience. As much as possible, the class is conducted in Spanish.

WL543 SPANISH 3 One credit
The world language program provides students the opportunity to develop proficiency in a language in addition to English. Proficiency is the learner’s ability to understand, speak, read, and write the language within an authentic cultural setting. Upon completion of the DEVELOPING STAGE, students are able to handle effectively basic task-oriented and social situations. They can ask and answer questions, initiate and respond to simple statements, and maintain a conversation in a restricted manner. Their vocabulary is adequate to express elementary needs. Their efforts at communication are comprehensible to a sympathetic audience. Spanish 3 classes are conducted almost entirely in Spanish.

WL551 JAPANESE 1 One Credit
Students begin to acquire skills in understanding and speaking the Japanese language. Basic grammar and vocabulary used in daily living, practical conversations, and discussions of Japanese culture are studied. Hiragana, the Japanese syllabify writing system, and katakana, the Japanese syllabify for foreign words, are taught. A limited number of kanji characters, are also introduced. Through the language, students study history, geography, culture, and customs of the country. These goals will be accomplished through individual and paired activities, reading authentic basic Japanese, listening and speaking activities, small and large group instruction, class discussions, individual projects, the Internet when appropriate and teacher created strategies. This is an academic elective that requires regular study, homework, memorization and practice.

WL552 JAPANESE II One Credit
Students continue to increase their Japanese language proficiency. Additional kanji are introduced. Little English is spoken during the course, and oral communication is reinforced throughout the year. Written assignments are given, and students are expected to write creatively using newly introduced grammar and vocabulary. Reading skills are enhanced through the use of different reading materials. These goals will be accomplished through individual and paired activities, listening and speaking activities, small and large group instruction, class discussions, individual projects, the Internet when appropriate and teacher created strategies. This is an academic elective that requires regular study, homework, memorization and practice. Pre-requisites: WL551 Japanese 1

WL561 NATIVE SPEAKING and Grammar 1 One credit
The course is intended for students whose dominant language is Spanish, but who lack expertise in reading and writing in their native
language. Concentration is placed on the problem areas of native speakers and will include the study of Spanish grammar and a selection of short stories by renowned Spanish and Latin American authors. Pre-requisites: Oral Proficiency and Literacy in Spanish

**COMPUTER EDUCATION**

**IT006 INTRODUCTION TO COMPUTERS 6** Nine Weeks Students learn to the basics of computer use and develop skills in touch keyboarding and the correct manipulation of the keyboard. Emphasis is placed on the development of the skill of entering alphabetic and numeric information on a keyboard and how multimedia and telecommunications tools work in conjunction with each other.

**IT101 COMPUTER APPLICATIONS** Students develop or review correct keyboarding techniques and gain a basic knowledge of word processing, spreadsheet, database, and graphics applications. Students demonstrate an understanding of computer concepts through application of knowledge. Students learn software packages and the operation of equipment such as word processors, printers, copiers, and computers.

**IT201 KEYBOARDING** This course is designed for secondary school students to develop and enhance touch skills for entering alphabetic, numeric, and symbol information on a keyboard. Students learn to produce simple technical and non-technical documents.

**IT202 KEYBOARDING APPLICATIONS** Students develop skills for entering alphabetic, numeric, and symbol information on a keyboard. Students apply keyboarding skills to produce a variety of personal and business documents.

**HEALTH AND PHYSICAL EDUCATION**

**HP701 HEALTH/SPECIAL PHYSICAL EDUCATION 6-8** This is a diversified program of developmental activities suited to needs, capabilities, and limitations of students who may not safely, successfully or with personal satisfaction engage in activities included in the regular physical education program. Through carefully designed movement experiences students should gain knowledge about skills, fitness, and the application to their lives.

**HP706 HEALTH AND PHYSICAL EDUCATION 6**

**HP707 HEALTH AND PHYSICAL EDUCATION 7**

**HP708 HEALTH AND PHYSICAL EDUCATION 8** Students will experience a developmentally designed program of skill and fitness. Emphasis is placed on students learning basic skills and acquiring competence and confidence necessary to participate in and enjoy physical activity. Students are provided with learning experiences that help them acquire current health information and practice essential skills for making healthy decisions.

**HP778 Fit for Life** Semester Course will provide students with the knowledge and skills to make good personal physical activity choices. Students will assess their present level of physical fitness, set realistic and appropriate goals, and develop and manage a plan to reach those goals. The plan developed and implemented by the student will be personal fitness plan which will include physical activity and diet and nutrition. Students will realize the benefits of developing their own unique exercise plan and be able to explain the relationship between sleep, exercise, nutrition, self esteem, academic performance, and avoidance of substance abuse to achieving and maintaining good physical fitness.

**HP780 Fit for Life** Course will provide students with the knowledge and skills to make good personal physical activity choices. Students will assess their present level of physical fitness, set realistic and appropriate goals, and develop and manage a plan to reach those goals. The plan developed and implemented by the student will be personal fitness plan which will include physical activity and diet and nutrition. Students will realize the benefits of developing their own unique exercise plan and be able to explain the relationship between sleep, exercise, nutrition, self esteem, academic performance, and avoidance of substance abuse to achieving and maintaining good physical fitness.

**HP782 PHYSICAL EDUCATION 8** Semester Students will experience a developmentally designed program of skill and fitness. Emphasis is placed on students learning basic skills and acquiring competence and confidence necessary to participate in and enjoy physical activity. Students are provided with learning experiences that will expose them to a variety of lifetime activities.

**PERFORMING ARTS**

**PA104 THEATRE ARTS 7** This course is designed as an introduction to the study of theatre history, dramatic literature and theatrical production.

**PA105 SPEECH/DRAMA 8** This is a year-long course designed to give students the opportunity to be involved in two or more stage productions and to read and study two-three act plays. Students will have intense work in pantomime, improvisation, dialogue writing, videotaping, and public speaking. Emphasis is placed on concentration and other skills which help students gain self-confidence. Opportunities to participate in a variety of classroom presentations help each student gain an awareness and appreciation of self, others, and the surrounding environment through the use of imagination, movement, and verbal skills. Pre-requisite: Drama teacher recommendation

**PA106 SPEECH DRAMA 6 EXPLORATORY** This is an elective nine-week course which offers an introduction to basic activities in drama such as pantomime, improvisation, creating a character, role playing, and script reading. It emphasizes concentration and other skills which help students gain self-confidence. Opportunities to participate in a variety of classroom presentations help each student gain an awareness and appreciation of self, others, and the surrounding environment through the use of imagination, movement, and verbal skills.

**PA107 SPEECH/DRAMA 7** This is an elective course which focuses on communication skills learned through pantomime, dialogue writing, memorization of written material, speech making, and oral reading. Improvisation and role playing emphasize concentration and other skills which help students gain self-confidence. Opportunities to participate in a variety of classroom presentations help each student gain an awareness and appreciation of self, others, and the surrounding environment through the use of imagination, movement, and verbal skills.

**PA108 SPEECH/DRAMA 8** This is a semester course designed to give students intense work in pantomime, improvisation, stage geography, character development, and vocal projections and expressiveness. Students will be involved in a stage production and will work on various public speaking activities. Emphasis is placed on concentration and other skills which helps students gain self-confidence. Opportunities to participate in a variety of classroom presentations help each student gain an awareness and appreciation of self, others, and the surrounding environment through the use of imagination, movement, and verbal skills.

**PA109 THEATRE ARTS 8** This course prepares students for the further theatrical study and the acquisition of concepts, content and skills in theatre arts.
PA301  BEGINNING BAND
Beginning Band provides the opportunity for students to learn a band instrument (brass, woodwind, percussion) and complete Level 1 as specified in the band curriculum. This class helps students appreciate the relationships among music, other arts, and society. Student must provide their own instruments and method book. Appropriate instrument selection will be accomplished during the first two weeks of school. Instruments may be rented or purchased for local music dealers. At the discretion of the band teacher, the music department may provide larger instruments such as tubas, baritone saxophones, bassoons, etc., if they are available. Performances are mandatory and are part of the overall grade in this class. Special attire may be required for performances.  Pre-requisite: Band teacher recommendation

PA302  INTERMEDIATE BAND
Intermediate Band completes Level 2 as specified in the band curriculum. This class helps students appreciate the relationships among music, other arts, and society. Students must provide their own instruments and method book. At the discretion of the band teacher, the music department may provide larger instruments such as tubas, baritone saxophones, bassoons, etc., if they are available. Performances are mandatory and are part of the overall grade in this class. Special attire may be required for performances.  Pre-requisite: Band teacher recommendation

PA303  ADVANCED BAND
This class completes Level 3 as specified in the band curriculum and helps students appreciate the relationships among music, other arts, and society. Students must provide their own instruments and method book. At the discretion of the band teacher, the music department may provide larger instruments such as tubas, baritone saxophones, bassoons, etc., if they are available. Performances are mandatory and are part of the overall grade of this class. Special attire may be required for performances.  Pre-requisite: Band teacher recommendation

PA400  CHORUS EXPLORATORY
Nine weeks
This class fosters skills which help students appreciate the relationships among music, other arts, and society. This course enables students to become knowledgeable music consumers. Performances are mandatory and are part of the overall grade in this class. Special attire may be required for performances.

PA401  BEGINNING CHORUS
Beginning chorus completes Level 1 of the vocal curriculum by teaching the mechanics of music notation and music reading. This class fosters skills which help students become better singers and appreciate the relationships among music, other arts, and society. Learning the art of singing and enjoying the enrichment in the classroom promote student achievement, positive self-esteem, a spirit of cooperation, stage presence and etiquette, and career awareness. Performances are mandatory and are a part of the overall grade in this class. Special attire may be required for performances.

PA402  INTERMEDIATE CHORUS
Intermediate Chorus completes Level 2 of the vocal curriculum by teaching music production. Solely at their discretion, vocal teachers may evaluate and select students by voice classification for designated groups. This course fosters skills which help students become better singers and appreciate the relationships among music, other arts, and society. Learning the art of singing and enjoying the enrichment in the classroom promote student achievement, positive self-esteem, a spirit of cooperation, stage presence and etiquette, and career awareness. Performances are mandatory and are a part of the overall grade in this class. Special attire may be required for performances.

PA403  ADVANCED CHORUS
Advanced Chorus completes Level 3 of the vocal curriculum. Solely at their discretion, vocal teachers may evaluate and select students by voice classification for designated groups (mixed chorus, treble chorus, select ensemble). This course fosters skills which help students become better singers and appreciate the relationships among music, other arts, and society. Learning the art of singing and enjoying the enrichment in the classroom promote student achievement, positive self-esteem, a spirit of cooperation, stage presence and etiquette, and career awareness. Performances are mandatory and are a part of the overall grade in this class. Special attire may be required for performances.  Pre-requisite: Chorus teacher recommendation

PA404  MUSIC EXPLORATORY 6
This general music course is designed to involve students in the development of music skills through singing, playing instruments, moving and listening. Students will explore the creative aspects of music and study various cultural/historical periods of music.

PA406  WORLD MUSIC EXPLORATORY
This general music course is designed as an introduction to a variety of musical styles and cultures from around the world. Students will explore the creative aspects of world music by applying music knowledge and skills.

PA517  BEGINNING MS GUITAR
This course is designed as a foundation for the beginning guitar student. Students will learn and develop techniques and skills to play in ensembles and individually.

PA551  TECH ASSIST MUSI C 6
PA552  TECH ASSIST MUSI C 7
PA553  TECH ASSIST MUSI C 8
PA554  TECH ASSIST MUSI C 7-SEM
PA555  TECH ASSIST MUSI C 8-SEM
This course is a complete general music curriculum utilizing piano keyboards. Students will become active music makers, creators and responders to music. The curriculum is a structured, systematic, and comprehensive approach to teaching music concepts.

PA601  BEGINNING ORCHESTRA
Students enrolled in beginning orchestra will learn to play an orchestral instrument (violin, viola, cello or string bass). This class is designed to teach the basic skill development of stringed instruments and music reading. Student must provide their own instrument and method books. During the first two weeks of school, appropriate instrument selection will be determined. At the discretion of the orchestra teacher, the music department may provide larger instruments, if they are available. Instruments may also be rented or purchased from local music dealers. Evaluation criteria will include student attendance at performances and classroom participation. Special attire may be required for performances.

PA602  INTERMEDIATE ORCHESTRA
The primary focus of this class is the further development and expansion of basic skills learned in sixth grade orchestra. Students will study bowing technique, music reading and notation, scales and ensemble playing. Students must provide their own instrument and methods books. At the discretion of the orchestra teacher, the music department may provide larger instruments, if they are available. Evaluation criteria will include student attendance at performances and classroom participation. Special attire may be required for performances.  Pre-requisite: Orchestra teacher recommendation

PA603  CONCERT ORCHESTRA
Concert Orchestra is an advanced performing ensemble for students playing stringed instruments. Students will continue to refine their technical skills and expand their knowledge of music expression. Students must provide their own instrument and method book. At the discretion of the orchestra teacher, the music department may provide larger instruments, if they are available. Evaluation criteria will include student attendance at performances and classroom participation. Special attire may be required for performances.  Pre-requisite: Orchestra teacher recommendation
HANDS-ON EXPERIENCES THAT RELATE TO A STUDENT'S CURRENT INTERESTS AND OBSERVATION SKILLS AS THEY PRACTICE WORKING IN A VARIETY OF MEDIA AND CULTURES. STUDENTS WILL CONTINUE TO DEVELOP VISUAL MEMORY AND A PART OF THEIR EVERYDAY LIFE AS THEY STUDY THE ARTWORK OF PAST ARTISTS AND CULTURES. HANDS-ON EXPERIENCES THAT RELATE TO A STUDENT'S CURRENT INTERESTS AND ENVIRONMENT WILL BE EMPHASIZED.

STUDENTS WILL BUILD SKILLS IN THE MEDIA OF PAINTING, DRAWING, PRINTMAKING, AND SCULPTURE WHILE FOCUSING ON THE ELEMENTS OF DESIGN AS IT APPLIES TO EACH STUDENT'S WORK STUDENTS WILL EXPLORE ART AS A PART OF THEIR EVERYDAY LIFE AS THEY STUDY THE ARTWORK OF PAST ARTISTS AND CULTURES. STUDENTS WILL CONTINUE TO DEVELOP VISUAL MEMORY AND OBSERVATION SKILLS AS THEY PRACTICE WORKING IN A VARIETY OF MEDIA. HANDS-ON EXPERIENCES THAT RELATE TO A STUDENT'S CURRENT INTERESTS AND ENVIRONMENT WILL BE EMPHASIZED.

STUDENTS WILL DEVELOP A FURTHER UNDERSTANDING OF THE ELEMENTS AND PRINCIPLES OF DESIGN AS THEY CREATE ARTWORK IN TRADITIONAL AND EXPERIMENTAL MEDIA. ANALYZING AND EVALUATING THE WORK OF ARTISTS WHO HAVE MADE A CONTRIBUTION TO SOCIETY WILL BE USED AS A MEANS TO FURTHER THE STUDENTS' PERSONAL ARTISTIC DEVELOPMENT.

STUDENTS WILL UTILIZE THE ELEMENTS AND PRINCIPLES OF DESIGN AS A MEANS OF PERSONAL EXPRESSION IN A VARIETY OF MEDIA. IN-DEPTH EXPLORATION OF BASIC MEDIA AND ART HISTORY WILL GIVE THE STUDENT MANY OPPORTUNITIES FOR FURTHER DEVELOPMENT OF SKILLS AND KNOWLEDGE. CRAFTS AND PHOTOGRAPHY WILL BE EXPLORED AS VEHICLES FOR COMMUNICATION THROUGH THE ARTS.

THIS IS A BEGINNING LEVEL COURSE IN THE USE OF THE COMPUTER AS AN ARTISTIC AND CREATIVE TOOL. STUDENTS WILL EXPLORE SOFTWARE APPLICATIONS THAT PROMOTE VISUAL AWARENESS. THE ELEMENTS AND PRINCIPLES OF DESIGN WILL BE EMPHASIZED IN THE CREATION OF DIGITAL IMAGES.

THIS COURSE IS DESIGNED TO HELP STUDENTS EXPLORE WORK AND FAMILY ROLES AS THEY RELATE TO SELF CARE. EXPLORING WORK AND FAMILY ROLES 6 ADDRESSES THE CONCERNS, NEEDS AND SOLUTIONS OF SELF-CARE AND ASSISTS THE STUDENT IN DEVELOPING THE KNOWLEDGE AND SKILLS TO_ASSUME THIS RESPONSIBILITY. UNITS OF STUDY INCLUDE SELF CARE, HOME SAFETY, COPING WITH EMERGENCIES, COMMUNICATIONS SKILLS, PERSONAL HEALTH, RELATIONSHIPS, AND LEADERSHIP.

THIS COURSE IS DESIGNED TO HELP STUDENTS EXPLORE WORK AND FAMILY ROLES AS THEY RELATE TO PRACTICAL SKILLS FOR EVERYDAY LIVING. EXPLORING WORK AND FAMILY ROLES 7 ASSISTS THE STUDENT TO IDENTIFY PERSONAL AND FAMILY RESPONSIBILITIES AND TO DEVELOP LEADERSHIP IN HOME, SCHOOL, AND COMMUNITY SETTING. UNITS OF STUDY INCLUDE PERSONAL DEVELOPMENT, FAMILY DEVELOPMENT, RESOURCE MANAGEMENT, AND CAREER EXPLORATION. STUDENTS COMPLETE AN ENVIRONMENTAL AND/OR COMMUNITY-BASED PROJECT.
managing nutrition and health, and planning career goals. Communications and practical problem-solving are emphasized throughout. This course is recommended for all program sequences in Family and Consumer Sciences. Lab fee is required.

**FC009 NUTRITION**  Semester
This course will provide students with the knowledge and skills to make healthy food choices. Students will learn about food guidelines, serving sizes, nutrients, reading food labels, analyzing food ads, weight maintenance, meal planning, eating disorders, and nutrition related illnesses. Students will prepare healthy foods and be able to explain why these foods are healthy. Personal analysis will be used to identify necessary modifications needed to improve overall health.

**FC017 INTRODUCTION TO CAREERS**  Semester
This course is designed to make students aware of the importance of work and to learn about career opportunities. Activities will include completing an interest inventory, visiting job sites, exploring career information, and conducting interviews. The students will understand the need for academic preparation to reach career goals.

**FC018 CAREER PLANNING AND DECISION MAKING**  Semester
Students will participate in a series of studies and activities that will help them define their career goals. Units of study include assessment of skills, money management, identifying essential skills for the present and future workplace, and exploring career path groups. Activities may include job shadowing, college orientation, utilization of career software, and completion of a research project. In addition, students will prepare high school/pos-secondary programs of study to support their career goals.

### ENGLISH AS A SECOND LANGUAGE

**ES100 ENGLISH/READING 1**
This course is designed to help beginning level non-English speaking students who have a very limited knowledge of the English language. Listening, speaking, reading, and writing skills are developed through the use of survival level materials. The content of the course depends on the proficiency level and needs of the individual students.

**ES101 ENGLISH/READING 2**
This course is designed for developing level students of limited English proficiency who have a basic understanding of the English language. Comprehending, speaking, reading and writing skills are developed in the context of American culture and customs. Students will write original paragraphs using simple verb tenses. The content of the course will depend on the student's ability to read and comprehend English.

**ES102 ENGLISH/READING 3**
This course is designed for developing level students who can demonstrate a working knowledge of the English language. Complex grammatical structures are included in the instruction of speaking and writing skills. Course content will depend on the individual student's proficiency level.

**ES103 ENGLISH/READING 4**
This course is designed for students functioning at the expanding level who are preparing to exit the ESL program. Classical literature is used to expose the student to a variety of writing styles. Formal oral and written presentations are the culmination of the course.

**ES130 READING IN CONTENT 1**
This course is designed to help ESL students who have a Beginning level proficiency to develop reading skills in the science content area.

**ES131 READING IN CONTENT 2**
This course is designed to help ESL student at a Developing level of proficiency to develop reading skills in the science content area. It is a continuation of the ES130 course.

**ES140 LANGUAGE AND CULTURE 1**
This course is designed to help ESL students who have a Beginning level proficiency to develop reading skills in the social studies content area.

**ES141 LANGUAGE AND CULTURE 2**
This course is designed to help ESL students at a Developing level of proficiency to develop reading skills in the social studies content area. It is a continuation of the ES140 course.

**ES155 HI INT LITERACY DEVELOPMENT VOCABULARY**
This course is designed to give beginning ESL students background knowledge through the teaching of vocabulary and basic concepts in the areas of math, science, health, history, and geography.

**ES156 HI INT LITERACY DEVELOPMENT ENGLISH**
This course parallels ESL English 1, but will give students extended practice in English language usage in everyday situations. Students will be given opportunities to engage in oral and written English in a variety of settings.

**ES157 HI INT LITERACY DEVELOPMENT READING**
This course will provide for beginning instruction in reading skills. Recognition of the alphabet, beginning word attack skills, pronunciation, and beginning writing skills are emphasized. This course is designed to prepare students for ESL Reading 1.

**ES158 HI INT LITERACY DEVELOPMENT LANG & CL**
This course parallels ESL Language and Culture 1, but will also incorporate the use of many hands-on materials to prepare students for participation in school and community life.

**ES159 HI INT LITERACY DEVELOPMENT MATHEMATICS**
This course is designed to give beginning ESL students the opportunity to master basic math skills, including addition, subtraction, multiplication, division, fractions, percentage, and graphing. This course will give ESL students the foundation needed to further math education.

### SPECIAL EDUCATION

Special education course offerings are for students with disabilities and require an Individualized Education Program (IEP). Some courses may not be available in every school. Many students with disabilities are expected to meet grade level curriculum standards and are able to do so in general education classes. Two options are available: general education classes with consultation provided to teachers or collaboratively taught classes which are instructed by both a general and a special educator. These teachers plan together to teach course content which includes specially designed instruction and accommodations to meet students' learning needs as outlined in their IEPs. General education course descriptions apply to collaborative classes. Students will participate in SOL testing. Some students with disabilities require a more restrictive setting. The following classes are designed to meet unique educational needs in special education settings and are taught at the students' instructional levels, which may be different from students' grade levels. Students participating in special education classes will be expected to participate in SOL testing unless exempt through the IEP.

### LANGUAGE ARTS

**IPOO1 MULTISENSORY STRUCTURED LANGUAGE 1**
This course is designed for students whose decoding and word recognition skills test below grade level, but who are able to comprehend grade level material when it is read aloud and discussed in general education classes. Reading fluency and work analysis will be emphasized using multi-sensory methods. Students will practice
skills learned using selected content materials. This course is designed as an elective for students with disabilities who are enrolled in the following types of language arts classes: regular general education, co-taught, or modified.

**IP002 MULTI SENSORY STRUCTURED LANGUAGE 2**
This course is designed for students whose decoding and word recognition skills are two or more years below grade level, but who are able to comprehend grade level material when it is read aloud and discussed. Word analysis will be taught using multi-sensory methods. Students will practice skills learned using selected content materials. Students enrolled in this course should have successfully completed Multi-sensory Structured Language 1. This course is designed as an elective for students with disabilities who are enrolled in the following types of language arts classes: regular general education, co-taught, or modified.

**SOCIAL SKILLS**

**IP052 SOCIAL SKILLS 7**
Students will learn a variety of social skills necessary for successful interaction in all environments. They will demonstrate an understanding of appropriate adult and peer relations, conflict resolution, and problem solving strategies.

**IP053 SOCIAL SKILLS 8**
Students will learn a variety of social skills necessary for successful interaction in all environments. They will demonstrate an understanding of appropriate adult and peer relations, conflict resolution, and problem solving strategies.

**IP054 PRE-VOCATIONAL SKILLS 6**
Students will learn a variety of social skills necessary for successful interaction in all environments. They will demonstrate an understanding of appropriate adult and peer relations, conflict resolution, and problem solving strategies.

**IP055 PRE-VOCATIONAL SKILLS 7**
Students will learn a variety of social skills necessary for successful interaction in all environments. They will demonstrate an understanding of appropriate adult and peer relations, conflict resolution, and problem solving strategies.

**IP056 PRE-VOCATIONAL SKILLS 8**
Students will learn a variety of social skills necessary for successful interaction in all environments. They will demonstrate an understanding of appropriate adult and peer relations, conflict resolution, and problem solving strategies.

**HEARING IMPAIRED**

**IP071 HEARING IMPAIRED 6**
This course is designed for students with hearing impairments to provide instructional support for general education classes in which they are enrolled. The student's IEP will determine the course content for participants.

**IP072 HEARING IMPAIRED 7**
This course is designed for students with hearing impairments to provide instructional support for general education classes in which they are enrolled. The student's IEP will determine the course content for participants.

**IP073 HEARING IMPAIRED 8**
This course is designed for students with hearing impairments to provide instructional support for general education classes in which they are enrolled. The student's IEP will determine the course content for participants.

**IP106 FOUNDATIONS OF LANGUAGE ARTS 6**
This course is designed to help students functioning two or more years below grade level learn to develop and apply language arts in real-life situations. Emphasis will be placed on building vocabulary to improve written communication skills and developing skills in word recognition, reading fluency, and comprehension.

**IP107 FOUNDATIONS OF LANGUAGE ARTS 7**
This course is designed to help students functioning two or more years below grade level learn to develop and apply language arts in real-life situations. Emphasis will be placed on building vocabulary to improve written communication skills and developing skills in word recognition, reading fluency, and comprehension.

**IP108 FOUNDATIONS OF LANGUAGE ARTS 8**
This course is designed to help students functioning two or more years below grade level learn to develop and apply language arts in real-life situations. Emphasis will be placed on building vocabulary to improve written communication skills and developing skills in word recognition, reading fluency, and comprehension.

**IP109 LANGUAGE ARTS FUNDAMENTALS**
This course is designed for students who need to refine basic skills in comprehension and writing. Course content emphasizes strategies to memorize vocabulary, analyze reading passages, frame concepts, and organize ideas into written paragraphs and themes using assignments from general education courses. This class is an elective credit for students with an IEP and does not meet credit requirements in any content area. Class repeats for credit.

**IP116 MODIFIED LANGUAGE ARTS 6**
This course is designed for students who are expected to meet grade level curriculum standards in language arts, but who are unable to participate in general education classes due to the severity of their disability. The course will follow the description for general education Language Arts 6 as closely as possible while meeting the student's identified emotional and/or learning needs according to the IEP.

**IP117 MODIFIED LANGUAGE ARTS 7**
This course is designed for students who are expected to meet grade level curriculum standards in language arts, but who are unable to participate in general education classes due to the severity of their disability. The course will follow the description for general education Language Arts 7 as closely as possible while meeting the student's identified emotional and/or learning needs according to the IEP.

**IP118 MODIFIED LANGUAGE ARTS 8**
This course is designed for students who are expected to meet grade level curriculum standards in language arts, but who are unable to participate in general education classes due to the severity of their disability. The course will follow the description for general education Language Arts 8 as closely as possible while meeting the student's identified emotional and/or learning needs according to the IEP.

**IP146 STUDY SKILLS 6**
This course is designed to provide instruction in specific learning strategies to assist students in the following areas: understanding content materials, taking tests effectively, organizing time and materials, accessing and utilizing resource materials for oral and written projects, and developing self-advocacy skills. Students will apply the strategies learned to general/alternative classes.

**IP147 STUDY SKILLS 7**
This course is designed to provide instruction in specific learning strategies to assist students in the following areas: understanding content materials, taking tests effectively, organizing time and materials, accessing and utilizing resource materials for oral and written projects, and developing self-advocacy skills. Students will apply the strategies learned to general/alternative classes.
IP148 STUDY SKILLS 8
This course is designed to provide instruction in specific learning strategies to assist students in the following areas: understanding content materials, taking tests effectively, organizing time and materials, accessing and utilizing resource materials for oral and written projects, and developing self-advocacy skills. Students will apply the strategies learned to general/alternative classes.

IP200 LEISURE/REC
This course is designed to provide instruction in how to participate in age-appropriate activities that facilitate friendship building and enhance socialization, communication, and language skills.

IP206 FOUNDATIONS OF SOCIAL STUDIES 6
Students will learn skills necessary for adult life in the community through intensive, direct, and practical instruction. Content areas may include academic, self-management, leisure/recreation, and vocational skills.

IP207 FOUNDATIONS OF SOCIAL STUDIES 7
Students will learn skills necessary for adult life in the community through intensive, direct, and practical instruction. Content areas may include academic, self-management, leisure/recreation, and vocational skills.

IP208 FOUNDATIONS OF SOCIAL STUDIES 8
Students will learn skills necessary for adult life in the community through intensive, direct, and practical instruction. Content areas may include academic, self-management, leisure/recreation, and vocational skills.

IP216 MODIFIED SOCIAL STUDIES 6
This course is designed for students who are expected to meet grade level curriculum standards in social studies, but who are unable to participate in general education classes due to the severity of their disability. The course will follow the description for general education Social Studies 6 as closely as possible while meeting the student's identified emotional and/or learning needs according to the IEP.

IP217 MODIFIED SOCIAL STUDIES 7
This course is designed for students who are expected to meet grade level curriculum standards in social studies, but who are unable to participate in general education classes due to the severity of their disability. The course will follow the description for general education Social Studies 7 as closely as possible while meeting the student's identified emotional and/or learning needs according to the IEP.

IP218 MODIFIED SOCIAL STUDIES 8
This course is designed for students who are expected to meet grade level curriculum standards in social studies, but who are unable to participate in general education classes due to the severity of their disability. The course will follow the description for general education Social Studies 8 as closely as possible while meeting the student's identified emotional and/or learning needs according to the IEP.

IP306 FOUNDATIONS OF MATH 6
This course is designed for students who function two or more years below grade level. Basic computation skills will be reinforced in the context of real-life settings. Course content will include instruction and practice on basic math operations, including whole numbers, fractions, decimals, percents, and measurements.

IP307 FOUNDATIONS OF MATH 7
This course is designed for students who function two or more years below grade level. Basic computation skills will be reinforced in the context of real-life settings. Course content will include instruction and practice on basic math operations, including whole numbers, fractions, decimals, percents, and measurements.

IP308 FOUNDATIONS OF MATH 8
This course is designed for students who function two or more years below grade level. Basic computation skills will be reinforced in the context of real-life settings. Course content will include instruction and practice on basic math operations, including whole numbers, fractions, decimals, percents, and measurements.

IP316 MODIFIED MATH 6
This course is designed for students who are expected to meet grade level curriculum standards in mathematics, but who are unable to participate in general education classes due to the severity of their disability. The course will follow the description for general education Mathematics 6 as closely as possible while meeting the student's identified emotional and/or learning needs according to the IEP.

IP317 MODIFIED MATH 7
This course is designed for students who are expected to meet grade level curriculum standards in mathematics, but who are unable to participate in general education classes due to the severity of their disability. The course will follow the description for general education Mathematics 7 as closely as possible while meeting the student's identified emotional and/or learning needs according to the IEP.

IP318 MODIFIED MATH 8
This course is designed for students who are expected to meet grade level curriculum standards in mathematics, but who are unable to participate in general education classes due to the severity of their disability. The course will follow the description for general education Mathematics 8 as closely as possible while meeting the student's identified emotional and/or learning needs according to the IEP.

IP406 FOUNDATIONS OF SCIENCE 6
This course is designed to teach students basic concepts of health, ecology, biology, and geography that can be applied to everyday life. It is appropriate for students functioning two or more years below grade level in all academic areas. It is also designed to meet the student's identified emotional and/or learning needs according to the IEP.

IP407 FOUNDATIONS OF SCIENCE 7
This course is designed to teach students basic concepts of health, ecology, biology, and geography that can be applied to everyday living. It is appropriate for students functioning two or more years below grade level in all academic areas. It is also designed to meet the student's identified emotional and/or learning needs according to the IEP.

IP408 FOUNDATIONS OF SCIENCE 8
This course is designed to teach students basic concepts of health, ecology, biology, and geography that can be applied to everyday living. It is appropriate for students functioning two or more years below grade level in all academic areas. It is also designed to meet the student's identified emotional and/or learning needs according to the IEP.

IP706 SPECIAL PE HEALTH 6
IP707 SPECIAL PE HEALTH 7
IP708 SPECIAL PE HEALTH 8
This course is a diversified program of developmental activities addressing the needs, capabilities, and limitations of students who may not safely, successfully, or with personal satisfaction engage in activities included in a regular physical education program. Through carefully designed movement experiences students should gain knowledge about skills, fitness, and the applications to their lives. This course includes health education for half of the year and special physical education for half of the year.
GRADE POINT AVERAGE

Only letter grades are reported on a student’s official transcript. Semester grades are averaged together to determine a student’s grade point average (GPA), using points assigned to letter grades and levels.

The high school record is very important, because it is what colleges and employers examine when students make application for college admission or for employment. Grade point is a part of this and is considered closely. Students should try to do their best from the very beginning, because all high school grades in credited courses count toward their grade point average.

Just as students are required to earn a certain number of credits to meet graduation and diploma requirements, they must accumulate a certain number of credits in each grade to be promoted to the next grade level. The credit requirements for grade classification in high school are as follows:

- Promotion from 9th grade - 5 credits
- Promotion from 10th grade - 11 credits
- Promotion from 11th grade - Must satisfy the requirements to be a candidate for June graduation

PREPARING FOR COLLEGE

Students may choose courses in their high school program of study that prepare them for college admission and/or employment immediately after graduation. As they decide on a program of study, students will want to plan in accord with their abilities, interests, past performance, and plans for the future. Students should work closely with their counselor and parents as they plan their program and make course selections.

Requirements for the Advanced Studies Diploma include those courses necessary to meet the entrance requirements of most four-year colleges. For the most selective colleges and college majors, additional courses may be required. Students should examine the catalogs of colleges in which they are interested and carefully check the specific requirements of each one. The requirements of community colleges and many two-year and four-year colleges will be met with the Standard Diploma.

Colleges prefer that students take challenging courses and pursue a full academic program all four years of high school. Students should take as much math and science as they can. Most four-year colleges require at least Algebra 1, Geometry, and Algebra 2, and at least two years of science above the ninth grade level. Many colleges list a foreign language requirement of two years and strongly recommend three or more years. Colleges that do not list a foreign language requirement often indicate that at least two years is highly desirable.

Students must make wise choices as they plan a high school program, and study and work hard in the courses selected. Colleges look at the courses selected to see how challenging they are. They also look to see how well a student performed in those courses. Students should work with their counselor and parents to plan a program that is tailored to their individual abilities, interests, and goals.
OR CHOOSING A CAREER

Qualifications to start employment in a career vary depending on the profession. Preference for employment is usually given to those students who have completed a preparatory program at the Chesterfield Technical Center or at the various high schools. Starting in a career immediately after high school does not necessarily forego the college experience. Because of the increasing technological complexity of many skilled professions, employers will want their employees to continue with their education to the college level. If the employee has displayed good work skills, the employer may help finance the worker's continued education.

Students may consult The Career Path Guide to plan a course of study, which will prepare him or her for work in a fast growing occupation. Visit the CCPS website at chesterfield.k12.va.us to view these guides under student choice, then career and technical education.

GRADUATION REQUIREMENTS

Students must fulfill the following requirements in order to receive a diploma and graduate from a Chesterfield County public high school:

✔ Earn the required units of course
✔ Verified credits based on SOL tests as required per subject area

The standard unit of credit is based on a minimum of 140 clock hours of instruction. When a student successfully completes a yearlong course, he or she receives one unit of credit; a semester course yields one-half credit. Students may follow a regular program of studies to meet the Standard Diploma requirements, or an advanced program which meets the requirements for an Advanced Studies Diploma.

Required units and verified credits needed for different diploma options are described on the following pages.
Students may earn a Standard Diploma by meeting the minimum course requirement of 22 credits and successful completion of the verified credit testing requirements. Students earning a Standard Diploma and achieving a cumulative average of "A" or better (at the end of the first semester of their senior year) will receive a Board of Education Seal on their diplomas. The advanced mathematics and technology seal and the career and technology education seal are also available.

*Courses completed to satisfy mathematics requirements shall be at or above the level of Algebra and shall include at least two course selections from among the following: Algebra 1, Geometry, Algebra 2, or other mathematics courses above the level of Algebra or Geometry.

**Courses completed to satisfy science requirements shall include course selections from at least two different science disciplines from among the following: Earth Science, Biology, Chemistry or Physics. ***Fine Arts courses are offered in grades 9 through 12 in art, music, theatre and creative writing. Practical Arts courses are offered in grades 9-12 through the Career and Technical Education department course offerings. In addition, speech, journalism and all computer programming courses are considered practical arts.

****At least two elective classes must be sequential.

The Virginia Board of Education has identified substitute SOL tests in Language Arts, Math, Science, and History/ Social Science. Students may choose to substitute alternate test scores such as International Baccalaureate, Advanced Placement, SAT II or Test of English for Literacy to meet graduation testing requirements. In addition, the Board has identified industry certifications and state licenses in the career and technical education field which may be used to meet the student-selected verified credit. NOTE: When students below the ninth grade complete ninth, tenth, eleventh or twelfth grade subjects, this information will appear on their transcripts, will be included in their grade point average and will count toward meeting the course and testing requirements for graduation in grades 9-12 unless they chose to waive any credits at the completion of any high school course in middle school.
Students may earn an Advanced Studies Diploma by meeting the minimum course requirement of 24 credits and successful completion of the verified credit testing requirements. Students completing the Advanced Studies Program and achieving a cumulative average of “B” or better (at the end of the first semester of their senior year) and successfully completing at least one advanced placement (AP) or college level course will receive a Governor’s Seal on their diplomas. The advanced mathematics and technology seal and the career and technology education seal are also available.

*Courses completed to satisfy mathematics requirements shall be at or above the level of Algebra and shall include at least three different course selections from among the following: Algebra 1, Geometry, Algebra 2, or other mathematics courses above the level of Algebra 2.

**Courses completed to satisfy science requirements shall include course selections from at least three different science disciplines from among the following: Earth Science, Biology, Chemistry or Physics.

***Fine Arts courses are offered in grades 9 through 12 in art, music, theatre and creative writing. Practical Arts courses are offered in grades 9-12 through the Career and Technical Education department course offerings. In addition, speech, journalism and all computer programming courses are considered practical arts.

The Virginia Board of Education has identified substitute SOL tests in Language Arts, Math, Science, and History and Social Science. Students may choose to substitute alternate test scores such as International Baccalaureate, Advanced Placement, SAT II or Test of English for Literacy to meet graduation testing requirements. In addition, the Board has identified industry certifications and state licenses in the career and technical education field which may be used to meet the student-selected verified credit. NOTE: When students below the ninth grade complete ninth, tenth, eleventh or twelfth grade subjects, this information will appear on their transcripts, will be included in their grade point average and will count toward meeting the course and testing requirements for graduation in grades 9-12 unless they choose to waive any credits at the completion of any high school course in middle school.

Students who complete the IB (International Baccalaureate) Diploma requirements will also receive an IB Diploma (as well as an Advanced Studies Diploma). The IB Diploma is recognized within the United States and internationally as meeting the requirements of a strong college preparatory program of study. Only students within the schools with approved programs may receive this diploma.
MODIFIED STANDARD DIPLOMA
REQUIREMENTS FOR
GRADUATING CLASS OF 2007 and Beyond

In the 2000 revision of the Standards of Accreditation the Board of Education authorized two other diploma options for students with special needs. These are the Modified Standard and the Special Diploma. The Modified Standard Diploma program is intended for certain students at the secondary level who have a disability and are unlikely to meet the credit requirements for a Standard Diploma. Eligibility and participation in the Modified Standard Diploma program are determined by the student’s Individual Education Program (IEP) team and the student, where appropriate, at any point after the student’s eighth grade year.

<table>
<thead>
<tr>
<th>MODIFIED STANDARD DIPLOMA</th>
<th>CREDITS</th>
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<tbody>
<tr>
<td>English</td>
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<td>Mathematics</td>
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<tr>
<td>Science</td>
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</tr>
<tr>
<td>History/Social Science</td>
<td>2</td>
</tr>
<tr>
<td>Health and Physical Education</td>
<td>2</td>
</tr>
<tr>
<td>Fine and Practical Arts</td>
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<tr>
<td>Electives</td>
<td>6</td>
</tr>
<tr>
<td>TOTAL</td>
<td>20</td>
</tr>
</tbody>
</table>

The Board of Education has approved certain courses to satisfy the requirements of the Modified Standard Diploma. Courses completed to satisfy the mathematics requirement must include content from among applications of algebra, geometry, personal finance, and statistics in courses that have been approved by the board. Courses to satisfy the science requirement must include content from at least two of the following: applications of earth science, biology, chemistry, or physics in courses approved by the board. In history and social science, students must earn one unit of credit in Virginia and U. S. History and one unit of credit in Virginia and U. S. Government in courses approved by the board. For more specific information, refer to Regulations Establishing Standards for Accrediting Public Schools in Virginia (*VAC 20-131-50.D).

While verified credits are not required for this diploma, students must pass the 8th grade English (Reading, Literature and Research) and 8th grade mathematics tests to earn this diploma. If the student takes a course that has a SOL end-of-course test as part of the student’s program of studies, the student must take the test.

SPECIAL DIPLOMA

Students with disabilities who complete the requirements of their Individualized Education Program (IEP) and do not meet the requirements for a Standard, Advanced Studies, or Modified Standard Diploma will be awarded Special Diplomas. (Regulations Establishing Standards for Accrediting Public Schools in Virginia ([8 VAC 20-131-50.E]).
THE CORE PROGRAMS OF THE COMPREHENSIVE HIGH SCHOOLS PROVIDE THE STRONG BASIC SKILLS ESSENTIAL IN TODAY'S CULTURE: COMMUNICATION, COMPUTATION, SCIENTIFIC DISCOVERY, AND HISTORICAL AND GEOGRAPHIC UNDERSTANDING. HOWEVER, THE INCREASING NEEDS OF OUR RAPIDLY CHANGING AND COMPLEX SOCIETY CHALLENGE EDUCATIONAL INSTITUTIONS TO BROADEN PROGRAMS AND RELATED EXPERIENCES. WE ARE COMMITTED TO MEETING THE CHALLENGE BY EXPANDING PROGRAMS AND MAKING UNIQUE OPPORTUNITIES AVAILABLE TO STUDENTS. STUDENTS ENTERING GRADE NINE ARE OFFERED THE OPPORTUNITY TO PARTICIPATE IN "SPECIALTY CENTERS," OPTIONAL ACADEMIC PROGRAMS THAT EMPHASIZE ACADEMIC RIGOR AND HIGHER LEVEL THINKING.

**Center for the Arts**

The Center for the Arts located at Thomas Dale High School offers an academically sound program combined with an artistically challenging curriculum. A strong alliance with artists and arts organizations in the Richmond metropolitan area offers distinctive advantages for students to study with professional artists, actors, musicians, dancers, singers, directors and media personalities. The newly renovated facility offers a state-of-the-art auditorium, studio theater, a fully equipped dance studio, music computer lab and art gallery. Each student has an opportunity to expand his/her own intellectual and creative potential in a unique and exciting atmosphere. Students may explore and concentrate in the areas of theater, dance, instrumental music, vocal music or visual arts. The Center for the Arts courses are identified by the prefix AR.

**Appomattox Regional Governor’s School for the Arts and Technology**

The Appomattox Regional Governor’s School provides a specialized comprehensive program for artistically gifted students in the areas of creative dance, music, technical arts, theatre, and visual arts. The program provides a challenging learning environment that promotes artistic and academic excellence. The school, located in the renovated historic Petersburg High School, serves students from thirteen school divisions in the tri-cities area.

**Dual Enrollment**

Dual Enrollment is a program that allows eligible juniors and seniors to earn college credit while still in high school. This program is available through the Progression Through Partnership Compact, an agreement between John Tyler Community College and Chesterfield County Public School. Dual enrollment courses are offered by the college and school division and the student receives credit from both. Course descriptions are listed throughout the Guide and are preceded by the prefix JT or VC.

**Governor’s School for Government and International Studies**

The Maggie L. Walker Governor’s School located in the renovated historic Maggie L. Walker High School in the City of Richmond, serves students from twelve school divisions in the Richmond metropolitan area. The program affords educational opportunities that develop gifted students understanding of world cultures and languages as well as the ability to lead, participate, and contribute in a rapidly changing global society.

**Center for Humanities**

The Center for Humanities at Monacan High School uses the disciplines of literature, languages, history and social science, philosophy, mathematics, science and fine arts as a lens through which human endeavors are viewed. The Center provides learning opportunities that will develop the students, powers of critical and creative thinking, enabling them to understand and evaluate the legacies of world civilizations. Humanities course descriptions are identified by the prefix HM.
The International Baccalaureate Diploma Programs (IB) offered at Midlothian and Meadowbrook High Schools are a challenging and rigorous dual-diploma program based on internationally recognized standards and requirements. In addition to the Virginia Advanced Studies Diploma, successful students are awarded the prestigious International Baccalaureate Diploma which is recognized as a standard of excellence and accepted by colleges and universities throughout the world. International Baccalaureate course descriptions are identified by the prefix PB and IB.

**Center for Leadership and International Relations**
The Center for Leadership and International Relations at James River High School seeks students from a broad range of ability levels and interests who want to learn about the qualities of leaders. While enhancing their own leadership styles, students develop problem solving, critical thinking, and decision-making skills that they will carry with them into their roles as future leaders of society. The Center for Leadership and International Relations courses are identified by the prefix LS.

**Center for Learning and Teaching Through Technology**
The Center for Learning and Teaching Through Technology will be located in the new Matoaca High School facility and is divided into two strands, Learning Through Technology and Teaching Through Technology. The integration of technology into the fabric of instruction and learning is the cornerstone of the center. All students will engage in the extensive use of technologies within every classroom setting in every discipline. This school wide emphasis on appropriate technology use involves increased attention to creating activities and lessons that foster critical thinking, problem solving, communication, and research. The Center for Leadership and International Relations courses are identified by the prefix TL.

**Center for Mass Communications**
State of the art technology and excellent communication skills are the foundations of the news programming, interviewing, and advertisements on networks like CNN, NBC, MTV, and FOX. The Center for Mass Communications at Manchester High School will offer the skills and experiences it takes to be a part of this exciting field. Students will develop expertise in visual, written, and oral communication skills in the areas of television, radio, multimedia, print journalism, advertising, and graphic design. Utilizing the in-house television studio, editing suites, and computer labs, students will produce television shows, magazines and newspapers, and multimedia presentations. Mass Communications course descriptions are identified by the prefix MC.

**Mathematics and Science High School**
The Mathematics and Science High School at Clover Hill focuses on interdisciplinary experiences in English, history and social science, mathematics, and science that are planned and implemented by teams of teachers. The Center features an integrated curriculum in mathematics in which the major topics in traditional high school math courses are taught in three years via a thematic approach. Mathematics and Science High School course descriptions are identified by the prefix MS.

**Center for Pre-Engineering Studies**
The Center for Pre-Engineering Studies located at Lloyd C. Bird High School offers students academic and practical choices to explore the various disciplines within the field of engineering. The goal of the Center is to enhance students, awareness of the field of engineering and help them narrow their focus of study as they enter college and university programs. The program focuses on blending various core components of each area, highlighting specialized units of engineering, and providing a broad understanding of this educational and career path. Pre-Engineering course descriptions are identified by the prefix PE.
**Center for Spanish Immersion**

The Center for Spanish Immersion (El Centro de Inmersián Española) at Manchester High School provides motivated students the opportunity to participate in an intensive program of study where selected core courses are taught in Spanish. They may additionally qualify for Advanced Placement credit at the university level and receive special acknowledgment on their transcripts and diploma. Spanish Immersion course descriptions are identified by the prefix SP.

**Center for Health Science**

The Health Science Specialty Center seeks students from a broad range of ability levels wanting to prepare for careers in the healthcare industry. An AFT Healthcare Survey reports, “The [healthcare] system faces a widespread crisis in terms of hiring an adequate number of professionals to meet needs of patients.” Beginning in their first year, students will explore career choices within the healthcare system. Students will also experience some of the practical applications of healthcare, such as becoming CPR certified and learning about the legal aspects of the industry. As students progress through the program, they will be offered opportunities for internships and mentorships with local healthcare providers, such as hospitals, retirement communities, and even local doctor’s offices. Students will be guided as they select a career pathway to pursue while at the Health Sciences Center. Upper-level classes will be geared toward one of the following career pathways.

**Career and Technical Education**

The Chesterfield Technical Center (CTC) offers three-credit elective courses that are not available in the county’s high schools. Students in grades 9-11 may apply for admission. Applicants are selected based on grades, attendance, an acceptable behavior record, successful completion of prerequisite courses, teachers’ comments verifying the student’s ability to work independently in unstructured settings, a counselor’s evaluation, and standardized test scores. Classes meet on an alternate-day schedule that is compatible with the high schools’ timetable. Students enrolled in a CTC course may schedule as many as four other day courses at their home school. Bus transportation is provided from each high school. A lab fee is required for each course. The cost of personal tools, equipment, and uniforms varies by course.
CCPS
SPECIALTY CENTER COURSE DESCRIPTIONS
The Visual and Performing Arts Specialty Center attracts students who are highly interested and talented in music, theatre, dance or visual arts. Students explore and expand their creative potential in an exciting and unique arts community within a fully comprehensive high school, which offers many advantages such as a wide range of academic and arts classes, clubs, sports and service organizations. The program is designed to provide a well-rounded education with excellent core academic classes suited to each student's needs (including honors, AP, dual enrollment) coupled with a challenging honors arts curriculum in order to prepare students for excellent collegiate and professional opportunities.

- offers intensive instruction in the student’s chosen area of theatre, music, visual arts or dance
- offers accelerated courses in the arts as well as core academic areas (including AP and JTCC)
- high level performance opportunities for students (see website www.SpecialtyCenterArts.com)
- provides many residencies, master classes and internships for students with professional artists and arts organizations of regional and international importance
- professional sprung floor dance studio, state of the art auditorium, black box theatre, soundproof practice rooms, art and music technology labs, art gallery
# Visual Arts

**Sample Four Year Program for Advanced Studies Diploma**

### Ninth
- **Visual Arts Foundations** *(H)*

### Tenth
- 2-Dimensional Exploration *(sem)*
- 3-Dimensional Exploration *(sem)*
- Drawing/Painting *(H)*
- JTCC Dual Enrollment College Credit

### Eleventh
- Option to take Photo or Graphics (earn health/PE outside of school-optional) space available basis
- Art History/World Cultures *(H)*

### Twelfth
- Visual Arts Choice *(H)* (Graphic Design, Photography, Film, Sculpture, Painting, Digital Animation, etc.)
- Or 6th Upper Level Core Class

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### All Other Requirements For Advanced Diploma

Core classes are taken at the level appropriate for you. An "all honors" schedule is possible.

<table>
<thead>
<tr>
<th>Course</th>
<th>Ninth</th>
<th>Tenth</th>
<th>Eleventh</th>
<th>Twelfth</th>
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</thead>
<tbody>
<tr>
<td>English 9</td>
<td>World History 1</td>
<td>English 10</td>
<td>English 11</td>
<td>English 12</td>
</tr>
<tr>
<td>Math</td>
<td>Math</td>
<td>World History 2</td>
<td>US/VA History</td>
<td>US/VA Government</td>
</tr>
<tr>
<td>Science</td>
<td>Science</td>
<td>Math</td>
<td>Math</td>
<td>Math (or elective)</td>
</tr>
<tr>
<td>World Language</td>
<td>World Language Health/PE 9</td>
<td>World Language</td>
<td>Science</td>
<td>Science (or elective)</td>
</tr>
<tr>
<td>Health/PE 9</td>
<td>Health/PE 10</td>
<td></td>
<td>World Language</td>
<td>World Language (or elective)</td>
</tr>
</tbody>
</table>

* must be taken in sequence  
Course offerings may be modified by the Center
## Sample Four Year Program for Advanced Studies Diploma

### Specialty Center Required Credits

<table>
<thead>
<tr>
<th>Ninth</th>
<th>Tenth</th>
<th>Eleventh</th>
<th>Twelfth</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Dance Major 1 (H)</strong>&lt;br&gt;(Health/PE 9 awarded for this class)</td>
<td><strong>Dance Major 2 (H)</strong>&lt;br&gt;(Health/PE 10 awarded for this class)</td>
<td><strong>Advanced Dance &amp; Choreography Concepts</strong>&lt;br&gt;(<em>H</em>)</td>
<td><strong>Dance Repertory Ensemble <em>(H)</em></strong></td>
</tr>
<tr>
<td><strong>Dance Repertory Ensemble (H)</strong></td>
<td><strong>Dance Repertory Ensemble (H)</strong></td>
<td><strong>Dance Repertory Ensemble (H)</strong></td>
<td><strong>Arts/Dance Class Choice Or 6th Upper Level Core Class</strong></td>
</tr>
</tbody>
</table>

### All Other Requirements For Advanced Diploma

Core classes taken at level appropriate for you. An “all honors” schedule is possible.

<table>
<thead>
<tr>
<th>Ninth</th>
<th>Tenth</th>
<th>Eleventh</th>
<th>Twelfth</th>
</tr>
</thead>
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<tr>
<td>English 9</td>
<td>English 10</td>
<td>English 11</td>
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</tr>
<tr>
<td>World History 1</td>
<td>World History 2</td>
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<td>US/VA Government</td>
</tr>
<tr>
<td>Math</td>
<td>Math</td>
<td>Math</td>
<td>Math (or elective)</td>
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<tr>
<td>Science</td>
<td>Science</td>
<td>Science</td>
<td>Science (or elective)</td>
</tr>
<tr>
<td>World Language</td>
<td>World Language</td>
<td>World Language</td>
<td>World Language (or elective)</td>
</tr>
<tr>
<td>Health/PE 9 (Automatically credited)</td>
<td>Health/PE 10 (Automatically credited)</td>
<td>Health/PE 10 (or elective)</td>
<td>Health/PE 10 (or elective)</td>
</tr>
</tbody>
</table>

* must be taken in sequence  # may not be offered each year—may take out of sequence

Course offerings may be modified by the Center
### MUSIC
Sample Four Year Program for Advanced Studies Diploma

#### Center for the Arts at Thomas Dale
Sample Four Year Program for Advanced Studies Diploma

<table>
<thead>
<tr>
<th></th>
<th>Ninth</th>
<th>Tenth</th>
<th>Eleventh</th>
<th>Twelfth</th>
</tr>
</thead>
<tbody>
<tr>
<td>Specialty Center Required Credits</td>
<td>Musician’s Studio 1 *(H) (Individual Musical Development, Chamber Ensemble Performance, Learning about Music In-Depth)</td>
<td>Musician’s Studio 2*(H)</td>
<td>AP Music Theory *(H)</td>
<td>Choose 2nd Performing Ensemble, Jazz Studies, Composition, Conducting, College Audition Prep. Teaching intern OR any Arts Class Or 6th Upper Level core Class</td>
</tr>
<tr>
<td></td>
<td>Performing Ensemble</td>
<td>Performing Ensemble</td>
<td>Performing Ensemble</td>
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### All Other Requirements For Advanced Diploma
Core Classes taken at level appropriate for you. An “all honors” schedule is possible.

<table>
<thead>
<tr>
<th></th>
<th>English 9</th>
<th>World History 1</th>
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<tr>
<td></td>
<td>World Language</td>
<td>Health/PE 9</td>
<td>(Coordinated Studies or Summer School)</td>
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<tr>
<td></td>
<td>Health/PE 10</td>
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<table>
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<td>World Language</td>
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<td>(Coordinated Studies or Summer School)</td>
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*must be taken in sequence  
Course offerings may be modified by the Center
# THEATRE ARTS
## Sample Four Year Program for Advanced Studies Diploma

**THEATRE ARTS**  
Center for the Arts at Thomas Dale  
Sample Four Year Program for Advanced Studies Diploma

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| Actors Studio 1* (H)  
(Health/PE 9 awarded for this class) | Actors Studio 2*(H)  
(Health/PE 10 awarded for this class) | Actors Studio 3*(H) | Actors Studio 4* |
| Arts Class Choice# | Theatre Production (H)# | Voice & Diction/Theatre History & Lit#  
(semesters) (H)  
OR  
Show Choir  
OR  
Musical Theatre Workshop#(H) | Arts Class Choice  
OR  
Outreach Performance Ensemble #  
OR  
6th Upper Level Core Class |

## All Other Requirements For Advanced Diploma

Core classes are taken at level appropriate for you. An “all honors” schedule is possible.

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| World Language | World Language | World Language  
(or elective) | |
| Health/PE 9  
(Automatically credited) | Health/PE 10  
(Automatically credited) | | |

*must be taken in sequence  #may not be offered each year-may take out of sequence  
Course offerings may be modified by the Center
AR011 THEATRE HISTORY & DRAMATIC LITERATURE
One-half Credit
This course traces theatre from its origins to the present, including music, dance, cultural and historical influences in a global context. Students will study the relationship between history and playwriting and how this has shaped theatre performance, design elements, theatre spaces and genres of theatre. **Pre-requisite: Limited to Center for the Arts Students and others by teacher recommendation.**

AR101 THEATRE PRODUCTION 1
One Credit
This course is an introduction to the basics of technical production and state management, safety, set, video, costume, lighting, and sound design. Plays, readings and related writings are utilized in this area of study. **Pre-requisite: Limited to Center for the Arts Students only.**

AR102 THEATRE PRODUCTION 2
One Credit
This course is a continuation of subjects explored in Theatre Production 1 with an emphasis on Stage Craft and Costume History, theory and practicum, house management, box-office, specialized lighting, and sound effects. Multi-media, such as video, film and CAD programs will be utilized and highlighted at this level. **Pre-requisite: Limited to Center for the Arts Students only and AR101.**

AR103 THEATRE PRODUCTION 3
One Credit
This course is a culmination of Theatre Production 1 and 2 with an emphasis on set, lighting, and costume design. Scenic painting, including faux finishing for the stage as well as specialized props will also be explored. Students of this course will design or assist in the design of main-stage, black box, concerts or other productions. **Pre-requisite: AR 102/ Limited to Center for the Arts Students only.**

AR104 Theatre Production 4
One Credit
The content is designed for the students who want to pursue further study in theatre. The course will include specific projects that meet the requirements for the particular student. This course differs from other theatre production courses in that the study and projects will be specific to theatre design and production management skills. A significant honors project is required. **Pre-requisites: Speciality Center and regular theatre students selected by interview with the theatre teacher.**

AR121 ENGLISH 9
One Credit
English 9 advances the study of written and spoken communication skills. Literature study emphasizes genre and the understanding of literary terms and vocabulary. Students will connect and integrate the visual and performing arts into their assignments and projects whenever possible.

AR122 ENGLISH 10
One Credit
English 10 stresses refinement of skills with emphasis on effective written and oral communications. Literature emphasizes character motivation and human relations through the study of American literature. Students will connect and integrate the visual and performing arts into their assignments and projects whenever possible.

AR123 ENGLISH 11
One Credit
This course is based upon a survey of British literature. Composition skills are further developed, emphasizing correctness, practicality, style, and fluency. A research paper is required. Students will connect and integrate the visual and performing arts into their assignments and projects whenever possible.

AR124 ENGLISH 12
One Credit
This course is based upon a survey of world literature and includes comparative studies of universal themes in literature and the history of language. Language study includes effective communication in all forms of expression and practical skills for the working or the academic world. A research paper is required. Students will connect and integrate the visual and performing arts into their assignments and projects whenever possible.

AR131 ACTOR'S STUDIO/MOVEMENT FOR ACTORS 1
One Credit
This is a theory and performance course which provides an overview of the actor's creative process. Fundamental acting techniques are presented in conjunction with exercises and text work designed to enhance concentration, vocal resonance, and projection, as well as self-confidence and communication skills. Practical application of acting concepts and techniques through reading, oral/written presentation, lecture and exploration are incorporated. Pantomime, voice and diction, scene study, improvisation, creativity, and the study of characterization are studied. Students learn to use the body to shape character and/or presence and will study the emotional/physical connection. Physical theatre, dance theatre and concept performance, including visualization and movement improvisation, will be employed. **Pre-requisite: Limited to Center for the Arts Students. Meets the requirements for Health/ PE 9.**

AR132 ACTOR'S STUDIO/MOVEMENT FOR ACTORS 2
One Credit
In this course, the emphasis of study shifts from the development of basic skills to that of skills necessary to the character actor. Concentration is on period plays from ancient Greece to the twentieth century; the emphasis is on characterization, acting styles, presentational and representational theatre. Further development of acting techniques is accomplished through scene and monologue study. The Stanislavski acting technique is introduced. Through exercise and discussion, a range of techniques and strategies essential to a number of diverse performance forms will be explored. The objective is to use the body to shape character and/or presence. Physical theatre, dance theatre and conceptual performance, including visualization and movement improvisation, will be employed. **Pre-requisite: AR131 Actor's Studio I - Meets the requirements for Health/ PE 10 - Limited to Center for the Arts Students.**

AR133 ACTOR'S STUDIO/MOVEMENT FOR ACTORS 3
One Credit
This course implements an interdisciplinary framework that integrates Theatre Arts with English and History and Social Science. Students will become aware of theatre as it relates to historical and cultural development. The application of additional acting methods such as Miesner and Strasburg techniques are introduced. This course also includes an introduction to directing and playwriting. **Pre-requisite: AR122 Actors Studio 2.**

AR134 ACTOR'S STUDIO/MOVEMENT FOR ACTORS 4
One Credit
This studio course prepares the student for professional development, including acting for the camera, audition techniques, one-man performance, multi-media, the "business" of acting, including finding an agent, commercial work, playwriting and directing. Acting technique development continues with an emphasis on an individual way of working that makes the actor self-sufficient. Students develop audition material and resumes and practice audition and rehearsal techniques." **Pre-requisite: AR123 Studio 3.**
AR136 VOICE FOR THE ACTOR  One-half Credit
This course will cover the health and productivity of the vocal apparatus and the techniques required for breathing diaphragmatically. The student will gain an understanding of speaking with clarity and volume that is necessary to effectively deliver a message through text. The study of various dialects also will be included. Limited to Center for the Arts Students

AR171 MUSICAL THEATRE WORKSHOP  One Credit
This course allows students to explore the skills needed to excel in musical theatre. The student will study musical theatre acting styles and the evolution of those styles from Vaudeville to the modern musical. The course will offer vocal coaching including expression of emotion through sung dialogue and singing styles. The student will explore different styles of dance found in musical theatre (tap, jazz, ballet, modern, hip hop). The student will also learn about musical composers and lyricists. Specialty Center teacher approval

AR181 OUTREACH PERFORMANCE  One Credit
This seminar course of auditioned students will perform traveling theatre in area high schools, middle schools, elementary schools and/or civic and social organizations. Subject matter will vary from year to year and will emphasize and/or reinforce core values, social values, children's theatre and/or thematic units.

AR191 THEATRE I INDEPENDENT STUDY  One Credit
This course provides an opportunity for a student to pursue a limited study (acting, production, directing, and theatre management) under supervision. This is a college preparatory course for students who are applying to college theatre programs. Student must show maturity and the ability to set goals. Self assess and work independently. Theatre staff must approve.

AR201 DANCE MAJOR 1  One Credit
This course is designed to introduce and apply the technique and fundamental skills involved in dance. Students will learn applicable skills in order to enhance and develop their bodies as instruments of movement. Dance Major 1 provides students with the opportunity to increase their dance vocabulary, technique, and proper alignment. Meets Health/PE 9 requirements. Limited to Specialty Center Students

AR202 DANCE MAJOR 2  One Credit
This course is designed to build upon concepts and skills taught in Dance Major 1. Students will refine and increase their range of physical skills through the study of dance technique, kinesiology, anatomy, nutrition and conditioning. Students will participate in improvisational and composition studies to expand their knowledge of dance. Students will study historical and cultural aspects of dance to develop their awareness of dance as a true art form. Dance Major 1 - Meets the requirements for Health/PE 10 - Limited to Center for the Arts Students

AR203 DANCE REPERTORY ENSEMBLE  One Credit
This course focuses on building a repertory for community presentation and touring. Subject matter/dance styles will vary from year to year. Students will be active participants in the choreography process.

AR204 DANCE ANATOMY/ KINESIOLOGY  One-half Credit
Students will study human anatomy including the study of major muscle groups and how they affect movement. The study of kinesiology will introduce the Laban notation system and will emphasize the importance of correct accomplishment. Students will learn how to follow safety techniques, use equipment safely, and demonstrate dance theatre etiquette both on and off the stage while working individually and in groups. Students will also be introduced to "dance somatics" (mind-body connection) and nutrition. Required for specialty center dance students; non-specialty center students will enroll with specialty center dance teacher recommendation if space is available.

AR206 DANCE HISTORY  One-half Credit
This semester course provides a study of dance history/origins in America and other cultures. Dance forms that will be studied include ballet, social dance, modern, jazz, film and theatrical. Correlations of musical, theatrical, historical, and literature elements will be explored. Required for specialty center dance students; non-specialty center students may enroll with specialty center dance teacher recommendation if space is available.

AR209 WORLD HISTORY <  One Credit
This program will build on the basic historical, geographic, political, and economic concepts presented in the K-8 program. The diversity of culture and the evolution of human history will be explored chronologically from the beginning of time until the Renaissance in Europe. Geographical concepts will be included within the context of world historical events. Students will connect and integrate the visual and performing arts into their assignments and projects whenever possible.

AR210 WORLD HISTORY >  One Credit
Students in World History/Geography 1500 A.D. to the Present will build on the basic historic, geographical, political, and economic concepts presented to them in the first year of the program. The diversity of culture and the evolution of human history will be explored chronologically and geographically from the Renaissance to the present. Students will connect and integrate the visual and performing arts into their assignments and projects whenever possible.

AR221 MODERN DANCE  One Credit
This course is designed to complement classical ballet and broaden dancers physical and performance skills. Students will be expected to learn and demonstrate various modern styles in dance combination and performance. Modern dance is excellent for cross training and serves to develop great versatility.

AR225 BALLET 1  One Credit
This course will focus on the classical and contemporary styles with emphasis on the fundamental structure of basic technique and presentation. Students will be exposed to the fundamentals of ballet technique, practice including bare and center floor work. Students will be exposed to an array of approaches to ballet and its importance to our society and culture.

AR234 ADVANCED DANCE AND CHOREOGRAPHY CONCEPTS  One Credit
This course continues Dance Major 1 and 2 in improving consistency and reliability in dance technique. Additionally, dance students will study and practice choreography, incorporating improvisation, rhythm elements, spatial design, dynamics, and quality of movement. Students will research dance career options and will produce projects related to dance choreography. Consideration of technical aspects of dance (lighting, costumes, set design) will be expanded. Limited to Specialty Center students.

AR291 DANCE I INDEPENDENT STUDY  One Credit
Honors Independent Study in Dance Performance offers independent study for highly motivated students to perform beyond the scope of the dance curriculum. This is a college preparatory course students who are applying to dance college programs. Senior Specialty Center Dance students who show maturity and the ability to set goals, self-assess and work independently may enroll with approval by the dance staff committee.

AR301 MUSICIAN'S STUDY-O-COMPREHENSIVE MUSI CIANSHI P 1  One Credit
Students will further develop their ability to read music, will learn aural perception skills (including sight singing and dictation), and gain knowledge of music terminology, analysis, theory and composition. Students will work with music computer lab and with artists/teachers on their specialized instrument/voice to develop maximum interpretive and technical proficiency. Limited to Center for the Arts Students
AR302 MUSCIAN'S STUDIO 2 One Credit
This course continues Musician's Studio 1. Students will continue to improve their individual performances and theory skills and further develop chamber music playing and singing skills. In addition, students will explore careers in music (e.g.: music, education, trips. Limited to Specialty Center students. Non-specialty center students may enroll with music teacher recommendation if space is available.

AR501 VISUAL ARTS FOUNDATIONS One Credit
The fundamentals that govern art and its impact on humanity will be explored in this foundations course. Students will develop the ability to understand and manipulate the structures and functions of art. Basic design rules and media exploration will give students tools for making and evaluating visual decisions. An introduction to the history and philosophy of art and culture will broaden students' understanding of the importance of art throughout time.

Limited to Center for the Arts Students

AR505 ART HISTORY/ WORLD CULTURES One Credit
The primary focus of the class is to expose students to the past & present cosmology of various cultures throughout the world. Readings, lectures and videos will be reinforced and enriched through art/craft projects. Students' awareness of other art forms, influences, and traditions will be expanded giving them a greater source of inspiration and understanding for their future work. The history and culture of world societies, both past and present, will be taught through art, which is the most visible record of the global community past & present.

AR507 TWO-DIMENSIONAL EXPLORATION One-half Credit
Two-dimensional media will be explored in depth in this semester class. The development of perceptual and graphic skills in seeing and accurately depicting form, direction, and proportion, movement, and volume from direct observation will be emphasized. Students will broaden their visual arts and descriptive vocabularies as they pertain to fine arts aesthetics, methods, techniques, principles, and history. Both traditional and contemporary theory and practice will be explored. Requirement for specialty center students; non-specialty center students may enroll with art teacher recommendation if space is available.

AR509 THREE-DIMENSIONAL EXPLORATION One-half Credit
Practical, technical, and historical foundations in the making of three-dimensional media will be explored in depth in this semester class. Students will have the opportunity to select a media for personal exploration in addition to those selected for experimentation. Students will broaden their visual arts and descriptive vocabularies as they pertain to fine arts, aesthetics, methods, techniques, principles, and history. Both traditional and contemporary theory and practice will be explored. Requirement for specialty center students; non-specialty center students may enroll with art teacher recommendation, if space is available.

AR510 AURAL AND PIANO SKILLS Honors One half Credit
This is a one semester Pre-AP course taken in conjunction with Aural and Piano Skills. The course pace is compressed from CCPS yearlong music theory course. Students study the fundamentals of “common practice” to include major and minor scales, diatonic harmonization, voice leading, melody, rhythmic structures, and musical form. Students will learn to recognize various aspects of style and composition through written analysis of written and aural examples. Students learn how to apply creative choices based on compositional tools and objectives. Students will relate music theory to real-life music literature and performance. Highly recommended to intended college music majors. Pre-requisites: instructor evaluation or music teacher recommendation.

AR712 Music Theory Honors One half Credit
This course is a one semester Pre-AP course taken in conjunction with Aural and Piano Skills. The course pace is compressed from CCPS yearlong music theory course. Students study the fundamentals of “common practice” to include major and minor scales, diatonic harmonization, voice leading, melody, rhythmic structures, and musical form. Students will learn to recognize various aspects of style and composition through written analysis of written and aural examples. Students learn how to apply creative choices based on compositional tools and objectives. Students will relate music theory to real-life music literature and performance. Highly recommended to intended college music majors. Pre-requisites: instructor evaluation or music teacher recommendation.

AR713 AP MUSIC THEORY One Credit
The AP Music Theory course at Thomas Dale High School is the culmination of a three year process beginning with Musician's Studio I and II. Students in those classes have received instruction on the rudiments of music theory in order to prepare them for this class. Students not enrolled in the Specialty Center may become eligible for AP Music Theory by passing a prerequisite diagnostic test. The goal of AP Music Theory is to develop a student's ability to recognize, understand, and describe the fundamental materials and processes of musical composition. This is accomplished by an integrated approach to the students' development of aural skills, sight-singing, written skills, compositional skills, and analytical skills. College credit available.

AR951 VISUAL ARTS INDEPENDENT STUDY SEMESTER One-half Credit
This course is taken in conjunction with an advanced level course, such as Art 4/5, Crafts/3-D Design 3, or Photography 3, and with prior permission of the instructor. The objective is to allow advanced level students the opportunity to explore technique and develop proficiency in a selected medium. Seniors only.

AR952 VISUAL ARTS INDEPENDENT STUDY One Credit
This course is taken in conjunction with an advanced level course, such as Art 4/5, Crafts/3-D Design 3, or Photography 3, and with prior permission of the instructor. The objective is to allow advanced level students the opportunity to explore technique and develop proficiency in a selected medium. Seniors only.

AR960 PRINTMAKING 1-2 One half credit
Printmaking introduces the student to the full range of printmaking techniques. Includes woodcut, silkscreen, etching and lithography. Provides historical perspective on printmaking. Aligns with VCCS courses, ART 271-272 Dual Enrollment credit.

AR961 THEORY AND PRACTICE OF CERAMICS One half credit
This course teaches basic hand processes of pottery as applicable to tableware, decorative, functional and non-functional form. Includes throwing, coiling, slab building and press molding. Generates a fundamental understanding of the craft through physical manipulation of materials, consideration of design techniques and historical example. Provides opportunity to work on original design from the clay to firing or glazing. Aligns with VCCS courses ART 151-152 for Dual Enrollment credit.
AR962  JTCC Drawing  
One Credit  
Drawing develops drawing skills and understanding of visual language through studio instruction/lecture. Focuses on proportion, space, perspective, tone and composition. VCCS Dual Enrollment credit.

JT963  JTCC COLLEGE PAINTING  
One half Credit  
The course will provide lecture and studio instruction on the fundamentals, practices and related concepts of painting. Includes representational painting in acrylic or oil mediums with emphasis on value, color, composition and technique. Highly recommended for intended college art majors.
The Center for Humanities at Monacan High School uses the discipline of literature, languages, history and social science, philosophy, mathematics, science, and fine art as a lens through which human endeavors are viewed. The Center provides learning opportunities that will develop the student’s powers of critical and creative thinking enabling them to understand and evaluate the legacies of world civilizations.

- An enriched four-year course of advanced studies utilizing an inquiry approach emphasizing dialogue among students, faculty, community service, and scientific investigations.
- An active learning environment that incorporates texts, discussions, technology, and hands-on learning including fine arts, community service, and scientific investigations
- A theme-based learning opportunity where students will come to understand the development of civilization and learn to apply the lessons of the past to the issues of the future
- A newly constructed facility with a state-of-the-art multimedia center, access to the Internet in all classrooms, and a 200 seat forum
- Access to the electives and student activity programs available to all students of a comprehensive high school

### HUMANITIES—PROPOSED COURSE SEQUENCE*

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<td>Perspectives on the Human Experience 3</td>
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<td>World History/Geography 1500 AD to the Present</td>
<td>AP United States History</td>
<td>AP Contemporary World Affairs/United States and Virginia Government</td>
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### HUMANITIES COURSES

- Perspectives on the Human Experience 1
  - English 9
  - World History/Geography to 1500 AD
- Perspectives on the Human Experience 2
  - English 10
  - World History/Geography 1500 AD to the Present
- Perspectives on the Human Experience 3
  - English 11
- Perspectives of the Human Experience 4
  - AP English Literature
  - AP Contemporary World Affairs/United States and Virginia Government

* All students are expected to meet the minimum foreign language requirements for the advanced diploma (three years of one language or two years of two languages). However, we further require that students choose one of two foreign language options: One, study one language intensively through the Advanced Placement level, OR, two, choose to study two languages, one of which must be a classical language (Greek or Latin). It will be to the student’s advantage to have completed the introductory level of language during middle school.

**Math courses will be determined by student placement. Completion of Algebra 1 is a recommendation for admission to the program.
COURSE DESCRIPTIONS

HM040 INTRODUCTION TO THE HUMANITIES HONORS
This course serves as an introduction to humanistic studies for students not enrolled in the Center for the Humanities at Monacan High School. The course covers areas of human endeavors and achievement in literature, languages, history, social studies, philosophy, math, sciences, and fine arts with cross-curricular integration and connections to modern concerns. The class will focus on the skills needed for critical thinking, critical reading, discussion techniques, and research techniques.

HM061 PERSPECTIVES ON THE HUMAN EXPERIENCE 1 - HONORS
This course is an introduction to humanistic studies for students in the Center for the Humanities at Monacan High School. The course integrates areas of human endeavors and achievement in literature, languages, history, social studies, philosophy, math, sciences, and fine arts from the prehistoric period through the Middle Ages. Connections will be made to modern concerns. The class will focus on the skills needed for critical thinking and reading, discussion techniques, and research techniques.

HM062 PERSPECTIVES ON THE HUMAN EXPERIENCE 2 - HONORS
This course is an introduction to humanistic studies for students in the Center for the Humanities at Monacan High School. The course integrates areas of human endeavors and achievement in literature, languages, history, social studies, philosophy, math, sciences, and fine arts from the Renaissance to the Present. Connections will be made to modern concerns. The class will focus on the skills needed for critical thinking and reading, discussion techniques, and research techniques.

HM063 PERSPECTIVE ON THE HUMAN EXPERIENCE 3 - HONORS
This course is the third in the sequence of required courses for students in the Humanities program. It serves as an introduction to the American humanistic studies for students in the Center for the Humanities at Monacan High School. The course integrates areas of human endeavors and achievement in American history, social studies, philosophy, math, sciences, and fine arts from the settlement of early America through the twentieth century. Connections will be made to modern concerns. The class will focus on the skills needed for critical thinking and reading discussion techniques, and research methods.

HM064 PERSPECTIVES ON THE HUMAN EXPERIENCE 4 - HONORS
This course is the fourth in the sequence of required courses for students in the Humanities program. The course integrates areas of human endeavors and achievement in American and world literature, history, social studies, philosophy, math, sciences, and fine arts during the late nineteenth and twentieth centuries. Focus is placed on the life and artistic expression of contemporary society with all of its diversity and variety. The class will focus on the skills needed for critical thinking and reading, discussion techniques, and research techniques.

Pre-requisites: HM061, HM062, HM063

HM109 ENGLISH 9 HONORS
English 9 Honors is a study of nonfiction, mythology, and an introduction to classical literature. Students study a variety of authors in various genre such as the short story, the novel, drama, and poetry in world literature. Students analyze literary texts, determine relationships between form and content, and go beyond an emotional reaction to an intellectual response. Students read critically, asking pertinent questions about what they have read, recognizing assumptions and implications, and evaluating ideas. This course also concentrates on expository writing, literary analysis, and oral communication skills. Students draw conclusions, appraise, and speculate independently about the elements of literature.

HM110 ENGLISH 10 HONORS
This course is a study in the reading and critical analysis of literature. The program of studies, based on a survey of world literature, is both reading and writing intensive. The curriculum focuses on language as a symbolic process and on literature as preserved experience. Works will be placed within their historical context.

HM111 ENGLISH 11 HONORS
Literary sections of English 11 Honors come from the American experience. A variety of genre and styles will be investigated. Students will explore various writing techniques and styles. The techniques will be used in their own expository, persuasive, and creative writings. Critiquing literary works is a major focus at this level. The fundamental elements of research will be applied directly to written and oral communications. Knowledge will be evident through oral presentations, written reports, analyses, and small/large group discussions.

HM112 AP ENGLISH 12
The AP Literature and Composition course develops students' interpretive skills as they read and write with increasing complexity and sophistication. This course is a year long, college-level course for selected seniors. It will engage students in the careful reading and critical analysis of imaginative literature. Through close reading of selected texts, students shall expand their understanding of the ways writers use language to provide meaning. As they read, students shall consider a work's structure, style, and themes as well as smaller-scale elements such as the use of figurative language, imagery, symbolism, and tone. As they write and discuss, students shall express with focus and clarity their understanding of literature. In addition Humanities AP Literature and Composition integrates with Humanities AP Government and Perspectives on the Human Experience IV.

HM113 AP ENGLISH LITERATURE
This is a college-level course with emphasis placed on critical thinking and writing in relation to literary analysis. World literature is the basis for study with a concentration on modern and contemporary literature. Humanities AP English will be integrated with Humanities Government and Perspectives 4.

HM209 WORLD HISTORY/ GEOGRAPHY TO 1500 A.D.
This program will build on the basic historical, geographic, political, and economic concepts presented to them in the K-8 program. The diversity of culture and the evolution of human history will be explored chronologically and geographically from the beginning of time until the rise of nation states in Europe. Geographical concepts will be incorporated within the context of world historical events. Students will examine the development of the world's major political, economic, and legal systems; artistic and literary movements; technological changes; trade patterns; religions; and the influential people of history. Special emphasis will be given to the five themes of geography as they relate to regional conflicts, humanity's relationships with the environment, and the foundation of democratic principles, such as citizenship. Hands-on activities and the use of available technology will be an integral part of this course. Students will critique analytical essays and begin to learn the research writing process. This course is a foundation for complex critical thinking and problem solving in subsequent social studies courses. This course integrates with HM109 English 9 and HM061 Perspectives on the Human Experience 1.
HM210 WORLD HISTORY/ GEOGRAPHY 1500 A.D. TO THE PRESENT HONORS One Credit
Students in World History/Geography 1500 A.D. to the Present will build on the basic historical, geographic, political, and economic concepts presented to them in the first year of the program. The diversity of culture and the evolution of human history will be explored chronologically and geographically from the late Middle Ages to the present. Geographical concepts will be incorporated within the context of world historical events. Students will examine the development of the world’s major political, economic, and legal systems; artistic and literary movements; technological changes; trade patterns; religions; and the influential people of history. Special emphasis will be given to the five themes of geography as they relate to regional conflicts, humanitarian relationships with the environment, and the foundation of democratic principles, such as citizenship. Hands-on activities and the use of available technology will be an integral part of this course. Students will critique analytical essays and continue to learn the research writing process. This course stresses complex critical thinking and problem solving. This course will be integrated with HM110 English 10 and HM110 Perspectives on the Human Experience II to complete the foundation for the complex critical thinking and problem solving skills required in subsequent humanities courses.

HM213 AP UNITED STATES GOVERNMENT One Credit
This course will give students an analytical perspective on government and politics in the United States. This course involves both the study of general concepts used to interpret United States politics and the analysis of specific case studies and statistical data. It also requires familiarity with the various institutions, groups, beliefs, and ideas that constitute United States political reality. Beyond the curriculum designed by the College board, this course will incorporate the Virginia’s Standards of Learning including political philosophy, economics, and state and local systems of government. Students will be eligible to take the Advanced Placement exam and may earn as much as three college credit hours. In addition, this course will integrate the HM113 English 12 and HM064 Perspectives On the Human Experience IV course. The content of such courses emphasizes contemporary issues.

HM214 AP UNITED STATES HISTORY One Credit
AP United States History is designed to prepare students for the Advanced Placement test in what is a freshman level college history course. A chronological approach is used to cover United States history from the first European exploration of the Americas to the present. The influences and contributions of individuals and groups are examined in the development of the United States and its changing role in world affairs. Students are exposed to political, social, economic, diplomatic, intellectual and cultural history. A major component of this course is the reading and interpretation of various historical documents. In addition, this course will integrate with the HM111 English 11 and the HM063 Perspectives III courses.

HM241 PSYCHOLOGY HONORS One Credit
This course is designed as an introduction to the science of psychology. Students will gain a better understanding of the objectives of psychology, the methods of scientific research in psychology, and will become familiar with the major philosophies, concepts, and research findings on a wide range of psychological topics. Throughout this course, students will discuss and learn about many pertinent issues to the field of psychology. Such topics will include, but are not limited to, research techniques, the brain and behavior, motivation, intelligence, learning, consciousness, cognition, memory, personality, psychopathology, development, treatment, and social cognition.

HM330 GEOMETRY HONORS One credit
The Humanities Geometry course is a unified study of plane, solid and coordinate geometry. The course includes the study of lines, planes, congruencies, geometric inequalities, perpendicularity of lines and planes in space, parallel lines and planes, polygons, polyhedral, area, volume, similarity, coordinate and transformational geometry, circles, and spheres. Every effort is made to incorporate advanced technology into the curriculum through the use of calculators and computers. The intent of this course is to frame a curriculum that ensures the development of broad mathematical power and which cultivates students’ abilities to explore, conjecture, reason logically, formulate and solve problems, and communicate mathematically.

Pre-requisites: Algebra 1

HM340 ALGEBRA 2 HONORS One Credit
Algebra 2/Honors extends the concepts that have been encountered in previous coursework and provides a thorough treatment of advanced algebraic concepts. Emphasis will be placed on practical applications, logic of procedures and interpretation of results. Students routinely use calculators as a tool when dealing with solutions to problem situations. Students will be expected to communicate and practice mathematical ideas appropriately.

Pre-requisites: HM320 Algebra 1

HM430 BIOLOGY 1 One Credit
Humanities honors biology is a laboratory-based course which encompasses research design concepts introduced in the middle school. Core content will include interrelationships in ecosystems, taxonomy, cellular chemistry, genetics, microbiology, and physiology. These areas are developed within a framework of the principal biological theories with an emphasis on critical thinking and science process skills. Class team research projects will be developed using descriptive statistics techniques. In addition, Humanities students will explore the impacts of biology on society through an assortment of means. These will include research, various types of writing, Socratic Seminars, mock hearings, and examination of wildlife through direct observation as well as through art.

HM440 CHEMISTRY HONORS One Credit
This inquiry-based laboratory course is a comprehensive survey of inorganic and physical chemistry. The course will emphasize problem solving and provide a thorough foundation for the college-bound student, emphasizing a quantitative approach. In addition to learning the concepts of chemistry, students will spend the majority of their time on applying their knowledge to new situations and analyzing and evaluating chemistry data. Students in this course will continue to learn and practice the skills of experimental design. Research projects will be completed by small teams of students involving the use of inferential statistics as part of data analysis.

HM450 PHYSICS 1 HONORS One Credit
This is a college preparatory course with emphasis on physical science concepts. Concepts involved include mechanics, thermodynamics, waves, electromagnetism, modern physics, and scientific investigation. Student experiences center around active inquiry and experimentation.

Pre-requisites: Co-requisite HM340-Algebra 2

HM452 ASTRONOMY One Credit
This course is designed to develop student proficiency in astronomy including: observation of the night sky (constellations, moon phases, etc.) useful parts of the electromagnetic spectrum, spectroscopy, nuclear reactions, star life cycles, and origin/evolution/death of the Universe (cosmology). Cultural and historical developments in astronomy are emphasized and integrated with art and literature.

HM576 ANCIENT GREEK 1 One Credit
This course complements the study of Ancient Greece in the Center for the Humanities and would satisfy the classical language requirement for graduates of the Center. The course would also allow non-Humanities students to pursue in-depth their interest in Greek language and history.
HM577  ANCIENT GREEK 2  One Credit
This course complements the study of Ancient Greece in the Center for the Humanities and would satisfy the classical language requirement for graduates of the Center. The course would also allow non-Humanities students to pursue in-depth their interest in Greek language and history.  **Pre-requisite: HM 576**

HM961  INTRODUCTION TO MUSIC APPRECIATION  One-half Credit
This course introduces students to the art of listening perceptively through recordings and live performances. Students will study the various styles of performance and composition throughout the stages of musical history.

Monacan High School
11501 Smoketree Drive
Richmond, VA  23236
(804) 378-2480

David Sovine, Principal
Clare Tilton, Specialty Center Coordinator
The International Baccalaureate Diploma Programs (IB) offered at Midlothian and Meadowbrook High Schools are a challenging and rigorous dual-diploma program based on internationally recognized standards and requirements. In addition to the Virginia Advanced Studies Diploma, successful students are awarded the prestigious International Baccalaureate Diploma which is recognized as a standard of excellence and accepted by colleges and universities throughout the world. International Baccalaureate

- IB offers a broad-based academic program centered on the “Theory of Knowledge” course which provides interdisciplinary connections. The IB Program requires excellence in English, world language, history and social science, science, math and an IB elective
- A combination of required courses in two levels of intensity - a level of courses similar to the rigors and challenges of the traditional Advanced Placement courses in addition to a level of courses in specific disciplines providing a more intense and in-depth study than AP
- Examinations developed and assessed through IB by which students may be awarded as much as a year’s college credit
- Learning extended beyond the IB classroom integrating the student’s school life with his or her life in the community
- Strengthened research and writing skills through an extended essay program which promotes academic independence

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**Most courses in Pre-IB and all IB courses carry honors credit.**

**Group 2 world languages requirements-4-5 years (French, German, Latin, or Spanish)**
Language Arts

**PB109  Pre-IB English 9**  
One Credit  
Pre-IB English 9 is a study of nonfiction, mythology, and an introduction to classical literature. Students study Homer, Shakespeare, Dickens, Buc, Twain, and a variety of other authors in various genre such as the short story, the novel, drama, and poetry. Students analyze literary texts, determine relationships between form and content, and go beyond an emotional reaction to an intellectual response. Students read critically, asking pertinent questions about what they have read, recognizing assumptions and implications, and evaluating ideas. This course also concentrates on expository writing, literary analysis, and oral communication skills. Students draw conclusions, appraise, and speculate independently about the elements of literature.

**PB110P  IB English 10**  
One Credit  
Literary selections include works by Thoreau, Hawthorne, Melville, Twain, Faulkner, Fitzgerald, and others. Students will explore various writing techniques and styles. Writing about literature is a major focus at this level. Also, fundamental elements of research will be applied directly to written and oral communications. Knowledge will be evident through oral presentations, written reports, analyses, small/large group discussions, tests, and quizzes.

**IB106  Theory of Knowledge 1**  
One Credit  
Theory of Knowledge is a required interdisciplinary course intended to stimulate critical reflection upon knowledge and experience gained inside and outside the classroom. This course challenges students to question the basis of knowledge, to be aware of subjective and ideological biases, and to develop a personal mode of thought utilizing analysis of evidence expressed in rational argument. Theory of Knowledge is the key element in the International Baccalaureate organization's educational philosophy. It seeks to develop a coherent approach to learning which transcends and unifies the academic subjects and encourages appreciation of other cultural perspectives. This is year one of the two-year course.

**IB107  Theory of Knowledge 2**  
One Credit  
Theory of Knowledge is a required interdisciplinary course intended to stimulate critical reflection upon knowledge and experience gained inside and outside the classroom. This course challenges students to question the basis of knowledge, to be aware of subjective and ideological biases, and to develop a personal mode of thought utilizing analysis of evidence expressed in rational argument. Theory of Knowledge is the key element in the International Baccalaureate organization's educational philosophy. It seeks to develop a coherent approach to learning which transcends and unifies the academic subjects and encourages appreciation of other cultural perspectives. This is year two of the two-year course.

**IB111  English 11**  
One Credit  
English is the Group 1: Language A1 required by IB. This course is the first year of a two-year course offered at the HIGHER LEVEL (HL). It is designed to develop power of expression, both in oral and written communication, by emphasizing the skills involved in writing and speaking one’s native language in a variety of styles and situations. Students read at least 15 texts at HL grouped by themes and genres. These texts are chosen from a broad list of prescribed authors and works representing different literary genres and styles in the target language, as well as literature from other languages and cultures read in translation. Oral and written examinations are used to assess students’ individual language skills, their ability to critically analyze and comment upon familiar and unfamiliar texts, and their ability to express a personal and independent response to literature.  
**Pre-requisites:** PB 110 English 10 Honors

**IB112  IB English 12**  
One Credit  
English is the Group 1: Language A1 required by IB. This course is the second year of a two-year course offered at the HIGHER LEVEL (HL). It is designed to develop power of expression, both in oral and written communication, by emphasizing the skills involved in writing and speaking one’s native language in a variety of styles and situations. Students read at least 15 texts at HL grouped by themes and genres. These texts are chosen from a broad list of prescribed authors and works representing different literary genres and styles in the target language, as well as literature from other languages and cultures read in translation. Oral and written examinations are used to assess students’ individual language skills, their ability to critically analyze and comment upon familiar and unfamiliar texts, and their ability to express a personal and independent response to literature.  
**Pre-requisites:** IB111 English 11 Honors

Mathematics

**PB330  Pre IB Geometry**  
One Credit  
This course is a unified study of plane, solid, and coordinate geometry. The curriculum includes the study of lines, planes, congruencies, geometric inequalities, perpendicularity of lines and planes in space, parallel lines and planes, polygons, polyhedral, area, volumes, similarity, coordinate and transformational geometry, circles, and spheres. Formal and informal deductive reasoning skills are developed and applied to the construction of formal proof. Every effort is made to incorporate advanced technology into the curriculum through the use of calculators and computers. The intent of this course is to frame a curriculum that ensures the development of broad mathematical power and which cultivates students ability to explore, conjecture, reason logically, formulate and solve problems, and communicate mathematically.
The design of this course provides students with a more rigorous treatment of Algebra 2 concepts including a more detailed study of polynomial functions, rational expressions, domain, and range. A rapid pacing allows for the inclusion of major topics in the study of triangle and circular trigonometry as well as conic sections. Frequent opportunities are provided for students to make connections between topics studied and other disciplines. Students routinely use calculators to aid in the problem-solving process.

IB387 HL COMPUTER SCIENCE  One Credit
“This Higher Level curriculum continues the study of programming on a deeper and more sophisticated level. Meadowbrook High School only”

Computer Science

IB386 SL COMPUTER SCIENCE  One Credit
The course is designed to prepare the student for the Standard Level computer science examination. Students will acquire continued analytical problem solving skills in the design of algorithms using the Java programming language. A structured programming methodology will be used to write, test, and debug programming solutions. The student will study the structure and design of computer architecture, data representation, and logic. Students will use computer software applications and examine the use of computers and computer applications on society. The design of the course will provide the student with the foundation to continue studies to the higher level IB computer science curriculum.

Science

IB304 MATHEMATICS 2  One Credit
This program is designed to provide the second year of a two year adventure in a realistic math course for students planning to pursue further studies in technical fields. The curriculum includes the study of the real number system, algebra, geometry and trigonometry, vectors and matrices, probability and statistics, conics, and parametric and polar systems. The skills needed to cope with the mathematical demands of a technical major in college are developed and emphasis is placed on the application of mathematics to real-life situations.

IB300 MATHEMATICS SL 2  One Credit
The main emphasis of this program is to develop an understanding of experimentation, the analysis of data, and the use of reasoning and logic to evaluate evidence. The use of mathematics, including algebra and trigonometry, is important, but conceptual understanding of physical systems remains a primary concern. Students develop basic physical science principles by exploring the nature of characteristics of energy and its dynamic interaction with matter. An appreciation of the cultural aspects of science will be facilitated through viewing the historical development of physics. Emphasis will be placed on the interdisciplinary nature of science.

IB301 SL BIOLOGY 1  One Credit
Honors biology is a laboratory-based course which encompasses research design concepts introduced in the middle school. Core content will include interrelationships in ecosystems, taxonomy, cellular chemistry, genetics, microbiology, and physiology. These areas are developed within a framework of the principal biological theories with an emphasis on critical thinking and science process skills. Research projects will be developed using descriptive statistics techniques.

IB420 EARTH SCIENCE  One Credit
Earth/space science is a laboratory course with major areas of study in astronomy, geology, meteorology, physical geography, energy, and the environment. This course, which encompasses research design concepts introduced in the middle school, uses a class team approach for developing projects using descriptive statistics.
IB432  HL BIOLOGY 1  One Credit
The IB Biology - Higher Level (HL) sequence is a two-year sequence that will prepare students for the HL Biology examination. The course is a rigorous, comprehensive study of biology in which laboratory analysis, mathematical application, and problem-solving skills are emphasized. In addition, students will be required to write about concepts developed and explored both in and outside of the classroom. A Group 4 project will be required and students will keep a portfolio of lab work.

IB433  HL BIOLOGY 2  One Credit
The IB Biology - Higher Level (HL) sequence is a two-year sequence that will prepare students for the HL Biology examination. The course is a rigorous, comprehensive study of biology in which laboratory analysis, mathematical application, and problem-solving skills are emphasized. In addition, students will be required to write about concepts developed and explored both in and outside of the classroom. A Group 4 project will be required and students will keep a portfolio of lab work.

IB440  HL CHEMISTRY 1  One Credit
The IB Chemistry - Higher Level (HL) is a two-year sequence that will prepare students for the HL Chemistry examination. The course is a rigorous, comprehensive study of chemistry in which laboratory analysis, math application, and problem-solving skills are emphasized. In addition, students are required to write about the concepts developed and explored both in and outside of the classroom.

IB442  HL CHEMISTRY 2  One Credit
The IB Chemistry - HL is a two-year sequence that will prepare students for the Higher Level (HL) Chemistry examination. The course is a rigorous, comprehensive study of chemistry in which laboratory analysis, math application, and problem-solving skills are emphasized. In addition, students are required to write about the concepts developed and explored both in and outside of the classroom.

**History and Social Science**

PB209  WORLD HISTORY TO 1500 AD  One Credit
This course will build on the basic historical, geographic, political, and economic concepts presented to students in the K-8 program. The diversity of culture and the evolution of human history will be explored chronologically and geographically from the beginning of time until the rise of nation states in Europe. Geographical concepts will be incorporated within the context of world historical events. Students will examine the development of the world’s major political, economic, and legal systems; artistic and literary movements; technological changes; trade patterns; religions; and the influential people of history. Special emphasis will be given to the five themes of geography as they relate to regional conflicts, human relationships with the environment, and the foundation of democratic principles, such as citizenship. Hands-on activities and the use of available technology will be an integral part of this course. Students will critique analytical essays and begin to learn the research writing process. This course is a foundation for complex critical thinking and problem solving in subsequent social studies courses. **Pre-requisite: Membership in the Pre-IB Program**

PB210  WORLD HISTORY 1500 A.D. TO THE PRESENT  One Credit
Students in World History/Geography 1500AD to the Present will build on the basic historical, geographical, political, and economic concepts presented to them in the first year of the program. The diversity of culture and the evolution of human history will be explored chronologically and geographically from the late Middle Ages to the present. Geographical concepts will be incorporated within the context of world historical events. Students will examine the development of the world’s major political, economic, and legal systems; artistic and literary movements; technological changes; trade patterns; religions; and the influential people of history. Special emphasis will be given to the five themes of geography as they relate to regional conflicts, human relationships with the environment, and the foundation of democratic principles, such as citizenship. Hands-on activities and the use of available technology will be an integral part of this course. Students will critique analytical essays and begin to learn the research writing process. This course is a foundation for complex critical thinking and problem solving in subsequent social studies courses. **Pre-requisite: Membership in the Pre-IB Program**

**IB211 HISTORY OF THE AMERICAS**  One Credit
Having previously studied the world from antiquity to the present, students will focus on the unique evolution of States, Canada, and Latin America and the conflicts which created them. This class allows students to appreciate their own cultural heritage, not in isolation, but in comparison to the histories of many other nations with an emphasis on those in North and South America. This course will emphasize the growing interdependence of the Americas as the United States developed from a new republic to a world power. **Pre-requisites: Membership in the IB Program**

IB212 UNITED STATES GOVERNMENT AND TWENTIETH CENTURY WORLD HISTORY TOPICS  One Credit
The curriculum examines the structure and functions of our federal form of government. The decision-making processes at the local, state, national, and international levels are emphasized. The foundations of American government and the politics of American democracy and constitutional rights and economic systems are compared to those of other nations, with emphasis on the relationships between economic and political freedoms. Economic content includes the United States market system, supply, demand, and the role of the government in the economy. Democratic values and citizen participation are stressed throughout the course. Students will extend their study of the chronological development of the world during the twentieth century through in-depth study and analysis of selected topics in twentieth century history. The course will focus on the political, economic, diplomatic, and social movements; geographic influences, and effects of technological changes throughout the twentieth century. Upon completion of the course the students will have acquired an appreciation and understanding of history, economics, geography, comparative politics, and the impact on the individuals of the Twentieth Century. **Pre-requisites: Membership in IB Program.**

**IB241 PSYCHOLOGY**  One Credit
This course will introduce students to a systematic study of the human experience and behavior from four psychological perspectives: the behavioral perspective, the cognitive perspective, the humanistic perspective, and the psychodynamic perspective. Students will develop insight into the practical application of psychology and its relevance to daily life. They will also demonstrate competence in different research designs, recognizing the strengths and weaknesses, in interpreting the results of such research, and in applying research designs by executing experiments.

**Visual Arts**

PB912 ART 2  One Credit
In Art 2 the student will continue to develop technical skills and an understanding of why artists create. Emphasis will be placed on student involvement in making choices and expressing ideas. Through studying visual arts heritage, the student will learn about art in America. Lab fee is required.

PB921 DESIGN CRAFTS 1  One Credit
Students will explore three-dimensional and craft processes as art forms, with an emphasis on design and craft-quality. The use of journaling techniques will expand the relationship of craft/design with our cultural heritage. The following media will be introduced: fibers, ceramics, metals, glass, wood, and other materials. **Midlothian High School only**
### IB922 ART/DESIGN CRAFTS 2
One Credit

Students will synthesize techniques and skills developed in Pre-PBA Art/Design Crafts 1 including fibers, ceramics, jewelry, stained glass and other three-dimensional processes. Focus on professional crafts persons aids students as they prepare for their personal exhibit. Journaling continues as an integral process. Midlothian High School only

### IB923 ART/CRAFTS 3
One Credit

This course provides students the continuation of skill development including fibers, ceramics, jewelry, stained glass, and other three-dimensional processes. Journaling continues as an integral process. Students begin preparing for the external assessment. Crafts 3 is set up as an Art/Design 3 course with students preparing a personal exhibition of their studio work made over the two-year IB period. Midlothian High School only

### PB931 DESIGN PHOTO 1
One Credit

This introductory course in black and white photography is available to students in grades 9-12. Through a study of pinhole photography, the student will explore basic photographic processes. These skills and techniques will be applied to the introduction to 35mm photography. Aesthetic and historic awareness of photography will be emphasized. A 35mm SLR camera and a lab fee are required.

### IB931 ART/DESIGN PHOTOGRAPHY 1
One Credit

Grade 11

This course provides the opportunity to explore the media of black and white photography. Students learn the basic knowledge of photographic processes and the basic skills and technique of pinhole and 35mm photography while experimenting with the aesthetics and formality of the visual image. Research in the history of photography is just as important as the discovery of contemporary forms. A workbook/journal is required plus the notebook/portfolio to house negatives and prints. Midlothian High School only

### IB932 ART/DESIGN PHOTOGRAPHY 2
One Credit

Grades 11-12

This course allows students to perfect, refine, and advance processes and skills begun in Pre-IB Photography 1. Aspects of photography as an art form, historical statement, and commercial endeavor will be studied. Students will develop a working knowledge of digital imaging and its impact on photography. Students will continue in the workbook/journals to develop their own personal vision in photography. These IB students begin to prepare for the external assessment. Midlothian High School only

Pre-requisites: IB 931

### IB933 ART/DESIGN PHOTOGRAPHY 3
One Credit

Grade 12

IB Photography 3 is an advanced course for students in further exploration in black and white photography. Students explore in-depth creative approaches to solving visual problems based on knowledge from Pre-IB/IB Art/Photography 1 and 2. Research and exploration of past and present photographers is the key of understanding in this class. An independent research journal will play an important role in in-depth research of all materials introduced in class. Midlothian High School only

Pre-requisites: IB 932

### PB942 COMPUTER ART/GRAPHICS 1
One Credit

In Computer Art and Graphics the student will have the opportunity to explore and expand creative knowledge in the field of electronic imaging and graphic communications. The student will learn the technical skills necessary for artistic problem solving using the elements and principles of design. Current and ongoing developments in the field will be addressed. Emphasis will be on approaching the computer as a creative and practical tool. Lab fee is required.

### IB942 COMPUTER ART/GRAPHICS 1
One Credit

In Computer Art and Graphics the student will have the opportunity to explore and expand creative knowledge in the field of electronic imaging and graphic communications. The student will learn the technical skills necessary for artistic problem solving using the elements and principles of design. Current and ongoing developments in the field will be addressed. Emphasis will be on approaching the computer as a creative and practical tool. Lab fee is required.

### IB950 COMPUTER ART/GRAPHICS 2
One Credit

This course will continue the knowledge gained from Computer Art and Graphics 1. Students will further their studies by using the computer as an art form and exploring multimedia and 3D design. Computer Art and Graphics 2 is intended to prepare students for a future in the technology arts by exposing them to diverse creative opportunities with sophisticated hardware and software. Students will learn how to use technology as a means to achieve a creative end and appreciate the computer as a viable art form.

### IB 953 COMPUTER ART/GRAPHICS 3
One Credit

Students will deepen and expand on existing understanding of computer graphics software. Students will apply knowledge of computer graphics as a tool to create fine art. Students will also apply knowledge for design/commercial applications.

### PB961 DESIGN 1
One Credit

This is a basic foundation course for Pre-IB Art 2, Pre-IB Photography 1, and Pre-IB Crafts 1. The course is designed to build the student's ability to use a variety of art media and increase their awareness of the diversity of the arts. The student will conduct independent research in the areas of visual arts heritage and its relationship to the arts in world cultures. Midlothian High School only

### PB962 P-IB DESIGN 2
One Credit

All IB Photography classes will reflect the following:

- Imagination and creative thinking/expression
- Persistence in research
- Technical Skills
- Understanding of the characteristics of good printing/presentation
- Fundamentals of design

### IB117 FILM 1
One Credit

The course in film aims to develop in students the skills necessary to achieve creative and critical independence in their knowledge, experience and enjoyment of film. The aims are to promote: an appreciation and understanding of film as a complex and unique art form; an ability to formulate stories and ideas in cinematic terms; the practical and technical skills of production; critical evaluation of film production by the student and by others; and a knowledge of film-making traditions in more than one culture. Meadowbrook High School only.

### IB 963 DESIGN STUDIO 3
One Credit

This course integrates previously acquired knowledge and skills and assists the student in strengthening personal style and increasing competency in media areas. Students keep a portfolio of artwork to monitor progress and are exposed to the aspects of both commercial and studio art. Through studying visual arts heritage, the students learn about artists and styles of art in the 20th century. IB Art students begin preparing for the "external assessment" (an individual art exhibition). Midlothian High School only

### IB 964 DESIGN STUDIO 4
One Credit

IB Art 4 students will prepare a personal exhibition of their studio work made over the two-year IB period. Extensive journals will be maintained to document their visual arts heritage with their personal growth and development. Students will be able to visually and verbally articulate their ideas. Midlothian High School only

### IB118 FILM 2
One Credit

IB Film 2 continues the investigation of the historical, cultural, and technical topics studied in IB Film 1. IB Film 2 continues the exploration of a wide variety of film and video styles, including experimental and avant garde techniques. The three IB assessments, an Independent Investigation of films in a variety of cultures, an Oral
Analysis of the technical and thematic elements of a film clip (film to be assigned by the International Baccalaureate Organization), and the making of an independent film and the creation of a portfolio documenting the film-making process, all take place during this second half of the IB Film course.

**IB986 MUSIC THEORY 1**
One Credit
The IB music theory course provides students with a broad spectrum of musical experiences that include the study of Western traditions and other world cultures. This course will provide a solid foundation of music fundamentals for the student who has a general interest in studying music further. The course of study will include basic music theory, listening skills, music history, world music, composition, and performance.

### World Languages

**PB512 FRENCH 2**
One Credit
The four linguistic skills, culture, and grammatical concepts continue to be emphasized and practiced in additional real-life situations. The goal is for students to communicate with increasing proficiency by discussing themes of weather, lodging, daily routines, health and fitness, and regions of France. Students will learn to describe past, present, and future events. Many opportunities for oral and written communication are expanded through the use and application of technology. As much as possible, the class is conducted in French.

**PB513 FRENCH 3**
One Credit
Linguistic skills and grammatical concepts are reviewed and strengthened, while cultural concepts are expanded to enable students to recognize cultural differences. The goal for students is to interpret authentic texts and continue to develop communicative abilities in a variety of cultural contexts. Many opportunities for oral and written communication are expanded through the use and applications of technology. French 3 classes are conducted entirely in French. **Pre-requisite: PB512 French 2**

**PB514 FRENCH 4**
One Credit
Linguistic skills continue to be polished and strengthened, enabling the student to communicate with increasing precision and accuracy. The goal is for students to develop their understanding of French in contemporary, literary, historical, and cultural contexts. Many opportunities for oral and written communication are expanded through the use and application of technology. These classes are conducted in French. The main themes for communication are groups, leisure, and change. **Pre-requisite: PB513 French 3**

**PB515 FRENCH 5**
One Credit
A comprehensive and in-depth study is presented at this advanced level. In addition, the students increase their understanding of French in contemporary, literary, historical, and cultural contexts. Many opportunities for oral and written communication are expanded through the use and application of technology. Upon completion of the EXPANDING STAGE, students are able to speak the language with enough accuracy to participate effectively in formal and informal conversations on a wide variety of topics. They can support opinions and hypothesize but may not be able to discuss in depth highly abstract topics. They are partially familiar with regional or other differences and command a wide variety of interactive strategies. They may make sporadic errors when using highly complex structures, but the errors will not interfere in communicating with a native speaker. These classes are conducted entirely in French. **Pre-requisites: PB514 French 4**

**PB522 GERMAN 2**
One Credit
The four linguistic skills, culture, and grammatical concepts continue to be emphasized and practiced in additional real-life situations. The goal is for students to communicate with increasing proficiency in describing, narrating, and distinguishing the time frame of events as the student learns to order and buy food; find lodging; plan vacation trips; and discuss health, fitness, and daily routine. Many opportunities for oral and written communication are expanded through the use and application of technology. As much as possible, the class is conducted in German.

**PB523 GERMAN 3**
One Credit
Linguistic skills are systematically reviewed and strengthened, while cultural and grammatical concepts are deepened, enabling the student not only to survive in German-speaking societies but also to deal with complications. The goal is for students to increase their creative comprehension and communication skills in questioning, narrating, describing, and discussing possibilities in functional activities such as organizing a travel itinerary for exploration of German-speaking countries, comparing educational options and career plans, and discussing feelings and moods. Many opportunities for oral and written communication are expanded through the use and application of technology. German 3 classes are conducted entirely in German. **Pre-requisite: German 2**

**PB524 GERMAN 4**
One Credit
The basic linguistic skills continue to be polished and strengthened, enabling the student to communicate with increasing precision and accuracy. The goal is for students to increase their understanding of German in authentic contemporary cultural situations, literature, and history. Cross-cultural comparisons and authentic communication will be stressed. Many opportunities for oral and written communication are expanded through the use and application of technology. These classes are conducted in German. The main themes for communication are groups, leisure, and change. **Pre-requisite: PB523 German 3**

**PB525 GERMAN 5**
One Credit
A comprehensive and in-depth study is presented at this advanced level. In addition, the students increase their understanding of German in contemporary, literary, historical, and cultural contexts. Many opportunities for oral and written communication are expanded through the use and application of technology. Upon completion of the EXPANDING STAGE, students are able to speak the language with enough accuracy to participate effectively in formal and informal conversations on a wide variety of topics. They can support opinions and hypothesize but may not be able to discuss in depth highly abstract topics. They are partially familiar with regional or other differences and command a wide variety of interactive strategies. They may make sporadic errors when using highly complex structures, but the errors will not interfere in communicating with a native speaker. These classes are conducted entirely in German. **Pre-requisites: PB524 German 4**

**IB526 GERMAN 6**
One Credit
Students develop in greater depth the linguistic skills of listening, speaking, reading, and writing. They are expected to express themselves beyond simple mechanical responses, demonstrating the ability to manipulate and create in the language. They demonstrate increased proficiency in manipulating the language in a culturally appropriate manner. The course also includes a practicum, an opportunity to put into practice what already has been learned and to combine linguistic skills with other talents. **Pre-requisites: IB525 German 5**

**PB532 LATIN 2**
One Credit
The second level of Latin offers a continuing study and review of grammar previously introduced. Most of the formal grammar necessary for the reading of Latin literature will be presented. Readings continue to focus on daily life. Legendary history and mythology complement the integrated language approach to translation. The use of technology is encouraged to implement and enhance the student's study.

**PB533 LATIN 3**
One Credit
The third level reviews and completes the study of grammar. Additional vocabulary is introduced through the readings. Latin prose reading selections, featuring the Republic and the Empire, include such
The foreign language program enables the student to develop proficiency in a language in addition to English. Proficiency is the learner's ability to understand, speak, read, and write the language within an authentic cultural setting. Upon completion of the EXPANDING STAGE, students are able to speak the language with enough accuracy to participate effectively in formal and informal conversations on a wide variety of topics. They can support opinions and hypothesize but may not be able to discuss in depth highly abstract topics. They are partially familiar with regional or other differences and command a wide variety of interactive strategies. They may make sporadic errors when using highly complex structures, but the errors will not interfere in communicating with a native speaker. These classes are conducted entirely in Spanish.

Pre-requisites: PB544 Spanish 4

IBS46 SPANISH 6

Students develop in greater depth the linguistic skills of listening, speaking, reading, and writing. They are expected to express themselves beyond simple mechanical responses, demonstrating the ability to manipulate and create in the language. They demonstrate increased proficiency in manipulating the language in a culturally appropriate manner. The course also includes a practicum, an opportunity to put into practice what already has been learned and to combine linguistic skills with other talents.

Pre-requisites: IBS45 Spanish 5

IBS13 FRENCH 3

Linguistic skills and grammatical concepts are reviewed and strengthened, while cultural concepts are expanded to enable students to recognize cultural differences. The goal for students is to interpret authentic texts and continue to develop communicative abilities in a variety of cultural contexts. Many opportunities for oral and written communication are expanded through the use and application of technology. French 3 classes are conducted entirely in French.

Pre-requisites: IBS14 French 4 or recommendation of teacher

IBS15 FRENCH 5

A comprehensive and in-depth linguistic study is presented at this advanced level. In addition, the students increase their understanding of French in contemporary, literary, historical, and cultural contexts. Many opportunities for oral and written communication are expanded through the use and application of technology. These classes are conducted in French. The main themes for communication are groups, leisure, and change.

Pre-requisites: IBS14 French 4 or recommendation of teacher

IBS16 FRENCH 6

Students develop in greater depth the linguistic skills of listening, speaking, reading, and writing. They are expected to express themselves beyond simple mechanical responses, demonstrating the ability to manipulate and create in the language—expressing opinions, negotiating, persuading, and advising. They demonstrate increased proficiency in manipulating the language in a culturally appropriate manner. The course also includes a practicum, an opportunity to put into practice what already has been learned and to combine linguistic skills with other talents.

Pre-requisites: IBS15 French 5
IB483 Business & Management One Credit
The Diploma Programme business and management course is designed to develop an understanding of business theory, as well as an ability to apply business principles, practices and skills. The application of tools and techniques of analysis facilitates an appreciation of complex business activities. The course considers the diverse range of business organizations and activities and the cultural and economic context in which business operates. Emphasis is placed on strategic decision-making and the day-to-day business functions of marketing, production, human resource management and finance. Links between the topics are central to the course, and this integration promotes a holistic overview of business activity.

Meadowbrook High School
4901 Cogbill Road
Richmond, VA  23234
(804) 743-3675

Thomas Ferrell, Principal
Tiffany Hugg
Specialty Center Coordinator

Midlothian High School
401 Charter Colony Parkway
Midlothian, VA  23114
(804) 379-2440

Christine Wilson, Principal
Jamie Barnes, Specialty Center Coordinator
The Center for Leadership and International Relations at James River High School seeks students from a broad range of ability levels and interests who want to learn about the qualities of leaders. While enhancing their own leadership styles, students develop problem solving, critical thinking, and decision-making skills that they will carry with them into their roles as future leaders of society.

- Foreign exchange opportunities
- Partnerships with Jepson School of Leadership at the University of Richmond, as well as with international corporations, local agencies and universities
- Seminars with corporate, military, religious, community, and educational leaders
- Opportunities for community service projects
- Summer orientation programs on a college campus
- Located in a United States Department of Education Blue Ribbon School of Excellence

**Leadership and International Relations**

**Proposed Course Sequence**

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**Leadership and International Relations Courses**

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<td>World History/Geography--1500 AD to the Present</td>
<td>United States History</td>
<td>Virginia and US Government</td>
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<td>Leadership and International Relations Perspectives</td>
<td>Communications For Leadership and International Relations</td>
<td>Critical Thinking: Ethics and Decision Making</td>
<td>Science</td>
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## COURSE DESCRIPTIONS

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<tr>
<th>Course Code</th>
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<tr>
<td>LS012</td>
<td>LEADERSHIP IN ACTION</td>
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<td>LS015</td>
<td>LEADERSHIP AND INTERNATIONAL RELATIONS PERSPECTIVES</td>
<td>One Credit</td>
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<td>LS025</td>
<td>CRITICAL THINKING: ETHICS AND DECISION MAKING</td>
<td>One Credit</td>
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<td>LS109</td>
<td>ENGLISH 9</td>
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<td>LS113</td>
<td>AP ENGLISH LITERATURE</td>
<td>One Credit</td>
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<tr>
<td>LS171</td>
<td>COMMUNICATIONS FOR LEADERSHIP AND INTERNATIONAL RELATIONS</td>
<td>One Credit</td>
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<tr>
<td>LS197</td>
<td>WORLD HISTORY/GEOGRAPHY TO 1500 A.D.</td>
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<td>LS209</td>
<td>WORLD HISTORY/GEOGRAPHY TO 1500 A.D. HONORS</td>
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**LS012 LEADERSHIP IN ACTION**
This course requires students to synthesize the leadership information they acquired during their first three years in the Center. The curriculum first reviews leadership principles and then identifies skill sets that contribute to individual career paths. Students execute their knowledge through an internship where they experience and evaluate positive leadership in our community. Each student must also research, create, participate in, and evaluate a service learning (capstone) project. This final project requires students to apply themselves in writing, critical thinking, reflection, and analysis.

**LS015 LEADERSHIP AND INTERNATIONAL RELATIONS PERSPECTIVES**
This course is designed to introduce students to many of the concepts and skills that will be emphasized over the next four years. Students begin by looking at the historical and philosophical background to leadership, and then learn to apply many of those ideas to modern theories. In addition, they study fellowships, which is predicated on the idea that to be an effective leader, one must understand traits of an effective follower. Another branch will investigate how gender can affect leadership and how an appreciation of alternate styles can be beneficial to all leaders. While all leadership topics, including current events, will be presented in a global context, the second half of this freshman elective focuses on the shift from leadership to international relations. The history, components, and issues of this field, as well as political and non-governmental elements, will be explored. Key principles will be approached in the students’ English and history classes in order to create interdisciplinary connections that will heighten student learning.

**LS025 CRITICAL THINKING: ETHICS AND DECISION MAKING**
The purpose of this course is for students to examine, understand, and ultimately improve their own decision-making process. The course is based in science but includes traditional and non-traditional topics drawn from other disciplines. Students will learn how to ask good questions by examining arguments and issues, recognize methods of persuasion and logical fallacies, test their critical thinking and decision-making skills against a wide variety of ethical issues, and tackle a wide variety of ethical dilemmas and other philosophical issues.

**LS109 ENGLISH 9**
The English 9 study of literature will challenge students to examine themes throughout multiple literary genres in order to understand literary terms and vocabulary and to analyze and acquire skills necessary for effective leadership. This course advances the study of written and spoken communication skills. Grammar and usage concepts will be reviewed and discussed in relation to how they impact student writing. Prewriting, drafting, peer editing, and revising will be a primary focus of the school year so as to produce competent writers.

**LS110 ENGLISH 10**
World Literature Cultural Encounters will provide Leadership students with an academically challenging course of study. Students will read literary texts dealing with the issues of cultural encounters so that they may attain a global perspective on issues such as racism, class and caste systems, and acculturation. Exposing students not only to diverse cultures but also to the clashes that exist among cultures will instill principles based on respect and appreciation. In addition, the international focus of this course will provide these young leaders with a sense of their responsibility within a global context. In addition to the chronological survey provided in the World Literature textbook, students will read from a variety of texts.

**LS111 ENGLISH 11**
This course will provide Center for Leadership and International Relations students with a challenging study of American literature. A variety of required and supplementary literary works will be used as the foundation for literary, expository, and creative writing. Required research papers will introduce major types of criticism, and student presentations will hone public speaking skills. Students will learn in a cooperative environment in which they will be expected to assume increasingly active leadership roles, encouraging them to problem solve, take risks, and share their views with others.

**LS113 AP ENGLISH LITERATURE**
The Leadership AP English Literature and Composition course engages a cohort of Center students in the careful reading and critical analysis of imaginative literature. Through the close reading of selected texts, students work collaboratively to deepen their understanding of the ways writers use language to provide both meaning and pleasure for their readers. As they read, students consider a work’s structure, style, and themes as well as such smaller-scale elements as the use of figurative language, imagery, symbolism, and tone. Writing assignments focus on the critical analysis of literature, increasing students’ ability to explain clearly, cogently, even elegantly, what they understand about literary works and why they interpret them as they do.

**LS171 COMMUNICATIONS FOR LEADERSHIP AND INTERNATIONAL RELATIONS**
This course develops a variety of personal and professional communication skills that promote effective leadership and positive international relations. Individual and group activities enhance verbal and nonverbal communication skills. Students write and deliver a variety of speeches and learn to critique themselves and others. Skills for research, organization, and outlining are improved through the speech preparation process. Group activities emphasize leadership styles and critical thinking skills. Class projects include intercultural communications, political campaigning, television news production, interviewing, and policy debating. Students develop into ethical and effective communicators, whose integrity and leadership will effect positive changes locally and globally.

**LS209 WORLD HISTORY/GEOGRAPHY TO 1500 A.D.**
Students in the Leadership Program will examine World History/Geography to 1500 A.D. They will build on the basic historical, geographic, political, and economic concepts presented in the K-8 program. The diversity of culture and the evolution of human history will be explored chronologically from the beginning of time until the rise of nation states in Europe. Geographical concepts will be included within the context of world historical events. An in-depth look at various leaders will allow the student to learn more about leadership styles at various times in history.

**LS209 WORLD HISTORY/GEOGRAPHY TO 1500 A.D. HONORS**
Students in the Leadership Program will examine World History/Geography to 1500 A.D. They will build on the basic historical, geographic, political, and economic concepts presented to them in the K-8 program. The diversity of culture and the evolution of human history will be explored chronologically and geographically from the beginning of time until the rise of nation states in Europe. Geographical concepts will be incorporated within the context of world historical events. Students will examine the development of the world’s major political, economic, and legal systems; artistic and literary movements; technological changes; trade patterns; religions;
and the influential people of history. Special emphasis will be given to the five themes of geography as they relate to regional conflicts, humanity’s relationships with the environment, and the foundation of democratic principles, such as citizenship. Hands-on activities and the use of available technology will be an integral part of this course. Students will critique analytical essays and begin to learn the research writing process. This course is a foundation for complex critical thinking and problem solving in subsequent social studies courses. An in-depth look at various leaders will allow the student to learn more about leadership styles at various times in history.

**LS210  WORLD HISTORY/GEOGRAPHY 1500 A.D. TO THE PRESENT**  
One Credit  
Students in the Leadership Program will examine World History/Geography from 1500 A.D. to the present. They will build on the basic historical, geographic, political, and economic concepts presented to them in the first year of the program. The diversity of culture and the evolution of human history will be explored chronologically and geographically from the late Middle Ages to the Present. An in-depth look at various leaders will allow the student to learn more about leadership styles at various times in history.

**LS212  US GOVERNMENT**  
One Credit  
The US/VA Government course includes both the study of general concepts used to interpret US politics and the analysis of specific examples. It also requires familiarity with the various institutions, groups, beliefs, and ideas that constitute US politics. Students should become acquainted with a variety of theoretical perspectives and explanations for various behaviors and outcomes. This course allows Center students to work together and discuss how leaders at the various levels of government display leadership skills.

**LS213  AP US/VA GOVERNMENT**  
One Credit  
The AP course in Us/VA Government and Politics will give students an analytical perspective on government and politics in the United States. This course includes both the study of general concepts used to interpret US politics and the analysis of specific examples. It also requires familiarity with the various institutions, groups, beliefs, and ideas that constitute US politics. Students should be come acquainted with a variety of theoretical perspectives and explanations for various behaviors and outcomes. This course allows Center students to work together and discuss how leaders at the various levels of government display leadership skills.

**LS214  AP UNITED STATES HISTORY**  
One Credit  
The AP program in United States History is designed to provide students with the analytic skills and factual knowledge necessary to deal critically with the problems and materials in United States history. The program prepares students for intermediate and advanced college courses by making demands upon them equivalent to those made by full-year introductory college courses. Students should learn to assess historical materials—their relevance to a given interpretive problem, their reliability, and their importance—and to weigh the evidence and interpretations presented in historical scholarship. An AP United States History course should thus develop the skills necessary to arrive at conclusions on the basis of an informed judgment and to present reasons and evidence clearly and persuasively. An in-depth look at various leaders will allow the student to learn more about leadership styles at various times in US history.

**LS216  AP WORLD HISTORY**  
One Credit  
This course provides students with a comprehensive and rigorous course of western and non-western history. While there are AP counterparts in Chesterfield to US/VA History and US/VA Government, there is none for world history. This provides sophomores an opportunity to gain university credit and an introduction to the AP curriculum. The course is a survey of history from 12,000 BC to the present. In keeping with the global trend at both the university and secondary levels, there is an emphasis on the history of all continents and peoples. Although Europe is still an important component of the course, more focus is placed on the non-Western world. An in-depth look at various leaders will allow the student to learn more about leadership styles at various times in history.
The Center for Learning and Teaching through Technology is located at Matoaca High School facility and is divided into two strands. Learning Through Technology and Teaching Through Technology. The new Matoaca High School will be the most advanced technologically in Chesterfield County. The integration of this exciting technology into the fabric of instruction and learning is the cornerstone of the Learning through Technology Center which will facilitate engaged learning throughout the entire school program. All students will engage in the extensive use of technologies within every classroom setting in every discipline. This school wide emphasis on appropriate technology use involves increased attention to creating activities and lessons that foster critical thinking, problem solving, communication, and research.

Engaged learning features a fundamental shift of instructional focus:
- From teacher centered to student centered instruction
- From whole class to small group interaction and instruction
- From structured lessons to exploratory lessons
- From the classroom to worldwide interaction

### Learning and Teaching Through Technology Proposed Course Sequence*

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### Learning and Teaching Through Technology Courses

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*Denotes all comprehensive high school courses taught with appropriate technology integration.

**Denotes opportunities for online technology courses dependent upon individual requests, strengths, interests and course availability
COURSE DESCRIPTION

IT105 INFORMATION TECHNOLOGY FUNDAMENTALS 1
One Credit
Introduction to Information Technology is the foundation technology elective course for specialty center students. Introduction to Information Technology introduces the essential skills needed for students to pursue specialized programs leading to technical and professional careers and certifications in the IT industry. Students have an opportunity to investigate career opportunities in four major IT areas: Information Services and Support, Network Systems, Programming and Software Development, and Interactive Media. The focus of the Introduction to Information Technology course is on introducing skills related to information technology basics. Internet fundamentals, network systems, computer maintenance/upgrading/troubleshooting, computer applications, programming, graphics, web page design, and interactive media. Students explore ethical issues related to computers and internet design, and interactive media. Students explore ethical issues related to computers and Internet technology and develop teamwork and communication skills that will enhance their employability.

TL015 INFORMATION TECHNOLOGY FUNDAMENTALS 2
One Credit
IT Fundamentals is a year long in-depth course of study where students choose two strand areas of concentration in Networking, Information Support and Services, Multimedia, or Information Support and Services. These courses of study allow the student a comprehensive curriculum and hands-on approach to each of these areas. The students work completing computer based lessons, simulations, and hands-on exercises that mirror real world applications. These are industry certification preparations for this class: Network +, A+, Macromedia Flash MX Designer

TL020 DIGITAL INPUT TECHNOLOGIES
One-half Credit
The Digital Input Technologies course will teach students the emerging technologies available in our society today. Students will develop proficiency using personal digital assistants (PDAs, Tablet PCs, Speech recognition software, and in other input tools for manipulating and managing test and data.

TL025 DIGITAL VIDEO PRODUCTION
One-half credit
Digital Video Production course will center around the learning and production of a Digital project. There are many aspects of the production and creation of a digital video. The students will become knowledgeable in the areas of graphic design as well written and electronic publications.

TL026 INTRODUCTION TO ROBOTICS HONORS
One-half credit
Students in the Introduction to Programming and Gaming class will explore basic computer programming, electronics, motor control and feedback systems used in assembly and manufacturing settings. Students will also learn how to program a microcontroller for robotic manipulation. Students will receive instruction for constructing a functional robot and create a robot prototype. Pre-requisites: Introduction to Information Technology or Keyboarding/Computer Applications

TL027 INTRODUCTION TO PROGRAMMING & GAMING HONORS
One-half credit
Students in the Introduction to Programming and Gaming class will explore and learn programming concepts, logic procedures, as well as implement programming procedures using several different programming languages such as Lego Mindstorm software and GameMaker Professional. Pre-requisites: Introduction to Information Technology or Keyboarding/Computer Applications

TL028 3D DESIGN/GAMING
One Credit
Students will gain experiences related to computer animation by solving problems involving 3D object manipulation, storyboarding, texture mapping, lighting concepts, and environmental geometry. They will produce animations that include interdisciplinary projects related to science, engineering, and the entertainment industry. A major emphasis will be the production of a portfolio that showcases examples of original student work.

TL109 ENGLISH 9
One Credit
English 9 advances the study of written and spoken communication skills. Literature study emphasizes genre and the understanding of literary terms and vocabulary. Students will create group and individual projects utilizing technology through PowerPoint, Inspiration, and other applicable programs. Research will be conducted using computer skills and Internet applications.

TL109 ENGLISH 9 HONORS
One Credit
English 9 is a study of nonfiction, mythology, and an introduction to classical literature. Students study Homer, Shakespeare, Dickens, Buck, Twain, and a variety of other authors in various genre such as the short story, novel, drama and poetry. Students analyze literary texts, determine relationships between form and content, and go beyond an emotional reaction to an intellectual response. Students ready critically, asking pertinent questions about what they have read, recognizing assumptions and implications, and evaluating ideas. This course also concentrates on expository writing, literary analysis, and oral communication skills. Students draw conclusions, appraise, and speculate independently about the elements of literature. Students will utilize technology throughout the entire English 9 course. All class work and homework will be completed using technology. Students will create group and individual projects utilizing technology through PowerPoint, Inspiration, and other applicable programs. Research will be conducted using computer skills and Internet applications.

TL110 ENGLISH 10
One Credit
English 10 stresses refinement of skills with emphasis on effective written and oral communications. Literature emphasizes character motivation and human relations through the study of American literature. Students will create group and individual projects utilizing technology through PowerPoint, Inspiration, and other applicable programs. Research will be conducted using computer skills and Internet applications.

TL110 ENGLISH 10 HONORS
One Credit
Literary selections of English 10 Honors include Thoreau, Hawthorne, Melville, Cather, Twain, Faulkner, Fitzgerald and others. Students will explore various writing techniques and styles. These techniques will be used in their own expository, persuasive, and creative writings. Critiquing literary works in a major focus at this level. The fundamental elements of research will be applied directly to written and oral communications. Knowledge will be evident through oral presentations, written reports, analyses, and small/large group discussions. Students will utilize technology throughout the entire English 10 course. All class work and homework will be completed using technology. Students will create group and individual projects utilizing technology through PowerPoint, Inspiration, and other applicable programs. Research will be conducted using computer skills and Internet applications.

TL111 ENGLISH 11
One Credit
This course is based upon a survey of British literature. Composition skills are further developed, emphasizing correctness, practicality, style, and fluency. A research paper is required. Students will create group and individual projects utilizing technology through PowerPoint, Inspiration, and other applicable programs. Research will be conducted using computer skills and Internet applications.

TL111 ENGLISH 11 HONORS
One Credit
The literature selections of English 11 Honors include works of Chaucer, Shakespeare, Milton, Dickens, Bronte, and the Romantic poets, Hardy and Conrad. A variety of supplemental works will be used to enhance the program of literary appreciation/study. Literature
will be used as a foundation for literary analysis, expository, and creative writing. Required research papers allow students to explore major types of criticism-formalistic, archetypal, psychological. Other types of writing include reader responses and book reviews about particular works of literature. The goal of the Honors curriculum is to produce self-directed learners who are risk takers, highly motivated, and willing to share their views with others. Students will utilize technology through the entire English 11 course. All class work and homework will be completed using technology. Students will create group and individual projects utilizing technology through PowerPoint, Inspiration, and other applicable programs. Research will be conducted using computer skills and Internet applications.

**TL112 ENGLISH 12**  One Credit
This course is designed for highly motivated seniors who enjoy being academically challenged and who have successfully completed English 11 Honors. This class prepares students for the rigorous educational experiences demanded by competitive colleges and universities. Writing for a variety of audiences and purposes is a focal point of the class. Students will read and analyze world literature and will focus on comparative studies of universal themes. A research paper is required. All class work and homework will be completed using technology. Students will create group and individual projects utilizing technology through PowerPoint, Inspiration, and other applicable programs. Research will be conducted using computer skills and Internet applications.

**TL112 ENGLISH 12 HONORS**  One Credit
This course is designed for highly motivated seniors who enjoy being academically challenged and who have successfully completed English 11 Honors. This class prepares students for the rigorous educational experiences demanded by competitive colleges and universities. Writing for a variety of audiences and purposes is a focal point of the class. Students will read and analyze world literature and will focus on comparative studies of universal themes. A research paper is required. All class work and homework will be completed using technology. Students will create group and individual projects utilizing technology through PowerPoint, Inspiration, and other applicable programs. Research will be conducted using computer skills and Internet applications.

**TL137 ELECTRONIC COMMUNICATION 2**  One Credit
This course is not only provide students with an opportunity to lead, direct, write and evaluate, but to give students a year to improve upon and refine skills that will prepare them for a career either in college or the workplace in film. Students will be evaluated based on their leadership skills, meeting of deadlines, writing skills and self-analysis and evaluation.

**TL209 WORLD HISTORY/GEOGRAPHY TO 1500 AD**  One Credit
This program will build on the basic historical, geographical, political, and economic concepts presented to them in the K-8 program. The diversity of culture and the evolution of human history will be explored chronologically and geographically from the beginning of time until the rise of nation states in Europe. Geographical concepts will be incorporated within the context of world historical events. Students will utilize technology throughout the entire TL209 course. All class work and homework will be completed using technology. Students will create group and individual projects utilizing technology through PowerPoint, Inspiration, and other applicable programs. Research will be conducted using computer skills and Internet applications.

**TL209 WORLD HISTORY/GEOGRAPHY TO 1500 AD HONORS**  One Credit
This program will build on the basic historical, geographical, political, and economic concepts presented to them in the K-8 program. The diversity of culture and the evolution of human history will be explored chronologically and geographically from the beginning of time until the rise of nation states in Europe. Geographical concepts will be incorporated within the context of world historical events. Students will examine the development of the world's major political, economic, and legal systems; artistic and literary movements; technological change; trade patterns; religions; and the influential people of history. Special emphasis will be given to the five themes of geography as they relate to regional conflicts, humanity's relationships with the environment, and the foundation of democratic principles, such as citizenship. Hands-on activities and the use of available technology will be an integral part of this course. Students will critique analytical essays and continue to learn the research writing process. This course stresses complex critical thinking and problem solving. Students will utilize technology throughout the entire TL 210 course. All class work and homework will be completed using technology. Students will create group and individual projects utilizing technology through PowerPoint, Inspiration, and other applicable programs. Research will be conducted using computer skills and Internet applications.

**TL210 WORLD HISTORY/GEOGRAPHY 1500 AD TO THE PRESENT**  One Credit
Students in World History/Geography 1500 AD to the present will build on the basic historic, geographical, political, and economic concepts presented to them in the first year of the program. The diversity of culture and the evolution of human history will be explored chronologically and geographically from the late Middle Ages to the present. Students will utilize technology throughout the entire course. All class work and homework will be completed using technology. Students will create group and individual reports utilizing technology through PowerPoint, Inspiration, and other applicable programs. Research will be conducted using computer skills and Internet applications.

**TL210 WORLD HISTORY/GEOGRAPHY 1500 AD TO THE PRESENT HONORS**  One Credit
Students in this course will build on the basic historical, geographic, political, and economic concepts presented to them in the first year of the program. The diversity of culture and the evolution of human history will be explored chronologically and geographically from the late Middle Ages to the present. Geographical concepts will be incorporated within the context of world historical events. Students will examine the development of the world's major political, economic, and legal systems; artistic and literary movements; technological change; trade patterns; religions; and the influential people of history. Special emphasis will be given to the five themes of geography as they relate to regional conflicts, humanity's relationships with the environment, and the foundation of democratic principles, such as citizenship. Hands-on activities and the use of available technology will be an integral part of this course. Students will critique analytical essays and continue to learn the research writing process. This course stresses complex critical thinking and problem solving. Students will utilize technology throughout the entire TL 210 course. All class work and homework will be completed using technology. Students will create group and individual projects utilizing technology through PowerPoint, Inspiration, and other applicable programs. Research will be conducted using computer skills and Internet applications.

**TL211 VA AND UNITED STATES HISTORY**  One Credit
This course will chronicle the history of the United States from the first European exploration of the Americas to the present. Individuals and groups that contributed to the unique evolution of the United States will be studied. Both domestic and foreign policies will be examined at various points in time as the United States developed into a democratic world power. While focusing on political and economic history, this course will include a study of the American culture. Students will utilize technology throughout the entire course. All class work and homework will be completed using technology throughout the entire course. Students will create group and individual projects utilizing technology through PowerPoint, Inspiration, and other applicable programs. Research will be conducted using computer skills and Internet applications.

**TL211 VA AND UNITED STATES HISTORY HONORS**  One Credit
This course will chronicle the history of the United States from the first European exploration of the Americas to the present. Individuals and groups which contributed to the unique evolution of the United States will be studied. Both domestic and foreign policies will be examined at
The purpose of these products is to enable students to develop the several of the following: book reviews, oral presentations/projects, will also synthesize information about national and international questions will encourage students to refine their critical thinking skills world power. While focusing on political and economic history, this Inspiration, and other applicable programs. Research will be conducted using computer skills and Internet applications.

**TL212 UNITED STATES GOVERNMENT**

The curriculum examines the structure and functions of our federal form of government. The decision-making processes at the local, state, national, and international levels are emphasized. The foundations of American government, the politics of American democracy, and constitutional rights and responsibilities are explored in depth. United States political and economic systems are compared to those of other nations, with emphasis on the relationships between economic and political freedoms. Economic content includes the United States market system, supply and demand, and the role of the government in the economy. Democratic values and citizen participation are stressed throughout the course. Students will utilize technology throughout the entire course. All class work and homework will be completed using technology. Students will create group and individual projects utilizing technology through PowerPoint, Inspiration, and other applicable programs. Research will be conducted using computer skills and Internet applications.

**TL212 UNITED STATES GOVERNMENT HONORS**

The curriculum examines the structure and functions of our federal form of government. The decision-making processes at the local, state, national, and international levels are emphasized. The foundations of American government, the politics of American democracy, and constitutional rights and responsibilities are explored in depth. United States political and economic systems are compared to those of other nations, with emphasis on the relationships between economic and political freedoms. Economic content includes the United States market system, supply and demand, and the role of the government in the economy. Democratic values and citizen participation are stressed throughout the course. In addition to regular evaluation, all students will write one or more position papers and/or a research paper. Other student projects should include several of the following items: book reviews, mock trials, U.N. simulations, political cartoons, debates, court briefs, and written/oral summaries of legislative issues. The purpose of these projects is to enable students to develop the skills necessary to demonstrate more complex critical thinking and problem solving. Students will utilize technology throughout the entire TL212H course. All class work and homework will be completed using technology. Students will create group and individual projects utilizing technology through PowerPoint, Inspiration, and other applicable programs. Research will be conducted using computer skills and Internet applications.

**TL221 TECHNOLOGY SERVICE LEARNING**

Students in the Center for Teaching and Learning Through Technology are provided with the skills and knowledge to function at proficient levels with regard to various aspects of technology. Students are only taught the ethical and practical uses of technology, but they are also given the opportunity to share their knowledge and passion for technology with other students and business people in our community. Students will explore technical issues as it applies to education and businesses alike. Students will also be involved with technology training needs at Matoaca High School on an as needed basis. This course will allow our students to share their passion of technology and as well, give students the opportunity to perform community service.

**TL391 ORACLE 1**

The Data Modeling course was originally designed for business managers, business and technical analysts, database designers, database administrators and anyone responsible for the analysis and specification of data. The course is primarily conceptual, therefore, students who excel in abstract thought processes are likely to succeed and enjoy this beginning course. After several iterations the ER model captures the data requirements and business rules and forms a sound basis for the design of a relational database. A database is a way of taking the keeping track of these details and putting them together in ways that re logical and useful. Students learn the basics of Structured Query Language (SQL), the language used to manipulate create, and manage a database. As the first phase of our Academy curriculum, this course will provide the foundation for future software engineers or database administrators.

**TL392 ORACLE 2**

"JAVA is becoming the programming language of choice for Internet applications. It is gaining that status because of its robust nature, its object-orientation, the depth of its predefined classes, and its "write once, run anywhere" (WORA) deployment model. These elements are keys to providing a rich development environment that allows for effective program development and deployment. The techniques include: code reusability, data encapsulation, dynamically downloadable program units, and architecturally neutral and platform-independent programs. This course teaches participants how to develop Java applications and applets. It focuses on teaching the Java language, plus learning practical object-oriented principals."

**TL401 AUTOMATED PRODUCTION SYSTEMS 1**

Students will use state-of-the-art computer technology to study automation, process control, and modern production methods. Technical skills are acquired through the study of core technology modules, such as design processes, mechanical systems, principles and applications of robotics, fluid power systems, and electrical systems.

**TL402 AUTOMATED PRODUCTION SYSTEMS 2**

Students apply computer technology in performing advanced procedures that are incorporated into the most up-to-date high-tech production facilities. Units of study include topics such as thermal systems, advanced electrical systems, advanced fluid power systems, advanced principles and applications of robotics, and quality assurance.

**TL420 EARTH/SPACE SCIENCE**

Earth /Space Science is a laboratory course recommended for each ninth grade student in order to complete his/her general background in the fundamentals of science. Major areas of Earth/Space Science are geology, meteorology, oceanography, astronomy, physical geography, energy, and the environment.

**TL505 GEOSPATIAL TECHNOLOGY**

The Geospatial Technology program provides experiences pertaining to the study of geographic information systems (GIS), global positioning systems (GPS), remote sensing (RS), digital image processing (DIPS), Geodesy, Automated Cartography (AutoCarto), Land Surveying (LS), and navigation. Fundamentally, these technologies allow students to explore and analyze the natural and human world, from local to global and beyond, students will use various tools, processes and techniques to create, store, access, manipulate and revise data to solve human challenges.
Visual Basic Programming introduces students to programming in the Windows environment. Concepts of structured and object-oriented programming are introduced. Students will plan and create interactive Windows applications and write If...Then...Else, Select Case, Do...While, Do...Until, and For...Next statements, as well as create and manipulate sequential access files.
State of the art technology and excellent communication skills are the foundations of the news programming, interviewing and advertisements on networks like CNN, NBC, MTV, and FOX. The Center for Mass Communications at Manchester High School will offer the skills and experiences it takes to be a part of this exciting field. Students will develop expertise in visual, written and oral communication skills in the areas of television, radio, multimedia, print journalism, advertising, and graphic design. Utilizing the in-house television studio, editing suites and computer labs, students will produce television shows, magazines and newspapers, and multimedia presentations.

- Comprehensive study and production in the areas of television, multimedia, graphic design, journalism, advertising and photography

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<tr>
<th>Mass Communications--Proposed Course Sequence</th>
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<tr>
<td><strong>Ninth</strong></td>
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<tr>
<td>Science</td>
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<tr>
<td>Math/Elective**</td>
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<td>Health and Physical Education 9</td>
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<td>World Language*/Elective**</td>
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<td><strong>Tenth</strong></td>
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<tr>
<td>Science</td>
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<td>Math</td>
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<td>World Language</td>
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<td>Health and Physical Education 10</td>
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<td><strong>Eleventh</strong></td>
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<tr>
<td>United States History</td>
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<td>Science</td>
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<td>Math</td>
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<td>World Language</td>
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<td><strong>Twelfth</strong></td>
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<tr>
<td>United States and Virginia Government</td>
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<tr>
<td>Science</td>
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<tr>
<td>Math</td>
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<td>World Language* or Elective</td>
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<tr>
<th>Mass Communications Courses</th>
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<tbody>
<tr>
<td><strong>Ninth</strong></td>
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<tr>
<td>English 9</td>
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<tr>
<td>Mass Communications and Technology Connections</td>
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<tr>
<td>World History/World Geography Beginnings-1400 CE</td>
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<tr>
<td><strong>Tenth</strong></td>
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<tr>
<td>English 10</td>
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<tr>
<td>Mass Communications, Writing and Production 1 (2 period block)</td>
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<tr>
<td>World History/World Geography 1400’s to the Present</td>
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<td><strong>Eleventh</strong></td>
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<td>English 11</td>
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<td>Mass Communications Writing and Production 2</td>
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<td><strong>Technology Elective</strong></td>
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<td><strong>Twelfth</strong></td>
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<tr>
<td>English 12</td>
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<tr>
<td>Mass Communication Writing Production and Research</td>
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<tr>
<td><strong>Technology Elective</strong></td>
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*Denotes all comprehensive high school courses taught with appropriate technology integration.
**Denotes opportunities for online technology courses dependent upon individual requests, strengths, interests and course availability.
**MC009  "MASS COMMUNICATIONS AND TECHNOLOGY CONNECTIONS"**  
One Credit  
Mass Communications and Technology Connections will develop a foundation in the basic principles of communications settings and functions and the forms of mass communications. Students will develop skills in copy writing, reporting, script writing, and editing while exploring technical skills in the areas of desktop publishing, multimedia, photography, graphic design, and basic audio/video production. Oral presentation skills will also be developed with a focus on poise, standard usage, articulation, and style. Students will write and deliver formal and informal speeches and presentations.

**MC010  "MASS COMMUNICATIONS WRITING AND PRODUCTION 1"**  
One Credit  
Students will study the historical, ethical, legal, and economic aspects of television, radio, newspaper, magazine, advertising, and public relations industries. Students in Mass Communications Writing and Productions will continue to develop skills in copy writing, reporting script writing, editing, and photography as well as develop more intermediate and advanced desktop publishing skills. Writing, layout, and design of print publications will be a major focus in this program. Students will produce newsletters, pamphlets, newspapers, and advertisements utilizing standard software packages. Students will continue to develop and refine skills in writing effective speeches and making presentations.

**MC011  MASS COMMUNICATIONS WRITING/PRODUCTION 2**  
One Credit  
"Mass Communications Writing and Production 2 will focus on the broadcast media. Students will learn how to produce messages specifically designed for television and radio. This course is essential because it allows students to learn about and to become a part of the most powerful mass medium in our society. Graduates of the program will be able to apply their knowledge in authentic communications settings. The objectives of this course include the following: to develop proficiency in written, oral, and visual communication skills; to study the structural, economic, ethical and legal aspects of broadcast journalism; to develop technical proficiency in the areas of audio/video production; to continue to develop technical proficiency in the areas of photography, graphic design and multimedia. Pre-requisite: MC010 Mass Communications Writing and Production 1 Honors.

**MC012  MC WRITING/PRODUCTION RESEARCH**  
One Credit  
This class is an advanced production class where seniors utilize the skills they’ve learned in mass communications in a variety of different ways. Students in this course will produce a biweekly news show aired on the school system’s cable access channel. In addition, students will utilize their skills in journalistic writing, advertising graphic design and video production to create marketing materials for non-profit organizations within Chesterfield County.

**MC019  WORLD HISTORY/GEOGRAPHY TO 1500 AD**  
One Credit  
This program will build on the basic historical, geographical, political, and economic concepts presented in the K-8 program. The diversity of culture and the evolution of human history will be explored chronologically from the beginning of time until the rise of nation states in Europe. Geographical concepts will be incorporated within the context of world historical events. Students will examine the development of the world’s major political, economic, and legal systems; artistic and literary movements; technological changes; trade patterns; religions, and the influential people of history. Special emphasis will be given to the five themes of geography as they relate to regional conflicts, humanity’s relationships with the environment, and the foundation of democratic principles, such as citizenship. Hands-on activities and the use of available technology will be an integral part of this course. Students will utilize the skills learned in Mass Communications and Technology Connections to complete World History/World Geography related assignments and projects.

**MC109  ENGLISH 9**  
One Credit  
English 9 Honors is a study of nonfiction, mythology, and an introduction to classical literature. Students study Homer, Shakespeare, Dickens, Buck, Twain, and a variety of other authors in various genre such as the short story, the novel, drama, and poetry. Students analyze literary texts, determine relationships between form and content, and go beyond an emotional reaction to an intellectual response. Students read critically, asking pertinent questions about what they have read, recognizing assumptions and implications, and evaluating ideas. This course also concentrates on expository writing, literary analysis, and oral communication skills. Students draw conclusions, appraise, and speculate independently about the elements of literature. Students will utilize the skills learned in Mass Communication and Technology Connections to complete English related assignments and projects.

**MC110  ENGLISH 10**  
One Credit  
Literary selections of English 10 Honors include Thoreau, Hawthorne, Melville, Cather, Twain, Faulkner, Fitzgerald, and others. Students will explore various writing techniques and styles. These techniques will be used in their own expository, persuasive, and creative writings. Critiquing literary works is a major focus at this level. The fundamental elements of research will be applied directly to written and oral communications. Knowledge will be evident through oral presentations, written reports, analyses, and small/large group discussions. Students will utilize the skills learned in Mass Communications Writing and Production 1 to complete English related assignments and projects.

**MC111  ENGLISH 11**  
One Credit  
This course is based upon a survey of British literature. Composition skills are further developed, emphasizing correctness, practicality, style, and fluency. A research paper is required.

**MC112  ENGLISH 12**  
One Credit  
This course is based upon a survey of world literature and includes comparative studies of universal themes in literature and the history of language. Language study includes effective communication in all forms of expression and practical skills for the working or the academic world. A research paper is required.

**MC210  WORLD HISTORY/GEOGRAPHY TO THE PRESENT**  
One Credit  
Students in World History/World Geography 1400’s to the Present will build on the basic historical, geographical, political, and economic concepts presented to them in the first year of the program. The diversity of culture and the evolution of human history will be explored chronologically and geographically from the late Middle Ages to the present. Geographical concepts will be incorporated within the context of world historical events. Students will examine the development of the world’s major political, economic, and legal systems; artistic and literary movements; technological changes; trade patterns; religions, and the influential people of history. Special emphasis will be given to the five themes of geography as they relate to regional conflicts, humanity’s relationships with the environment, and the foundation of democratic principles, such as citizenship. Hands-on activities and the use of available technology will be an integral part of this course. Students will utilize the skills learned in Mass Communications and Technology Connections to complete World History/World Geography related assignments and projects.

**C211 V/A/US History**  
One Credit  
The curriculum examines the structure and functions of our federal form of government. The decision-making processes at the local, state, national, and international levels are emphasized. The foundations of American government, the politics of American democracy, and
constitutional rights and responsibilities are explored in depth. United States political and economic systems are compared to those of other nations, with emphasis on the relationships between economic and political freedoms. Economic content includes the United States market system, supply and demand, and the role of the government in the economy. Democratic values and citizen participation are stressed throughout the course.

MC212 VA/US HISTORY
One Credit
The curriculum examines the structure and functions of our federal form of government. The decision-making processes at the local, state, national, and international levels are emphasized. The foundations of American government, the politics of American democracy, and constitutional rights and responsibilities are explored in depth. United States political and economic systems are compared to those of other nations, with emphasis on the relationships between economic and political freedoms. Economic content includes the United States market system, supply and demand, and the role of the government in the economy. Democratic values and citizen participation are stressed throughout the course.
The Center for Pre-Engineering Studies located at L. C. Bird High School offers students academic and practical choices to explore the various disciplines within the field of engineering. The goal of the Center is to enhance the students' awareness of the field of engineering and help them narrow their focus of study as they enter college and university programs. The program will focus on blending various core components of each area, highlighting specialized units of engineering, and providing a broad understanding of this educational and career path.

- A rigorous academic track emphasizing advanced study in math and science
- A unified study of the fundamental concepts basic to all engineering fields
- Extensive use of technology within the classroom, including computer-assisted drawing and other software used in the university setting
- Working with mentors, field experiences, dual-enrollment courses, and Advanced Placement classes
- The third year features a project orientation in the areas of aerospace, bio-medical and architectural engineering
- Access to the electives and student activities available to all students in a comprehensive high school

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<th>Pre-Engineering--Proposed Course Sequence</th>
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<td><strong>Ninth</strong></td>
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<td>English 9</td>
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<td>World History/Geography to 1500</td>
<td>History/Geography 1500 AD to the Present</td>
<td>VA &amp; United States History</td>
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<td>Health and Physical Education 9</td>
<td>Health and Physical Education 10</td>
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<td>World Language</td>
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<th>Pre-Engineering Courses--Honors</th>
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<tbody>
<tr>
<td>Foundations of Engineering</td>
<td>Engineering Design</td>
<td>Chemistry and Engineering Applications</td>
<td>Calculus</td>
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<tr>
<td>Engineering Geometry</td>
<td>Engineering Algebra 2/Trigonometry</td>
<td>Biomedical Engineering</td>
<td>AP Physics</td>
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<tr>
<td>Engineering Physics</td>
<td>Engineering Biology</td>
<td>Aerospace Engineering</td>
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<tr>
<td>Introduction to Aerospace Studies (1/4 credit)</td>
<td>Introduction to Biotechnology (1/4 credit)</td>
<td>Architectural Engineering</td>
<td>AP Chemistry</td>
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<tr>
<td>Introduction to AutoCAD (1/4 credit)</td>
<td>Engineering Software (1/4 credit)</td>
<td>Manufacturing Engineering</td>
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<td>AP Biology</td>
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<td>AP Environmental Science</td>
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<td>Senior Seminar</td>
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<td>Senior Mentorship</td>
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**COURSE DESCRIPTIONS**

**PE 010 ENGINEERING DESIGN - HOW THINGS WORK**
One Credit
Engineering Design – How Things Work is a hands-on, project base class that teaches the principles of engineering and engineering technology through examining how everyday objects work. Mechanical, Electrical, Electronic, Fluids systems will be examined with an emphasis on how these systems have shaped our world.

**PE011 FOUNDATIONS OF ENGINEERING**
One Credit
Foundations of Engineering is a course designed to introduce all first year students to the fundamentals of engineering and the various specialized fields. Students will discover career opportunities, learn to utilize new technologies, and develop essential skills in math, writing, and speaking. Students will complete various engineering projects giving them hands-on experience with design. This course will integrate field trips, guest speakers, lab work, and teamwork to enhance the value of the principles being taught.

**PE021 ENGINEERING DESIGN**
One Credit
This course is required for all second year students in the Pre-Engineering Specialty Center. It is designed to give students the skills needed to solve engineering problems and to design solutions, ideas, and products. This course will integrate materials, power supplies, teamwork, design processes, and reporting results while solving engineering problems. Field trips, guest speakers, and technology will be included to enhance the value of the principles and skills taught.

**PE031 INTRODUCTION TO AUTOCAD**
.25 Credit
This course introduces the student to the basic commands and functionality of AutoCAD. The focus of the course is to make connections between engineering concepts and practical applications in a technological setting. Students will receive basic training on formatting commands and will be guided through an independent project. The instructional components will enhance the students’ use of the computer as well as provide the foundation for further study.

**PE032 INTRODUCTION TO AEROSPACE STUDIES**
.25 Credit
This course is designed to expose students to the fundamental principles of aerospace and aeronautical studies. Students will be exposed to various concepts in the aerospace field, from structures and dynamics to the fundamentals of flight. Within the overview of the basics, students will conduct experiments to provide a hands-on application of these concepts. This course will include field lab settings and guest speakers who will discuss current and historical issues in this area of study.

**PE033 INTRODUCTION TO BIOTECHNOLOGY**
.25 Credit
This course is designed to provide students with an overview of the fundamental principles of biomedical engineering. Students will be exposed to both established and developing concepts in this field. They will be guided through an independent project which pertains to this emerging field.

**PE034 ENGINEERING SOFTWARE**
.25 Credit
This course provides students with a continuation of studies in Introduction to AutoCAD. Students will receive training in advanced applications to enhance their own use and understanding of the computer aided drafting concepts, equipment, and other software used in the field of engineering.

**PE040 AEROSPACE ENGINEERING**
One Credit
Aerospace Engineering will approach the field of Aerospace Engineering with a project-based approach looking at both airplanes and spacecraft. Students will center their studies around something like the design of a plane or space vehicle, the systems involved in the machine, and the scientific aspects of flight. (Projects may change from year to year). Students will apply knowledge of physics and engineering design along with input and research in the field of aerospace engineering to complete the project.

**PE042 BIOMEDICAL ENGINEERING**
One Credit
Biomedical Engineering will approach the field of Biomedical Engineering with a project-based problem. Students will center their studies solving a problem such as the design of an artificial limb or heart, looking at the mechanics involved in the machine as well as the elements needed on the biology, physiology, and medical side of the design. (Projects may change from year to year) Students will apply their knowledge of physics, biology, their knowledge of physics, biology, and engineering design along with input and research in the field of biomedical engineering to complete the project.

**PE044 ARCHITECTURAL ENGINEERING**
One Credit
3-D Engineering: Drawing and Design will approach the field of 3-D Engineering with a project-based problem, using and expanding concepts learned in Introduction to AutoCAD. Students will center their studies around the design of a building and study the physics, mechanics, and mathematics involved, as well as the aesthetics. (Projects may change from year to year) Students will apply their knowledge of physics, geometry, trigonometry, and engineering design, along with input and research in the field of architectural engineering to complete the project. Students will also define the difference between an architect and an architectural engineer, thus being able to make an informed career choice.

**PE046 MANUFACTURING ENGINEERING**
Honors
One Credit
Manufacturing Engineering encompasses mechanics, hydraulics, pneumatics, electrical, and systems engineering as well as use of CAD and CNC to solve real-world applications of engineering problems. This is a project-based course with the majority of the work set up as hands-on activities. The student completes specific modules designed to teach the various areas of manufacturing engineering. The second semester challenges students to work as a team and use their newfound knowledge to design and build various projects that will accomplish a task or solve a typical engineering problem.

**PE071 JUNIOR SEMINAR**
One Credit
Students in the third year of the Pre-engineering program will be required to attend a series of workshops with guest speakers, participate in college visits and field trips. They will log hours for discussion on engineering topics to be decided, and be prepared to complete an independent project and present to classmates, parents, and teachers, etc.

**PE072 SENIOR SEMINAR**
One Credit
Seminar 2 is a required class for Pre-Engineering students, to be taken in the senior year. This class includes several units of study relevant to college engineering courses. Topics will include Statics, Dynamics, Probability and Statistics, Thermodynamics, Electric Circuit Theory, and Engineering Ethics. Students will see what college-level engineering work is like, and get a little taste of actual lower level courses, while learning to apply what they have learned in their math and science classes.

**PE073 JUNIOR MENTORSHIP**
One-half Credit
This course is designed for students who wish to participate in the mentorship experience either the summer before their senior year or after school during their senior year. A minimum of 80 hours (two standard work weeks) is required in order to receive half-credit. Students will develop skills in various areas, such as designing projects, solving technical problems, identifying steps in the design process, and evaluating products best suited for the design project.
This course is designed for students who wish to participate in the mentorship experience either the summer before their senior year or after school during their senior year. A minimum of 160 hours (four standard work weeks) is required in order to receive full credit. Students will develop skills in various areas, such as designing projects, solving technical problems, identifying steps in the design process, and evaluating products best suited for the design project.

**PE110 ENGLISH 10**  One Credit

This course is a combination of the traditional English 10 coursework and the principles of technical writing. Technical writing units are integrated into the study of effective communication skills and the fundamentals of research. American literature is used to emphasize character motivation and human relations.

**PE210 WORLD HISTORY through the Eyes of Engineering**  One Credit

World History through the eyes of Engineering incorporates an emphasis on major engineering innovations into the standard World History II course. Students will examine history from 1500 to present day in the context of engineering developments and focus on how those developments shaped world cultures. Many student assignments are related to work done in other engineering courses.

**PE212 GOVERNMENT AND ETHICS**  One Credit

The curriculum examines the structure and functions of our federal form of government. The decision-making processes at the local, state, national, and international levels are emphasized. The foundations of American government, the politics of American democracy, and constitutional rights and responsibilities are explored in depth. United States political and economic systems are compared to those of other nations, with emphasis on the relationships between economic and political freedoms. Economic content includes the United States market system, supply and demand, and the role of the government in the economy. Democratic values and citizen participation are stressed throughout the course.

**PE330 ENGINEERING GEOMETRY**  One Credit

Engineering Geometry illustrates the role of the engineer and how geometry is utilized in the problem solving process. This course is a unified study of planes, line congruencies, geometric inequalities, perpendicularity of lines and planes, polygons, polyhedral, area, volume, similarity, coordinate and transformational geometry, circles, and spheres. These units of study are enhanced with a problem solving format that allows for the use of engineering issues to explain these geometric concepts.

**PE340 ALGEBRA 2**  One Credit

Algebra 2 extends the concepts that students have encountered in previous coursework and provides a thorough treatment of advanced algebraic concepts. Emphasis will be placed on practical applications, logic of procedures, and interpretation of results. Graphing calculators and computers will enhance the students' understanding. Students will be expected to communicate and practice mathematical ideas appropriately. Pre-requisites: PE330 Geometry

**PE342 ALGEBRA 2/TRIGONOMETRY**  One Credit

The design of this course provides students with a more rigorous treatment of Algebra 2 concepts, including a more detailed study of polynomial functions, rational expressions, domain, and range. Rapid pacing allows for the inclusion of major topics in the study of triangle and circular trigonometry as well as conic sections. Frequent opportunities are provided for students to make connections between topics studied and other disciplines. Students routinely use calculators to aid in the problem-solving process.

**PE430 ENGINEERING BIOLOGY**  One Credit

Engineering Biology is a laboratory-based course which encompasses research design concepts, with applications to the fields of engineering, most specifically bio-tech engineering. Core content will include interrelationships in ecosystems, taxonomy, cellular chemistry, genetics, microbiology, and physiology. These areas are developed within a framework of the principal biological theories with an emphasis on critical thinking and science process skills. Team research projects will be developed using descriptive statistical techniques. Additionally, bio-tech processes will be developed and a research project on this topic will be completed.

**PE440 CHEMISTRY & ENGINEERING APPLICATIONS**  One Credit

This inquiry-based laboratory course is a comprehensive survey of inorganic and physical chemistry. The course will emphasize problem-solving, specifically related to engineering where possible, and provide a thorough foundation for the college bound student, emphasizing a quantitative approach. In addition to learning the concepts of chemistry, students will spend the majority of their time applying their knowledge to new situations and analyzing and evaluating chemical data. Students in this course will continue to learn and practice the skills of experimental design. Research projects will be completed by small teams of students, involving the use of inferential statistics as part of data analysis, and will be focused on engineering problems where appropriate.

**PE450 ENGINEERING PHYSICS**  One Credit

This is a college preparatory course with emphasis on physical science concepts. Concepts involved include mechanics, thermodynamics, waves, electromagnetism, modern physics, and scientific investigation. Student experiences center around active inquiry and experimentation.

**PE469 AP PHYSICS C**  One Credit

This course is designed to be equivalent to a freshman college physics course for students planning to major in engineering or physics. It is an intensive and rigorous survey of physical properties. This course surveys the topics of mechanics, and electricity and magnetism with approximately equal emphasis on these two areas. Strong emphasis is placed on solving a variety of challenging problems, requiring calculus. Weekly time equivalent to three hours lecture and four hours laboratory is required. Students will be prepared to sit for the AP Physics C test.

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L. C. Bird High School
10301 Courthouse Road
Chesterfield, VA 23832
(804) 768-6110

Beth Teigen, Principal
Nancy Hoover, Specialty Center Coordinator
The Mathematics and Science High School at Clover Hill focuses on interdisciplinary experiences in English, history and social science, mathematics, and science that are planned and implemented by teams of teachers. The Center features an integrated curriculum in mathematics in which the major topics in traditional high school math courses are taught in three years via a thematic approach.

- An accelerated approach which allows students to take all Advanced Placement courses in biology, chemistry, and physics
- Dual enrollment classes in life science, engineering, differential equations, bioethics, linear algebra, and vector calculus as well as other specialized courses such as organic chemistry
- A unique, integrated approach to mathematics leading to an in depth understanding of Advanced Placement calculus and modeling
- A program-wide emphasis on problem-solving, thinking, communication, technology, and research skills
- Access to the electives and student activity programs available to all students of a comprehensive high school

### Math and Science--General Course Sequence*

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<tbody>
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<td>English 9</td>
<td>English 10</td>
<td>English 11</td>
<td>AP English Literature or AP English Composition</td>
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<tr>
<td>Integrated Pre-calculus 1</td>
<td>Integrated Pre-calculus 2</td>
<td>Integrated Pre-calculus 3</td>
<td>AP Calculus AB or AP Calculus BC</td>
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<td>or Advanced Pre-calculus 1</td>
<td>or Advanced Pre-calculus 2</td>
<td>and Mathematical Modeling</td>
<td>or Differential Equations or Linear Algebra</td>
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<tr>
<td>Biology</td>
<td>and Mathematical Modeling</td>
<td>Chemistry</td>
<td>Universe States History or UN History</td>
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<tr>
<td>World History/World Geography Beginnings - 1400 CE</td>
<td>World History/World Geography 1400's to Present</td>
<td>Physics</td>
<td>AP United States and Virginia Government</td>
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<tr>
<td>Health and Physical Education 9</td>
<td>Health and Physical Education 10</td>
<td>United States History or AP US History</td>
<td>3 Electives</td>
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*All courses taken at Math and Science High School with the MS prefix carry honors credit.
JT021 INTRODUCTION TO PHILOSOPHY
One-half Credit (JTCC, 3 Credits)
Introduction to Philosophy complements the current Bioethics course offering. This course aims at a deeper understanding of matters that should most concern the human race. Philosophical questions crop up in science, art, morality, politics, and medicine in everyday life. Students enrolled in this course are encouraged to think seriously about fundamental issues in all these domains and to formulate coherent and well-grounded points of view. Because of its extensive use of critical and analytical reasoning, philosophy equips the student for careers in medicine, law, business, and other fields that require careful thought and clear expression of ideas.

JT329 ADVANCE MATH MODELING
One-half Credit (JTCC 3 credits)
This course is dual-enrollment with John Tyler Community college and offered to Math/Science and Clover Hill students who have already completed AP Calculus BC in their previous year. Topics include learning process for modeling, methodology, modeling skills, differential equations in modeling, mathematics applied to other disciplines, especially biology, chemistry, physics and engineering, report writing and presentation skills.

JT362 LINEAR ALGEBRA
Semester, One-half Credit (JTCC, 3 Credits)
This course begins with practice in writing proofs, set theory, and number theory. Specific topics include set operation, equivalence relations, math induction, and the Fundamental Theorem of Arithmetic. This course also includes the study of abstract vector spaces, linear transformations, algorithms for solving systems of linear equations, matrix analysis, the theory of Eigen values and Eigen vectors, and the Jordan canonical form of matrices. Using calculators and computers extensively, applications of linear algebra to a variety of disciplines are emphasized.

JT363 ORDINARY DIFFERENTIAL EQUATIONS
One-half credit (JTCC, 4 credits)
This course introduces ordinary differential equations. It includes first order differential equations, second and higher order ordinary differential equations with application. This course is designed for mathematical, physical, and engineering science programs.

JT364 MULTIVARIATE CALCULUS
One-half credit (JTCC, 4 credits)
This course presents vector-valued functions, partial derivatives, multiple integrals, matrices, vector spaces, determinants, solutions of systems of linear equations, basis and dimension, Eigen values, and Eigen vectors. This course is designed for mathematical, physical and engineering science programs.

JT368 APPLIED LINEAR ALGEBRA
Semester, One-half Credit (JTCC, 3 credits)
Continues coverage of matrix theory and linear algebra, emphasizing topics useful in other disciplines, including applications of systems of equations, Eigen values, similarity positive, definite matrices, least-squares approximations, networks and Markov processes. Further applications may include systems of differential equations, and Fourier transforms. Designed for mathematical, physical and engineering science programs.

JT425 BIOETHICS
Semester, One-half Credit (JTCC, 3 Credits)
Students will consider, survey and research many of the ethical issues involved with many areas of health care, medicine, and society.

JT432 INTRO TO MICROBIOLOGY
One-half Credit (JTCC 3 Credits)
Studies the general characteristics of microorganisms. Emphasizes their relationships to individual and community health. Students interested in biology can further their understanding and academic discovery in microorganisms.

JT433 HUMAN HEREDITY
One-half Credit (JTCC 3 credits)
Surveys basic principles of classical and molecular genetics as applied to humans.

JT811 ENGINEERING 1
Semester, One-half Credit (JTCC 3 Credits)
This course introduces the student to the engineering profession, including professional concepts, ethics, and responsibility. Students are introduced to engineering problem solving, and graphic techniques. Students are taught concepts of stress, strain, deformation, internal equilibrium, and basic properties of engineering materials. Analyzes axial loads, torsion, bending shear and combined loading. Studies stress transformation and principle stresses, column analysis and energy principles.

JT812 ENGINEERING 2
Semester, One-half Credit (JTCC 3 Credits)
This course introduces the mechanics of vector forces and space, scalar mass and time, including S. I. and U. S. customary units. Students are taught equilibrium, free body diagrams, movements of inertia and analysts of two-force and multi-force members.

MS025 RESEARCH/TECHNOLOGY
One Credit
This course is designed to help students to extend and refine their previous research efforts to a higher level. Emphasis will be on producing a high-quality research product.

MS026 SCIENTIFIC RESEARCH
One Credit
Students will conduct an independent research project and present it at a research competition. Students will also plan and execute a research symposium at the high school and document their experiences on a web page for the school. Students will also partner with VCU in an exploration of viral diversity.

MS027 ADVANCED RESEARCH AND TECHNOLOGY
One Credit
Students are exposed to a variety of research options and methods for acquiring data. They also experience a variety of technological means for presenting the outcome of their research. Some projects require extensive research that goes beyond the school year. EX: A student creating a website on the Virginia State Legislature would require the time to master web design, conduct research on the General Assembly, create and mail questionnaires, conduct interviews, process the information, create the finish product and finally conduct a presentation.

MS109 ENGLISH 9
One Credit
Math/Science English 9 provides an opportunity to evaluate, express, and use ideas. Students then learn how to support ideas they have developed. They learn the basics: grammar, sentence structure, punctuation, usage, and writing tools. They examine examples of excellent expression so they can recognize and use its techniques in their own writing. Students experience the power and pleasure of functioning as effective group members as they relate what they learn to what they already know. An extensive array of activities in conjunction with Math/Science Global Studies 1 underscores the interdisciplinary focus of this course.

MS110 ENGLISH 10
One Credit
Using a chronological study of World and British literature this course focuses on reading skills to cultivate critical thinking skills; helping students become more mature communicators, both in writing and speaking; and to improve research skills. Differing from other English classes, this course uses an interdisciplinary approach, including nonfiction as a major part of its literary study.
MS111  ENGLISH 11  One Credit
The Math/Science English 11 class emphasizes effective writing and
analytical reading skills through a survey of American prose, poetry,
and drama. While the primary focus will be the detailed study of the
texts themselves, historical issues will also be addressed and aligned
with the US History course. Research and oral presentations will be
integral parts of the class.

MS112 ENGLISH 12  One Credit
This course is based upon a survey of world literature and includes
comparative studies of universal themes in literature and the history of
language. Language study includes effective communication in all
forms of expression and practical skills for the working or the academic
world. A research paper is required.

MS209 WORLD HISTORY/GEOGRAPHY TO 1500 AD  One Credit
Students in this Math/Science Center high school social studies course
will build on the basic historical, geographical, political, and economic
concepts presented to them in the K-8 program. The diversity of
culture and the evolution of human history will be explored chronologically and geographically from the beginning of time until the rise of nation states in Europe. Geographical concepts will be incorporated within the context of world historical events. Students will examine the development of the world’s major political, economic, and legal systems; artistic and literary movements; technological changes; trade patterns; religions; and the influential people of history. Special emphasis will be given to the five themes of geography as they relate to regional conflicts, humanity’s relationships with the environment, and the foundation of democratic principles, such as citizenship. Hands-on activities and the use of available technology will be an integral part of this course. Students will critique analytical essays and begin to learn the research writing process. This course is a foundation for complex critical thinking and problem solving in subsequent social studies courses."

MS210 WORLD HISTORY/GEOGRAPHY 1500 AD TO THE PRESENT  One Credit
Students in World History/Geography 1500 AD to the present will build
on the basic historical, geographical, political, and economic concepts
presented to them in the first year of the program. The diversity of
culture and the evolution of human history will be explored chronologically and geographically from the late Middle Ages to the present. Geographical concepts will be incorporated within the context of world historical events. Students will examine the development of the world’s major political, economic, and legal systems; artistic and literary movements; technological changes; trade patterns; religions; and the influential people of history. Special emphasis will be given to the five themes of geography as they relate to regional conflicts, humanity’s relationships with the environment, and the foundation of democratic principles, such as citizenship. Hands-on activities and the use of available technology will be an integral part of this course. Students will critique analytical essays and continue to learn the research writing process. This course stresses complex critical thinking and problem solving.

MS211 UNITED STATES HISTORY  One Credit
This course will chronicle the history of the United States from the first
European exploration of the Americas to the present. Individuals and
groups which contributed to the unique evolution of the United States
will be studied. Both domestic and foreign policies will be examined at
various points in time as the United States developed into a democratic
world power. While focusing on political and economic history, this
course will include a study of American culture. Document based
questions will encourage students to refine their critical thinking skills
and write better analytical, reflective, and evaluative essays. Students
will also synthesize information about national and international
political and economic movements as well as historical personages. As
part of this program, debates will center on important issues faced by
the U.S. and will require students to apply, synthesize, and evaluate
the impact of the U.S. on world affairs. In addition to tests and
quizzes, students will write analytical essays. Students will continue to
learn the research writing process by using additional elements of
research in a paper. Other student projects should include several of
the following: book reviews, oral presentations/projects, debates,
simulations, biographical sketches, and political cartoons. The purpose
of these products is to enable students to develop the ability to
demonstrate more complex critical thinking and problem solving skills.

MS212 VA/US HISTORY  One Credit
The curriculum examines the structure and functions of our federal
form of government. The decision-making processes at the local, state,
national, and international levels are emphasized. The foundations
of American government, the politics of American democracy, and
constitutional rights and responsibilities are explored in depth. United
States political and economic systems are compared to those of other
nations, with emphasis on the relationships between economic and
political freedoms. Economic content includes the United States market
system, supply and demand, and the role of the government in the
economy. Democratic values and citizen participation are stressed
throughout the course.

MS231 AP ECONOMICS: MACROECONOMICS  One Credit
The macroeconomic component of the course will provide students with
the principles of economics that apply to the larger economic system. It places primary emphasis on the nature and functions of product markets, and includes the study of factor markets and of the role of government in promoting greater efficiency and equity in the economy. The macroeconomic component of the course will provide students with the principles of economics that apply to an economic system as a whole. Such a course places particular emphasis on the study of national income and price determination, and also
develops students’ familiarity with economic performance measures,
economic growth, and international economics.

MS316 INTEGRATED PRECALCULUS 1  One Credit
These three courses comprise a five-semester sequence and are
followed by enrollment in MSM 328 Mathematical Modeling. Using an
integrated approach, these courses explore the following major topics
in geometry, Algebra II, trigonometry, and mathematical analysis:
functions (polynomial, rational, exponential, logarithmic,
trigonometric), parametric, and polar graphing; matrices, sequences,
and series; geometry in space; probability and statistics; and an
introduction to calculus (limits and derivatives). To aid them in their
scientific research, students also learn statistical analysis. Graphing
calculators serve as tools for solving problems and allowing more in-
dependent study of math concepts. Students have many opportunities to
apply new skills both within the curriculum and in conjunction with
other classes, particularly science.

MS317 INTEGRATED PRECALCULUS 2  One Credit
These three courses comprise a five-semester sequence and are
followed by enrollment in MSM 328 Mathematical Modeling. Using an
integrated approach, these courses explore the following major topics
in geometry, Algebra II, trigonometry, and mathematical analysis:
functions (polynomial, rational, exponential, logarithmic,
trigonometric), parametric, and polar graphing; matrices, sequences,
and series; geometry in space; probability and statistics; and an
introduction to calculus (limits and derivatives). To aid them in their
scientific research, students also learn statistical analysis. Graphing
calculators serve as tools for solving problems and allowing more in-
dependent study of math concepts. Students have many opportunities to
apply new skills both within the curriculum and in conjunction with
other classes, particularly science.

MS318 INTEGRATED PRECALCULUS 3  One-half Credit
These three courses comprise a five-semester sequence and are
followed by enrollment in MSM 328 Mathematical Modeling. Using an
integrated approach, these courses explore the following major topics
in geometry, Algebra II, trigonometry, and mathematical analysis:
functions (polynomial, rational, exponential, logarithmic, trigonometric), parametric, and polar graphing; matrices, sequences, and series; geometry in pace; probability and statistics; and an introduction to calculus (limits and derivatives). To aid them in their scientific research, students also learn statistical analysis. Graphing calculators serve as tools for solving problems and allowing more indepth study of math concepts. Students have many opportunities to apply new skills both within the curriculum and in conjunction with other classes, particularly science.

**MS322  ADVANCED PRECALCULUS 1**

One Credit

These courses comprise a three-semester sequence of courses and are followed by MSM 328 Mathematical Modeling. These courses include advanced function analysis; parametric and polar graphing; matrices, sequences and series; probability and statistics; limits; and derivatives. Students explore, discover, and analyze in order to solve real-world problems. They are also expected to do independent research on an individual topic related to mathematics and to present their findings both in writing and orally.

**MS323  ADVANCED PRECALCULUS 2**

One-half Credit

These courses comprise a three-semester sequence of courses and are followed by MSM 328 Mathematical Modeling. These courses include advanced function analysis; parametric and polar graphing; matrices, sequences and series; probability and statistics; limits; and derivatives. Students explore, discover, and analyze in order to solve real-world problems. They are also expected to do independent research on an individual topic related to mathematics and to present their findings both in writing and orally.

**MS328  MATHEMATICAL MODELING**

One-half Credit

This semester course has two goals: to use mathematics to model a wide variety of real-world phenomena and to establish a firm foundation for calculus and future work in other fields of study. Some of the topics used for modeling are: function analysis, data analysis, matrices, and linear programming. Students are required to display, describe, interpret, transform, and model numerical data obtained from classroom calculator- Based Laboratory (CBL) experiments or from other research. By using a graphing calculator, students focus on mathematical concepts and structure rather than computation.

**MS329  ADVANCED MATH MODELING**

One-half Credit

This course is offered to math/Science and Clover Hill students who have already completed AP Calculus BC in their previous year. Topics include learning process for modeling, methodology, modeling skills, difference equations in modeling, mathematics applied to other disciplines, especially biology, chemistry, physics, and engineering, report writing and presentation skills.

**MS354  MULTIVARIATE CALCULUS**

One-half Credit

This course presents vector-valued functions, partial derivatives, multiple integrals, matrices, vector spaces, determinants, solutions of systems of linear equations, basis and dimension, Eigen values, and Eigen vectors. This course is designed for mathematical, physical and engineering science programs. **Pre-requisites: AP Calculus BC and Ordinary Differential Equations**

**MS361  AP CALCULUS AB**

One Credit

Advanced Placement Calculus AB explores the topics of limits/continuity, derivatives, and integrals. These ideas are examined using a multi-layered approach including the verbal, numerical, analytical, and graphical analysis of polynomial, rational, trigonometric, exponential, and logarithmic functions and their inverses. The student will be expected to relate the connections among these approaches. Students will also be required to synthesize knowledge of the topics of the course to solve applications that model physical, social and/or economic situations. These applications should emphasize derivatives as rates of change, local linear approximations, optimizations and curve analysis, and integrals as Riemann sums, area of regions, volume of solids with known cross sections, average value of functions, and rectilinear motions. Teachers should consult (yearly) the AP Board for changes in curriculum and emphasis of particular topics. As mandated by the College Board, graphing calculators will be required. College credit and/or advanced placement in college is available to those students receiving a qualifying score on the Advanced Placement Examination.

**MS362  AP CALCULUS BC**

One Credit

AP Calculus BC is intended for students who have a thorough knowledge of analytic geometry and elementary functions in addition to college preparatory algebra, geometry, and trigonometry. Although all of the elements of the Advanced Placement Calculus AB course are included, it provides a more rigorous treatment of these introductory calculus topics. The course also includes the development of the additional topics required by the College Entrance Examination Board in its syllabus for Advanced Placement Calculus BC. Among these are parametric, polar, and vector functions; the rigorous definition of limit; advanced integration techniques; Simpson's Rule; length of curves; improper integrals; Hooke's Law; and the study of sequences and series. The use of the graphing calculator will be fully integrated into instruction and students will be called upon to confirm and interpret results of problem situations that are solved using available technology. College credit and/or advanced placement in college is available to those students receiving a qualifying score on the Advanced Placement Examination.

**MS377  COMPUTER PROGRAMMING JAVA - Honors**

One Credit

Java introduces programming for an object oriented, portable, robust, secure, high-performance, platform independent distributed development environment. Students receive in-depth exposure to this computer language and terminology and opportunities to apply the concepts presented to realistic problem-solving situations presented in the advanced curriculum. This accelerated course provides the necessary background for students to successfully pursue Advanced Placement Computer Science JAVA AB. Additional emphasis is placed upon computer ethics and responsible use of hardware and software components. **Pre-requisite: Co-requisite: MA40 Algebra 2 and teacher recommendation.**

**MS430  BIOLOGY 1**

One Credit

Honors biology is a laboratory-based course which encompasses research design concepts introduced in the middle school. Core content will include interrelationships in ecosystems, taxonomy, cellular chemistry, genetics, microbiology, and physiology. These areas are developed within a framework of the principal biological theories with an emphasis on critical thinking and science process skills. Class team research projects will be developed using descriptive statistics techniques.

**MS440  CHEMISTRY**

One Credit

This inquiry-based laboratory course is comprehensive survey of inorganic and physical chemistry. The course will emphasize problem solving and provide a thorough foundation for the college-bound student, emphasizing a quantitative approach. In addition to learning the concepts of chemistry, students will spend the majority of their time on applying their knowledge to new situations and analyzing and evaluating chemistry data. Students in this course will continue to learn and practice the skills of experimental design. Research projects will be completed by small teams of students involving the use of inferential statistics as part of data analysis.

**MS450  PHYSICS 1**

One Credit

This is a college preparatory course with emphasis on the analytic treatment of content, which will include kinematics, dynamics, Newtonian mechanics, conservation laws, kinetic molecular theory, waves, and the electromagnetic spectrum. Students are required to complete an individual research paper using appropriate techniques of statistical analysis introduced in the student's prior science experiences. Keyboarding skills and/or computer skills are highly
MS463 INTRO TO MICROBIOLOGY One-half Credit
Studies the general characteristics of microorganisms. Emphasizes their relationships to individual and community health. Students interested in biology can further their understanding and academic discovery in microorganisms. **Prerequisite: Honors chemistry and biology.**

MS469 AP PHYSICS C One Credit
This course is designed to be equivalent to a freshman college physics course for students planning to major in engineering or physics. It is an intensive and rigorous survey of physical properties. This course surveys the topics in mechanics, and electricity and magnetism with approximately equal emphasis on these two areas. Strong emphasis is placed on solving a variety of challenging problems, requiring calculus. Weekly time equivalent to three hours lecture and four hours laboratory is required. Students will be prepared to sit for the AP Physics C test.

MS476 ORGANIC CHEMISTRY 1 One-half Credit
This course provides students with an opportunity to learn about a selected area of chemistry in greater depth. Students learn about all the major families of organic compounds and their reactions. Students also spend time studying polymer chemistry. The course is based primarily on student labs and projects.

MS477 ORGANIC CHEMISTRY 2 One-half Credit
This course allows students to make a detailed study of some applications of organic chemistry. Students learn how to use their creativity and background knowledge in the design of organic syntheses and in organic structure determination. The course also includes numerous applications of organic chemistry in biochemistry. Like Organic Chemistry 1, this course is based primarily on student labs and projects.

MS481 BIOETHICS AND APPLIED ETHICAL ANALYSIS One Credit
This course will emphasize analyzing the thinking and decision-making of all parties and stress show ethical reasoning forms the basis for all human decision-making. The course would be especially valuable for students who have taken a course in biology and biochemistry. Bioethics will provide students with opportunities to apply ethical and moral thinking in real-world situations by examining, specifically, the ethics of medical research and medical practice, scientific studies on humans and animals, and the role of society and government to protect and govern the actions of its citizens.

MS482 PHILOSOPHY & ETHICAL REASONING One-half credit
Students will explore various ways of thinking by examining and studying major themes in philosophy. Students will be introduced to diverse ways of examining human problems by reading and discussing major philosophic works from human history. Students will share, analyze and evaluate ideas and ethical reasoning perspectives and viewpoints, and be able to analyze problems and develop rational and ethical solutions considering multiple view points. The course is especially valuable to students wishing to pursue careers in medicine, public policy, scientific research, and law.

MS920 ART EXPLORATION: AESTHETICS AND HISTORY HONORS One Credit
Students will study and experience a select number of major periods of art and the history and aesthetics associated with them. This course is intended for both art students and non-art students. Students will be engaged in Socratic discussion, studio work and the analysis of cultural expression. Students will gain an appreciation of art and the histories and cultures that create it. Students will learn how to discuss major issues in art and aesthetics. Students will gain insight of innovations and techniques through the studio experience.

MS942 COMPUTER ART AND GRAPHICS 2 One Credit
This course will continue the knowledge gained from Computer Art and Graphics 1. Students will further their studies by using the computer as an art form and exploring multimedia and 3-D design. Computer Art and Graphics 2 is intended to prepare students for a future in the technology arts by exposing them to diverse creative opportunities with sophisticated hardware and software. Students will learn how to use technology as a means to achieve a creative end and appreciate the computer as a viable art form.

MS945 MATHEMATICS OF THE ARTS One Credit
This course will give students the opportunity to extend and strengthen skills learned in Algebra and Geometry courses through applications in the arts. Students will have opportunities to observe how mathematics are integrally related to music and the performing arts, visual arts including architecture, ceramics, drawing, photography, printmaking, and sculpture. The intent of this course is to provide a mathematics-enriched elective to enhance the mathematics skills of students who have fulfilled graduation requirements and to encourage students to continue the pursuit of mathematics. Clover Hill High School only.

VC430 LIFE SCIENCES Semester, One-half Credit (VCU, 3 Credits)
Life Sciences is a semester long dual-enrollment course offered by Virginia Commonwealth University that teaches about the complexity of the new, emerging fields of the health sciences that affect humans and their everyday lives. It features an excellent mix of professors from departments and schools of the MCV campus and the academic campus of VCU including anatomy, biology, dentistry, engineering, human genetics, microbiology, nursing, occupational therapy, pharmacy, physical therapy, radiation therapy, and surgery. This class meets three days a week after school. Two of these classes are held at VCU for lecture presentations. The third day is a recitation class that meets at Clover Hill High School. During recitation, students make presentations, discuss topics, and take the mid-term exam.

Clover Hill High School
13301 Kelly Green Lane
Midlothian, Virginia 23112
(804) 739-6230

Dr. Deborah Marks, Principal
C. Sloan Burns, Specialty Center Coordinator
The Center for Spanish Immersion (El Centro de Immersion Espanola) at Manchester High School provides highly motivated students the opportunity to participate in an intensive program where selected core classes are taught in Spanish. They will emerge highly proficient in Spanish. Successful students will develop in-depth insights and abilities in Spanish. They may additionally qualify for Advanced Placement credit at the university level and receive special acknowledgment on their transcripts and diplomas.

- Provision for a nurturing environment and a faculty with a high level of proficiency
- Twelve interdisciplinary immersion classes taught over the course of four years by a well-trained faculty in a supportive environment
- State-of-the-art multi-media center with language learning activities, Internet access, and other technology necessary to succeed in the 21st century
- Dual enrollment options with local colleges and universities and mentoring activities within the corporate community
- Innovative opportunities for greater cultural awareness through travel, field trips and special programs
- Access to electives and student activities in a comprehensive high school

| Spanish Immersion--Proposed Course Sequence |
|-------------------------------|-----------------|-----------------|-----------------|-----------------|
| **Ninth**                     | **Tenth**       | **Eleventh**    | **Twelfth**     |
| English 9                     | English 10      | English 11      | English 12      |
| World History/Geography to 1500 AD | Health and Physical Education 10 | VA & United States History | VA & United States Government |
| Science                       | Science         | Science         | Science         |
| Elective                      | Elective        | Math            | Math            |

| Spanish Immersion Courses     |
|-------------------------------|-----------------|-----------------|-----------------|-----------------|
| Spanish Immersion 1           | Spanish Immersion 2 | Spanish Immersion 3 | Spanish Immersion 4 |
| Health and Physical Education 9 | World History/Geography 1500 AD to Present | Immersion Humanities | Immersion Elective |
| Math*                         | Math*           | Field Experience** | Field Experience** |

*Number and choice of Immersion math classes determined by student placement (advanced math students may waive math and replace the courses with another Immersion course.)

** Field experiences - One or more summer experiences determined by instructor
### COURSE DESCRIPTION

**SI011 SPANISH THROUGH THE MEDIA** One-half Credit
Students will amplify their ability to interpret current topics of interest to people in the Spanish-speaking community, both here and abroad. Students will be able to analyze and interpret current issues in the Hispanic world. A wide variety of materials will be used, both print and streaming. **Pre-requisites: Immersion III**

**SI012 SPANISH VIA THE INTERNET** One-half Credit
Students will learn practical skills and explore topics of current interest in various Spanish-speaking countries. Examples of skills taught include: web page construction, analysis of media aimed at both English-speaking and Spanish-speaking audiences in the United States and beyond, creation of ads for a Spanish-speaking audience, and creation of CVs and resumes. **Pre-requisites: Immersion III**

**SI045 SPANISH IMMERSION FIELD EXPERIENCE 1** One Credit
This course is designed for Immersion students who are participating in additional study of community-based experiences. Experiences may include pre-approved international immersion study, pre-approved domestic immersion study, internships and concurrent enrollment in one of the County's work-study programs.

**SI110 BUSINESS COMPUTER APPLICATIONS** One Credit
Students develop computer skills and use a case-based, problem solving approach to create basic word processing, spreadsheet, database, and multimedia presentation applications. Students explore telecommunications. **Pre-requisites: BUS 201 Keyboarding or teacher approval based on demonstrated skills**

**SI169 SPANISH CULTURE AND LANGUAGE THROUGH FILM** One Credit
"Spanish Culture and Language through Film" is an Immersion elective which will expand the students' knowledge and appreciation of the language and culture while studying the films of various Spanish-speaking countries. The films chosen represent various Hispanic countries, which enables the students to observe daily life in these countries and compare it with their own life. Multiple genres are presented, and the themes of the movies vary greatly to cover information such as current issues in the Hispanic world, significant historical events, and the lives of famous Hispanics. This class will be conducted entirely in Spanish.

**SI210 "WORLD HISTORY/ GEOGRAPHY 1500 A.D. TO THE PRESENT"** One Credit
Students in World History/World Geography 1400's to the present will build on the basic historical, geographic, political, and economic concepts presented to them in the first year of the program. The diversity of culture and the evolution of human history will be explored chronologically and geographically from the late Middle Ages to the present. Geographical concepts will be incorporated within the context of world historical events. Students will examine the development of the world's major political, economic, and legal systems; artistic and literary movements; technological changes; trade patterns; religions; and the influential people of history. Special emphasis will be given to the five themes of geography as they relate to regional conflicts, humanity's relationships with the environment, and the foundation of democratic principles, such as citizenship. Hands-on activities and the use of available technology will be an integral part of this course. Students will critique analytical essays and continue to learn the research writing process. This course stresses complex critical thinking and problem solving. This class will be taught entirely in Spanish.

**SI221 SERVICE LEARNING** One Credit
This course affords students the opportunity to apply their Spanish language skills in practical, community-based situations. Career exploration in fields that utilize their language skills will take place via online research and projects, and community-based service learning at local elementary and middle schools.

**SI250 SPANISH IMMERSION HUMANITIES 1** One Credit
This course is an introduction to humanistic studies of the Spanish-speaking world. The course integrates areas of human endeavors and achievement in history, literature, philosophy, science, math and the fine arts from medieval times through the 18th century. Connections will be made to concerns and influences between the Spanish-speaking world and other cultures during the same period of time. The class will focus on the skills needed for critical thinking, reading, evaluating discussion techniques, and research techniques. This class will be taught entirely in Spanish. The class will focus on the skills needed for critical thinking, reading, evaluating discussion techniques, and research techniques.

**SI251 SPANISH IMMERSION HUMANITIES 2** One Credit
This course focuses on Latin America and Spain during the nineteenth, twentieth and twenty-first centuries. Focus will be on various themes including: the role of Family, the role of Urbanization and the role of Ethnicity, literature, art, music, philosophy and history of the Western Hemisphere. This course is taught entirely in Spanish.

**SI320 ALGEBRA 1** One Credit
The standard Algebra 1 course incorporates all of the college preparatory mathematics in high school. The properties of and operations on numbers are extended to include the development of the real number system. Sets, equations, inequalities, exponents, polynomials, functions, graphing, systems of equations, and quadratics are the major topics of study. Additionally, the ability to make comparisons of one-variable data sets using statistical techniques including measures of central tendency, range, stem-and-leaf plots, and box-and whisker graphs is an expectation for all students in the Algebra 1 program. Integration of algebra topics to other disciplines is encouraged. Instruction in the use of and the development of proficiency with graphing calculators provides students with the visual models that complement the learning of algebraic concepts. Other existing and emerging technologies are used as tools to facilitate the problem solving process, data analysis techniques, and graphing. This course will be taught entirely in Spanish.

**SI330 GEOMETRY** One Credit
The Honors Geometry course is a unified study of plane, solid, and coordinate geometry. The curriculum includes the study of lines, planes, congruencies, geometric inequalities, perpendicularity of lines and planes in space, parallel lines and planes, polygons, polyhedral, area, volume, similarity, coordinate and transformational geometry, circles, and spheres. Every effort is made to incorporate advanced technology into the curriculum through the use of calculators and computers. The intent of this course is to frame a curriculum that ensures the development of broad mathematical power and which cultivates students' abilities to explore, conjecture, reason logically, formulate and solve problems, and communicate mathematically. This course will be taught entirely in Spanish.

**SI340 ALGEBRA 2** One Credit
Algebra 2 extends the concepts that students have encountered in previous coursework and provides a thorough treatment of advanced algebraic concepts. Emphasis will be placed on practical applications, logic of procedures, and interpretation of results. Graphing calculators and computers will enhance the students' understanding. Students will be expected to communicate and practice mathematical ideas appropriately. **Pre-requisites: SI 330 Geometry**

**SI342 ALGEBRA 2/ TRIGONOMETRY** One Credit
"Algebra 2/Trigonometry extends the concepts that students have encountered in Algebra 1 and Geometry. A problem solving focus allows students to connect their prior mathematical knowledge to more
advanced topics. Emphasis is placed on the foundation of real numbers and underlying procedures used to solve a variety of open sentences. Graphical representations which relate algebra to geometry are integral to the program. Function concepts are extended to include polynomial, exponential, and logarithmic functions. Development of the complex number system allows students to gain greater insight into graphical analysis. Introductions to sequences and series, probability, and elementary counting principles assist students as they prepare for the Scholastic Assessment Tests. Instructional activities which require students to use calculators for problem solving further enhance the Algebra II experience. This course will be taught entirely in Spanish.

SI542 SPANISH IMMERSION 1 One Credit
Students will continue to develop the linguistic skills of listening, speaking, reading, and writing at an accelerated pace. They will integrate new and previously learned material to communicate original thoughts and expression. Through a variety of communicative exercises, students will continue to develop proficiency and the ability to express themselves. Language skills will be augmented through linguistic and cultural connections with other classes. Students will attain these skills essential to content courses taught in the Immersion program. The course also includes beyond-the-classroom activities and opportunities to put into practice what already has been learned. They will combine linguistic skills with an expanded opportunity for self-expression and to demonstrate other talents. Several mini-units on Science are taught throughout the course of the year. This course will be taught entirely in Spanish.

SI543 SPANISH IMMERSION 2 One Credit
Students will continue to improve their linguistic skills at an accelerated pace. They will enhance their ability to manipulate the language at a more advanced level by expressing opinions and preferences, giving advice, negotiating, and persuading. Individual interests and talents are encouraged through increased opportunities for peer- and self-assessment and by simulating real-life situations in Spanish. Language skills will be augmented through linguistic and cultural connections with other classes. Students will attain skills in listening, speaking, reading, and writing essential to content courses taught in Spanish. The course also includes beyond the classroom activities and opportunities to put into practice what already has been learned. Students will combine linguistic skills with an expanded opportunity for self-expression and to demonstrate other talents. This course will be taught entirely in Spanish.

SI544 SPANISH IMMERSION 3-AP LANGUAGE One Credit
This course is part of a four-year program that provides students an opportunity to significantly increase the breadth and depth of their second language acquisition. In addition to an accelerated pace and a greater appreciation for diverse cultures, this program offers enhanced technology opportunities. This course will prepare students to take the AP Language exam. This course is taught entirely in Spanish.

SI545 SPANISH IMMERSION 4-AP LITERATURE One Credit
Students will read and analyze a variety of genres in preparation for the AP Literature course. This class is the equivalent of a third year college Intro to Literature course, and covers works from the literature of both Spain and Latin America. At the end of this course, students will be able to function at the level of a student who is finishing their fifth or sixth semester of language study at the college level. This final language course is the culmination of the four-year program. This course will be taught entirely in Spanish.

SI709 HEALTH AND PHYSICAL EDUCATION 9 One Credit
This course is designed for students to apply current health information towards making healthy decisions. The content focuses on nutrition, health fitness, prevention of drug abuse, caring for self and others, and family life education. In physical education emphasis is placed on students becoming confident and competent in performing lifetime physical activities and in participating regularly in physical activity. Fitness experiences and individual fitness assessments are integrated throughout the year. This course will be taught entirely in Spanish.

Manchester High School
12601 Bailey Bridge Road
Midlothian, Virginia 23112
(804) 739-6275

Peter Koste, Principal
Kristal Johnson, Specialty Center Coordinator
Center for Health Science
at Cosby High School

Opening in September 2007, the Health Science Specialty Center seeks students from a broad range of ability levels wanting to prepare for careers in the healthcare industry. An AFT Healthcare Survey reports, “The [healthcare] system faces a widespread crisis in terms of hiring an adequate number of professionals to meet needs of patients.” Beginning in their first year, students will explore career choices within the healthcare system. Students will also experience some of the practical applications of healthcare, such as becoming CPR certified and learning about the legal aspects of the industry. As students progress through the program, they will be offered opportunities for internships and mentorships with local healthcare providers, such as hospitals, retirement communities, and even local doctor’s offices. Students will be guided as they select a career pathway to pursue while at the Health Sciences Center. Upper-level classes will be geared toward one of the following career pathways.

**Career Pathway 1** is designed for students seeking employment or a training program after high school. Examples of career in this pathway include certified coding specialist, home health aide, emergency medical technician, and pharmacy technician.

**Career Pathway 2** is designed for students who will need to further their education, perhaps with an associate’s degree from a community college or technical school and some classes for industry certification. Examples of occupations in this pathway include clinical lab technician, dental hygienist, respiratory therapist, and optician.

**Career Pathway 3** is designed for students who wish to pursue a four-year college degree and possibly a professional degree. Examples of professions in this pathway include dentist, pharmacist, nurse anesthetist, and physician.

**Program Highlights**
- Partnerships with local hospitals, community colleges, and universities, as well as other healthcare-based organizations
- Lab-based, practical and clinical applications
- Opportunities for shadowing, internships and/or mentorships
- Career guidance for health occupations
- Tours of medical/clinical sites
- Health career fairs and institutes
- Guest lectures
- Advanced Placement and dual enrollment courses

**Center Objectives**
Students who would participate in the center will be able to:
- Make health career decisions suited to their needs, aptitudes, abilities and career objectives.
- Develop a foundation of knowledge and skills that supports advanced education or entry-level employment in a health career, including
  - Science and mathematics
  - Communication
  - Teamwork
  - Professional behavior and ethics
  - Analysis and problem-solving
HS010  HEALTH SCIENCE EXPLORATION 2 HONORS  One Credit
Health Science Exploration II is the second overview course for all health science specialty center students. This course will provide an overview of health care careers and serve as an exposure course for health care domains such medical privacy practices (HIPPA), medical jargon, health care safety procedures, medical math (dosage conversions), ethics, technology in medicine, forensic medicine, cell biology and cancer, and organ transplants.

HS020  INTRODUCTION TO PATIENT CARE  One Credit
The purpose of Introduction to Patient Assessment is to teach all prospective health care workers how to assess a patient, both physically and through proper interview skills. Additionally, students will learn how to document said histories and properly record data in charts as well as the use of forms, directives, etc.  Pre-requisite:  Current Science Teacher Recommendation, HS430 or SC430 and HS440 or SC440

HS090  HEALTH SCIENCE EXPLORATION I HONORS  One Credit
Health Science Exploration I is an overview course for all health science specialty center students. This course will provide an overview of health care careers and serve as an exposure course for health care domains such medical privacy practices (HIPPA), medical jargon, health care safety procedures, medical math (dosage conversions), ethics, etc.

HS109  ENGLISH 9  One Credit
HS English 9 advances the study of written and spoken communication skills. Literature study emphasizes genre and the understanding of literary terms and vocabulary. Students will study health science related novels as part of their literature analysis.

HS109  ENGLISH HONORS  One Credit
HS English 9 Honors is a study of nonfiction, mythology, and an introduction to classical literature with a focus on the health sciences as part of their coursework. Students study Homer, Shakespeare, Dickens, Buck, Twain, and a variety of other authors in various genre such as the short story, the novel, drama, and poetry. Students analyze literary texts, determine relationships between form and content, and go beyond an emotional reaction to an intellectual response. Students read critically, asking pertinent questions about what they have read, recognizing assumptions and implications, and evaluating ideas. This course also concentrates on expository writing, literary analysis, and oral communication skills. Students draw conclusions, appraise, and speculate independently about the elements of literature.

HS110  ENGLISH 10  One Credit
English 10 stresses refinement of skills with emphasis on effective written and oral communications. Literature emphasizes character motivation and human relations through the study of American literature. Additionally, students will study technical writing and will learn to research topics using A.P.A. documentation.

HS110  ENGLISH 10 HONORS  One Credit
Literary selections of English 10 Honors include Thoreau, Hawthorne, Melville, Cather, Twain, Faulkner, Fitzgerald, and others. Students will explore various writing techniques and styles with a specific focus on technical writing in the health care field. These techniques will be used in their own expository, persuasive, and creative writings. Critiquing literary works is a major focus at this level. The fundamental elements of research will be applied directly to written and oral communications. Knowledge will be evident through oral presentations, written reports, analyses, and small/large group discussions. Additionally, students will be asked to use A.P.A. documentation as they research various topics for their discussions, presentations, and projects.

HS430  BIOLOGY HONORS  One Credit
Health Science Honors Biology is a laboratory-based course which encompasses research design concepts introduced in the middle school. Core content will include interrelationships in ecosystems, taxonomy, cellular chemistry, genetics, microbiology, and physiology, with a specific focus on human biology. These areas are developed within a framework of the principal biological theories with an emphasis on critical thinking and science process skills and a focus on the relationships with human health care. Class team research projects will be developed using descriptive statistics techniques. If dissections are conducted in class, alternatives will be provided for students that request them.

HS440  CHEMISTRY  One Credit
Health Science Chemistry 1, an inquiry-based laboratory course, surveys the major topics in inorganic chemistry. It is designed to provide a thorough foundation for the college-bound student, emphasizing the quantitative treatment of data, the development of critical thinking skills, abstract reasoning, and application of concepts. As the students work through the labs, there will be a focus on the relationship between chemistry and human biology, especially with a focus on organic chemistry.

HS440  CHEMISTRY HONORS  One Credit
Health Science Honors Chemistry 1, an inquiry-based laboratory course, is a comprehensive survey of inorganic and physical chemistry. The course will emphasize problem solving and provide a thorough foundation for the college-bound student, emphasizing a quantitative approach. In addition to learning the concepts of chemistry, students will spend the majority of their time on applying their knowledge to new situations and analyzing and evaluating chemistry data. Students in this course will continue to learn and practice the skills of experimental design. Research projects will be completed by small teams of students involving the use of inferential statistics as part of data analysis. Labs will be focused on their relationships with human biology, especially with a focus on organic chemistry.

HS461  PARASITOLOGY Honors/  Semester  One-half Credit
Parasitology will expose students to the various types of human parasites, including viruses, bacteria, protozoans, worms, and external parasites such as ticks and mosquitoes. Students will learn about parasitic life cycles, diagnosis, symptoms, and treatment of parasitic diseases. Additionally, students will sue lab-based inquires to study said parasites.

HS462  GENETICS Honors/  Semester  One-half Credit
Genetics, the study of heredity and the expression of inherited traits, as a laboratory and research based course includes the following areas of study: the historical basis of genetics; cellular division and chromosomes; structure and analysis of DNA and RNA; Mendelian genetics; linkage and crossing over; mapping in bacteria and bacteriophages; mutations and recombinant DNA technology. These areas are developed by the use of genetic theories with an emphasis on critical thinking and scientific processing skills.  Current Science Teacher Recommendation, HS430 or SC430 and HS440 or SC440
Nutrition bombards us wherever we look. Turn on the television news, glance at the magazine headlines, and you will see nutrition is one of the hottest topics. There is so much information on various diet plans, foods that prevent disease and health ailments. This course is designed to build a solid foundation in the basic principles and concepts of good nutrition. The course will clarify nutrition misconceptions and help build a healthy lifestyle through nutritional awareness. **Current Science Teacher Recommendation, HS430 or SC430 and HS440 or SC440**

**HS464  CELL BIOLOGY AND PATHOLOGY Honors/ Semester** One-half Credit

Cell biology, the study of cells and their functions, is a laboratory and research based course leading to the student’s ability to understand the structures and functions of the cell. At the conclusion of the unit, the student will be able to differentiate between cell types and become aware of the concept “form follows function.” Pathology, the study of the nature of disease, is a laboratory and research based unit, including the causes, processes and consequences of disease. These areas are developed by the use of cell biology and pathology concepts with an emphasis on critical thinking and scientific processing skills. **Current Science Teacher Recommendation, HS430 or SC430 and HS440 or SC440**

**HS465  PSYCHOBIOLOGY** One Credit

Psychobiology is the subsarea of psychology that takes a biological approach to understanding behavior. Psychobiologists study the biological events –genetics, neural, endocrine-that underlie each and every one of our thoughts, feelings, and actions. Research in this area focuses on the relationship between brain and behavior but often extends to physiological processes elsewhere in the body (e.g. stomach, glands). This course will introduce you to the methods Psychobiologists employ to investigate the biological underpinnings of behavior. It will explore what is currently know about the biological basis of emotional responses, mental illness, gender-specific behavior, memory, states of consciousness, sensory perception, thought and language, and several neurological disorders. Students will also receive the groundwork necessary to continue pursuing a career as a Polysomnography Technician. **Pre-requisite: Biology (SC430), Chemistry (SC440), and current science teacher’s recommendation.**

**HS471  PHARMACY TECHNICIAN I** One Credit

The US department of Labor projects more than 28,000 Pharmacy Technician jobs over the next 10 years. The Pharmacy Technician works under the supervision of the Pharmacist performing traditional pharmacist functions, specifically in drug distribution, inventory management, pharmacy administration and serving patients. This course will cover the following topics: basic medical terminology, human diseases, some alternative medicine, drug classifications, HIPAA, history of pharmacy, body systems and their drug interactions, prescription processing and dosage calculation, as well as essentials of pharmacy practice. **Pre-requisite: Biology (SC430), Chemistry (SC440), and current science teacher’s recommendation.**

**HS480  MEDICAL LAW and ETHICS Semester** One-half Credit

Medical Law and Ethics is an elective course in Social Studies for all health science specialty center students. This course will provide an over view of health care ethics and laws that apply throughout the medical profession. It will provide the students with a solid base for understanding current laws and ethics in the field of medicine as they relate to the medical practitioners and patients. **Pre-requisites: Current Social Studies Teacher Recommendation and SS209, SS210 or SS216**

**HS540  SPANISH FOR HEALTH CARE WORKERS  Semester** One-half Credit

This course is designed for students who want to learn basic phrases in Spanish as related to daily activities in medical fields. The course activities include dialogs related to specific tasks (e.g. assessing medical history, assessing health risks, making appointments, etc.). Students will also learn basic grammar and vocabulary. Another aspect of this course will be to make the students aware of the cultural differences of Hispanic patients and their backgrounds. Students will be able to experience extracurricular activities as well as interact and contribute to the community. **Pre-requisites: HS430 or SC430 and HS440 or SC440**

**HS946  EMT-BASIC I** One Credit

This course will provide instruction in basic life support and physical assessment. This course will introduce role and responsibilities of the emergency medical technician/ambulance. Topics will also include emergency operations, anatomy and physiology, bleeding, shock, MASTrousers, cardiopulmonary resuscitation, soft tissue injuries, fractures and dislocations, abdominal and chest injuries. This course would be required for certification as a Virginia EMT-B. Students will be REQUIRED to sit for the EMT-B Certification Exam in May as well as participate in clinical in conjunction with the local volunteer rescue squads. **Pre-requisites: Biology (SC430 or HS430), Chemistry (SC440 or HS440), successful completion of C.P.R. for Health Care, 16 years of age when the course starts, and application (screened by specialty center coordinator)
CAREER AND TECHNICAL EDUCATION at Chesterfield Technical Center

The Chesterfield Technical Center (CTC) offers three-credit elective courses that are not available in the county’s high schools. Students in grades 9-11 may apply for admission. Applicants are selected based on grades, attendance, an acceptable behavior record, successful completion of prerequisite courses, teachers’ comments verifying the student’s ability to work independently in unstructured settings, a counselor’s evaluation, and standardized test scores. Classes meet on an alternate-day schedule that is compatible with the high schools’ timetable. Students enrolled in a CTC course may schedule as many as four other day courses at their home school. Bus transportation is provided from each high school. A lab fee is required for each course. The cost of personal tools, equipment, and uniforms varies by course.

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<th>CTC COURSES</th>
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<td><strong>Automotive</strong></td>
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TC101 AUTOMOTIVE COLLISION REPAIR AND REFINISH 1

This course provides I-Car (Inter-Industry Conference on Auto Collision Repair) related instruction in automotive body repairing and refinishing. The course is designed to prepare students for job opportunities in the automotive collision repair industry. Included is a study of the construction of vehicles, minor frame repair, metalworking skills, metal cutting (plasma and torch), MIG welding, and the basics of paint spraying equipment. Students will also gain hands-on experience in vehicle priming and sealing using high volume/low pressure (HVLP) equipment. Emphasis is placed on building a foundation of technical knowledge and skills in preparation for taking the National Institute for Automotive Service Excellence (ASE) professional certification tests. Students who earn a final grade of C or better in the course can earn tuition-free college credits from J. Sargeant Reynolds Community College.

Pre-requisites: Minimum Grade of B in TC111 Automotive Technology 1

TC102 AUTOMOTIVE COLLISION REPAIR AND REFINISH 2

A continuation of Automotive Collision Repair and Refinish 1, this course is designed to prepare students for employment opportunities in the automotive collision repair industry. Instruction of I-Car (Inter-Industry Conference on Auto Collision Repair) related materials includes the study of structural damage and repair, diagnosing and estimating repair costs, customer relations, plastic repair, and the prep and application of today's newest automotive paint materials. On-the-job training is emphasized to extend technical knowledge and skills in preparation for taking the National Institute for Automotive Service Excellence (ASE) professional certification tests.

Pre-requisites: Minimum Grade of B in TC111 Automotive Collision Repair and Refinish 1

JT103 ACRY APPRENTICESHIP

This course is designed for students planning to become certified automotive collision repair and refinishing technicians. Through Automotive Youth Educational Systems (AYES), the course begins with a paid summer internship. During the internship, students receive training under the guidance of an experienced automotive collision repair technician at a local collision repair facility (students are responsible for their own transportation to work sites). In September, students join other students in the program at CTC for advanced classroom/lab training with an I-Car and ASE-certified instructor, while continuing their work experience at a local collision repair facility.

Pre-requisites: Minimum Grade of B in TC111 Automotive Collision Repair and Refinish 1

JS111 AUTOMOTIVE TECHNOLOGY 1

This course is designed to prepare students for job opportunities in the automotive repair industry and is the first step toward professional certification by the National Institute for Automotive Service Excellence (ASE). Emphasis is placed on building knowledge and skills needed to inspect, diagnose, maintain, and repair the following automotive systems: electrical (starting, charging, and vehicle accessories), and engine performance (emission, ignition, induction, fuel, and computerized engine controls). Students also have the opportunity to take the Virginia Motor Vehicle Safety Inspector's Examination. Students who earn a final grade of C or better in the course can earn tuition-free college credits from J. Sargeant Reynolds Community College.

Pre-requisites: Minimum Grade of B in TC111 Automotive Technology 1

JS112 AUTOMOTIVE TECHNOLOGY 2

A continuation of Automotive Technology 1, this course is designed to prepare students for employment opportunities in the automotive repair industry and is the first step toward professional certification by the National Institute for Automotive Service Excellence (ASE). Emphasis is placed on building knowledge and skills needed to inspect, diagnose, maintain, and repair the following automotive systems: electrical (starting, charging, and vehicle accessories), and engine performance (emission, ignition, induction, fuel, and computerized engine controls). Students also have the opportunity to take the Virginia Motor Vehicle Safety Inspector's Examination. Students who earn a final grade of C or better in the course can earn tuition-free college credits from J. Sargeant Reynolds Community College.

Pre-requisites: Minimum Grade of B in TC111 Automotive Technology 1

JT200 COMMERCIAL PHOTOGRAPHY

Digital and color photography, as well as black and white, darkroom techniques are explored in depth for students who are interested in this career field. The 4x5 view camera, the 2 1/4 medium format camera, 35mm digital SLR cameras and Polaroid backs are used to create commercial images. Portraiture, studio lighting, tabletop illustration, advertising, macro photography, photo restoration, flash photography, and digital imaging are integral to the course. Students will create a professional portfolio, participate in exhibitions, competitions, and workshops. A 35 mm camera with adjustable f/stops and shutter speeds is required. In addition, a digital camera (6 mega pixels or higher resolution) is recommended. Students who earn a final grade of C or better in the course can earn tuition-free college credits from John Tyler Community College.

Pre-requisites: Minimum Grade of B in TC111 Automotive Technology 1

JT203 DIGITAL IMAGING AND DESIGN

In this course, creative applications on the computer are explored using Photoshop, Flash, QuarkX, InDesign and Illustrator. Designs for digital graphics, professional media productions, layouts for publishing, and animated movies are created. 3D design using and computer animation are explored in depth. Student artists use digital cameras, drawing materials, scanners, and digital drawing tablets to create, input and design images. Professional portfolios are created for print and on CD ROM. Participation in art exhibitions, competitions, and workshops is an integral part of this course. Students with a final grade of C or better in this course may enroll in the 3D Animation and Digital Production course. Students who earn a final grade of C or better in the course can earn tuition-free college credits from John Tyler Community College.
This unique and challenging course is an ideal introduction for students interested in advancing their studies in the 3D arts, and provides skills for careers in gaming design, movie animation and visualization. The software used in this class is 3D Studio Max. By utilizing a hands-on approach, students begin their introduction to this software package with basic model editing, creating and editing material, and rendering. Adding motion to scenes and working with lights and cameras follows as the students begin to understand the limitless potential of 3D Studio Max. The second semester of the course includes an emphasis on work group projects, where students create and manage projects, and expand their knowledge of the more advanced functions of the software. Topics to be explored in the second semester are: raytraced reflections and refractions, particle systems, and inverse kinematics.

**Prerequisites:** Minimum grade of C in TC203 Digital Imaging and Design.

TC206  3D ANIMATION AND DIGITAL PRODUCTION  Three Credits

This course introduces students to the fascinating world of Digital Imaging and Design. Design theory is an integral part of the class to teach students the fundamentals of good graphic design. Computer applications, Adobe Photoshop, Adobe Illustrator and Adobe InDesign, are the tools used in the course to create real-life projects from the design world. The course objective is to introduce students to the tools and techniques necessary for commercial application. This course is ideal for the self-directed learner willing to explore the intriguing world of graphic design. Students wishing to participate in this class need to have a superior computer aptitude, a willingness to learn and an unlimited amount of creativity. A lab fee ($30) is required.

TC207  INTRODUCTION TO DIGITAL IMAGING & DESIGN  One Credit

This course introduces students to the fascinating world of Digital Imaging and Design. Design theory is an integral part of the class to teach students the fundamentals of good graphic design. Computer applications, Adobe Photoshop, Adobe Illustrator and Adobe InDesign, are the tools used in the course to create real-life projects from the design world. The course objective is to introduce students to the tools and techniques necessary for commercial application. This course is ideal for the self-directed learner willing to explore the intriguing world of graphic design. Students wishing to participate in this class need to have a superior computer aptitude, a willingness to learn and an unlimited amount of creativity. A lab fee ($30) is required.

TC209  CERTIFIED INTERNET WEBMASTER  Three Credits

Students develop, design, and manage sophisticated web pages using: HTML, XHTML, DHTML, and introduction to Java Script, animation, advanced design techniques, a popular editor, and database software. Each student creates a professional portfolio and takes part in internships, to include: (1) working on a web site for a nonprofit organization of his/her choosing, and (2) working on the CTC web site, as well as CTC-affiliated sites. Software used in the course includes: Dreamweaver, Flash, Photoshop, FTP (File Transfer Protocol), MS Access 2000 and Prosoft training assessment software (to prepare students for the CIW certification exams.) Students who desire to sit for the Certified Internet Webmaster (CIW) Certification Examination at the end of the course must take the course for honors credit. Only students who complete a contract with the teacher for honors credit will participate in Part III, Networking Technology - essential networking technologies and skills, including TCP/IP, stable network creation, wireless networking, and network troubleshooting. Part III must be completed outside the school setting. **Pre-requisites:** Business Computer Applications or teacher approval based on demonstrated skills.

JT240  MEDI CAL SYSTEMS ADMINISTRATION  Three Credits

This course is designed to assist students in developing the skills needed for the medical office. Instruction includes general office tasks such as word processing, spreadsheet applications, filing, scheduling appointments, and receptionist duties, as well as specialized training in medical terminology, medical record keeping, insurance forms and reporting, billing, medical correspondence and medical office ethics. Customer service skills related to the responsibilities of working in a medical office are also taught. During the second semester, advanced students with their own transportation may be able to participate in work experience at approved medical sites. Successful completion of this course and passing the IC3 Certification or MOS exams (two exams/core level) allows students to earn two verified credits. **Pre-requisites:** Keyboard Proficiency.

JT245  A+/CISCO 1-2 HONORS  Three Credits

This is a two-part course comprised of IT Essentials I (A+) and Networking for Home and Small Businesses, Small-to-Medium Business and ISPs. Students develop skills related to the design, configuration, and maintenance of PC hardware and software and Local Area Networks. Specifically, students study cabling, routing, IP addressing, routing protocols, network and hardware troubleshooting, basic electronics, installing hardware and network components, installing and configuring operating systems, adding and troubleshooting peripherals and multimedia capabilities. The course covers the OSI model and industry standards, network topologies, subnetting, and basic network design. An introduction to advanced technologies such as voice, video, wireless, and security is also provided. This course prepares students for the following industry recognized certifications: CompTIA A+, Cisco Certified Entry Network Technician (CCENT), and the Internet and Computing Core Certification (IC3). Students who earn a final grade of C or better in the course can earn tuition free college credits from John Tyler Community College.

JT247  CISCO NETWORKING 3-4  Three Credits

This course extends students knowledge with the design, configuration, and maintenance of switches and routers, LANs and VLANs. Specifically students configure and troubleshoot LANs, WANS--including PPP and Frame Relay design, VLSM and the configuration and implementation of access control lists. A study of advanced wireless business network technology is included. This course prepares students for the following industry recognized certifications: Network+ and Cisco Certified Networking Associate (CCNA). Students who earn a final grade of C or better in the course can earn tuition free college credits from John Tyler community College. **Pre-requisites:** TC245 A+/Cisco 1-2 with a minimum grade of C in the Cisco portion of the course.

JT253  ELECTRONICS TECHNOLOGY 1  Three Credits

This course is designed to instruct students in the laws that govern electronic processes and measurement. Students learn to assemble, install, operate, maintain, repair and troubleshoot electrical/electronic equipment used in industry and manufacturing. Training includes the nature of electricity, Ohm’s Law, AC/DC circuits and test equipment. Students who earn a final grade of C or better in the course can earn tuition free college credits from John Tyler Community College. **Pre-requisites:** MA320 Algebra I or equivalent.

JT254  ELECTRONICS TECHNOLOGY 2  Three Credits

A continuation of Electronics Technology 1, this course includes...
instruction in robotics, computers, instrumentation, digital circuits, and industrial controls. Synchro and servo-mechanisms, mechanical power transfer systems, three-phase alternative current, and electronic wave shaping are included in this program. Students learn to interface these areas by using programmable logic controllers and student-designed circuits. Students who earn a final grade of C or better in the course can earn tuition free college credits from John Tyler Community College. **Pre-requisites:** Minimum grade of C in TC 253 Electronics Technology 1

**JT271 ADVANCED CAD AND MODELING**

**TC271 ADVANCED CAD AND MODELING** Three Credits In this course students study the areas of engineering, architecture, and geographic information systems, using 3D computer and solid modeling. Students prepare multi-view drawings and apply the design process to architectural projects, creating animations of digital mapping and 3D architectural models. Using computer-aided design (CAD), students create and re-engineer original and existing consumer products, producing life-size plastic models with a rapid prototyping machine. Students who earn a final grade of C or better in the course can earn 7.0 tuition-free college credits through the Dual-Enrollment Program at John Tyler Community College.

**TC301 CARPENTRY 1** Three Credits This course is designed to teach students the fundamentals of blueprint reading, use of hand and power tools, and on-the-job practices. Emphasis is placed on methods of residential construction and installation techniques.

**JT300 CARPENTRY 2**

**TC302 CARPENTRY 2** Three Credits A continuation of Carpentry 1, this course permits students to gain first-hand experience by constructing various types of structures through both private and public partnerships with CTC. When construction is complete, eligible students may participate in the Workplace Transition Program (WTP) at selected local construction companies. Students in the WTP are responsible for their own transportation to work sites. Students successfully completing this course may also receive 3.0 college certificate credits at John Tyler Community College for course BLD 135, Building Construction Carpentry. **Pre-requisites:** Minimum Grade of C in TC301 Carpentry 1

**TC311 ELECTRICITY 1** Three Credits This course is designed to prepare students to work in a residential, commercial, or industrial area of electricity. Students will learn electrical blueprint reading; problem solving; troubleshooting; residential, commercial, and industrial wiring skills; and become familiar with the National Electric Code. **Pre-requisites:** MA 320 Algebra 1 or equivalent

**TC312 ELECTRICITY 2** Three Credits A continuation of Electricity 1, this course is designed for the transition of students into the workforce. Students are required to participate in the Workplace Transition Program at approved local electrical contractor work sites. Students are responsible for their own transportation to work sites. **Note:** Associated Builders and Contractors, Inc. (ABC) has selected Chesterfield Technical Center as one of the few schools in Virginia to offer a unique career opportunity. Students who successfully complete both years of Electricity, HVAC or Plumbing may receive one year of state credit toward an apprenticeship. Students who successfully complete both years of Electricity, HVAC or Plumbing may receive one year of state credit toward an apprenticeship. Students will have the opportunity to be placed with an ABC-member company for the second year of the course. Hours worked by these second-year students will also count as one year apprenticeship work experience toward a journeyman's license. **Pre-requisites:** Minimum Grade of C in TC311 Electricity 1

**TC331 HEATING, VENTILATION, AND AIR CONDITIONING (HVAC) 1** This course is designed to instruct students in the refrigeration cycle, electrical wiring diagrams, and troubleshooting. Students train on oil, gas, and electric furnaces and air cooling equipment. They also learn to analyze equipment and diagnose problems using Simupump software.

**JT332 HVAC 2**

**TC332 HEATING, VENTILATION, AND AIR CONDITIONING (HVAC) 2** Three Credits A continuation of HVAC 1, this course is designed for the transition of students into the workforce. Students are required to participate in the Workplace Transition Program at approved local HVAC contractor work sites. Students are responsible for their own transportation to work sites. Students successfully completing this course may receive 3.0 tuition free college certificate credits at John Tyler Community College for course AIR 121, Air Conditioning and Refrigeration 1. **Note:** Associated Builders and Contractors, Inc. (ABC) has selected Chesterfield Technical Center as one of the few schools in Virginia to offer a unique career opportunity. Students who successfully complete both years of Electricity, HVAC or Plumbing may receive one year of state credit toward an apprenticeship. Students will have the opportunity to be placed with an ABC-member company for the second year of the course. Hours worked by these second-year students will also count as one year apprenticeship work experience toward a journeyman's license. **Pre-requisites:** Minimum of Grade C in TC331 Heating, Ventilation and Air Conditioning 1

**TC351 PLUMBING AND PIPEFITTING 1** Three Credits This course is designed to instruct students in the installation, alteration, and repair of pipe systems for residential and commercial applications. In addition, students will learn to install, service, and repair various plumbing fixtures and appliances.

**JT352 PLUMBING AND PIPEFITTING 2**

**TC352 PLUMBING AND PIPEFITTING 2** Three Credits A continuation of Plumbing and Pipefitting 1, this course is designed for the transition of students into the workforce. Students are required to participate in the Workplace Transition Program at approved local plumbing and pipefitting contractor work sites. Students are responsible for their own transportation to work sites. Students successfully completing this course may receive 3.0 tuition free college certificate credits at John Tyler Community College for course MAC 195, Pipefitting. **Note:** Associated Builders and Contractors, Inc. (ABC) has selected Chesterfield Technical Center as one of the few schools in Virginia to offer a unique career opportunity. Students who successfully complete both years of Electricity, HVAC or Plumbing may receive one year of state credit toward an apprenticeship. Students will have the opportunity to be placed with an ABC-member company for the second year of the course. Hours worked by these second-year students will also count as one year apprenticeship work experience toward a journeyman's license. **Pre-requisites:** Minimum Grade of C in TC351 Plumbing and Pipefitting 1

**JT390 ORACLE 1**

**TC391 ORACLE 1** Three Credits This course was developed in cooperation with Oracle Corporation under the Oracle Academic Initiative and leads to certification in one of the most widely used software applications in the business world. First year instruction focuses on database development, design, normalization and Structured Query Language (SQL) programming. The Oracle Certification Exam, Introduction to Oracle: SQL (Exam #120-007), is administered at the end of the course. Students who earn a final grade of C or better in the course can earn tuition-free college credits from John Tyler Community College.

**JT392 ORACLE 2**

**TC392 ORACLE 2** Three Credits In this continuation of Oracle 1, students study database programming, which introduces them to Procedural Language/Structured Query Language (PL/SQL). PL/SQL is Oracle Corporation's standard data access language for relational databases. An in-depth study of database programming with PL/SQL prepares students for the Oracle Certification Exam, Program with PL/SQL.
demonstrate essential functional abilities consistent with the standards established by registered nurses or physicians. Applicants must be eligible to take the National Council Licensure Examination for Practi
can continue in this program and take TC432 PRACTICAL NURSING 1 (HONORS) or TC433
programming, digital communications, veterinary sciences, and other related careers.

TC433 PRACTICAL NURSING 2 (HONORS) 1.5 Credits

Students taking the third component (Practical Nursing 3) of the program must do so following high school graduation. Practical Nursing 3 includes nine months of classroom, lab and clinical study in advanced medical surgical nursing, obstetrics, pediatrics, psychiatric nursing, and pharmacology. Students participate in clinical learning experiences in five area hospitals and in various community health care settings. Students successfully completing the entire program (TC432, TC433 and the post-graduate Practical Nursing 3 component) are eligible to take the National Council Licensure Examination for Practical Nurses (NCLEX-PN).

Pre-requisites: Cumulative GPA of 2.5 or higher, MA320 Algebra 1 or equivalent and SC430 Biology 1.

TC434 MEDI CAL ASSISTANT 2 Three Credits

A continuation of Medical Assistant 1. Student further develop medical assisting skills and techniques through advanced on-the-job clinical experience in physicians' offices or clinics. Transportation to clinical sites is the responsibility of the student. Pre-requisites: Minimum of Grade C in TC431, Medical Assistant 1

TC435 PRACTICAL NURSING 3 (HONORS) 1.5 Credits

The first component of the program is devoted primarily to classroom and nursing laboratory activities. Students learn nursing theory in anatomy and physiology and issues relating to health care systems, legal and ethical implications of practice, and professionalism in nursing. A minimum grade of 81% is required in each of these study areas. Theory and lab practice in basic nursing skills are also taught. NOTE: This 18-month program is regulated by the Virginia Board of Nursing and is designed to prepare students to practice nursing under the guidance of registered nurses or physicians. Applicants must demonstrate essential functional abilities consistent with the standards of nursing as defined by the National Council of State Board of Nursing. The program is divided into three components and consists of a combination of classroom training and clinical experiences. Students taking the third component (Practical Nursing 3) of the program must do so following high school graduation. Practical Nursing 3 includes nine months of classroom, lab and clinical study in advanced medical surgical nursing, obstetrics, pediatrics, psychiatric nursing, and pharmacology. Students participate in clinical learning experiences in five area hospitals and in various community health care settings. Students successfully completing the entire program (TC432, TC433 and the post-graduate Practical Nursing 3 component) are eligible to take the National Council Licensure Examination for Practical Nurses (NCLEX-PN).

Pre-requisites: MA320 Algebra 1 or equivalent and SC430 Biology 1.

TC435 INTRODUCTION TO SMALL ANIMAL CARE One Credit

This course focuses on topics related to small-animal industries and includes a study of the classification or organisms, the history and domestication of animals, safety concerns and zoonotic disease, responsibilities of pet owners, animal rights versus animal welfare, nutrition in conjunction with digestive systems, and careers in small animal health care services.
animal care. Topics intensively discussed in the course are: classification, history, breeds, grooming, feeding, and diseases of dogs, cats, ferrets, rabbits, guinea pigs, mice, reptiles, and birds. This course is designed as a preparatory course for the Veterinary Science Course at CTS or as an introduction to responsible small animal ownership. A lab fee ($25), private health insurance and uniforms are required. **Pre-requisites:** Algebra 1 and Biology 1

TC461 BIOTECHNOLOGIES: MEDICINE, FORENSICS AND MORE (HONORS) Three Credits

A cutting-edge opportunity for students preparing for careers in medicine or research, as well as for those fascinated by forensics and the rapid growth of the international biotechnology industry. One of only a handful of such courses offered nationwide, this course explores the complexities of scientific research in a new, state-of-the-art laboratory and classroom facility. Students combine advanced in-depth study of biotechnologies used in forensics, medicine, environmental science and genetics, with discussion relating to bioethics and bioinformatics. Students acquire hands-on laboratory skills such as micropipetting, DNA extraction, PCR (Polymerase Chain Reaction), electrophoresis, culturing of bacteria, and more. Emphasis is placed on continuing education requirements pertaining to professional career paths in biotechnology. This course will be displayed on a student's schedule as three 1.0 credit honors science courses: TC462H/Genetics, TC463H/Microbiology and TC464H/Cell Biology. **Pre-requisites:** MA320 Algebra 1 or equivalent, SC430 Biology 1 and SC440 Chemistry (Chemistry may be taken concurrently)

TC501 CHILD DEVELOPMENT Three Credits

This course is designed to introduce students to early childhood development through classroom instruction, hands-on activities and experiences with children and staff at county elementary school sites. The course is for students who are pursuing careers as child care professionals in the areas of elementary education, psychology, social work, counseling, child care, and other fields that focus on child development.

TC511 COSMETOLOGY 1 Three Credits

This course is designed to prepare students for a career in the field of cosmetology. Students will learn to shampoo, style, cut, permanent wave, chemically relax, and tint hair. In addition skin care, makeup, and nail care are studied. Emphasis is placed on hygiene, sanitation, customer relations, and salon management. A minimum of 75% for each course component is required for continuation to Cosmetology 2.

TC512 COSMETOLOGY 2 Three Credits

This course is a continuation of Cosmetology 1, but with increased emphasis on demonstration. Students will operate a school sponsored salon and/or have an opportunity to work in approved professional salons in the area. To be eligible to take the Virginia Board for Cosmetology Licensing Examination, students must pass both years of Cosmetology with a grade of 75% or higher for each course component, work 480 hours or more in an approved salon, and have all competencies completed. **Pre-requisites:** Minimum 75% grade in TC 511 Cosmetology 1

TC513 NAIL TECHNICIAN Three Credits

This course is designed to prepare students for licensure as a Nail Technician by the Virginia Board for Barbers and Cosmetology. Students learn to provide nail salon services including manicures, pedicures, acrylic nails, gel nails, nail tips, nail art, and polishing. Included is a study of safety and sanitation, workplace ethics, the health and science of nail technology, salon operation/management and state regulations for nail technicians. Students operate, and provide nail services in the CTC-sponsored nail salon. Advanced students with their own transportation may be able to participate in work experiences during the second semester at approved salons. To be eligible to take the Virginia Board for Barbers and Cosmetology Licensing Examination for Nail Technicians, applicants must be at least 16 years old and must earn a grade of 75% or higher for each course component.

J 5520 CULINARY ARTS

TC520 CULINARY ARTS Three Credits

This course is designed to prepare students for work in food service establishments such as restaurants, hotels, bakeries, and catering facilities. The course emphasizes food preparation and food presentation and includes culinary terminology, knife skills, use of kitchen equipment, sanitation, and menus. Students learn to prepare stocks, soups, sauces and main course dishes, as well as develop skills to serve food in an appetizing way. Students will have hands-on opportunities to prepare and serve food for dinners, banquets, receptions, and other special events. Students who successfully complete this course are well suited to transition to the workplace or to pursue post-secondary culinary arts schooling. Students who earn a final grade of C or better in the course can earn tuition-free college credits from J. Sargeant Reynolds Community College.

J 5521 BAKING AND PASTRY ARTS

TC521 BAKING AND PASTRY ARTS Three Credits

This course is designed as an introduction to the principles and techniques used in the preparation of high quality baked goods and pastries. Students learn to take yeast breads, quick breads, pies, cakes and specialty desserts. The course gives students the opportunity to practice the skills necessary in food establishments such as restaurants, hotels, bakeries and catering facilities. This class also provides the foundation for students who aspire to continue their education at a postsecondary culinary baking school. Students who earn a final grade of C or better in the course can earn tuition-free college credits from J. Sargeant Reynolds Community College.

J 5530 LANDSCAPING

TC530 LANDSCAPING Three Credits

This course includes instruction in plant nutrition, soil science, basic botany, grounds maintenance, turf grass, and landscape design. Students study the proper care of lawns, trees, shrubs, annuals and perennials. Students will actually grow commonly used perennials and annuals. Instruction in the proper use of landscape/gardening tools, machinery, and chemicals is an essential part of the course. Using the knowledge they acquire from studying plants used in landscaping, students will plan and draw a landscape design. Students who successfully complete this course may pursue career opportunities at parks, golf courses, nurseries, country clubs, garden centers, and tree and landscaping companies. Students who earn a final grad of C or better in the course can earn tuition-free college credits from J. Sargeant Reynolds Community College.

J 5532 GREENHOUSE MANAGEMENT/ FLORAL DESIGN 1

TC532 GREENHOUSE MANAGEMENT/ FLORAL DESIGN 1 Three Credits

This course covers greenhouse production of plants, floral design, and interior plant scaping. Course content includes the identification and growing of commonly used cut-flowers, bedding plants and houseplants. Students learn the factors that affect the growth of plants while working in a controlled greenhouse environment. Students also study plant nutrition, basic botany, soil science, plant propagation, transplanting, and plant maintenance. A major emphasis is placed on the production and sale of poinelettes, perennials, bedding plants, and tropical plants. The principles of floral design are studied, and students have the opportunity to create floral designs for sale to the public. Students who earn a final grad of C or better in the course can earn tuition-free college credits from J. Sargeant Reynolds Community College.

TC533 GREENHOUSE MANAGEMENT/ FLORAL DESIGN 2 Three Credits

This course covers a wide range of specialty floral designs, including contemporary designs, oriental designs, seasonal designs, dried arrangements, novelty pieces, wedding work, and sympathy work. The business aspects of the floral industry (pricing, advertising, shop design, wire services, professional organizations, sales, and continuing
education) are also included in the course content. Students will also be involved in the greenhouse production of poinsettias, tropical plants, perennials, and annuals. Advanced students, with their own transportation, may be able to participate in work experience at approved local florist shops during the second semester. Students who successfully complete this course are well prepared to transition to the workplace or pursue related post-secondary education.

**Pre-requisites:** TC532 Greenhouse Management/Floral Design 1

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EN112 ENGLISH 12 HONORS

English 12 Honors is a study of nonfiction, mythology, and an introduction to classical literature. Students Study Homer, Shakespeare, Dickens, Buck, Twain, and a variety of other authors in various genre such as the short story, the novel, drama, and poetry. Students analyze literary texts, determine relationships between form and content, and go beyond an emotional reaction to an intellectual response. Students read critically, asking pertinent questions about what they have read, recognizing assumptions and implications, and evaluating ideas. This course also concentrates on expository writing, literary analysis, and oral communication skills. Students draw conclusions, appraise, and speculate independently about the elements of literature.

EN110 ENGLISH 10

English 10 stresses refinement of skills with emphasis on effective written and oral communications. Literature emphasizes character motivation and human relations through the study of American literature.

EN111 ENGLISH 11 HONORS

The literature selections of English 11 Honors include works of Chaucer, Shakespeare, Milton, Dickens, Bronte, and the Romantic poets, Hardy and Conrad. A variety of supplemental works will be used to enhance the program of literary appreciation/study. Literature will be used as a foundation for literary analysis, expository, and creative writing. Required research papers allow students to explore major types of criticism formalistic, archetypal, psychological. Other types of writing include reader responses and book reviews. The goal of the Honors curriculum is to produce self-directed learners who are risk takers, highly motivated, and willing to share their views with others.

EN111 ENGLISH 11

This course is based upon a survey of British literature. Composition skills are further developed, emphasizing correctness, practicality, style, and fluency. A research paper is required.

EN112 ENGLISH 12

This course is based upon a survey of world literature and includes comparative studies of universal themes in literature and the history of language. Language study includes effective communication in all forms of expression and practical skills for the working or the academic world. A research paper is required.

EN112 ENGLISH 12 HONORS

This course is designed for highly motivated seniors who enjoy being academically challenged and who have successfully completed English 11 Honors. This class prepares students for the rigorous educational experiences demanded by competitive colleges and universities. Writing for a variety of audiences and purposes is a focal point of the class. Students will read and analyze world literature and will focus on comparative studies of universal themes. A research paper is required.

EN113 AP ENGLISH LITERATURE

This is a college-level course for selected seniors. Emphasis is placed on critical thinking and writing in relation to literary analysis. World literature is the basis for study.

EN114 AP ENGLISH LITERATURE AND COMPOSITION

The AP Literature and Composition course develops students' interpretative skills as they read and write with increasing complexity and sophistication. This course is a year-long, college-level course for selected seniors. It will engage students in the careful reading and critical analysis of imaginative literature. Through close reading of selected texts, students shall expand their understanding of how writers use language to provide meaning. As they read, students shall consider a work's structure, style, and themes as well as smaller-scale elements such as the use of figurative language, imagery, symbolism, and tone. As they write and discuss, students shall express with focus and clarity their understanding of literature.

EN115 WOMEN’S LITERATURE

This course provides the opportunity to extend the canon of literature from the traditional English class in order to focus on women's literature and issues. Students will have the opportunity to study the historical, cultural, and societal contributions women have made by focusing on various genres of women's literature. This course will focus on women writers throughout history and students will delve deeper into the life of writings of one writer as a year long project. Students will communicate ideas and opinions through critical commentary, both written and oral. Through the study of women and their role in history through literature, students will come to recognize the female literary tradition so engrained in each person, whether male or female. Students will think and write critically and analytically while synthesizing and evaluating the information in order to apply it to their current life and time.

EN119 NON-TRADITIONAL WRITING

This course will extend the opportunity to special education students in the exploration and use of traditional elements of writing such as metaphors, descriptive phrases, sensory words, alliteration, smiles, etc. via the research of the work of nontraditional writers and songwriters such as Tupac Sonya Sanchez, Shel Silverstein, Nikki Giovanni, Bob Marley, Sherman Alexis, Toni Morrison, Mya Angelou and Flannery O'Connor. Students will develop expository and informational writings; edit writing for correct grammar, capitalization, punctuation, spelling, sentence structure, paragraphing; use writing to interpret, analyze and evaluate ideas; collect, evaluate, organize, and present information; read, critique and analyze a variety of poetry and participate in and report on small group learning activities.

EN120 LITERATURE, SOCIETY AND SCIENCE

This inter-curricular course is an introduction to humanistic studies as they relate to culture, literature, language, history, science, and mathematics from classical Greek through contemporary society. The class will focus on the skills needed for critical thinking and research, discussion techniques, and research techniques.

EN124 TECHNICAL COMMUNICATIONS

Technical Communications is a course designed to prepare students for the challenges of the work place. The course’s content employs a number of existing reading, writing, and communication strategies.
refining and adapting them to the demands of technical communications. The class is taught as a practical course where students will achieve mastery through application.

EN127  **AFRICAN AMERICAN LITERATURE**  One-half credit African American Literature is an integral component of American Literature and the Black Experience in America. Students will learn how literature reflects the trials, tribulations, and triumphs of race relations in the United States. Curriculum will span slavery through modern times. The objective of this course is to give students an appreciation of the Black Experience through studying African American Literature. Through literature, students will experience the turbulent journey that shaped current racial relations in America and defined African Americans as individuals.

EN128  **AFRICAN AMERICAN LITERATURE**  One Credit African American Literature represents an important aspect of the Black experience in the United States as well as an integral part of America's cultural and literary heritage. Students learn how the African American experience as reflected in literature, history, and culture has helped to shape America.

EN129  **AFRICAN AMERICAN LITERATURE 2**  One Credit This is an elective course designed to provide students of diverse ethnic backgrounds with the opportunity to study the history, literature, contributions, and culture of African Americans during the Harlem Renaissance, the Civil Rights Movement, and contemporary times. The course will focus on larger works, such as contemporary novels and plays. Students will also delve deeper into the life and writings of one African American writer as a year long project.

EN132  **STRATEGIC READING**  One Credit Strategic Reading offers ninth grade students the chance to learn and practice reading strategies through teacher modeling, cooperative learning, and independent practice. This strategy-based course helps improve fluency, reading comprehension, vocabulary and listening comprehension. Writing is also a component of this class. Target areas include vocabulary and sentence structure. This course provides an excellent foundation for CCPS English 9 curriculum.

EN135  **APPLIED READING**  One Credit This is a course is for students who need to improve reading, writing, and study skills necessary for learning any subject in high school. Emphasis is placed on vocabulary development, comprehension, and writing skills. Students who read below grade level are pre- and post-tested and receive instruction based on their needs.

EN136  **SAT PREPARATION READING**  One-half Credit This elective course is similar to a college level study skills course. Emphasis is placed on improving vocabulary in preparation for the SAT, developing critical thinking skills, increasing reading speed, refining research/study skills, and managing time.

EN137  **SAT PREPARATION READING**  One Credit This elective course is similar to a college level study skills course. Emphasis is placed on improving vocabulary in preparation for the SAT, developing critical thinking skills, increasing reading speed, refining research/study skills, and managing time.

EN138  **STUDY SKILLS**  One-half Credit This course is designed for students who need to improve reading, listening, and learning skills. Course objectives focus on improving memory, test taking, note taking, and organizational skills. In addition, increasing reading rate, comprehension, and vocabulary are emphasized.

EN139  **STUDY SKILLS**  One Credit This course is designed for students who need to improve reading, listening, and learning skills. Course objectives focus on improving memory, test taking, note taking, and organizational skills. In addition, increasing reading rate, comprehension, and vocabulary are emphasized.

EN150  **CREATIVE WRITING**  One-half Credit This is an elective course designed to provide the student an opportunity to explore special writing interests through a variety of writing experiences. Students will be encouraged to refine their writing for possible inclusion in school literary publications. It is recommended only for those students who are interested in writing.

EN151  **CREATIVE WRITING 1**  One Credit This is an elective course designed to provide the student with an opportunity to explore special writing interests through a variety of writing experiences. Students will be encouraged to refine their writing for possible inclusion in school literary publications. It is recommended only for those students who are interested in writing.

EN152  **CREATIVE WRITING 2**  One Credit This is an elective course designed for those students with special writing talent and industry. These students will pursue more challenging and lengthy writing and possibly submit their works to publications outside the school.

EN153  **CREATIVE WRITING 3**  One Credit This is an advanced elective course for students who have demonstrated a high degree of skill in and dedication to writing. Students will submit work to audiences outside the school.

EN154  **COLLEGE TRANSITION**  One Credit College Transition is an elective course designed to provide students with the background and strategies that are the foundation for success (drive, action, openness, and reason), comprehension monitoring (motivated to achieve, setting goals, recognizing learning styles, understanding learning, mastering course material), critical thinking (elements of thought, art of persuasion, good writing) and independent living (decision making, critically planning your future). In addition SAT verbal preparation, critical reading, and speed reading will be included.

EN161  **JOURNALISM 1**  One Credit This is an elective course designed to teach students to communicate through newspaper writing and to make students aware of all elements that make up the journalistic field. The course includes an extensive study of the newspaper and an introductory study of magazines, television, movies, and yearbooks. It is recommended only for those students who are interested in writing.

EN162  **JOURNALISM 2**  One Credit This is an elective course for those students who wish to pursue a more extensive study of journalism.

EN163  **JOURNALISM 3**  One Credit This course provides extensive study in desktop publishing, layout, design, printing, and photography. Students produce the school newspaper.

EN164  **YEARBOOK 1**  One Credit This course provides study in desktop publishing, layout, design, printing, and photography. Students help produce the school yearbook.

EN165  **YEARBOOK 2**  One Credit Students in this course provide leadership and management in the publication of the school yearbook.

EN166  **PUBLICATIONS**  One Credit This course is designed for publications students who are interested in holding senior editor positions. Students will continue production of the school yearbook including, writing, copy editing, photography, layout and design, and business management.
EN167 JOURNALISM 4
This course is designed for publication students and includes study of desktop publishing/design, digital imaging and scanning techniques, and integration of publications with the school's Web page. Techniques include publication design, advertising, and writing using research skills. Business management skills are studied.

EN168 AP JOURNALISM
This course combines a writing program which demonstrates the clear, concise writing style of a journalist and a reading program which demands higher-level thinking skills and analysis of both contemporary and classical literature. This course would prepare students for the Advanced Placement examination in English Language and Composition.

EN169 ETHICS AND CULTURE IN FILM
Students will begin the year studying the history and development of film. Students will be exposed to the various elements of film and draw comparisons and contrasts and analyze film in much the same way they critique and analyze literature. The focus of the films will deal with characters facing moral and ethical dilemmas. Films exploring ethnic and racial issues within our culture also will be studied. There will be an application process for those who wish to enroll.

EN170 COMMUNICATIONS
One-half Credit
This elective course is designed to help students develop speaking as well as listening skills. It will help students become familiar with confidence building steps and exercises and will offer students opportunities to practice informative, persuasive, demonstration, and extemporaneous speeches.

EN171 COMMUNICATIONS 1
One Credit
This elective course is designed to help students develop speaking as well as listening skills. It will help students become familiar with confidence building steps and exercises and will offer students opportunities to practice informative, persuasive, demonstration, and extemporaneous speeches.

EN172 COMMUNICATIONS 2
One Credit
This is an elective course designed to offer students the mechanics of public speaking. Emphasis is placed on research, organization of ideas, and delivery techniques. The listening process develops recognition of word usage. Students are introduced to communication through radio, television, and the theatre.

EN173 COMMUNICATIONS 3
One Credit
This is an elective course designed for students who wish to gain proficiency within the specific areas of forensics and debate. Oratory, extemporaneous speaking, and the oral interpretation of prose and poetry are studied and practiced.

EN174 COMMUNICATIONS 4
One Credit
This is an advanced elective course in public speaking, oral interpretation, and debate. It is designed for those students who display outstanding talent and acute interest in public speaking and oral interpretation. Pre-requisites: EN172 Communications 2 or EN173 Communications 3

EN175 SHAKESPEARE
One-half Credit
This course provides the opportunity to study the Shakespeare's work in-depth, focusing on comedies, tragedies, and history plays as well as some sonnets. Since the plays were meant to be performed, students will examine each work performed on stage or film as an integral part of the program. Class performances, discussions, and/or written analyses and research are a part of the daily activities.

EN176 SHAKESPEARE
One Credit
This course provides the opportunity to study the Shakespeare's work in-depth, focusing on comedies, tragedies, and history plays as well as some sonnets. Since the plays were meant to be performed, students will examine each work performed on stage or film as an integral part of the program. Class performances, discussions, and/or written analyses and research are a part of the daily activities.

EN581 ENGLISH CADETS
One Credit
Students in the fourth year of high school English have the opportunity to be cadet teachers by working with students who have been absent or who might need extra help. Cadets may also lead discussion groups. Student applicants will be recommended to work with lower level English classes by previous English teachers. Qualified English 12 students may work with English 9-11 classes. Cadets will additionally learn about and practice management of classroom materials organization.

EN701 AMERICAN SPORTS IN LITERATURE 2
One Credit
This course is designed for a more rigorous and in-depth analysis of the impact of sports literature. Students will continue to read and examine sports novels and articles, and will also complete and independent reading project and unit on sports journalism.

JT112 COLLEGE COMPOSITION
(JTCC 6 credits)
This course is designed to develop writing ability for study, work, and other areas of writing based on experience, observation, research, and reading of selected literature. Students are guided in learning writing as a process: understanding audience and purpose, exploring ideas and information, composing, revising, and editing. Writing is supported by integrating experiences in thinking, reading, listening, and speaking.

MATHEMATICS

MA301 FAST MATH 1
One Credit
FAST Math is a mathematics program designed for non-active speakers of English who are two or more years behind in math and have limited experiences in formal educational settings. FAST Math not only provides mathematics instruction for students, but also builds their competence in English with the kinds of language they specifically need to succeed in math classes.

MA302 FAST MATH 2
One Credit
FAST Math II and III are designed to address elementary and middle school content.

MA303 FAST MATH 3
One Credit
FAST Math III is designed to assist students in developing pre-algebra concepts and skills, preparing them for success in algebra and geometry.

MA304 ALGEBRA READINESS 1
One Credit
These courses are designed to support and promote student success in mathematics coursework necessary to fulfill graduation requirements. While strengthening prerequisite skills in the areas of operations with whole numbers, fractions, decimals, percentages, integers, and rational numbers, students will solidify algebraic concepts through modeling and the use of manipulatives, graphing calculators, and computer software where appropriate. A concentration on improving problem solving test communications in mathematics coupled with an emphasis on standardized test preparation with build mathematical confidence.

MA305 ALGEBRA READINESS 2
One Credit
These courses are designed to support and promote student success in mathematics coursework necessary to fulfill graduation requirements. While strengthening prerequisite skills in the areas of operations with whole numbers, fractions, decimals, percentages, integers, and rational numbers, students will solidify algebraic concepts through modeling and the use of manipulatives, graphing calculators, and computer software where appropriate. A concentration on improving problem solving test communications in mathematics coupled with an emphasis on standardized test preparation with build mathematical confidence.
MA311 FOUNDATIONS OF ALGEBRA  
One Credit
The Foundations of Algebra course is designed to allow students to successfully master a variety of algebra topics. The curriculum requires students to use algebra as a tool for representing and solving a variety of practical problems. Tables and graphs will be used to interpret algebraic expressions, equations, and inequalities and to analyze functions. Matrices will be used to organize and manipulate data. Graphing calculators and computers will be used as tools to enhance problem solving. Pre-requisites: MA311 Foundations of Algebra

MA312 APPLIED ALGEBRA/ FOUNDATIONS OF GEOMETRY  
One Credit
In the course Applied Algebra and Foundations of Geometry students apply the fundamental skills developed in Foundations of Algebra and extend them to more advanced topics of algebra. The course also includes the development of basic geometric principles related to lines, angles, triangles, symmetry, and transformation. Graphing calculators and computers will be used as tools to enhance problem solving. Pre-requisites: MA311 Foundations of Algebra

MA314 ALGEBRA READINESS  
One-half Credit
These courses are designed to support and promote student success in mathematics coursework necessary to fulfill graduation requirements. While strengthening prerequisite skills in the areas of operations with whole numbers, fractions, decimals, percents, integers, and rational numbers, students will solidify algebraic concepts through modeling and the use of manipulatives, graphing calculators, and computer software where appropriate. A concentration on improving problem solving test communications in mathematics coupled with an emphasis on standardized test preparation with build mathematical confidence.

MA320 ALGEBRA 1  
One Credit
The standard Algebra 1 course incorporates all of the foundation skills that are necessary for students to pursue college preparatory mathematics in high school. The properties of and operations on numbers are extended to include the development of the real number system. Sets, equations, inequalities, exponents, polynomials, functions, graphing, systems of equations, and quadratics are the major topics of study. Additionally, the ability to make comparisons of one-variable data sets using statistical techniques including measures of central tendency, range, and box-and-whisker graphs is an expectation for all students in Algebra 1. Graphing calculators will be utilized to enhance the understanding of functions and provide a powerful tool for solving and verifying solutions to equations and inequalities. Other existing and emerging technologies are used as tools to facilitate the problem solving process, data analysis techniques, and graphing.

MA324 ALGEBRA 1, PART 1  
One Credit
This first course is a two-year study of Algebra 1 content provides a strong foundation for student success. Included in this course will be fundamental algebra content including working with functions, solving equations, solving inequalities, and graphing linear equations. Graphing calculators and computers will be used as tools to enhance problem solving.

MA325 ALGEBRA 1, PART 2  
One Credit
The second course in a two-year study of Algebra 1 content will include topics such as solving equations and inequalities, working with radicals, solving systems of equations and inequalities, and working with quadratic functions. Graphing calculators and computers will be used as tools to enhance problem-solving. Pre-requisites: MA324 Algebra 1, Part 1

MA330 GEOMETRY  
One Credit
Geometry is a unified study of plane, solid, and coordinate geometric concepts which provides students with the prerequisite skills that will facilitate the study of advanced mathematics. Investigations of lines, planes, congruencies, similarities, geometric inequalities, parallelism, perpendicularity, polygons, areas, volumes, circles, and three dimensional figures are incorporated to provide a complete course of study. Formal and informal deductive reasoning skills are developed and applied to the construction of formal proof. Opportunities are provided for discovery learning through hands-on activities and experiences that allow for utilizing computer software to explore major concepts and develop problem solving skills. Pre-requisites: Algebra 1

MA330 GEOMETRY HONORS  
One Credit
The Honors Geometry course is a unified study of plane, solid, and coordinate geometry. The curriculum includes the study of lines, planes, congruencies, geometric inequalities, perpendicularity of lines and planes in space, parallel lines and planes, polygons, polyhedral, area, volume, similarity, coordinate and transformational geometry, circles, and spheres. Every effort is made to incorporate advanced technology into the curriculum through the use of calculators and computers. The intent of this course is to frame a curriculum that ensures the development of broad mathematical power and which cultivates students’ abilities to explore, conjecture, reason logically, formulate and solve problems, and communicate mathematically. Pre-requisites: Algebra 1

MA332 GEOMETRY, PART 1  
One Credit
The Geometry Part 1 course is designed to allow students to master a variety of geometric concepts including parallel lines, triangle congruencies, geometric inequalities and transformations. These concepts along with a review of Algebra 1 skills will be reinforced by using calculators and computers in the classroom. Pre-requisites: Algebra 1 or MA324 Algebra 1, Part 1

MA333 GEOMETRY, PART 2  
One Credit
The Geometry Part 2 course will follow Geometry Part 1 and will include concepts involving area and volume of various geometric figures, ratios and proportions, triangle similarities, circles and right triangle trigonometry. Algebra 1 skills will continue to be reinforced with applications relevant to the geometric concepts being taught. Pre-requisites: MA332 Geometry, Part 1

MA334 ALGEBRA, FUNCTIONS, AND DATA ANALYSIS  
One Credit
Through the investigation of mathematical models, students will strengthen conceptual understandings in mathematics and develop connections between statistics and algebra. This course introduces new material through problems that lead to rigorous investigation of advanced algebra and statistics. Topics include exponential and logarithmic functions, linear programming, conditional probability, probability density functions and z-scores. The curriculum is aligned to the Virginia Standards of Learning for Algebra, Functions and Data Analysis.

MA340 ALGEBRA 2  
One Credit
Algebra 2 extends the concepts that students have encountered in previous coursework and provides a thorough treatment of advanced algebraic concepts. Emphasis will be placed on practical applications, logic of procedures, and interpretation of results. Graphing calculators and computers will enhance the students’ understanding. Students will be expected to communicate and practice mathematical ideas appropriately. Pre-requisites: Algebra 1 or Geometry
MA340  ALGEBRA 2 HONORS  One Credit
Algebra 2/Honors extends the concepts that students have encountered in previous coursework and provides a thorough treatment of advanced algebraic concepts. Emphasis will be placed on practical applications, logic of procedures and interpretation of results. Students routinely use calculators as a tool when dealing with solutions to problem situations. Students will be expected to communicate and practice mathematical ideas appropriately.  

MA343  ADVANCED ALGEBRA  One-half Credit
Advanced Algebra builds upon the foundation skills that students have developed in Algebra 2 to incorporate a detailed treatment of functions, theory of equations, matrices, sequences, series, and conic sections. A problem solving approach allows students to recognize connections between concepts that are introduced and other disciplines. A variety of instructional techniques provides an active learning mathematics environment which is enhanced by the use of technology. Students develop abilities to conjecture, explain, and defend their responses.  

MA350  TRIGONOMETRY  One-half Credit
Trigonometry is a one semester course in which students learn the fundamentals of triangle and circular trigonometry. Experiences with right triangle trigonometry are logically related to more advanced trigonometric concepts including radian measures of angles, graphs of circular functions, identities, special angle formulas, and the Laws of Sines and Cosines. Connections to applications of trigonometry in sound, motion, surveying, and biorhythms make the course more stimulating for students. Students routinely use graphing calculators as tools when dealing with solutions to problem situations.  

MA351  TRI F351  TRI GONOMETRY/ADVANCED ALGEBRA  One Credit
The design of the Trigonometry/Advanced Algebra course allows for the extension of Algebra 2 concepts with an emphasis on functions, theory of equations, graph theory, matrices, sequences and series, and conic sections. Elementary trigonometric topics are introduced and fully developed to include triangular and circular definitions of the trigonometric functions, establishing identities, special angle formulas, Law of Sines, Law of Cosines, and solutions of trigonometric equations. Constructing, interpreting, and using graphs of the various function families is stressed throughout the course of study. Students are encouraged to explore fundamental applications of the topics studied with the use of graphing calculators.  

MA352  TRIGONOMETRY/ANALYSIS S HONORS  One Credit
Trigonometry/Analysis allows students to extend their Algebra II skills to advanced topics including mathematical induction, matrix algebra, vectors, and the binomial expansion. A detailed treatment of function concepts deepens abilities to deal concretely and abstractly with mathematical topics. Additionally, the fundamentals of triangle and circular trigonometry are presented with an emphasis on graphing, establishing identities, developing special angle formulas, utilizing the Laws of Sines and Cosines, and polar coordinates. The course of study is enhanced by making connections of the concepts presented to other disciplines. Students routinely use graphing calculators as tools for exploratory activities and for solving rich application problems.  

MA352  TRIGONOMETRY/ANALYSIS  One Credit
Trigonometry/Analysis students use mathematical skills from previous courses and apply abstract reasoning to the study of advanced topics. This course provides a thorough treatment of trigonometry through the study of trigonometric definitions, graphs, applications, equations, and inequalities. Trigonometry is approached from the perspective of triangular and circular functions. Students routinely use calculators as a tool and will be expected to communicate and practice ideas appropriately.  

MA360  HI GH S CHOOL C ALC U LUS  One Credit
High School Calculus is offered as an alternative to Advanced Placement Calculus AB. Students abilities to work effectively with major topics from elementary functions are strengthened, and students are introduced to differential and integral calculus topics. High School Calculus is application-oriented and exposure to detailed theory is limited. Topics covered provide a skill review and serve as background for a first semester college calculus course. To add depth to student understanding, graphing calculators are used for instruction throughout the course of study.  

MA361  AP C AL C U LUS AB  One Credit
Advanced Placement Calculus AB explores the topics of limits/continuity, derivatives, and integrals. These ideas are examined using a multi-layered approach including the verbal, numerical, analytical, and graphical analysis of polynomial, rational, trigonometric, exponential, and logarithmic functions and their inverses. The student will be expected to relate the connections among these approaches. Students will also be required to synthesize knowledge of the topics of the course to solve applications that model physical, social and/or economic situations. These applications should emphasize derivatives as rates of change, local linear approximations, optimizations and curve analysis, and integrals as Riemann sums, area of regions, volume of solids with known cross sections, average value of functions, and rectilinear motions. Teachers should consult (yearly) the AP Board for changes in curriculum and emphasis of particular topics. As mandated by the College Board, graphing calculators will be required. College credit and/or advanced placement in college is available to those students receiving a qualifying score on the Advanced Placement Examination.  

MA362  AP C AL C U LUS BC  One Credit
BC Calculus is intended for students who have a thorough knowledge of analytic geometry and elementary functions in addition to college preparatory algebra, geometry, and trigonometry. Although all of the elements of the Advanced Placement Calculus AB course are included, it provides a more rigorous treatment of these introductory calculus topics. The course also includes the development of the additional topics required by the College Entrance Examination Board in its syllabus for Advanced Placement Calculus BC. Among these are parametric, polar, and vector functions; the rigorous definition of limit; advanced integration techniques; Simpson’s Rule; length of curves; improper integrals; Hooke’s Law; and the study of sequences and series. The use of the graphing calculator will be fully integrated into instruction and students will be called upon to confirm and interpret results of problem situations that are solved using available technology. College credit and/or advanced placement in college is available to those students receiving a qualifying score on the Advanced Placement Examination.  

MA370  PROBABILITY AND STATISTICS HONORS  One-half Credit
Elementary probability and statistics are studied with an emphasis on collecting data and interpreting data through numerical methods. Specific topics include the binomial and normal distributions, probability, linear correlation and regression, and other statistical methods. Students are expected to understand the design of statistical experiments. They are encouraged to study a problem, design and conduct an experiment or survey, and interpret and communicate the outcomes. The use of computers and calculators should enhance the learning process and provide students with experiences working with emerging technologies.  

MA370  PROBABILITY AND STATISTICS  One-half Credit
The semester course in probability and statistics develops the basic principles of data collection and numerical analysis. Specific topics in the course of study include measures of central tendency, experimental and theoretical probability, combinations, and sampling.
theory. Throughout the course, students are encouraged to make use of available technologies to assist in organizing and interpreting data and to understand the usefulness of emerging technologies as tools for solving problems. Through meaningful activities and simulations, students are provided with experiences that will model the means by which data are collected, used, and analyzed. **Pre-requisites: MA340 Algebra 2**

**MA371 PROBABILITY AND STATISTICS** One Credit
The year course in probability and statistics exposes students to fundamental concepts with emphasis on collecting data and interpreting data through numerical methods. Specific topics include the binomial and normal distributions, probability, linear correlation and regression, and other statistical methods. The use of computers and calculators enhances the learning process and provides students with experiences in working with emerging technologies. This course will enable students to be wise users of statistical methods and more critical consumers of statistical materials. **Pre-requisites: MA340 Algebra 2**

**MA371 PROBABILITY AND STATISTICS HONORS** One Credit
Elementary probability and statistics are studied with an emphasis on collecting data and interpreting data through numerical methods. Specific topics include the binomial and normal distributions, probability, linear correlation and regression, analysis of variance, and other descriptive statistical methods. Students are expected to understand the design of statistical experiments. They are encouraged to study a problem, design and conduct an experiment, and interpret and communicate the outcomes. Moreover, students should be able to transform data to aid in data interpretation and prediction and test hypotheses using appropriate statistics. The use of computers and calculators enhances the learning process and provides students with experiences in working with emerging technologies. **Pre-requisites: MA340 Algebra 2**

**MA372 DISCRETE MATH** One-half Credit
Discrete Math is the study of math properties of sets and systems that have a countable (discrete) number of elements. With the advent of modern technology, discrete (discontinuous) models have become as important as continuous models. This course includes graph theory, linear programming, matrix modeling, and social decision making. **Pre-requisites: MA340 Algebra 2**

**MA373 PROBABILITY AND STATISTICS/ DI SCRETE MATH HONORS** One Credit
The content of this one year course is the same as the two semesters of courses MA370 Probability and Statistics Honors and MA372 Discrete Math Honors. **Pre-requisites: MA340 Algebra 2**

**MA374 SAT MATH PREPARATION** One-half Credit
SAT Math Preparation is designed to familiarize students with the Scholastic Assessment Test. In this course students review arithmetic, algebra, geometry, and Algebra 1 topics that are frequently found on the SAT test. Students examine test-taking strategies, become familiar with the format of the test, and experience the SAT process under simulated conditions while taking practice tests. These experiences are valuable to students as they encounter problems that are unique to the Scholastic Aptitude Test. Instructors continuously receive updates relative to the test and inform students of the latest adjustments in content, format, and scoring. **Pre-requisites: Geometry**

**MA376 AP STATISTICS** One Credit
Students will be taught the concepts and skills needed to complete successfully the AP Statistics exam. These topics include: collecting and interpreting data through numerical methods, binomial and normal distribution, probability, linear correlation and regression, analysis of variance, and other descriptive statistical methods. Students should be able to transform data to aid in data interpretation and prediction and test hypotheses using appropriate statistics. College credit and/or advanced placement in college is available to those students receiving a qualifying score on the Advanced Placement Examination. **Pre-requisites: MA340 Algebra 2**

**MA381 COMPUTER MATHEMATICS** One Credit
Computer Mathematics provides students with experiences in workplace computer applications, personal finance, essential algebra skills necessary for college mathematics, and computer programming techniques and skills. Students will solve problems that can be set up as mathematical models. Programming concepts, problem-solving strategies, and mathematical applications will be integrated throughout the course. Students who successfully complete the standards for this course may earn credit toward meeting the mathematics graduation requirement. **Pre-requisites: Algebra 1 and Geometry**

**MA390 PERSONAL LIVING AND FINANCE** One Credit
Personal Living and Finance requires students to call upon their foundation skills and knowledge of arithmetic to solve problems that are related to consumer issues. The nature of our society makes it essential for students to be aware of the tenets of banking, credit, taxes, insurance, investments, and income budgeting. This program provides increased opportunities for students to extend their prior knowledge to more realistic and applicable problem solving. Occasions to use computer simulations of small business enterprises, the stock market, and similar real-world applications enrich the curriculum.

**JT335 PRECALCULUS 1-2** Year, One Credit
(JTCC, 6 Credits)
These courses present topics in college algebra; matrices; and algebraic, exponential, and logarithmic functions. Trigonometry, analytic geometry, and sequences in series are also presented. **JT336 CALCULUS** Year, One Credit
(JTCC, 8 Credits)
The first of two semesters will present topics in differential calculus of one variable, including the theory of limits, derivatives, differentials, definite and indefinite integrals and applications to algebraic and transcendental functions. The second semester of this course will present vectors in three dimensions, definite integrals, methods of integration, indeterminate forms, partial differentiation and multiple integrals.

**COMPUTER SCIENCE**

**CP382 COMPUTER PROGRAMMING** One Credit
This course provides an introduction to computer programming. Students will receive exposure to programming language(s), terminology, and opportunities to apply the concepts presented in realistic problem solving situations. Emphasis is placed upon computer ethics and teaching students to be responsible users of hardware and software components. **Pre-requisites: Algebra 1 and teacher recommendation.**

**CP383 COMPUTER PROGRAMMING JAVA-HONORS** One Credit
Java introduces programming for an object-oriented, portable, robust, secure, high-performance, platform independent distributed development environment. Students receive in-depth exposure to this computer language and terminology and opportunities to apply the concepts presented to realistic problem-solving situations presented in the advanced placement curriculum. This accelerated course provides the necessary background for students to successfully pursue Advanced Placement Computer Science JAVA AB. Additional emphasis is placed upon computer ethics and responsible use of hardware and software components. **Pre-requisites: Algebra 1 and Geometry, Co-requisite: Algebra II and teacher recommendation.**

**CP384 AP COMPUTER SCIENCE JAVA** One Credit
Advanced Placement Computer Science AB is taught according to the suggestions in the syllabus for Computer Science AB available through the College Entrance Examination Board. Major topics in AP Computer
SCIENCE

SC401 BIOLGY SOL REVIEW One-half Credit
This elective course is for those students who have not passed a Virginia Standards of Learning Test in science. This course is designed to give them individualized instruction in biology content in order to prepare them for the retaking of the biology SOL test. Each student will be assessed to identify areas for remediation so that their scores on the SOL tests will improve. Each specific biology SOL will be reviewed and presented in a variety of instructional techniques specifically designed to meet the individual needs of each student.

SC420 EARTH/SPACE SCIENCE 1 One Credit
Earth/Space Science is a laboratory course recommended for each ninth grade student in order to complete his/her general background in the fundamentals of science. Major areas of Earth/Space Science are geology, meteorology, oceanography, astronomy, physical geography, energy, and the environment.

SC420 EARTH/SPACE SCIENCE 1 HONORS One Credit
Earth/Space Science is a laboratory course with major areas of study in geology, meteorology, oceanography, astronomy, physical geography, energy, and the environment. This course, which encompasses research design concepts introduced in the middle school, will use a class team approach for developing projects using descriptive statistics.

SC421 EARTH SCIENCE 2 One Credit
This laboratory course provides an advanced survey of earth science topics chosen from oceanography, geology, astronomy and meteorology. The content is organized around thematic units and human activities and influences are explored. Pre-requisites: SC420 Earth Space Science 1.

SC426 OCEANOGRAPHY One Credit
Oceanography is the study of the physical, chemical, geological and biological aspects of the oceans. Topics include waves, tides, currents, ocean chemistry, marine organisms and historical and economic issues.

SC429 AP ENVIRONMENTAL SCIENCE One Credit
AP Environmental Science is an interdisciplinary course designed to be the equivalent of an introductory college course in environmental science. This course will provide students with the scientific principles, concepts, and methodologies required to understand the interrelationships of the natural world; to identify and analyze environmental problems both natural and human-made; to evaluate relative risks associated with these problems; and to examine alternative solutions for resolving and/or preventing them.

Environmental Science counts as earth science credit. Pre-requisites: SC430 Biology 1, SC440 Chemistry 1

SC430 BIOLOGY 1 One Credit
Biology, the study of living things, is a laboratory course which includes the following major areas of study: experimental design, chemistry, cells, genetics, viruses, monerans, protists, fungi, plants, animals, the human body, classification, evolution, and ecology. These areas are developed within the framework of the principal biological theories with an emphasis on critical thinking and science process skills. If dissections are conducted in class, alternatives will be provided for students that request them.

SC430 BIOLOGY 1 HONORS One Credit
Honors biology is a laboratory-based course which encompasses research design concepts introduced in the middle school. Core content will include interrelationships in ecosystems, taxonomy, cellular chemistry, genetics, microbiology, and physiology. These areas are developed within a framework of the principal biological theories with an emphasis on critical thinking and science process skills. Class team research projects will be developed using descriptive statistics techniques. If dissections are conducted in class, alternatives will be provided for students that request them. Pre-requisites: SC420 Earth/Space Science 1, SC430 Biology 1

SC431 BIOLOGY 2 One Credit
This laboratory course provides an advanced survey of life science topics chosen from molecular and cellular biology, the biology of organisms and ecology. Science, technology and societal issues are incorporated throughout. If dissections are conducted in class, alternatives will be provided for students that request them. Pre-requisites: SC420 Earth/Space Science 1, SC430 Biology 1

SC431 BIOLOGY 2 HONORS One Credit
This laboratory course provides an advanced survey of selected areas of biology for students planning to pursue careers in biological and medical fields. Emphasis is placed on research skills and techniques in content chosen from molecular and cellular biology, the biology of organisms and ecology. Honors credit is given for Biology 2 only when individual student projects or papers are submitted for consideration to local, state or national organizations and competitions for evaluation. Weekly time equivalent to three hours of lecture and four hours of laboratory is required. If dissections are conducted in class, alternatives will be provided for students that request them. Pre-requisites: SC420 Earth/Space Science 1, SC430 Biology 1

SC434 ANATOMY AND PHYSIOLOGY One Credit
In this laboratory course students will examine the anatomy and physiology of vertebrate systems. The laboratory portion of the course provides students with the opportunity to study, through dissection, a variety of vertebrate specimens. Alternatives to dissection will be provided for students that request them. Pre-requisites: SC430 Biology 1, SC440 Chemistry 1

SC439 AP BIOLOGY One Credit
This course is designed to be equivalent of a college freshman general biology course. Students will explore the fundamental characteristics of living matter from the molecular level to the ecosystem level. The diversity of living organisms, their structure, function and evolution is emphasized. A college-level text is used as the basal text. Weekly time equivalent to three hours of lecture and four hours of laboratory is required. If dissections are conducted in class, alternatives will be provided for students that request them. Pre-requisite: SC430 Biology 1, Co-requisite: SC440 Chemistry 1

SC440 CHEMISTRY 1 One Credit
This inquiry-based laboratory course surveys the major topics in inorganic chemistry. It is designed to provide a thorough foundation for the college-bound student, emphasizing the quantitative treatment of data, the development of critical thinking skills, abstract reasoning, and application of concepts. Co-requisites: MA340 Algebra 2 co-requisite
This inquiry-based laboratory course is a comprehensive survey of inorganic and physical chemistry. The course will emphasize problem solving and provide a thorough foundation for the college-bound student, emphasizing a quantitative approach. In addition to learning the concepts of chemistry, students will spend the majority of their time on applying their knowledge to new situations and analyzing and evaluating chemistry data. Students in this course will continue to learn and practice the skills of experimental design. Research projects will be completed by small teams of students involving the use of inferential statistics as part of data analysis. Co-requisites: MA340 Algebra 2

This course will be a hands-on introduction to chemistry. It will begin by establishing a firm foundation in the mathematical skills necessary for success in an upper-level science course. The concepts of atomic structure, electron configuration, chemical bonding, chemical equations, and stoichiometric relationships will be studied. This course will not meet the requirements for the advanced studies diploma. Pre-requisites: MA320 Algebra 1 and one verified credit in science

This laboratory course focusing on how organisms interact with each other and their environment. Major topics in this course are population biology, ecosystems, and the effects of science and technology on physical and complex adaptive systems. Pre-requisites: SC430 Biology 1, SC440 Chemistry 1

This is a laboratory course focusing on how organisms interact with each other and their environment. Major topics in this course are population biology, ecosystems, and the effects of science and technology on physical and complex adaptive systems. Pre-requisites: SC430 Biology 1, SC440 Chemistry 1

This course is designed to be the equivalent of a first year college chemistry course. It differs qualitatively and quantitatively from the usual high school chemistry course with respect to the kind of textbook used; the scope, sequence, and detail of topics covered; the mathematical formulation of principles; the emphasis on calculations; and the nature and variety of laboratory work done by student. A college textbook is used and the laboratory component is rather sophisticated. Weekly time equivalent to three hours lecture, four hours laboratory, and five hours independent study are expected. Pre-requisites: SC430 Biology 1, SC440 Chemistry 1

This is a college preparatory course with emphasis on physical science concepts. Concepts involved include mechanics, thermodynamics, waves, electromagnetism, modern physics, and scientific investigation. Student experiences center around active inquiry and experimentation. Pre-requisites: MA340 Algebra 2 co-requisite

This is a college preparatory course with emphasis on the analytical treatment of content, which will include kinematics, dynamics, Newtonian mechanics, conservation laws, kinetic molecular theory, waves, and the electromagnetic spectrum. Students are required to complete an individual research paper using appropriate techniques of statistical analysis introduced in the student's prior science experiences. This course is primarily recommended for students planning to major in math or science at the college level. Pre-requisites: MA340 Algebra 2 Honors

This course is designed to develop student proficiency in astronomy including planetary orbits, origin/evolution/death of the Universe (cosmology), subatomic particles, nuclear fusion, star maps, constellations/moon phases, telescope designs/ optics, useful parts of the electromagnetic spectrum, and spectroscopy. Historical developments of astronomy from earliest history through quantum mechanics are important topics. Pre-requisites: SC450 Physics 1, MA340 Algebra 2 Honors

Students blend real world physics application with concepts reviewed through technology and related issues in this college preparatory course. Student experiences center around active inquiry and experimentation. Mechanics, thermodynamics, waves, electromagnetism, modern physics, and scientific investigation are emphasized topics. Pre-requisites: MA320 Algebra 1

This course is the equivalent of a college physics course. AP Physics B prepares students for the AP Physics B exam. AP Physics emphasizes both physics knowledge and problem solving. The emphasis is on basic principles of physics and their applications through careful and selective treatment of well-chosen areas. It is assumed that students are familiar with algebra and trigonometry; some theoretical developments may use basic concepts of calculus. This course provides an excellent foundation in physics for students interested in life sciences or pre-medicine. Pre-requisites: MA340 Algebra 2 Honors

This course is a equivalent of a college physics course. AP Physics C prepares students two different AP exams, Physics C: Mechanics and Physics C: Electricity and Magnetism. Mechanics and electricity and magnetism are covered with equal emphasis on both. AP Physics emphasizes both physics knowledge and problem solving. The emphasis is on basic principles of physics and their applications through careful and selective treatment of well-chosen areas. Methods of calculus are used in formulating physical principles and in applying them to physical problems. This course is designed for students planning to major in physical sciences or engineering. Pre-requisites: SC450 Physics 1, MA361 AP Calculus AB or MA362 AP Calculus BC co-requisite

This is a multidisciplinary laboratory course, with emphasis on advanced chemistry topics, giving students an appreciation of how scientific concepts are applied to real world situations, specifically forensic investigations. Topics of study will include the history of forensic science and major forensic disciplines such as fingerprinting, questioned documents, entomology, anthropology, DNA analysis, serology, trace evidence, pathology, etc., as well as law and ethics and current legal issues affecting the field of forensic science. After learning basic concepts, student will apply their knowledge to the investigation of simulated crime scenes and participate in mock trials. This course focuses on problem solving, with an emphasis on writing, using experimentation, theorization, research, synthesizing information and making evidence-based conclusions. Pre-requisites: SC430 Biology 1, SC440 Chemistry 1, MA340 Algebra 2

This laboratory course provides an advanced survey of chemistry topics. Topics from Chemistry 1 will be elaborated in greater depth. The content is organized around thematic units and human activities. Pre-requisites: SC440 Chemistry 1
SC490 LABORATORY ASSISTANT One Credit
With permission of the science department chairman and the principal, a student may serve as a laboratory assistant. Only students with an interest and background in science, a strong sense of responsibility, dependability, and willingness to work will be selected. Students may use only one credit in this course to fulfill graduation requirements. This course will not satisfy a science graduation credit.

JT432 INTRODUCTORY MICROBIOLOGY Semester One-half Credit (JTCC, 4 Credits)
This course studies the general characteristics of microorganisms. The course emphasizes their relationships to individual and community health. Weekly time equivalent to three hours lecture and three hours laboratory are expected.

JT433 HUMAN HEREDITY Semester, One-half Credit (JTCC, 3 Credits)
This course surveys basic principles of classical and molecular genetics as applied to humans. Weekly time equivalent to three hours lecture is expected.

JT434 HUMAN ANATOMY AND PHYSIOLOGY 1-2 Year Course, 1 Credit (JTCC, 8 Credits)
This course integrates anatomy and physiology of cells, tissues, organs, and systems of the human body. Concepts of chemistry, physics, and pathology are included. Pre-requisites: SC430 Biology 1, SC440 Chemistry 1

JT436 GENERAL BIOLOGY 1-2 Year Course, 1 Credit (JTCC, 8 Credits)
This course is designed to be the equivalent of a college freshman general biology course. Students will explore the fundamental characteristics of living matter from the molecular level to the ecosystem level. The diversity of living organisms, their structure, function, and evolution is emphasized. A college-level text is used as the basal text. Pre-requisites: SC430 Biology 1, SC440 Chemistry 1

JT444 ENVIRONMENTAL SCIENCE Semester, One-half Credit (JTCC, 4 Credits)
This one-semester dual enrollment laboratory course provides a study of terrestrial and fresh water ecosystems as well as the impact of human activities on the biotic and abiotic ecosystems. Pre-requisites: SC430 Biology 1, SC440 Chemistry 1

JT447 MARINE ECOLOGY Semester, One-half Credit (JTCC, 4 Credits)
This one-semester dual enrollment laboratory course provides a study of the interrelationships and interactions of the biotic and abiotic parameters in a marine environment. Marine life, marine communities, and marine ecosystems are studied in considerable detail as well as the impact of human activities on the marine environment.

JT449 CHEMISTRY Year, One Credit (JTCC, 8 Credits)
This course is designed to be the equivalent of a first year college chemistry course. It differs qualitatively and quantitatively from the usual high school chemistry course with respect to the kind of textbook used; the scope, sequence, and detail of topics covered; the mathematical formulation of principles; the emphasis on calculations; and the nature and variety of laboratory work done by student. A college textbook is used and the laboratory component is rather sophisticated. Weekly time equivalent to three hours lecture, four hours laboratory, and five hours independent study are expected. Pre-requisites: SC430 Biology 1, SC440 Chemistry 1, SC450 Physics 1 co-requisite

JT450 PRINCIPLES OF PHYSICS 1-2 HONORS One credit (JTCC, 8 Credits)
This dual enrollment laboratory course corresponds to John Tyler College Physics PHY 121-122. Fundamental principles of physics, including mechanics, thermodynamics, wave phenomena, electricity and magnetism, as well as modern physics topics are explored. Students will master physics concepts while using quantitative and qualitative analysis to support scientific reasoning. These concepts will be applied to everyday phenomena. Pre-requisites: MA340 Algebra 2 or MA352 Trigonometry/Analysis

JT459 PHYSICS Year, One Credit (JTCC, 8 Credits)
This dual enrollment laboratory course corresponds to John Tyler College General Physics PHY 201-202. This course differs qualitatively and quantitatively from the usual secondary school course. Laboratory experience is a vital part of the program. A college physics text is used as the basal text. Weekly time equivalent to three hours lecture and four hours laboratory/research is required. Pre-requisites: SC440 Chemistry 1, SC450 Physics 1

HISTORY AND SOCIAL SCIENCES

SS205 VA/US HISTORY SOL REVIEW One-half Credit
This elective course is for those students who have not passed a Virginia Standards of Learning Test in social sciences. Students will examine the political, social, and cultural growth of Virginia and The United States with a special emphasis on the Virginia Standards of Learning. Each student will be assessed to identify areas of weakness so that their end of the course SOL test results will improve. Students will receive reading assessment and instruction in test taking strategies and skills. Each specific SOL will be explored and presented using varied and individualized instructional methods designed to meet the needs and learning styles of each student.

SS209 WORLD HISTORY/ GEOGRAPHY TO 1500 A.D. One Credit
This program will build on the basic historical, geographic, political, and economic concepts presented in the K-8 program. The diversity of culture and the evolution of human history will be explored chronologically from the beginning of time until the Renaissance in Europe. Geographical concepts will be included within the context of world historical events.

SS209 WORLD HISTORY/ GEOGRAPHY TO 1500 A.D. HONORS One Credit
This program will build on the basic historical, geographic, political, and economic concepts presented to them in the K-8 program. The diversity of culture and the evolution of human history will be explored chronologically and geographically from the beginning of time until the Renaissance in Europe. Geographical concepts will be incorporated within the context of world historical events. Students will examine the development of the world’s major political, economic, and legal systems; artistic and literary movements; technological changes; trade patterns; religions; and the influential people of history. Special emphasis will be given to the five themes of geography as they relate to regional conflicts, humanity’s relationships with the environment, and the formation of democratic principles, such as citizenship. Hands-on activities and the use of available technology will be an integral part of this course. Students will critique analytical essays and begin to learn the research writing process. This course is a foundation for complex critical thinking and problem solving in subsequent social studies courses.

SS210 WORLD HISTORY/ GEOGRAPHY 1500 A.D. TO THE PRESENT One Credit
Students in World History/Geography 1500 A.D. to the Present will build on the basic historic, geographical, political, and economic concepts presented to them in the first year of the program. The diversity of culture and the evolution of human history will be explored...
SS210  WORLD HISTORY/GEOGRAPHY 1500 A.D. TO THE PRESENT HONORS  One Credit
Students in this course will build on the basic historical, geographic, political, and economic concepts presented to them in the first year of the program. The diversity of culture and the evolution of human history will be explored chronologically and geographically from the Renaissance to the present. Geographical concepts will be incorporated within the context of world historical events. Students will examine the development of the world's major political, economic, and legal systems; artistic and literary movements; technological changes; trade patterns; religions; and the influential people of history. Special emphasis will be given to the five themes of geography as they relate to regional conflicts, humanity's relationships with the environment, and the foundation of democratic principles, such as citizenship. Hands-on activities and the use of available technology will be an integral part of this course. Students will critique analytical essays and continue to learn the research writing process. This course stresses complex critical thinking and problem solving.

SS211  VIRGINIA AND UNITED STATES HISTORY  One Credit
This course will chronicle the history of the United States from the first European exploration of the Americas to the present. Individuals and groups that contributed to the unique evolution of the United States will be studied. Both domestic and foreign policies will be examined at various points in time as the United States developed into a democratic world power. While focusing on political and economic history, this course will include a study of the American culture.

SS212  VIRGINIA AND UNITED STATES GOVERNMENT  One Credit
The curriculum examines the structure and functions of our federal form of government. The decision-making processes at the local, state, national, and international levels are emphasized. The foundations of American government, the politics of American democracy, and constitutional rights and responsibilities are explored in depth. United States political and economic systems are compared to those of other nations, with emphasis on the relationships between economic and political freedoms. Economic content includes the United States market system, supply and demand, and the role of the government in the economy. Democratic values and citizen participation are stressed throughout the course.

SS213  AP UNITED STATES AND VIRGINIA GOVERNMENT  One Credit
This course will give students an analytical perspective on government and politics in the United States. This course involves both the study of general concepts used to interpret United States politics and the analysis of specific case studies and statistical data. It also requires familiarity with the various institutions, groups, beliefs, and ideas that constitute United States political system. Beyond the curriculum designed by the College board, this course will incorporate the Virginia Standards of Learning including political philosophy, economics, and state and local systems of government. Students will be eligible to take the Advanced Placement exam and may learn as much as three hours of college credit.

SS214  AP UNITED STATES HISTORY  One Credit
AP United States History is designed to prepare students for the Advanced Placement test in what is usually a required course at the university level. A chronological approach is used to cover United States history from the first European exploration of the Americas to the present. The influences and contributions of individuals and groups are examined in the development of the United States and its changing role in world affairs. Students are exposed to political, social, economic, diplomatic, intellectual, and cultural history. A major component of this course is the reading and interpretation of various historical documents.

SS215  UNITED STATES MILITARY AND DIPLOMACY  One Credit
This elective course is designed to teach students about the history of the United States, the development of its military and the US role as a modern nation with global influence. The course will span the period from the French and Indian War to the present. It will include the viewpoint of the common citizen rather than just the most influential figures of the day. For example, the course will explore what life was like for the common foot soldier who served on the front lines, and how the role of women and minorities in the military has changed throughout our history. Students will gain an appreciation of their freedoms by seeing that during some of the darkest times in our history. Americans have continued to demonstrate their best qualities and put aside personal differences of opinion.

SS216  AP WORLD HISTORY  One Credit
This course provides students with a comprehensive and rigorous course of western and non-western history. While there are AP counterparts in Chesterfield to US/VA History and US/VA Government, there is none for world history. This provides sophomores an opportunity to gain university credit and an introduction to the AP curriculum. The course is a survey of history from 12,000 BC to the present. In keeping with the global trend at both the university and secondary levels, there is an emphasis on the history of all continents and peoples. Although Europe is still an important component of the course, more focus is placed on the non-Western world.
SS217 LATIN AMERICAN STUDIES One-half Credit
Latin American Studies is an component of the Social Studies program for students of Hispanic background living in America. The course will attempt to help the students better understand the continent of their origin as well as gain an understanding of their cultural patterns. Topics will include (but not be limited to) the Iberian heritage, conquest, and institutions brought to Latin America; the impact of race, ethnicity and social class on the indigenous populations and other topics that the students might want to explore: street children; child labor; the status of women, reasons, for emigration, economics, political institutions, etc.

SS219 ANCIENT AND MODERN CULTURES One Credit
This course is an introduction to archeology (the study of past cultures using material remains such as artifacts and structures as the primary evidence) as well as cultural anthropology (the comparative study of human cultural and biological variety worldwide and through time.) The goals of the course are to examine the diversity of human cultural forms in areas such as subsistence (making a living), social and personal identity, language use, emotions, social inequality, family and kinship, and gender. Students will locate and identify selected famous archeological sites from various historical periods.

SS220 AP EUROPEAN HISTORY One Credit
AP European History is designed to prepare students for the Advanced Placement test in what is ordinarily the freshman level college history course. The course uses an essentially chronological approach to view the scope of European history from the Renaissance to the present. During this time period Europeans discovered the rest of the world, conquered it, and then were forced to relinquish it. Economic, political, and social history is examined as well as the lives of great monarchs, artists, and thinkers who shaped the history of Europe and America. Students learn about a range of people from Louis XIV to John Locke, Leonardo to Newton, and Machiavelli to Adolf Hitler. Students participate in the level of work which awaits them in college.

SS221 SERVICE LEARNING One Credit
The purpose of the course is to provide the time and opportunity for students to perform community service. Students will also study contemporary social problems facing our society and understand the role volunteers can play in finding possible solutions. Students are dismissed from school three afternoons each week to provide their services in nearby elementary and middle schools, nursing homes, parks, and hospitals. Each student is required to complete 160 hours of community service during the school year and to participate in class projects. Students will maintain a journal and spend time in reflection with the class.

SS222 PRACTICAL LAW One-half Credit
The objective of the Practical Law curriculum is to provide practical information and problem solving opportunities for students to develop the knowledge and skills essential for survival in today's litigious society. The curriculum includes basic factual concepts as well as activities such as case studies, mock trials, role-playing, and small and large group exercises. Students are encouraged to apply these concepts and skills in a study of hypothetical situations and law-related current events. Through this application of knowledge, concepts, and skills, the student develops the ability to analyze facts and circumstances objectively and to determine appropriate outcomes.

SS224 INTRODUCTION TO SOCIOLOGY One-half Credit
The goal of the sociology curriculum is to provide the background and framework for students to better understand their roles in society and the effects of various groups' actions and interactions on society. As students study American society, they incorporate many of the concepts learned in other disciplines of social studies such as responsibilities; rights; cause and effect; choices and their impact; the importance of communication, organizations, relationships, and the major American cultural institutions. This new application of traditional social studies skills and concepts provides a valuable awareness and insight into the general importance of and need for a broad understanding of the social studies.

SS225 SOCIOLOGY One Credit
The goal of the sociology curriculum is to provide the background and framework for students to better understand their roles in society and the effects of various groups' actions and interactions on society. As students study American society, they incorporate many of the concepts learned in other disciplines of social studies such as responsibilities; rights; cause and effect; choices and their impact; the importance of communication, organizations, relationships, and the major American cultural institutions. This new application of traditional social studies skills and concepts provides a valuable awareness and insight into the general importance of and need for a broad understanding of the social studies.

SS227 SOCIOLOGY WITH PEER FACILITATORS One Credit
Students learn to help others through understanding communication skills and good decision-making. Emphasis is placed upon teen issues and helping within the school environment. Students are required to apply for this program.

SS228 ADVANCED PEER FACILITATORS One Credit
Student Facilitators continue to refine their helping skills. Leadership concepts are introduced and students expand their helping emphasis through community outreach.

SS229 AFRICAN AMERICAN HISTORY One-half credit
African American history is an integral component of American history and the Black Experience in America. Students learn to examine history from a minority perspective through the examination of trials, tribulations, and triumphs of race relations in the United States. Curriculum will span slavery through modern times and provide a concentration not afforded by a survey US History course. The objective of the course is to give students an appreciation of the Black Experience in American history through the in-depth study of primary documents and accounts of the events in American history affecting African Americans the most.

SS230 ECONOMICS One-half Credit
Economics is an introduction to how the United States economy works. Students learn the basics of economic theory and gain practical experience in how those ideas affect people and businesses. A consultant from a local business visits the class once a week to share his or her own real experiences with students. Students may use a computer simulation to compete with each other, making decisions for their companies, and seeing how those choices compare to their classmates' results. Students may form a real company, decide on a product, and try to make a profit. In addition, the pupils study supply and demand, banks, the Federal Reserve, and the stock market. Other economics systems and international trade policies are also investigated.

SS231 AP ECONOMICS: MACROECONOMICS One Credit
The microeconomic component of the course will provide students with the principles of economics that apply to the functions of individual decision makers, both consumers and producers, within the larger economic system. It places primary emphasis on the nature and functions of product markets, and includes the study of factor markets and of the role of government in promoting greater efficiency and
SS235 MYTHS, LEGENDS, AND MYSTERIES One Credit
In this course, students will explore the non-factual part of history and its association with different cultures and beliefs. Topics to be studied include the mythological legends of Africa, Asia, America, and classical civilizations; religious traditions of East and West; and mysteries of the world today.

SS236 INTERNATIONAL AFFAIRS HONORS One Credit
"Honors International Affairs is open to juniors and seniors currently taking Honors or AP History. This class is a study of post WWII US foreign policy. Major points of emphasis include the Cold War (Berlin Wall, Cuban Missile Crisis, Vietnam, etc.) the collapse of Communism, the evolution of the European Union, Globalization, and current world "hot spots." Students will develop college level reading, research and writing skills. While an awareness of current issues and regular "news watching" is expected, an emphasis is placed on research and analytical thinking skills. Class work includes, but is not limited to, debates, article critiques, (written and oral). Writing position papers, participation in Model UN, and 2 major research papers."

SS237 VIRGINIA AND THE CIVIL WAR: THE HAMMER AND THE ANVIL One-half Credit
This course provides an overview history of the Civil War era (1845-90) in the United States and especially in the state of Virginia. Emphasis will be on national and state events and personalities which would be covered through class research projects, lectures, independent reading, historical site visits, speakers, and museum work.

SS238 NATIVE AMERICAN STUDIES One-half credit
The course provides an in-depth study of the evolution of Native American cultures and civilization. The overall purpose is to present a cultural understanding of Native American history and society from the pre-contact period through the present day. Particular emphasis will be placed on moving away from a Euro centric historical view of Native Americans in order to better understand the people and society from their own unique perspectives. This study will be undertaken through a combination of projects, independent reading, lecture, research, and historical site visits which will facilitate independent student explorations in their particular areas of interest.

SS239 VIRGINIA AND THE SECOND WORLD WAR One-half Credit
This course provides a chronological study of the Second World War (World War II) from the Treaty of Versailles (1919) through the end of the War in the Pacific (1945). By the end of the semester, the student should be well equipped with a through understanding of the greatest conflict in World History. The student will take an in-depth look at the role of the United States played in world affairs and in the process develop a greater appreciation of his/her American heritage. Through this study, one should be able to form a firm foundation for intelligent and positive citizenship.

SS240 NATIVE AMERICAN STUDIES One Credit
The course provides an in-depth study of the evolution of Native American cultures and civilization. The overall purpose is to present a cultural understanding of Native American history and society from the pre-contact period through the present day. Particular emphasis will be placed on moving away from a Euro centric historical view of Native Americans in order to better understand the people and society from their own unique perspectives. This study will be undertaken through a combination of projects, independent reading, lecture, research, and historical site visits which will facilitate independent student explorations in their particular areas of interest.

SS247 AP HUMAN GEOGRAPHY One Credit
The AP Human Geography course introduces students to the field of academic geography. Emphasis will be placed on geographic concepts of location, space, place, scale, pattern, regionalization and globalization. Students will develop an understanding of human interaction, demographic change, environmental effects, and economic impacts on the world.

SS249 SERVICE LEARNING 2 One Credit
Service Learning 2 is a course whose purpose is to expose students to the importance of volunteer work within their community. Students learn by doing. Service develops and refines responsibility and commitments. Students who perform volunteer services learn to value their skills and develop positive images about themselves. They learn to work with others to solve problems, and in the process, develop leadership and teamwork skills.

SS250 AP PSYCHOLOGY One Credit
This course provides students with an introduction to the study of behavior and mental processes. They will learn the facts and concepts important to the different fields with psychology and explore the methods used within these fields.

SS251 AMERICAN HISTORY/ LITERATURE One Credit
This course will provide an in-depth study of modern American history and an in-depth analysis of corresponding American literature. The course will examine relevant topics seen in modern American culture and daily impact on American citizens. This course will enhance student learning by delving deeper into modern subjects that are covered in a rudimentary way in existing US History and government courses.

SS254 COMPARATIVE RELIGIONS Semester One-half Credit
This single semester course surveys the basic elements and historical developments of world religions. After establishing a common definition of the purpose of religion and ways to study religion, students study Buddhism, Taoism, Hinduism, Judaism, Christianity, and Islam. Other religions are studied as time and interest permit. The course is structured in such a way that interested students of any level can be successful. (Pilot schools: Monacan, Cosby and Clover Hill High Schools ONLY)

SS255 THE BIBLE: ITS IMPACT ON HISTORY One-half Credit
Knowledge of the Bible is an acknowledged field of academic study. The Bible contributes to the study of over two thousand years of Western culture, art, music, literature, history, and religion. The purpose of this course is to enable students to acquire an understanding and appreciation of the Bible’s major ideas, historical and geographical contexts along with the impact of the Bible on later history. The course will include the study of the Bible in its historical, sociological, and cultural contexts, and its impact on later cultures, societies, and religions.

JT211 UNITED STATES HISTORY 1-2 Year, One Credit
This course offers college credit for course work completed through John Tyler Community College. The course content surveys United States history from its beginning to the present.

JT212 UNITED STATES GOVERNMENT 1-2 Year, One Credit
This course offers college credit for course work completed through John Tyler Community College. Topics explored in this course include federalism; the electoral process; mass media; political parties; the three branches of government; civil rights and civil liberties; and economic, domestic, and global policies.

JT225 SOCIOLOGY One Credit
This course introduces basic concepts and methods of sociology. Presents significant research and theory in areas such as socialization, group dynamics, gender roles, minority group relations, stratification,
deviance, culture, and community studies. Includes population, social change, and social institutions: family, education, religion, political system, and economic systems.

WORLD LANGUAGES

WL511 FRENCH 1 One Credit
The four linguistic skills of listening, speaking, reading, and writing, as well as cultural and grammatical concepts are practiced in real-life situations. The goal for students is to communicate in the language at the survival level in such basic language functions as ordering food; making purchases; getting around in foreign cities; and talking about self, family, and leisure activities. Many opportunities for oral and written communication are expanded through the use and application of technology. Upon completion of the BEGINNING STAGE, students are able to effectively handle basic task-oriented and social situations. They can ask and answer questions, initiate and respond to simple statements, and maintain a conversation in a restricted manner. Their vocabulary is adequate to express elementary needs. The speaker can generally be understood by a sympathetic audience. As much as possible, the class is conducted in French. Pre-requisite: WL511 French 1

WL512 FRENCH 2 One Credit
FOREIGN LANGUAGES The four linguistic skills, culture, and grammatical concepts continue to be emphasized and practiced in additional real-life situations. The goal for students is to communicate with increasing proficiency by discussing weather, lodging, daily routines, health and fitness, and the regions of the French speaking world. Many opportunities for oral and written communication are expanded through the use of technology. Upon completion of the BEGINNING STAGE, students are able to effectively handle basic task-oriented and social situations. They can ask and answer questions, initiate and respond to simple statements, and maintain a conversation in a restricted manner. Their vocabulary is adequate to express elementary needs. The speaker can generally be understood by a sympathetic audience. As much as possible, the class is conducted in French. Pre-requisite: WL511 French 1

WL512 FRENCH 2 HONORS One Credit
The content of French 2 Honors expands and enriches the curriculum for French 2. Students develop in greater depth the linguistic skills of listening, speaking, reading, and writing. They are expected to express themselves beyond simple mechanical responses, demonstrating the ability to manipulate and create in the language--expressing opinions, negotiating, persuading, and advising. They demonstrate increased proficiency in manipulating the language in a culturally appropriate manner. The course also includes a practicum, an opportunity to put into practice what already has been learned and to combine linguistic skills with other talents. Pre-requisite: WL511 French 1

WL513 FRENCH 3 One Credit
Linguistic skills and grammatical concepts are strengthened, while cultural concepts are expanded to enable students to understand cultural differences. The goal for students is to communicate with increasing proficiency by discussing the world or work, travel in France, the Francophone world and the French cuisine. Many opportunities for oral and written communication are expanded through the use and application of technology. Upon completion of the BEGINNING STAGE, students are able to effectively handle basic task-oriented and social situations. They can ask and answer questions, initiate and respond to simple statements, and maintain a conversation in a restricted manner. Their vocabulary is adequate to express elementary needs. The speaker can generally be understood by a sympathetic audience. As much as possible, the class is conducted in French. Pre-requisite: WL511 French 1

WL513 FRENCH 3 HONORS One Credit
The content of French 3 Honors expands and enriches the curriculum for French 3. Students develop in greater depth the linguistic skills of listening, speaking, reading, and writing. They are expected to express themselves beyond simple mechanical responses, demonstrating the ability to manipulate and create in the language--expressing opinions, negotiating, persuading, and advising. They demonstrate increased proficiency in manipulating the language in a culturally appropriate manner. The course also includes a practicum, an opportunity to put into practice what already has been learned and to combine linguistic skills with other talents. Pre-requisite: WL512 French 2

WL514 FRENCH 4 One Credit
Linguistic skills continue to be polished and strengthened, enabling the student to communicate with increasing precision and accuracy. The goal is for students to develop their understanding of French in contemporary, literary, historical, and cultural contexts. Many opportunities for oral and written communication are expanded through the use of technology. Upon completion of the DEVELOPING STAGE, students are able to handle effectively basic task-oriented and social situations. They can ask and answer questions, initiate and respond to simple statements, and maintain a conversation in a restricted manner. Their vocabulary is adequate to express elementary needs. The speaker can generally be understood by a sympathetic audience. French 4 classes are conducted almost entirely in French. Pre-requisite: WL513 French 3

WL514 FRENCH 4 HONORS One Credit
The content of French 4 Honors expands and enriches the curriculum for French 4. Students develop in greater depth the linguistic skills of listening, speaking, reading, and writing. They are expected to express themselves beyond simple mechanical responses, demonstrating the ability to manipulate and create in the language--expressing opinions, negotiating, persuading, and advising. They demonstrate increased proficiency in manipulating the language in a culturally appropriate manner. The course also includes a practicum, an opportunity to put into practice what already has been learned and to combine linguistic skills with other talents. Pre-requisite: WL513 French 3

WL515 FRENCH 5 One Credit
A comprehensive and in-depth study is presented at this advanced level. In addition, the students increase their understanding of French in contemporary, literature, historical, an cultural contexts. Many opportunities for oral and written communication are expanded through the use and application of technology. Upon completion of the EXPANDING STAGE, students are able to speak the language with enough accuracy to participate effectively in formal and informal conversations on a wide variety of topics. They can support opinions and hypothesize but may not be able to discuss in depth highly abstract topics. They are partially familiar with regional or other differences and command a wide variety of interactive strategies. They may make sporadic errors when using highly complex structures, but the errors will not interfere in communicating with a native speaker. These classes are conducted entirely in French. Pre-requisites: WL514 French 4

WL515 FRENCH 5 HONORS One Credit
The content of French 5 Honors expands and enriches the curriculum for French 5. Students develop in greater depth the linguistic skills of listening, speaking, reading, and writing. They are expected to express themselves beyond simple mechanical responses, demonstrating the ability to manipulate and create in the language--expressing opinions, negotiating, persuading, and advising. They demonstrate increased proficiency in manipulating the language in a culturally appropriate manner. The course also includes a practicum, an opportunity to put into practice what already has been learned and to combine linguistic skills with other talents. Pre-requisites: WL514 French 4

WL516 FRENCH 6 HONORS One Credit
Students develop in greater depth the linguistic skills of listening, speaking, reading, and writing. They are expected to express themselves beyond simple mechanical responses, demonstrating the ability to manipulate and create in the language--expressing opinions, negotiating, persuading, and advising. They demonstrate increased proficiency in manipulating the language in a culturally appropriate
manner. The course also includes a practicum, an opportunity to put into practice what already has been learned and to combine linguistic skills with other talents. Pre-requisites: WL521 German 1

WL523 GERMAN 3 One Credit Linguistic skills and grammatical concepts are strengthened, while cultural and grammatical concepts are deepened enabling the students not only to survive in German-speaking societies, but also to deal with complications. The goal is for students to increase their creative comprehension and communication skills in questioning, narrating, describing, and discussing possibilities in functional activities. Such activities include organizing a travel itinerary for exploration of German-speaking countries, comparing educational options and career plans, and discussing feelings and moods. Many opportunities for oral and written communications are expanded through the use and application of technology. Upon completion of the DEVELOPING STAGE, students are able to handle effectively basic task-oriented and social situations. They can ask and answer questions, initiate, and respond to simple statements, and maintain a conversation in a restricted manner. Their vocabulary is adequate to express elementary needs. The speaker can generally be understood by a sympathetic audience. German 3 classes are conducted almost entirely in German. Pre-requisites: WL522 German 2

WL524 GERMAN 4 One Credit Linguistic skills continue to be polished and strengthened, enabling the student to communicate with increasing precision and accuracy. The goal is for students to develop their understanding of German in contemporary, literary, historical, and cultural contexts. Many opportunities for oral and written communication are expanded through the use of technology. Upon completion of the DEVELOPING STAGE, students are able to handle effectively basic task-oriented and social situations. They can ask and answer questions, initiate, and respond to simple statements, and maintain a conversation in a restricted manner. Their vocabulary is adequate to express elementary needs. The speaker can generally be understood by a sympathetic audience. These classes are conducted in German. Pre-requisites: WL523 German 3

WL524 GERMAN 4 HONORS One Credit The content of German 4 Honors expands and enriches the curriculum for German 4. Students develop in greater depth the linguistic skills of listening, speaking, reading, and writing. They are expected to express themselves beyond simple mechanical responses, demonstrating the ability to manipulate and create in the language. They demonstrate increased proficiency in manipulating the language in a culturally appropriate manner. The course also includes a practicum, an opportunity to put into practice what already has been learned and to combine linguistic skills with other talents. Pre-requisites: WL523 German 3

WL525 GERMAN 5 One Credit A comprehensive and in-depth study is presented at this advanced level. In addition, the students increase their understanding of German in contemporary, literary, historical, and cultural contexts. Many opportunities for oral and written communication are expanded through the use and application of technology. Upon completion of the EXPANDING STAGE, students are able to speak the language with enough accuracy to participate effectively in formal and informal conversations on a wide variety of topics. They can support opinions.
and hypothesize but may not be able to discuss in depth highly abstract topics. They are partially familiar with regional or other differences and command a wide variety of interactive strategies. They may make sporadic errors when using highly complex structures, but the errors will not interfere in communicating with a native speaker. These classes are conducted entirely in German. **Pre-requisites:** WL524 German 4

**WL525 GERMAN 5 HONORS** One Credit
The content of German 5 Honors expands and enriches the curriculum for German 5. Students develop in greater depth the linguistic skills of listening, speaking, reading, and writing. They are expected to express themselves beyond simple mechanical responses, demonstrating the ability to manipulate and create in the language. They demonstrate increased proficiency in manipulating the language in a culturally appropriate manner. The course also includes a practicum, an opportunity to put into practice what already has been learned and to combine linguistic skills with other talents. **Pre-requisites:** WL524 German 4

**WL526 GERMAN 6 HONORS** One Credit
Students develop in greater depth the linguistic skills of listening, speaking, reading, and writing. They are expected to express themselves beyond simple mechanical responses, demonstrating the ability to manipulate and create in the language. They demonstrate increased proficiency in manipulating the language in a culturally appropriate manner. The course also includes a practicum, an opportunity to put into practice what already has been learned and to combine linguistic skills with other talents. **Pre-requisites:** WL525 German 5

**WL527 AP GERMAN LANGUAGE** One Credit
The goal of this course is to achieve a high level of proficiency in the four linguistic skills: listening, speaking, reading, and writing, as prescribed by the College Board. The classes are conducted in German. **Pre-requisites:** WL524 German 4

**WL528 AP GERMAN LITERATURE** One Credit
The goal of this course is to achieve a high level of proficiency in the four linguistic skills: listening, speaking, reading, and writing, as prescribed by the College Board. The classes are conducted in German. **Pre-requisites:** WL527 AP German Language

**WL529 GERMAN 7 HONORS** One Credit
This course for advanced level students emphasizes self-directed learning. Students will conduct an interdisciplinary, in-depth investigation of one historical or cultural topic of interest per quarter using materials in the target language and present their findings in the target language. Students and teachers will communicate exclusively in German. **Pre-requisites:** WL526 German 6

**WL531 LATIN 1** One Credit
The first level of Latin offers the basic vocabulary and grammar system for all future study of Latin, Roman culture and life are introduced through the readings. Mythology, history, and geography are incorporated. The use of technology is encouraged to implement and enhance the students' studies. Upon completion of the BEGINNING STAGE, students are able to read and understand simple passages and their cultural context. They can ask and answer questions, as well as initiate and respond to simple statements and commands. Their vocabulary is adequate to understand elementary Latin passages. The students' compositions can generally be understood by a sympathetic reader. **Pre-requisites:** WL531 Latin 1

**WL532 LATIN 2** One Credit
The second level of Latin offers a continuing study and review of grammar previously introduced. Most of the formal grammar necessary for the reading of Latin literature will be presented. Readings continue to focus on daily life. Legendarory history and mythology complement the integrated language approach to translation. The use of technology is encouraged to implement and enhance the students' studies. Upon completion of the BEGINNING STAGE, students are able to read and understand simple passages and their cultural context. They can ask and answer questions, as well as initiate and respond to simple statements and commands. Their vocabulary is adequate to understand elementary Latin passages. The students' compositions can generally be understood by a sympathetic reader. **Pre-requisites:** WL532 Latin 1

**WL533 LATIN 3** One Credit
(May be taken in 3rd, 4th, or 5th year) The third level reviews and completes the study of grammar. Additional vocabulary is introduced through the readings. Latin prose reading selections, featuring the Republic and the Empire, include such authors as Cicero, Caesar, Entropies, Augustus, and Petronius. The use of technology is encouraged to implement and enhance the students' studies. Upon completion of the DEVELOPING STAGE, students are able to recognize and understand most grammatical structures found in Latin prose. With enhanced vocabulary, students are able to read passages from the works of selected authors. **Pre-requisites:** WL532 Latin 2

**WL534 LATIN 4** One Credit
(May be taken in 3rd, 4th, or 5th year) This level features Virgil's Aeneid and the Augustan Age. The politics, history, and mythology emphasized in the Aeneid enhance the understanding of the Augustan Age and its influence. There will be a study of grammar and vocabulary peculiar to the Aeneid. The study of literary devices and meter strengthen the students' appreciation of epic poetry. The use of technology is encouraged to implement and enhance the students' studies. Upon completion of the DEVELOPING STAGE, students are able to recognize and understand most grammatical structures found in Latin poetry. With enhanced vocabulary, students are able to read passages from the works of selected authors. **Pre-requisites:** WL533 Latin 3

**WL535 LATIN 5 HONORS** One Credit
The content of Latin 5 Honors expands and enriches the curriculum for Latin 4. Students develop in greater depth the linguistic skills of listening, speaking, reading, and writing. They are expected to express themselves beyond simple mechanical responses, demonstrating the ability to manipulate and create in the language. They demonstrate increased proficiency in manipulating the language in a culturally appropriate manner. The course also includes a practicum, an opportunity to put into practice what already has been learned and to combine linguistic skills with other talents. **Pre-requisites:** WL533 Latin 3
The foreign language program enables the student to develop proficiency in a language in addition to English. Proficiency is the learner’s ability to understand, speak, read, and write the language within an authentic cultural setting. Upon completion of the DEVELOPING STAGE, students are able to handle effectively basic task-oriented and social situations. They can ask and answer questions, initiate and respond to simple statements, and maintain a conversation in a restricted manner. Their vocabulary is adequate to express elementary needs. The speaker can generally be understood by a sympathetic audience. Spanish 3 classes are conducted almost entirely in Spanish. Pre-requisites: WL542 Spanish 2

WL543 SPANISH 3 HONORS One Credit
The content of Spanish 3 Honors expands and enriches the curriculum for Spanish 3. Students develop in greater depth the linguistic skills of listening, speaking, reading, and writing. They are expected to express themselves beyond simple mechanical responses, demonstrating the ability to manipulate and create in the language. They demonstrate increased proficiency in manipulating the language in a culturally appropriate manner. The course also includes a practicum, an opportunity to put into practice what has already been learned and to combine linguistic skills with other talents. Pre-requisites: WL542 Spanish 2

WL544 SPANISH 4 One Credit
The foreign language program enables the student to develop proficiency in a language in addition to English. Proficiency is the learner’s ability to understand, speak, read, and write the language within an authentic cultural setting. Upon completion of the DEVELOPING STAGE, students are able to handle effectively basic task-oriented and social situations. They can ask and answer questions, initiate and respond to simple statements, and maintain a conversation in a restricted manner. Their vocabulary is adequate to express elementary needs. The speaker can generally be understood by a sympathetic audience. Spanish 4 classes are conducted almost entirely in Spanish. Pre-requisites: WL542 Spanish 2

WL541 SPANISH 1 One Credit
The four linguistic skills of listening, speaking, reading, and writing, as well as cultural and grammatical concepts are practiced in real-life situations. The goal is for students to communicate in the language at the survival level in such basic language functions as ordering food; making purchases; getting around in foreign cities; and talking about self, family, and leisure activities. Many opportunities for oral and written communications are expanded through the use and application of technology. Upon completion of the BEGINNING STAGE, students are able to effectively handle basic task-oriented and social situations. They can ask and answer questions, initiate and respond to simple statements, and maintain a conversation in a restricted manner. Their vocabulary is adequate to express elementary needs. As much as possible, the class is conducted in Spanish.

WL542 SPANISH 2 One Credit
The four linguistic skills, culture, and grammatical concepts continue to be emphasized and practiced in additional real-life situations. The goal for students is to communicate with increasing proficiency by discussing weather, lodging, daily routines, health and fitness, and the regions of the Spanish-speaking world. Students will learn to describe past, present, and future events. Many opportunities for oral and written communication are expanded through the use of technology. Upon completion of the BEGINNING STAGE, students are able to effectively handle basic task-oriented and social situations. They can ask and answer questions, initiate and respond to simple statements, and maintain a conversation in a restricted manner. Their vocabulary is adequate to express elementary needs. The speaker can generally be understood by a sympathetic audience. As much as possible, the class is conducted in Spanish. Pre-requisites: WL541 Spanish 1

WL543 SPANISH 3 One Credit
The foreign language program enables the student to develop proficiency in a language in addition to English. Proficiency is the learner’s ability to understand, speak, read, and write the language within an authentic cultural setting. Upon completion of the DEVELOPING STAGE, students are able to handle effectively basic task-oriented and social situations. They can ask and answer questions, initiate and respond to simple statements, and maintain a conversation in a restricted manner. Their vocabulary is adequate to express elementary needs. The speaker can generally be understood by a sympathetic audience. Spanish 3 classes are conducted almost entirely in Spanish. Pre-requisites: WL542 Spanish 2

WL544 SPANISH 4 One Credit
The foreign language program enables the student to develop proficiency in a language in addition to English. Proficiency is the learner’s ability to understand, speak, read, and write the language within an authentic cultural setting. Upon completion of the DEVELOPING STAGE, students are able to handle effectively basic task-oriented and social situations. They can ask and answer questions, initiate and respond to simple statements, and maintain a conversation in a restricted manner. Their vocabulary is adequate to express elementary needs. The speaker can generally be understood by a sympathetic audience. Spanish 4 classes are conducted almost entirely in Spanish. Pre-requisites: WL542 Spanish 2
questions, initiate and respond to simple statements, and maintain a conversation in a restricted manner. Their vocabulary is adequate to express elementary needs. The speaker can generally be understood by a sympathetic audience. These classes are conducted in Spanish.  

**Pre-requisites:** WL543 Spanish 3

**WL544 SPANISH 4 HONORS**  
One Credit  
The content of Spanish 4 Honors expands and enriches the curriculum for Spanish 4. Students develop in greater depth the linguistic skills of listening, speaking, reading, and writing. They are expected to express themselves beyond simple mechanical responses, demonstrating the ability to manipulate and create in the language. They demonstrate increased proficiency in manipulating the language in a culturally appropriate manner. The course also includes a practicum, an opportunity to put into practice what already has been learned and to combine linguistic skills with other talents.  

**Pre-requisites:** WL543 Spanish 3

**Spanish 3**

**WL545 SPANISH 5 HONORS**  
One Credit  
The content of Spanish 5 Honors expands and enriches the curriculum for Spanish 5. Students develop in greater depth the linguistic skills of listening, speaking, reading, and writing. They are expected to express themselves beyond simple mechanical responses, demonstrating the ability to manipulate and create in the language. They demonstrate increased proficiency in manipulating the language in a culturally appropriate manner. The course also includes a practicum, an opportunity to put into practice what already has been learned and to combine linguistic skills with other talents.  

**Pre-requisites:** WL544 Spanish 4

**Spanish 4**

**WL546 SPANISH 6 HONORS**  
One Credit  
Students develop in greater depth the linguistic skills of listening, speaking, reading, and writing. They are expected to express themselves beyond simple mechanical responses, demonstrating the ability to manipulate and create in the language. They demonstrate increased proficiency in manipulating the language in a culturally appropriate manner. The course also includes a practicum, an opportunity to put into practice what already has been learned and to combine linguistic skills with other talents.  

**Pre-requisites:** WL544 Spanish 4

**Spanish 5**

**WL547 AP SPANISH LANGUAGE**  
One Credit  
The goal of this course is to achieve a high level of proficiency in the four linguistic skills, listening, speaking, reading, and writing, as prescribed by the College Board. The classes are conducted in Spanish.  

**Pre-requisite** WL544 Spanish 4

**WL548 AP SPANISH LITERATURE**  
One Credit  
The goal of this course is to achieve a high level of proficiency in the four linguistic skills, listening, speaking, reading, and writing, as prescribed by the College Board. The classes are conducted in Spanish.  

**Pre-requisite** WL 547 - AP Spanish Language

**WL550 SPANISH 7 HONORS**  
One Credit  
This course for advanced level students emphasizes self-directed learning. Students will conduct an interdisciplinary, in-depth investigation of one historical or cultural topic of interest per quarter using materials in the target language and present their findings in the target language. Students and teachers will communicate exclusively in Spanish.  

**Pre-requisite** WL546 Spanish 6

**WL551 JAPANESE 1**  
One Credit  
Students begin to acquire skills in understanding and speaking the Japanese language. Basic grammar and vocabulary used in daily living, practical conversations, and discussions of Japanese culture are studied. Hiragana, the Japanese syllabify writing system, and katakana, the Japanese syllabify for foreign words, are taught. A limited number of kanji, "or" characters, are also introduced. Through the language, students study history, geography, culture, and customs of the country.  

**Pre-requisites:** WL551 Japanese 1

**Spanish 5**

**WL552 JAPANESE 2 HONORS**  
One Credit  
The content of this course expands and enriches the Japanese 2 curriculum. The students develop in greater depth the linguistic skills of listening, speaking, reading, and writing. They are expected to express themselves beyond simple mechanical responses, demonstrating the ability to manipulate and create in the language. They demonstrate increased proficiency in manipulating the language in a culturally appropriate manner. The course also includes a practicum, an opportunity to put into practice what already has been learned and to combine linguistic skills with other talents.  

**Pre-requisites:** WL551 Japanese 1

**Spanish 5**

**WL553 JAPANESE 3**  
One Credit  
Linguistic skills and grammatical concepts are reviewed and strengthened, while cultural concepts are expanded to enable students to understand cultural differences. The goal is for students to communicate with increasing proficiency by discussing the world of work, travel in Japan, and Japanese cuisine. Japanese 3 classes are conducted almost entirely in Japanese.  

**Pre-requisites:** FL552 Japanese 2

**Spanish 5**

**WL554 JAPANESE 4**  
One Credit  
The foreign language program enables the student to develop proficiency in a language in addition to English. Proficiency is the learner's ability to understand, speak, read, and write the language within an authentic cultural setting. Upon completion of the EXPANDING STAGE, students are able to speak the language with enough accuracy to participate effectively in formal and informal conversations on a wide variety of topics. They can support opinions and hypothesize but may not be able to discuss in depth highly abstract topics. They are partially familiar with regional or other differences and command a wide variety of interactive strategies. They may make sporadic errors when using highly complex structures, but the errors will not interfere in communicating with a native speaker. These classes are conducted entirely in Japanese.  

**Pre-requisites:** FL554 Japanese 3

**Spanish 5**

**WL555 JAPANESE 5**  
One Credit  
The foreign language program enables the student to develop proficiency in a language in addition to English. Proficiency is the learner's ability to understand, speak, read, and write the language within an authentic cultural setting. Upon completion of the EXPANDING STAGE, students are able to speak the language with enough accuracy to participate effectively in formal and informal conversations on a wide variety of topics. They can support opinions and hypothesize but may not be able to discuss in depth highly abstract topics. They are partially familiar with regional or other differences and command a wide variety of interactive strategies. They may make sporadic errors when using highly complex structures, but the errors will not interfere in communicating with a native speaker. These classes are conducted entirely in Japanese.  

**Pre-requisites:** FL554 Japanese 4

**Spanish 5**

**WL556 JAPANESE 6**  
One Credit  
The foreign language program enables the student to develop proficiency in a language in addition to English. Proficiency is the learner's ability to understand, speak, read, and write the language within an authentic cultural setting. Upon completion of the EXPANDING STAGE, students are able to speak the language with enough accuracy to participate effectively in formal and informal conversations on a wide variety of topics. They can support opinions and hypothesize but may not be able to discuss in depth highly abstract topics. They are partially familiar with regional or other differences and command a wide variety of interactive strategies. They may make sporadic errors when using highly complex structures, but the errors will not interfere in communicating with a native speaker. These classes are conducted entirely in Japanese.  

**Pre-requisites:** FL555 Japanese 5
WL554 JAPANESE 4 HONORS  One Credit
The content of this course expands and enriches the Japanese 4 curriculum. The students develop in greater depth the linguistic skills of listening, speaking, reading, and writing. They are expected to express themselves beyond simple mechanical responses, demonstrating the ability to manipulate and create in the language. They demonstrate increased proficiency in manipulating the language in a culturally appropriate manner. The course also includes a practicum, an opportunity to put into practice what already has been learned and to combine linguistic skills with other talents.
Pre-requisites: WL553 Japanese 3

WL555 JAPANESE 5  One Credit
The foreign language program enables the student to develop proficiency in a language in addition to English. Proficiency is the learner's ability to understand, speak, read, and write the language within an authentic cultural setting. Upon completion of the DEVELOPING STAGE, students are able to handle effectively basic task-oriented and social situations. They can ask and answer questions, initiate and respond to simple statements, and maintain a conversation in a restricted manner. Their vocabulary is adequate to express elementary needs. The speaker can generally be understood by a sympathetic audience. This class is conducted entirely in Japanese.
Pre-requisite: WL554 Japanese Language Seminar 4

WL555 JAPANESE 5 HONORS One Credit
The content of this course expands and enriches the Japanese 5 curriculum. The students develop in greater depth the linguistic skills of listening, speaking, reading, and writing. They are expected to express themselves beyond simple mechanical responses, demonstrating the ability to manipulate and create in the language. They demonstrate increased proficiency in manipulating the language in a culturally appropriate manner. The course also includes a practicum, an opportunity to put into practice what already has been learned and to combine linguistic skills with other talents.
Pre-requisites: WL554 Japanease Language Seminar 4

WL561 NATIVE SPANISH LANGUAGE 1 AND GRAMMAR One Credit
The course is intended for students whose dominant language is Spanish, but who lack expertise in reading and writing in their native language. Concentration is placed on the problem areas of native speakers and will include the study of Spanish grammar and a selection of short stories by well-known Spanish and Latin American authors. Oral Proficiency and Literacy in Spanish.

WL562 NATIVE SPANISH LANGUAGE 2 AND HERITAGE One Credit
This course is designed to help students whose heritage language is Spanish to develop their literacy skills. Students will learn more about the diversity of Hispanic cultures and will explore themes of interest to Hispanic students.
Pre-requisite: WL561 Native Spanish Language 1

WL563 NATIVE SPANISH LANGUAGE 3 AND LITERATURE One Credit
This course is designed to further students' progress in the development of the four language skills while deepening their insight into Hispanic culture through the exposure to works by modern writers of the Spanish-speaking world.
Pre-requisite: WL562 Native Spanish Language 2

WL 567 CHINESE 1 One Credit
Successful students will be able to communicate at the novice level about their home and school lives, their interests and possible professions. They will be able to express simple preferences. Successful students will understand some key cultural similarities and differences between the Chinese and American cultures. They will produce written Chinese using pinyin and simplified Chinese characters. Beginning students will understand the importance of stroke order. These goals will be accomplished through individual and paired activities, reading authentic basic Chinese, writing some Chinese characters, listening and speaking activities, small and large group instruction, class discussions, individual projects, the Internet when appropriate and teacher created strategies. This is an academic elective that requires regular study, homework, memorization and practice.

WL 568 CHINESE II One Credit
Successful students will be able to communicate at the novice level about their personal lives and preferences. Students will expand their acquisition of Chinese using pinyin and simplified Chinese characters. These goals will be accomplished through individual and paired activities, reading authentic basic Chinese, writing Chinese characters, listening and speaking activities, small and large group instruction, class discussions, individual projects, the Internet when appropriate and teacher created strategies. This is an academic elective that requires regular study, homework, memorization and practice.
Pre-requisite: Grade of C or better in Chinese I

WL580 FOREIGN LANGUAGE CADET TEACHER  One-half Credit
Students in the fourth or fifth year of a foreign language have the opportunity to be cadet teachers by working with students who have been absent or need extra help. They also may lead discussion groups in the target language. Students are recommended for this course by their previous foreign language teachers. A qualified fourth-year student could work with a first-year class and fifth-year students could work with a first or second-year class.

WL581 FOREIGN LANGUAGE CADET TEACHER One Credit
Students in the fourth or fifth year of a foreign language have the opportunity to be cadet teachers by working with students who have been absent or need extra help. They also may lead discussion groups in the target language. Students are recommended for this course by their previous foreign language teachers. A qualified fourth-year student could work with a first-year class and fifth-year students could work with a first or second-year class.

WL584 SPANISH FOR THE HEALTHCARE PROFESSIONS  One Credit
This course covers all four linguistic skills (speaking, listening, reading and writing) necessary to communicate with the 21st Century Hispanic patient population encountered in the various healthcare professions. Emphasis will be placed on perfecting speaking and listening skills on applied medical terminology. Students will be expected to participate in activities such as role-playing based on typical office and emergency procedures.
Pre-requisite: Spanish Levels 1, 2 & 3 with a C or better.

JT564 INTERMEDIATE COLLEGE SPANISH One Credit
This course emphasizes the development of language skills and cultural awareness through the active use of art, music, and literature from the Spanish-speaking world. Through carefully sequenced reading, vocabulary, and practice activities, students progress to a true intermediate level of proficiency. The program is enhanced by cutting-edge multimedia learning tools, including a unique online resource that offers convenient access to electronic versions of student and instructor supplements.

HEALTH AND PHYSICAL EDUCATION

HP702 HEALTH AND SPECIAL PHYSICAL EDUCATION 9 One Credit
This course is a diversified program of developmental activities suited to needs, capabilities, and limitations of students who may not safely, successfully, or with personal satisfaction engage in activities included in a regular physical education program. Through carefully designed movement experiences students should gain knowledge about skills, fitness, and the applications to their lives. This course includes health education for half of the year and special physical education for half of
the year.

**HP703 HEALTH AND SPECIAL PHYSICAL EDUCATION 10** One Credit
This course is a diversified program of developmental activities suited to needs, capabilities, and limitations of students who may not safely, successfully, or with personal satisfaction engage in activities included in a regular physical education program. Through carefully designed movement experiences students should gain knowledge about skills, fitness, and the applications to their lives. This course includes health education for half of the year and special physical education for half of the year.

**HP709 HEALTH AND PHYSICAL EDUCATION LEVEL 1** One Credit
This course is designed for students to apply a variety of health concepts, skills, and behaviors when making health-related decisions. The health education content focuses on nutrition, fitness, substance prevention, first aid and family life education. In physical education emphasis is placed on students becoming confident and competent in performing lifetime physical activities. Fitness experiences and individual fitness assessments are integrated throughout the year.

**HP710 HEALTH AND PHYSICAL EDUCATION LEVEL 2** One Credit
This course is designed for students to continue applying health concepts, skills, and behaviors when making health-related decisions. The health education content focuses on driver education, personal and community health and wellness, violence prevention and family life education. In physical education emphasis is placed on students' confidence and competence in physical activities they are likely to participate in throughout life.

**HP711 ADVANCED PHYSICAL EDUCATION 1** One Credit
This elective course stresses participation in a variety of lifetime activities. The course includes recreational activities, fitness activities, and individual, dual, and team sports. Possible activities are aerobics and aerobic games, badminton, basketball, canoeing, cycling, golf, pickle ball, soccer, swimming/water safety, strength training, and volleyball. Fitness experiences and individual fitness assessments are integrated throughout the year. Offered odd years only

**HP712 ADVANCED PHYSICAL EDUCATION 2** One Credit
This elective course stresses participation in a variety of lifetime activities. The course includes recreational activities, fitness activities, and individual, dual, and team sports. Possible activities are aerobics and aerobic games, badminton, basketball, canoeing, cycling, golf, pickle ball, soccer, swimming/water safety, strength training, tennis, and volleyball. Fitness experiences and individual fitness assessments are integrated throughout the year. Offered even years only.

**HP713 DRIVER EDUCATION 10** No Credit
Classroom driver education

**HP715 DRIVER EDUCATION/ STUDY** No Credit
Classroom driver education

**HP720 FITNESS FOR LIFE 1** One Credit
This elective course is designed for students to develop and maintain lifetime skills focused on strength training and conditioning. Emphasis is placed on students self-managing their programs.

**HP721 FITNESS FOR LIFE 2** One Credit
This elective course is designed for students to develop and maintain lifetime skills focused on strength training and conditioning. Emphasis is placed on student self-managing their programs.

**HP741 YOGA-PILATES** One Credit
Yoga-Pilates is a class for students to gain strength, flexibility, stamina and concentration with a variety of movements that will improve their balance, posture and self esteem. Yoga-Pilates combines the slow controlled breathing and stretching of Yoga with the core tightening and strengthening of Pilates. A variety of tools like bands, blocks, and rings will help maximize the students' experience. Yoga-Pilates will pay attention to building strength and endurance of the core to gain stability, enhancing posture and creating a fit, streamlined shape.

**HP743 FITNESS FOR LIFE 3** One Credit
This elective course is designed for students who want to improve their overall strength, speed and cardiovascular endurance. Seniors are assigned teaching (instructor) duties to work with fellow students.

**HP744 SPORTS MEDICINE 1** One Credit
This elective course is designed for students to explore sports medicine and its related fields. Emphasis is placed on the specific management, teaching, and administrative skills involved in the athletic training field.

**HP745 SPORTS MEDICINE 2** One Credit
This course of studies is taught by a certified athletic trainer and provides students with knowledge of topics such as injury prevention, nutrition, first aid/CPR/AED, exercise physiology, and biomechanics. Students study basic human anatomy and physiology, medical terminology, legal and ethical issues in sports medicine, and career preparation. Course competencies have been constructed so as not to go beyond the professional scope of aide/assistant level.

Mastery of the material in this course would provide students with a strong background should they wish to pursue certification in areas such as first aid, CPR, AED, and/or personal trainer.

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**PERFORMING ARTS**

**PA111 THEATRE 1** One Credit
This is an elective course which offers an introduction to theatre, including theatre history, technical skills, and acting. It is intended to give basic knowledge of theatre. This is an introductory course which offers students the opportunity to study theatre including theatre, history, technical skills, and acting.

**PA112 THEATRE 2** One Credit
This is an advanced elective course with emphasis on performing techniques and interpretation of dramatic literature, as well as an introduction to costuming and makeup. Pre-requisites: PA111 Theatre 1; teaching staff recommendation

**PA113 THEATRE 3** One Credit
This is an advanced elective course with emphasis on directing, play writing, and advanced acting projects. It is designed for those students who are highly advanced in dramatic techniques and who may pursue the study of theatre arts. Pre-requisites: PA112 Theatre 2; teaching staff recommendation

**PA114 THEATRE 4** One Credit
This course is designed for students who are highly advanced in dramatic techniques, rehearsal process and performance and who wish to pursue a career in theatre beyond high school. The major objective is to give advanced students a clear understanding of elements involved in developing characters from analysis to performance. The fourth year student is expected to assimilate the acquired skills learned in Theatre 1, 2, 3 and demonstrate knowledge in the rehearsal/performance process. The students will understand that effort promotes achievement, develop a spirit of cooperation and positive self-esteem, experience enrichment through participation, respect individual and cultural differences, and continue to acquire stage presence and etiquette. Pre-requisites: Theatre 1, 2, and 3; theatre teacher recommendation

**PA121 THEATRE PRODUCTION 1** One Credit
This introductory course is designed to give students the opportunity to study technical production, set construction, lighting, sound and makeup. Students enrolled in this course will need a recommendation from the theatre teacher. Theatre teacher recommendation
PA122 THEATRE PRODUCTION 2  One Credit
Students enrolled in Theater Production 2 will research advanced techniques in all phases of theatrical production. Students enrolled in this course will need a recommendation from the theatre teacher.
**Pre-requisites:** PA121 Theatre Production 1; theatre teacher recommendation

PA123 THEATRE PRODUCTION 3  One Credit
This course is designed for students who will be pursuing theatre studies beyond high school. The class consists of contracted projects designed to meet the needs of the particular student. The content includes the highest level of theatre which incorporates light, sound, costing, and makeup. **Pre-requisites:** PA122 Theatre Productions 2 and interview with the theatre teacher

PA124 THEATRE PRODUCTION 4  One Credit
The content is designed for the students who want to pursue further study in theatre. The course will include specific projects that meet the requirements for the particular student. This course differs from other theatre production courses in that the study and projects will be specific to theatre design and production management skills. Selection by interview with the theatre teacher

PA311 INTERMEDIATE BAND  One Credit
This course is open to students who have previous band experience. The course will focus on the sequential development of music skills. Students enrolled in this course are expected to attend mandatory performance/rehearsals, provide their own instrument (large instruments will be provided if available). Marching band may be a part of this course and special clothing may be required for performances. There is a yearly usage fee for uniforms.
**Pre-requisites:** Instructor evaluation

PA312 ADVANCED BAND  One Credit
This course is designed to continue music skills developed on the middle school level. Students will study ensemble playing, musical interpretation, and appropriate band literature. Students enrolled in this course are expected to attend mandatory rehearsals/performances, provide their own instrument (large instruments will be provided if available). Marching band may be a part of this course and special clothing may be required for performances. There is a yearly usage fee for uniforms.
**Pre-requisites:** Instructor evaluation

PA313 SYMPHONIC BAND  One Credit
This course is for the accomplished high school instrumentalist. The course will focus on technical facility, musicianship, tone quality, maturity, and musical interpretation. This course is open to selected students through audition by the instructor. Students enrolled in this course are expected to attend mandatory rehearsals/performances and provide their own instrument (large instruments will be provided if available). Instrumentation will be at the discretion of the director. Marching band may be a part of this course and special clothing may be required for performances. There is a yearly usage fee for uniforms. **Audition by and permission of director; attainment of proficiency of Advanced Band**

PA314 INTERMEDIATE JAZZ BAND  One Credit
Intermediate Jazz Band class is a study of the basic literature, rehearsal, and performance techniques performed in jazz band. This course will focus on the development of improvisational skills and analysis of chord structure. Students enrolled in this course are expected to attend mandatory rehearsals/performances and provide their own instrument (large instruments will be provided if available). Instrumentation will be at the discretion of the director. Marching band may be a part of this course and special clothing may be required for performances. There is a yearly usage fee for uniforms.
**Pre-requisites:** Audition and instructor evaluation

PA315 ADVANCED JAZZ BAND  One Credit
Advanced Jazz Band class is the study of literature, rehearsal, and performance techniques of various jazz styles. Students will study and perform advanced jazz styles and literature representing a variety of historical periods. It is open to selected students of advanced proficiency through audition by the instructor. Students enrolled in this course are expected to attend mandatory rehearsals/performances and provide their own instrument (large instruments will be provided if available). Marching band may be a part of this course and special clothing may be required for performances. There is a yearly usage fee for uniforms. **Pre-requisites:** Audition and instructor evaluation

PA316 INSTRUMENTAL ENSEMBLE (brass, woodwinds, percussion)  One Credit
This course is designed to study the literature and performance techniques of small music ensembles for brass, woodwind, strings, and percussion instruments. Students enrolled in this course are expected to attend mandatory performances and/or rehearsals, provide their own instrument (Large instruments will be provided if available). Marching band may be a part of this course and special clothing may be required for performances. There is a yearly usage fee for uniforms.
**Pre-requisites:** Instructor evaluation

PA317 GUITAR ENSEMBLE  One Credit
This course is designed to study the literature and performance techniques of small music ensembles for brass, woodwind, strings, and percussion instruments. Students enrolled in this course are expected to attend mandatory performances and/or rehearsals, provide their own instrument (Large instruments will be provided if available). Marching band may be a part of this course and special clothing may be required for performances. There is a yearly usage fee for uniforms.
**Pre-requisites:** Instructor evaluation

PA318 STRING ENSEMBLE  One Credit
This course is designed to study the literature and performance techniques of small music ensembles for brass, woodwind, strings, and percussion instruments. Students enrolled in this course are expected to attend mandatory performances and/or rehearsals, provide their own instrument (Large instruments will be provided if available). Marching band may be a part of this course and special clothing may be required for performances. There is a yearly usage fee for uniforms.
**Pre-requisites:** Instructor evaluation

PA319 WIND ENSEMBLE  One Credit
The Wind Ensemble course is designed to develop, in a sequential pattern, those skills learned in Symphonic Band. Emphasis will be on improving ensemble playing and continued improvement of the playing skills and music interpretation of each student. It is a performance-oriented class in which all members must participate. Wind Ensemble and Symphonic Band literature will be used as well as other material suitable to the needs of the class. Students must be willing and able to perform with the ensemble at out-of-school functions. Attendance at scheduled performances and rehearsals is mandatory. The student provides his/her own instrument. (If available, large or expensive instruments will be loaned by the school.) Marching Band may be part of this program. There is a yearly fee for uniforms. Special clothing may be required for performances. **Pre-requisites:** Audition by and permission of director; attainment of proficiency of Symphonic Band; instrumentation at the discretion of the director

PA411 TREBLE CHORUS  One Credit
This course is open to any interested student with a treble (unchanged) voice. This class will build on the student's knowledge of music reading, sight-singing, vocal technique and basic music theory. Students enrolled in this course are expected to attend mandatory rehearsals/performances. Special dress apparel may be required for performances. **Pre-requisites:** Instructor evaluation

PA412 MIXED CHORUS  One Credit
This course is designed to focus on multipart singing and the continued development of the voice. Fundamentals will include music reading, sight-singing, musical interpretation and vocal technique.
Students enrolled in this course are expected to attend mandatory rehearsals/performances. Special dress apparel may be required for performances. **Pre-requisites:** Instructor evaluation

**PA413 ADVANCED MIXED CHORUS**  
One Credit  
This course is open to students of advanced choral ability to increase musical development. Students will be considered for this group only on recommendation of the director. Students enrolled in this course are expected to attend mandatory rehearsals/performances. Special dress apparel may be required for performances. **Pre-requisites:** Instructor evaluation

**PA414 JAZZ/ SHOW CHOIR MIXED**  
One Credit  
These courses provide the opportunity for select music students to learn jazz vocal music in a show atmosphere. Students will study vocal technique, microphone technique, choreography, and stage presence. This course is open to selected students through audition by the instructor. Students enrolled in this course are expected to attend mandatory rehearsals/performances. Special dress apparel may be required for performances. **Pre-requisites:** Instructor evaluation

**PA415 JAZZ/ SHOW CHOIR BOYS**  
One Credit  
These courses provide the opportunity for select music students to learn jazz vocal music in a show atmosphere. Students will study vocal technique, microphone technique, choreography, and stage presence. This course is open to selected students through audition by the instructor. Students enrolled in this course are expected to attend mandatory rehearsals/performances. Special dress apparel may be required for performances. **Pre-requisites:** Instructor evaluation

**PA416 JAZZ/ SHOW CHOIR GIRLS**  
One Credit  
These courses provide the opportunity for select music students to learn jazz vocal music in a show atmosphere. Students will study vocal technique, microphone technique, choreography, and stage presence. This course is open to selected students through audition by the instructor. Students enrolled in this course are expected to attend mandatory rehearsals/performances. Special dress apparel may be required for performances. **Pre-requisites:** Instructor evaluation

**PA417 VOCAL ENSEMBLE 1**  
One Credit  
These courses provide an opportunity to select students to participate in the highest forms of vocal art. Students will be chosen at the discretion of the teacher. Students enrolled in this course are expected to attend mandatory rehearsals/performances. Special dress apparel may be required for performances. **Pre-requisites:** Instructor evaluation

**PA418 VOCAL ENSEMBLE 2**  
One Credit  
This course provides an opportunity to select students to participate in the highest forms of vocal art. Students will be chosen at the discretion of the teacher. Students enrolled in this course are expected to attend mandatory rehearsals/performances. Special dress apparel may be required for performances. **Pre-requisites:** Instructor evaluation

**PA511 PIANO LABORATORY**  
One Credit  
This course is a study of the piano in a laboratory setting. The content will include music theory, technique, expression, structure and history. Students enrolled in this course may be asked to purchase a piano method book.

**PA512 PIANO LABORATORY 2**  
One Credit  
"Piano Lab 2 will provide direct instruction to those students who have already mastered elementary piano skills. With a distinct curriculum from Piano Lab 1, Piano Lab 2 will enable intermediate-level students to progress more quickly towards advanced keyboard and musicianship skills. Students will acquire "'late-beginner’" to intermediate level piano performance and musicianship skills, further preparing them for college level general music classes and college level keyboard classes. Students explore standard "‘classical’" keyboard repertoire; improvise in blues and jazz modalities; play a variety of popular music styles; and perform in a variety of settings. Piano Lab 2 students further their study of music theoretical and analytical processes using keyboard theory books at the appropriate level.”

**PA520 BEGINNING GUITAR (Semester)**  
One-half Credit  
This introductory course is designed to give the beginning guitarist an opportunity to develop the fundamentals of guitar. The course study will include note reading, chord structure, scale patterns, fingerings, strumming rhythms, finger picking, flat picking and performance. Students are expected to provide their own acoustical guitar and method book.

**PA521 BEGINNING GUITAR**  
One Credit  
This introductory course is designed to give the beginning guitarist an opportunity to develop the fundamentals of guitar. The course study will include note reading, chord structure, scale patterns, fingerings, strumming rhythms, finger picking, flat picking and performance. Students are expected to provide their own acoustical guitar and method book.

**PA522 ADVANCED GUITAR**  
One Credit  
In this course, students will further develop and refine guitar techniques and musical skills. These will include multiple note reading, forming more complex chords, scale patterns, fingerings, strumming rhythms, finger picking, flat picking, and composing. Students are expected to provide their own acoustical guitar and method book. **Pre-requisite:** Intermediate Guitar

**PA523 INTERMEDIATE GUITAR**  
One Credit  
This course will build upon the skills learned in Beginning Guitar. Students are expected to provide their own acoustical guitar and method book. **Pre-requisites:** Beginning Guitar

**PA611 INTERMEDIATE ORCHESTRA**  
One Credit  
Intermediate Orchestra provides an opportunity for students to further develop skills on their instrument. Students will study and perform appropriate orchestra literature. Students enrolled in this course are expected to attend mandatory rehearsals/performances and provide their own instrument (large instruments will be provided if available). Special clothing may be required for performances. **Pre-requisites:** Instructor evaluation

**PA612 CONCERT ORCHESTRA**  
One Credit  
Concert Orchestra provides an opportunity for students to study strings, and full orchestra, and ensemble literature. In addition, students will continue to develop the technical advancement skills needed for their instrument. Students enrolled in this course are expected to attend mandatory rehearsals/performances and provide their own instrument (large instruments will be provided if available). Special clothing may be required for performances. **Pre-requisites:** Instructor evaluation

**PA711 INDEPENDENT STUDY - MUSIC**  
One Credit  
This course is taken in conjunction with an advanced level music course. In order to enroll in independent study students must have permission from their instructor. The objective is to allow advanced level students the opportunity to explore technique and develop proficiency in music. **Pre-requisites:** Instructor evaluation

**PA712 MUSIC THEORY**  
One Credit  
This course is designed to expose students to the mechanics of written music through the analysis of music forms and composition, ear training, melody, counter melody, harmony, rhythmic structure, scales and music history. **Pre-requisites:** Instructor evaluation and music teacher evaluation recommendation

**PA713 AP MUSIC THEORY**  
One Credit  
This course is designed to develop the student’s ability to recognize, understand and describe basic materials and processes of music that are heard or presented in a musical score. Students will study aspects of melody, harmony, texture, rhythm and form, through musical...
analysis and elementary composition, history and style. In addition, student will study the various aspects of history and style as it relates to musical composition.

**VISUAL ARTS**

**VA911 ART 1** One Credit
Art 1 is a basic foundation course designed to build the student's confidence in using a variety of art media, to encourage the student's creativity, and to increase the student's awareness of art in world cultures. The elements and principles of design will be stressed in all techniques and media explored and in the study of visual arts heritage. Lab fee is required. Pre-requisites: VA911 Art 1 or teacher recommendation

**VA912 ART 2** One Credit
In Art 2 the student will continue to develop technical skills and an understanding of why artists create. Emphasis will be placed on student involvement in making choices and expressing ideas. Through studying visual arts heritage, the student will learn about art in America. Lab fee is required. Pre-requisites: VA912 Art 2

**VA913 ART 3** One Credit
Art 3 is an advanced art class in which the student will begin to plan a course of study with the art teacher. The student will be assisted in strengthening personal style and increasing competency in media areas of interest. Visual arts heritage emphasis will be placed on contemporary art and art careers. A student who is applying for scholarships or to college art programs will be given assistance in preparing portfolios. Lab fee is required. Pre-requisites: VA913 Art 3

**VA914 ART 4** One Credit
Art 4 is an advanced art class in which the student will plan with the art teacher an individualized course of study. The student will choose media areas in which to work in-depth and will study the visual arts heritage associated with the chosen media areas. A student who is applying for scholarships or to college art programs will prepare portfolios. Lab fee is required. Pre-requisites: VA914 Art 4

**VA915 ART 5** One Credit
The student in ART 5 will continue to explore in greater depth the aspects and relationships of both the commercial and studio artist. The student should have prior skills, competencies, and maturity to assume some assignments on a contractual basis. The student will be responsible for selecting several areas in which to problem solve with the teacher serving as the facilitator. Lab fee is required. Pre-requisites: VA915 Art 5

**VA920 ART AESTHETIC/ HI STORY** One Credit
Students will study and experience a select number of major periods in art and the history and aesthetics associated with them. This course is intended for both art students and non-art students. Students will be engaged in Socratic discussion, studio work and the analysis of cultural expression. Students will gain an appreciation of art and the cultures that create it. Students will learn how to discuss major issues in art and aesthetics. Students will gain insight into innovations and techniques through the studio experience.

**VA921 CRAFTS/ 3-D DESIGN 1** One Credit
In Crafts 1 the student will explore a wide variety of media and techniques in fibers, jewelry, pottery, and sculpture. Emphasis will be placed on craftsmanship and the elements and principles of design as applied to functional and nonfunctional crafts in many cultures. Lab fee is required.

**VA922 CRAFTS/ 3-D DESIGN 2** One Credit
In Crafts 2 the student will continue to develop technical skills while learning to make choices and express personal ideas in a variety of craft media. Individual craft artists and artists from other cultures will be studied. Lab fee is required. Pre-requisites: VA921 CRAFTS/ 3-D DESIGN 1

**VA923 CRAFTS/ 3-D DESIGN 3** One Credit
In Crafts 3 the student will plan a course of study with the art teacher in which the student will work in-depth in one or more craft areas. Research on the areas chosen will reflect the historical aspects of the craft. Lab fee is required. Pre-requisites: VA922 CRAFTS/ 3-D DESIGN 2

**VA931 PHOTOGRAPHY 1** One Credit
This introductory course in black and white photography is available to students in grades 9-12. Through a study of pinhole photography, the student will explore basic photographic processes. These skills and techniques will be applied to the introduction to 35mm dark room photography. Aesthetic and historic awareness of photography will be emphasized. A 35mm SLR camera and a lab fee are required.

**VA932 PHOTOGRAPHY 2** One Credit
Photography 2 is an intermediate course in black and white photography. Basic photographic processes and skills covered in Photography 1 will be reviewed with emphasis being placed on perfecting and fine-tuning these skills. The student will explore in-depth creative approaches to solving photographic problems. A 35mm SLR camera and a lab fee are required. Pre-requisites: VA931 Photography 1 or teacher recommendation

**VA933 PHOTOGRAPHY 3** One Credit
Photography 3 is an advanced course in photography. This course is for the student who has a special interest in and aptitude for photography and is considering photography as a possible career choice. Through a contract an individual course of study will be designed by each student with the aid of the art teacher. A 35mm SLR camera and a lab fee are required. Pre-requisites: VA932 Photography 2

**VA935 AP TWO DIMENSIONAL DESIGN: PHOTOGRAPHY** One Credit
This course is designed for motivated students who wish to explore advanced conceptual and formal photographic techniques. AP curriculum enables students to produce a body of work exhibiting a mastery of basic concepts in photography. In addition to advancing design elements and principles in their work, students develop critical decision-making and problem-solving skills related to creativity, inventiveness, and originality. AP Photography is developed as a college-level course geared to high school students. AP Photography portfolios are compiled as the end of the year. Successful completion, submission and scoring of the portfolio (scores of 4 and above) entitles students to receive college credit from participating colleges and universities. Lab fee is required. Pre-requisites: VA933 and/or instructor approval

**VA942 COMPUTER ART AND GRAPHICS 1** One Credit
In Computer Art and Graphics the student will have the opportunity to explore and expand creative knowledge in the field of electronic imaging and graphic communications. The student will learn the technical skills necessary for artistic problem solving using the elements and principles of design. Current and ongoing developments in the field will be addressed. Emphasis will be on approaching the computer as a creative and practical tool. Lab fee is required.

**VA943 AP ART HISTORY** One Credit
This course is designed to introduce students to works of art. The course begins with the ancient world and continues with lectures and assignments that cover the history of art into the twentieth century. Students who have done well in history, literature, humanities or advanced art are encouraged to enroll. AP Art History is developed as a college level course for high school students. Students will take the College Board’s AP Art History test at the end of the year, which allows students to receive college credit from participating colleges and universities.
VA944  AP STUDIO ART  One Credit
This course is an advanced drawing studio course for the college-bound and career-oriented art student. Emphasis is placed on drawing skills and incorporating drawing skills into other types of artwork. AP Studio Art is developed as a college level course for the high school student. Students will complete a portfolio that fulfills the College Board requirements. Successful submission and high scores on the submitted portfolio entitles students to receive college credit at participating colleges and universities. Lab fee is required.  
**Pre-requisites:** Art 3 or art teacher recommendation.

VA945  AP TWO-DIMENSIONAL DESIGN: Computer Graphics  One Credit
This course is an advanced Computer Art and Graphics course for the career-oriented student. Emphasis is placed upon purposeful, artful decision making while demonstrating proficiency in a variety of graphics software for creating works of art. Students will complete a portfolio that fulfills college Board requirements. Successful submission and high scores on submitted portfolios entitles students to receive college credit at participating colleges and universities. A lab fee is required.  
**Pre-requisites:** Computer Art and Graphics 2 or teacher recommendation.

VA950  COMPUTER ART AND GRAPHICS 2  One Credit
This course will continue the knowledge gained from Computer Art and Graphics 1. Students will further their studies by using the computer as an art form and exploring multimedia and 3-D design. Computer Art and Graphics 2 is intended to prepare students for a future in the technology arts by exposing them to diverse creative opportunities with sophisticated hardware and software. Students will learn how to use technology as a means to achieve a creative end and appreciate the computer as a viable art form.  
**Pre-requisites:** VA942 Computer Art and Graphics.

VA951  INDEPENDENT STUDY Semester  One-half Credit
This course is taken in conjunction with an advanced level course, such as Art 4/5, Crafts/3-D Design 3, or Photography 3, and with prior permission of the instructor. The objective is to allow advanced level students the opportunity to explore technique and develop proficiency in a selected medium.  
**Seniors only.**

VA952  INDEPENDENT STUDY  One Credit
This course is taken in conjunction with an advanced level course, such as Art 4/5, Crafts/3-D Design 3, or Photography 3, and with prior permission of the instructor. The objective is to allow advanced level students the opportunity to explore technique and develop proficiency in a selected medium.  
**Seniors only.**

VA953  COMPUTER ART AND GRAPHICS 3  One Credit
This course will enable students to explore more advanced skills in the field of computer graphics and commercial art. Students will develop work suitable for an extensive portfolio, which is needed in order to become a professional graphic designer. Students will learn to plan, design and create images for multiple industries in the forms of displays, billboards, brochures, packaging, catalogs, books, magazines, newspapers, television and the internet. They will use the computer to aid them in learning commercial design techniques in order to use them in real world applications. Lab fee is required.  
**Pre-requisites:** Computer Art and Graphics 2

VA955  FILM/VIDEO PRODUCTION  One Credit
This advanced art/photography course is designed to introduce students to the film-making process. Students will explore the different roles of production through the completion of film projects. Emphasis will be placed on the student’s development of visual storytelling techniques. The artistic critique of current and historical films will be a major component of the curriculum. Mass Communications students may take this course for Mass Communications credit. Lab fee is required.  
**Pre-requisites:** Any of the following: Art 1, Photo 1, Mass Comm. 1, Theatre 1 or teacher recommendation.

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**CAREER AND TECHNICAL COURSES**  
**BUSINESS**

IT001  COOPERATIVE OFFICE EDUCATION 1  Two Credits
This course is taken concurrently with an approved business course, and students earn credit for completing related, approved work experience.  
**Pre-requisites:** Enrollment in an approved Business course or Information Systems Technology course.

IT002  COOPERATIVE OFFICE EDUCATION 2  Two Credits
This course is for students completing a second year of Cooperative Office Education. It must be taken concurrently with an approved business course, and students will earn credit for completing related, approved work experience.  
**Pre-requisites:** IT001 Cooperative Office Education 1 and enrollment in an approved Business course or Information Systems Technology course.

JT013  DUAL ENROLLMENT LEADERSHIP DEVELOPMENT  One Credit
This course will cover interpersonal relations in student based organizations and hierarchical structures. Students will examine the dynamics of teamwork, motivation, handling change, delegation and conflict management. The course will also expose students to various leadership styles and help identify traits of each.

JT014  DUAL ENROLLMENT ENTREPRENEURSHIP  One Credit
Presents the various steps considered necessary when going into business. Includes areas such as; product services analysis, market research evaluation, financing options, business operations, franchise options, marketing plans, business plans and start ups.

JT201  KEYBOARDING  One-half Credit
This course is designed for secondary school students to develop and enhance touch skills for entering alphabetic, numeric, and symbol information on a keyboard. Students learn to produce simple technical and non-technical documents.

JT202  KEYBOARDING APPLICATIONS  One Credit
Students develop skills for entering alphabetic, numeric, and symbol information on a keyboard. Students apply keyboarding skills to produce a variety of personal and business documents.

IT301  ACCOUNTING  One Credit Grades 10-12
This course is an opportunity for students who are highly motivated in the field of business and/or accounting. Students will develop advanced knowledge and skills for the accounting field. A variety of supplemental activities will be used to enhance the program to further develop interests, talents, and leadership skills.

IT302  ACCOUNTING COMPUTER APPLICATIONS  One Credit Grades 11-12
Honors’ level accounting computer applications is an opportunity for students who are highly motivated in the field of business and/or accounting. Students will develop advanced knowledge and skills for the accounting field. A variety of supplemental activities will be used to enhance the program to further develop interests, talents, and leadership skills.  
**Pre-requisites:** IT301 Accounting

IT461  OFFICE ADMINISTRATION  One Credit Grades 10-12
Students enhance word processing and communication skills as they develop competencies needed by administrative support professionals. Students study office procedures such as machine dictation/transcription, telecommunications, electronic records management, and financial records management.  
**Pre-requisites:** IT 202 Keyboarding Applications.
The Office Specialist course sequence is intended to develop employable office skills at a slower pace. Students may enter this program in Office Specialist 1 or 2 and continue the sequence. The Office Specialist students develop skills in the following areas: keyboarding, word processing, office procedures, records management, calculating, communications, personal employability skills, and technology, which will include Word, Excel, PowerPoint, and the Internet.

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Students explore many facets of financial decision-making involved in daily life. Skills in money management, record keeping, and banking are enhanced through the study of basic concepts of economics, insurance, credit, and other related topics. As a year offering, the course will also prepare students occupationally to plan, manage, and analyze the financial and monetary aspects and performance of business and personal enterprises, banking institutions, or other organizations.

This is an in-depth exposure to computer hardware and operating systems. Through hands on activities and labs, students learn how to assemble and configure a computer, install operating systems and software, and troubleshoot hardware and software problems. Completion of the course prepares the student to take A+ Industry Certificate. **Prerequisite: Basic Computer Skills**

Is an intensive study of multi-user, multi-tasking, network operating systems. Characteristics of the Linux, Windows 2000, NT, and XP network operating systems will be discussed. Students will explore a variety of topics including installation procedures, security issues, back up procedures and remote access. Completion of the course prepares the student to take A+ Industry Certificate. **Prerequisite: PC Hardware and Software**

The Data Modeling course was originally designed for business managers, business and technical analysts, database designers, database administrators and anyone responsible for the analysis and specification of data. The course is primarily conceptual, therefore, students who excel in abstract thought processes are likely to succeed and enjoy this beginning course. After several iterations the ER model captures the data requirements and business rules and forms a sound basis for the design of a relational database. A database is a way of taking the keeping track of these details and putting them together in ways that are logical and useful. Students learn the basics of Structured Query Language (SQL), the language used to manipulate, create, and manage a database. As the first phase of our Academy curriculum, this course will provide form independent programs. This course teaches participants how to develop Java applications and applets. It focuses on teaching the Java language, plus learning practical object-oriented principals. **Pre-requisites: Student enrolled in Algebra 2 or higher**

JAVA is becoming the programming language of choice for Internet applications. It is gaining that status because of its robust nature, its object-orientation, the depth of its predefined classes, and its "write once, run anywhere" (WORA) deployment model. These elements are keys to providing a rich development environment that allows for effective program development and deployment. The techniques include: code reusability, data encapsulation, dynamically downloadable program units, and architecturally neutral and platform independent programs. This course teaches participants how to develop Java applications and applets. It focuses on teaching the Java language, plus learning practical object-oriented principals. **Pre-requisites: Student enrolled in Algebra 2 or higher**

The IT Fundamentals course is an introductory class that introduces basic skills needed for specialized programs in IT. It provides background in four major IT areas: software, hardware, network systems and interactive media. The IT Fundamentals course is designed as a "hands on" class that teaches basic IT skills. The class is designed around an integrated delivery system that allows students to rotate through four core skill areas in 16 modules. After mastering the exploratory activities, students can then select to pursue an
information technology specialty area that can lead to industry recognized certification such as A+, MOS, CISCO, etc.

**IT101 COMPUTER APPLICATIONS**  One-half Credit
Students develop or review correct keyboarding techniques and gain a basic knowledge of word processing, spreadsheet, database, and graphics applications. Students demonstrate an understanding of computer concepts through application of knowledge. Students learn software packages and the operation of equipment such as word processors, printers, copiers, and computers.

**IT102 COMPUTER INTEGRATED APPLICATIONS**  One Credit
Computer Integrated Applications (CIA) is designed for those students who have successfully developed the touch method of keyboarding at middle school and would like to further their computer applications skills. An accelerated review of proper keying techniques through speed building exercises will take place at the beginning of the course but with no minimum speed requirement. Students will utilize integrated software to build on their knowledge of word processing, spreadsheets, database, and graphics using an integrated approach. Ethical issues related to computers, equipment maintenance, employability skills, and keeping current with technology updates will be addressed. **Pre-requisites:** Keyboarding proficiency

**IT103 INTRODUCTION TO COMPUTER INFORMATION SYSTEMS**  One-half Credit
This course introduces students to general concepts of and careers related to computer information systems. Students will learn computer terminology and the effects of computers on daily life. They will discuss ethical and global information technology issues in addition to hardware and software applications. Students will be exposed to system development processes. Meadowbrook High School only

**IT110 BUSINESS COMPUTER APPLICATIONS**  One Credit  Grades 10-12
Students develop computer skills and use a case-based, problem solving approach to create basic word processing, spreadsheet, database, and multimedia presentation applications. Students explore telecommunications. **Pre-requisites:** BUS 201 Keyboarding or teacher approval based on demonstrated skills

**IT111 MANAGEMENT INFORMATION SYSTEMS**  One Credit  Grades 11-12
Students apply advanced integrated computer skills and problem solving to develop professional results using word processing, spreadsheet, database, multimedia presentation, and personal productivity organizer software. Students explore desktop publishing and web page design. Course content incorporates the skills covered on the Microsoft Office User Specialist expert-level exams. **Pre-requisites:** IT110 Business Computer Applications or teacher approval based on demonstrated skills

**IT121 DESKTOP PUBLISHING**  One-half Credit  Grades 11-12
Students develop proficiency in using desktop publishing software to create a variety of business publications. Students work with sophisticated hardware and advanced software to develop publications, presentations, and web pages. **Pre-requisites:** IT202 Keyboarding Applications and recommend IT110 Business Computer Applications

**IT122 DESKTOP PUBLISHING**  One Credit  Grades 11-12
Students develop proficiency in using desktop publishing software to create a variety of business publications. Students work with sophisticated hardware and advanced software to develop publications, presentations, and web pages. **Pre-requisites:** IT202 Keyboarding Applications and recommend IT110 Business Computer Applications

**IT130 ADVANCED ARTIFICIAL INTELLIGENCE (EXPERT SYSTEMS) HONORS**  One Credit  Grades 11-12
This course is designed to enhance the knowledge and skills students learned in the introductory level of Artificial Intelligence. Utilizing the computer, artificial intelligence software, and software utilized in today's society, students solve various problems such as college selections; marketing applications; accounting applications; and professional applications from lawyers, doctors, insurance brokers, instructors, and operation managers. **Pre-requisites:** IT132 ARTIFICIAL INTELLIGENCE (EXPERT SYSTEMS) HONORS

**IT132 ARTIFICIAL INTELLIGENCE (EXPERT SYSTEMS) HONORS**  One Credit  Grades 11-12
This course is designed to provide opportunities for students to analyze data and use simulations to solve business problems using a camcorder program and/or software applications. Students’ attention will be focused on knowledge, representation, and development of applications to optimize solving problems. This course would be appropriate as an offering for talented and gifted students. Computer Science students may enroll with instructor approval.

**IT134 COMMUNICATIONS VIA THE INTERNET**  One-half Credit
This course is designed to increase understanding, efficiency, and potential to get maximum time on-line. Students will develop an understanding of the Internet, how it works, and the use of a browser and different search engines. Students will demonstrate the use of electronic mail and create Web pages using software and HTML commands. **Pre-requisites:** IT202 Keyboarding Applications or IT201 Keyboarding and IT110 Computer Applications or IT102 Computer Integrated Applications

**JT135 ELECTRONIC COMMUNICATION**  One Credit/Grades 10-12
This course presents a broad overview of mass media techniques within the context of electronic communication. Using HTML and a variety of electronic tools such as quick cam, digital camera, scanner, camcorder, web, and desktop publishing software, the student will develop projects to communicate within the school, community, workplace, and around the world. **Pre-requisites:** Keyboarding Proficiency

**JT138 WEB PAGE ASSISTANT**  One Credit
Web Page Student Assistant will help design and maintain the school’s home page. Students will learn to become web page masters. The knowledge gained from developing and maintaining a school web site will sharpen skills needed to enter the job market as Web Designers and will help the school maintain a state of the art web site. May be taken multiple years for credit. **Pre-requisites:** Webmaster or teacher recommendation

**JT139 WEBMASTER HONORS**  One Credit  Grades 11-12
Webmaster introduces students to web technologies and Web design techniques necessary to prepare for a career in the Web Design industry. Students will develop Web pages using HTML authoring and Web software. Web pages will be developed incorporating such features as JavaScript, CGI scripts, animated content, and graphics. In addition, students will build customer feedback forms and FTP web files. **Pre-requisites:** Keyboarding proficiency

**JT161 WORD PROCESSING**  One-half Credit
Students develop intermediate to advanced level word processing skills using a variety of software functions, including graphics and desktop publishing. Students gain competence integrating other applications such as database and spreadsheet into word processing activities. Classroom experiences also provide for skill development in communication. **Pre-requisites:** IT201 Keyboarding or demonstrated keyboarding proficiency

**JT167 WORD PROCESSING**  One Credit
Students develop intermediate to advanced level word processing skills using a variety of software functions, including graphics and desktop
publishing. Students gain competence integrating other applications such as database and spreadsheet into word processing activities. Classroom experiences also provide for skill development in communication. Pre-requisites: IT201 Keyboarding or demonstrated keyboarding proficiency

JT453 VISUAL BASIC PROGRAMMING HONORS  One Credit
Visual Basic Programming introduces students to programming in the Windows environment. Concepts of structured and object-oriented programming are introduced. Students will plan and create interactive Windows applications and write If...Then...Else, Select Case, Do...While, Do...Until, and For...Next statements, as well as create and manipulate sequential access files.

JT491 CISCO NETWORKING 1  One-half Credit
This course will cover OSI model and industry standards, Network topologies, IP addressing, including subnet masks, Networking Components, and basic network design.

JT492 CISCO NETWORKING 2  One-half Credit
This course will cover beginning router configurations and routing and routed protocols.

JT493 CISCO NETWORKING 3  One-half Credit
This course will cover advanced router configurations, LAN switching theory, VLANs, and advanced LAN and LAN switched design, Novell IBX, and threaded case studies.

JT494 CISCO NETWORKING 4  One-half Credit
This course will cover WAN theory and design, WAN technology, PPP, frame relay, ISDN, Network troubleshooting, national SCANS skills, and threaded case studies.

JT495 CISCO NETWORKING 1-2 HONORS  One Credit
This course will cover OSI model and industry standards, Network topologies, IP addressing, including subnet masks, Networking Components, and basic network design. Students will practice beginning router configurations and routing and routed protocols.

JT496 CISCO NETWORKING 3-4 HONORS  One Credit
This course will cover advanced router configurations, LAN switching theory, VLANs, and advanced LAN and LAN switched design, Novell IBX, and threaded case studies. Further study will cover WAN theory and design, WAN technology, PPP, frame relay, ISDN, Network troubleshooting, national SCANS skills, and threaded case studies.

Pre-requisites: JT495

JT357 VISUAL BASIC PROGRAMMING  Semester, One-half Credit (JTCC, 3 Credits)
This course uses Visual Basic for Windows, an object-oriented/ event-driven language, to teach programming concepts. Students will learn how to plan and create interactive Windows applications and will be able to write If...Then...Else, Select Case, Do...While, Do...Until, and For...Next statements, as well as create and manipulate sequential access files and arrays. Students will also learn how to create executable files and how to include multiple forms in a project. GUI design skills are emphasized and advanced skills such as accessing information in a database and using OLE are taught.

JT491 CISCO NETWORKING 1 HONORS  Semester One-half Credit (JTCC, 3 Credits)
This course will cover OSI model and industry standards, Network topologies, IP addressing, including subnet masks, Networking Components, and basic network design.

JT492 CISCO NETWORKING 2 HONORS  Semester One-half Credit (JTCC, 3 Credits)
This course will cover beginning router configurations and routing and routed protocols.

JT493 CISCO NETWORKING 3 HONORS  Semester One-half Credit (JTCC, 3 Credits)
This course will cover advanced router configurations, LAN switching theory, VLANs, and advanced LAN and LAN switched design, Novell IBX, and threaded case studies.

JT494 CISCO NETWORKING 4 HONORS  Semester One-half Credit (JTCC, 3 Credits)
This course will cover WAN theory and design, WAN technology, PPP, frame relay, ISDN, Network troubleshooting, national SCANS skills, and threaded case studies.

JT495 CISCO NETWORKING 1-2 HONORS  One Credit
This course will cover OSI model and industry standards, Network topologies, IP addressing, including subnet masks, Networking Components, and basic network design. Students will practice beginning router configurations and routing and routed protocols.

JT496 CISCO NETWORKING 3-4 HONORS  One Credit
This course will cover advanced router configurations, LAN switching theory, VLANs, and advanced LAN and LAN switched design, Novell IBX, and threaded case studies. Further study will cover WAN theory and design, WAN technology, PPP, frame relay, ISDN, Network troubleshooting, national SCANS skills, and threaded case studies.

Pre-requisites: JT495

JT640 INTRODUCTION TO COMPUTER INFORMATION  Semester, One-half Credit (JTCC, 3 Credits)
This course introduces students to general concepts of computer information systems. It presents terminology and effects of computers on daily life. Available hardware and software and their applications are discussed. Students are exposed to the system development process.

MARKETING

BM101 PRINCIPLES OF BUSINESS AND MARKETING  One Credit Grades 9-10
Students explore the roles of business and marketing in the free enterprise system and the global economy. They study how the American economy operates and prepare to make decisions as consumers, wage earners, and citizens.

BM103 INTERNATIONAL BUSINESS AND MARKETING HONORS  One Credit Grades 11-12
With an ever changing world economy, students must develop an understanding of the business and marketing techniques implemented by today's global firms. Because no country's economy operates independently of another's, students will be exposed to the United States' role in international trade. Other topics addressed will be political, economic, and cultural diversity's effect on international trade, the importance of properly organizing and managing an international business, the use of technology, the application of marketing principles and practices, and an introduction to career opportunities. Topics will be reinforced through guest speakers, the Internet, current events, and projects.

BM200 INTRODUCTION TO MARKETING  One Credit
This elective course will acquaint students with the field of marketing and its role in our society. The class surveys career opportunities and introduces economic concepts in addition to teaching employment techniques and communication skills needed in today’s business world.

BM201 MARKETING  One Credit
Classroom instruction includes advertising, economics, marketing research, and selling. Computer simulations are also used to help develop mathematical and critical thinking skills necessary in business. Marketing Cooperative Education is an option.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
<th>Grade Level</th>
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</thead>
<tbody>
<tr>
<td>JT202</td>
<td>MARKETING</td>
<td>Two</td>
<td>Grades 11-12</td>
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<tr>
<td>BM202</td>
<td>MARKETING HONORS</td>
<td>Two</td>
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<tr>
<td>BM203</td>
<td>MARKETING</td>
<td>Three</td>
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<tr>
<td>BM211</td>
<td>FASHION MARKETING</td>
<td>One</td>
<td>Grades 11-12</td>
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<tr>
<td>BM221</td>
<td>ADVANCED MARKETING</td>
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<tr>
<td>BM222</td>
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<tr>
<td>BM224</td>
<td>ADVANCED FASHION MARKETING</td>
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<td>BM225</td>
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<td>BM226</td>
<td>ADVANCED FASHION MARKETING</td>
<td>Three</td>
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<tr>
<td>BM227</td>
<td>SPORTS, ENTERTAINMENT AND RECREATION MARKETING</td>
<td>One</td>
<td></td>
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</tbody>
</table>

Classroom instruction includes advertising, economics, marketing research, and selling. Computer simulations are also used to help develop mathematical and critical thinking skills necessary in business. Marketing Cooperative Education is an option.

**BM203 MARKETING**
Classroom instruction includes advertising, economics, marketing research, and selling. Computer simulations are also used to help develop mathematical and critical thinking skills necessary in business. Marketing Cooperative Education is an option.

**BM211 FASHION MARKETING**
This specialized curriculum elective in the Marketing Education Program is designed for students with a career objective in the fashion field. Students develop general marketing skills necessary for successful employment in fashion marketing, general marketing skills applied to the apparel and accessories industry, and specialized skills unique to fashion marketing.

**BM221 ADVANCED MARKETING**
Emphasis is placed on the managerial level of marketing and preparation for full-time employment or continuing education in the field of marketing. Marketing Cooperative Education for two or three credits is an option. **Pre-requisites:** BM 201, 202, 203 Marketing or BM211 Fashion Marketing

**JT222 ADVANCED MARKETING**
Two Credits
**BM222 ADVANCED MARKETING**
Two Credits
**BM223 ADVANCED MARKETING**
Three Credits
**BM224 ADVANCED FASHION MARKETING**
One Credit
**BM225 ADVANCED FASHION MARKETING**
Two Credits
**BM226 ADVANCED FASHION MARKETING**
Three Credits
**BM227 SPORTS, ENTERTAINMENT AND RECREATION MARKETING HONORS**
This course is designed to introduce students to a major element of our modern economy—sports, entertainment and recreational fields. Students will develop an understanding of the knowledge and skills necessary to be successful in this field. The following topics will be addressed: economics, marketing, business structure, market research, communications, interpersonal relationships, product planning, promotion, selling, sponsorship development, developing public relations/publicity programs, advertising, branding, developing an idea/event, dealing with agents/personal managers, and product licensing. **Prerequisite:** Successful completion of either Sports, Entertainment and Recreation Marketing or Sports, Entertainment and Recreation Marketing - Honors.

**BM228 ADVANCED SPORTS, ENTERTAINMENT AND RECREATION MARKETING/HONORS**
One Credit
Students will build on prior knowledge of sports, entertainment, and recreation marketing. This course focuses on the principles of management and planning supported by research, financial, and legal concepts. Students will be able to plan and execute an event; develop a career plan, and establish a sports, entertainment, and recreation business. **Pre-requisites:** BM211 Fashion Marketing

**BM232 MARKETING MANAGEMENT/HONORS**
One Credit
This course is offered to the student who is planning to attend college with a concentration in marketing. This is a specialized course designed to provide an understanding of planning, implementing, and controlling marketing activities in business. Students combine classroom instruction with school and community-based projects such as a supervised shadowing project in a business. Computer simulations also provide a challenging opportunity for students to use critical thinking skills used in business.

**BM301 CAREER AWARENESS THROUGH MENTORSHIP**
One-half credit
Grades 11-12
This is a course designed to provide students with a means to expand their knowledge of career opportunities. Through classroom instruction and mentorship experience, students will develop the knowledge, skills, and attitudes necessary to make informed career decisions. **Pre-requisites:** Students enrolled in this course must take BM302 Free Enterprise in a Global Society Honors second semester

**BM302 FREE ENTERPRISE HONORS**
One-half credit
Grades 11-12
This course is designed to expose students to the field of economics. The relationship between economics and our free enterprise system will be addressed throughout the course. In addition, global concepts will be discussed. **Pre-requisites:** BM301 Career Awareness Through Mentorship Honors

**BM303 ELECTRONIC COMMERCE HONORS**
One Credit
Grades 11-12
This course is designed for those students who plan further study in marketing and business and for those who plan to own or manage an electronic commerce business or a business of which electronic commerce is a part of the operation. Students will develop an understanding of the knowledge and skills necessary to be successful in this field. The following topics will be addressed: economics, marketing, business structure, market research, communications, interpersonal relationships, product planning, promotion, selling, sponsorship development, developing public relations/publicity programs, advertising, branding, developing an idea/event, dealing with agents/personal managers, and product licensing. **Prerequisite:** Successful completion of either Sports, Entertainment and Recreation Marketing or Sports, Entertainment and Recreation Marketing - Honors.
commerce is a part. Included in this course is an overview of the history and diverse nature of electronic commerce; economic concepts; the Internet as a marketing tool; technological aspects of web-based electronic commerce; ethical, legal, and security issues; and the planning for implementation of an electronic commerce site.

**TE102 MATERIALS AND PROCESSES TECHNOLOGY** One Credit

This course enables students to focus on industrial/technical materials and processes as they fabricate usable products and conduct experiments. Activities include processing and testing several industrial materials. Students will examine careers in the materials processing industries. Lab fee is required.

**TE104 PRODUCTION SYSTEMS** One Credit

Students plan, design, develop, and market products while studying techniques used in industry, such as computer-aided manufacturing, computer numerical control, and robots used in manufacturing systems. Learning activities in analyzing the market, developing prototypes, and planning potential new businesses may be included. Lab fee is required.

**TE105 TECHNOLOGY FOUNDATIONS** One Credit

Students acquire fundamental knowledge of technological materials, energy, information, and processes. Through laboratory activities, students create ideas and innovations, build systems, and analyze products to learn how and why technology works. Lab fee is required.

**TE106 CONSTRUCTION TECHNOLOGY** One Credit

Construction students design, build, and test scale model structures. Students work with projects that help them understand the jobs of architects, carpenters, electricians, plumbers, surveyors, contractors, masons, design engineers, and a variety of other construction careers. Throughout this course, students will gain an understanding of construction through an emphasis on structural concepts and how they relate to construction history, architectural styles, building codes and standards, and county requirements for project submittal. Various curricular areas will be explored in connection to construction, but not limited to writing, history, algebra, geometry, art, mathematics, physics, local government, and architecture.

**TE107 MANUFACTURING SYSTEMS** One Credit

Students organize and operate a manufacturing company to explore careers and work habits typical of the American industry's free enterprise system. Students make projects or products in the "company" which can be sold. Students experience the work of planners, designers, engineers, machine operators, personnel managers, and a variety of other manufacturing careers. Throughout this course, students will gain an understanding of manufacturing through an emphasis on career, building and marketing concepts and how they relate to the industrial manufacturing profession.

**TE201 TECHNOLOGY EDUCATION 1** One Credit

Students design, plan, and build wood products as they study the woodworking industry. Students use both hand tools and power equipment to develop skills, an understanding of manufactured products, and the fundamentals of woodworking. Creativity and problem solving are emphasized as students develop their interests, talents, and abilities. Lab fee is required.

**TE202 TECHNOLOGY EDUCATION 2** One Credit

This course is designed for students to explore the areas of their interests and abilities. The program offers opportunities primarily for career planning. Lab fee is required.

**TE203 TECHNOLOGY EDUCATION 3** One Credit

This course is designed for students to explore the areas of their interests and abilities. The program offers opportunities primarily for career planning. Lab fee is required.

**TE301 BASIC TECHNICAL DRAWING** One Credit

This beginning technical drawing course gives students the opportunity to experience the language of industry and technology. It provides a variety of experiences that allow students to gain a background of basic skills and understanding in the broad scope of drafting. In addition this class will prepare college bound and technology-oriented
students for the many fields relating to architecture, engineering, and the arts, and those exploring personal interests. While Basic Technical Drawing focuses on drafting skills, it also serves to develop problem solving skills and critical thinking ability. Lab fee is required.

TE302  ENGINEERING DRAWING One Credit
Engineering Drawing provides students the opportunity to experience the graphic language of industry for engineers, manufacturers, and technicians. It provides experiences with greater depth in drafting problems, skills, and techniques. Emphasis is placed on interpretation of industrial prints, ability to use handbooks with other resource materials, and adherence to established standards for drafting. An important aspect of the course is the application of drafting principles to typical engineering drawing and design problems. Lab fee is required. **Pre-requisites: TE301 Basic Technical Drawing**

TE303  ARCHITECTURAL DRAWING One Credit
Architectural Drawing provides students the opportunity to learn about the principles of architecture and related drafting practices and techniques. This class provides information helpful for the future homeowner and is especially beneficial to the future architect, interior designer, or home builder. A final project is required, in which students plan, design, and draw a complete set of working drawings for a single-family residence for later blueprinting and model building. Lab fee is required. **Pre-requisites: TE301 Basic Technical Drawing**

TE304  ADVANCED DRAWING INSTRUCTION One Credit
Instruction in this course focuses on advanced architectural and engineering drawing to include instruction on the computer using computer-aided drafting (CAD) software. Drawings are developed in compliance with the American National Standards Institute (ANSI). This course is designed to prepare students for employment by using modern technology, technical writing, critical thinking skills to solve common problems. **Pre-requisites: TE301 Basic Technical Drawing**

TE305  ADVANCED ENGINEERING APPLICATION One Credit
The demand for engineering professionals having parametric modeling (3-D Modeling) experience is ever increasing. This elective course will provide students the opportunity to acquire the knowledge and develop the skills needed to succeed in the workforce, as well as prepare them for post-secondary education. **Pre-requisites: TE301 Basic Technical Drawing**

TE306  ADVANCED ARCHITECTURAL APPLICATIONS One Credit
Students apply computer aided drafting (CAD) using AutoCAD and the Architectural Desktop program to develop plans, elevations, and details of residential and commercial structures. Studies include the creation and utilization of CAD drafting standards as found in architectural firms. Students will also develop skills necessary to be successful in any architectural setting as a draftsman, architect, interior designer, or home builder. **Pre-requisites: TE301 Basic Technical Drawing, TE 303 Architectural Drawing, TE304 Advanced Drawing Instruction**

TE307  ADVANCED ARCHITECTURAL DRAWING One Credit
Instruction in this course focuses on advanced architectural drawing concepts and fundamentals to include instruction in computer-aided drafting/design software. Drawings are developed in compliance with building codes and requirements suitable for construction. This course is designed to prepare students for employment by using modern technology, technical writing, and critical thinking skills to solve common problems. **Pre-requisites: TE301 Basic Technical Drawing**

TE308  ADVANCED ENGINEERING DRAWING One Credit
Instruction in this course focuses on advanced engineering drawing concepts to include aeronautics, structural, robotics, rapid prototyping, and advanced instruction in computer-aided drafting/design software. Drawings are developed in compliance with ANSI (American National Standards Institute), and prototyping models are constructed to demonstrate the understanding of learned principles. This course is designed to prepare students for employment by using modern technology, technical writing, and critical thinking skills to solve common problems. **Pre-requisites: TE301 Basic Technical Drawing**
**TE601 POWER AND TRANSPORTATION TECHNOLOGY**  
This course is designed to help students develop the knowledge needed to begin to prepare for careers in a variety of computer graphics and related field. The course will enhance the technology education curriculum by providing students the opportunity to continue on a specialized career track in engineering, and broadens a student's employable attributes to where a student is fully prepared to enter the workforce in civil engineering, geospatial technology, drafting, designing, GIS research and advising, science and mathematics. Professional 3D modeling in architecture and engineering, animation and rendering for film and television visual effects and animation, game development, scientific visualization, forensic analysis, criminal analysis, and design visualization is evident in all facets of media.  

This course includes instruction in plant nutrition, soil science, basic botany, grounds maintenance, turf grass, and landscape design. Students study the proper care of lawns, trees, shrubs, annuals and perennials. Students will actually grow commonly used perennials and annuals. Instruction in the proper use of landscape/gardening tools, machinery, and chemicals is an essential part of the course. Using the knowledge they acquire from studying plants used in landscaping, students will plan and draw a landscape design. Students who successfully complete this course may pursue career opportunities at parks, golf courses, nurseries, country clubs, garden centers, and with tree and landscaping companies.  

**Pre-requisite: Teacher recommendation**  

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<tr>
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<th>Description</th>
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<tbody>
<tr>
<td>TE503</td>
<td>Digital Visualization</td>
<td>One</td>
<td>This course is designed to help students develop the knowledge needed to begin to prepare for careers in a variety of computer graphics and related field. The course will enhance the technology education curriculum by providing students the opportunity to continue on a specialized career track in engineering, and broadens a student's employable attributes to where a student is fully prepared to enter the workforce in civil engineering, geospatial technology, drafting, designing, GIS research and advising, science and mathematics. Professional 3D modeling in architecture and engineering, animation and rendering for film and television visual effects and animation, game development, scientific visualization, forensic analysis, criminal analysis, and design visualization is evident in all facets of media.</td>
</tr>
<tr>
<td>TE505</td>
<td>Geospatial Technology</td>
<td>One</td>
<td>This course will explore the various fields of engineering, science, mathematics, and geography while enhancing a student's computer application, technical writing, and critical thinking skills. Students will explore the analysis of the natural and human-made world, locally and globally, to identify and interpret spatial relationships, while using various information technology tools, processes, and techniques to create, store, and access data (including location/geographic components) to solve human challenges.</td>
</tr>
<tr>
<td>TE530</td>
<td>Landscaping 1</td>
<td>One</td>
<td>This course includes instruction in plant nutrition, soil science, basic botany, grounds maintenance, turf grass, and landscape design. Students study the proper care of lawns, trees, shrubs, annuals and perennials. Students will actually grow commonly used perennials and annuals. Instruction in the proper use of landscape/gardening tools, machinery, and chemicals is an essential part of the course. Using the knowledge they acquire from studying plants used in landscaping, students will plan and draw a landscape design. Students who successfully complete this course may pursue career opportunities at parks, golf courses, nurseries, country clubs, garden centers, and with tree and landscaping companies.</td>
</tr>
<tr>
<td>TE531</td>
<td>Landscaping 2</td>
<td>One</td>
<td>This course continues on the foundation established in Landscaping 1. Instruction includes plant nutrition, soil science, basic botany, grounds maintenance, turf grass, and landscape design. Students study the proper care of lawns, trees, shrubs, annuals and perennials. Students will actually grow commonly used perennials and annuals. Instruction in the proper use of landscape/gardening tools, machinery, and chemicals is an essential part of the course. Using the knowledge they acquire from studying plants used in landscaping, students will plan and draw a landscape design. Students who successfully complete this course may pursue career opportunities at parks, golf courses, nurseries, country clubs, garden centers, and with tree and landscaping companies.</td>
</tr>
<tr>
<td>TE601</td>
<td>Power and Transportation Technology</td>
<td>One</td>
<td>Students learn about sources of energy and how energy is used to produce power to perform work. The use of control devices in energy and power systems is explored. Students learn techniques of servicing and repairing machines and equipment powered by small engines. Lab fee is required.</td>
</tr>
<tr>
<td>TE602</td>
<td>Energy and Power Technology</td>
<td>One</td>
<td>Students learn about sources of energy and how energy is used to produce power to perform work. The use of control devices in energy and power systems is explored. Students learn techniques of servicing and repairing machines and equipment powered by small engines. Lab fee is required.</td>
</tr>
<tr>
<td>TE603</td>
<td>Auto Servicing</td>
<td>One</td>
<td>This course is designed to prepare students for job opportunities in the automotive industry that do not require professional certification through the National Institute for Automotive Service Excellence (ASE). The course provides training in routine vehicle maintenance procedures and minor adjustments. Areas of emphasis include the following automotive systems: brakes, engine lubrication, exhaust, cooling and ignition, tires and wheels, steering and suspension, and vehicle lighting. Lab fee is required.</td>
</tr>
<tr>
<td>TE604</td>
<td>Auto Servicing</td>
<td>Two</td>
<td>This course is designed to prepare students for job opportunities in the automotive industry that do not require professional certification through the National Institute for Automotive Service Excellence (ASE). The course provides training in routine vehicle maintenance procedures and minor adjustments. Areas of emphasis include the following automotive systems: brakes, engine lubrication, exhaust, cooling and ignition, tires and wheels, steering and suspension, and vehicle lighting. Lab fee is required.</td>
</tr>
<tr>
<td>TE605</td>
<td>Auto Servicing</td>
<td>Three</td>
<td>This course is designed to prepare students for job opportunities in the automotive industry that do not require professional certification through the National Institute for Automotive Service Excellence (ASE). The course provides training in routine vehicle maintenance procedures and minor adjustments. Areas of emphasis include the following automotive systems: brakes, engine lubrication, exhaust, cooling and ignition, tires and wheels, steering and suspension, and vehicle lighting. Lab fee is required.</td>
</tr>
<tr>
<td>TE701</td>
<td>Metals Technology</td>
<td>One</td>
<td>Students use basic metalworking tools, machines, and processes in making metal projects as they study the metalworking industry. Students plan, design, and manufacture products which involve the use of lathes, welders, foundry, and sheet metalworking equipment. Creativity and problem solving are emphasized as students develop their interests, talents, and abilities. Lab fee is required.</td>
</tr>
<tr>
<td>TE801</td>
<td>Computer Systems</td>
<td>One</td>
<td>This course presents the basic operation of computers and the basic procedures involved in repairing and upgrading personal computers. It is designed to be a hands-on experience that provides students the knowledge to assemble a working computer and to troubleshoot common computer problems. This course prepares students for A+ Certification. Lab fee is required.</td>
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<tr>
<td>FC019</td>
<td>Resource Management</td>
<td>One</td>
<td>Students enrolled in Resource Management focus on managing resources to achieve individual goals; making informed consumer choices; creating and maintaining a living environment that supports the well-being of individuals; living in a global environment; making decisions related to nutrition, clothing, and housing; and managing a household. Critical thinking, practical problem solving, and entrepreneurship opportunities within the area of resource management are emphasized. Teachers highlight the basic skills of mathematics, science, and communication when appropriate in content.</td>
</tr>
<tr>
<td>FC101</td>
<td>Personal Development</td>
<td>One</td>
<td>Students enrolled in Personal Development focus on responsible and independent behaviors. Units of study include instruction and activities in managing personal and family responsibilities, developing interpersonal relationships, making individual economic decisions, managing nutrition and health, and planning career goals. Communications and practical problem-solving are emphasized throughout. This course is recommended for all program sequences in Family and Consumer Sciences. Lab fee is required.</td>
</tr>
</tbody>
</table>
FC201  FOOD FOR FITNESS
One-half Credit
Students enrolled in Food for Fitness focus on decision making issues related to food and nutritional needs for physical fitness and good health throughout the life cycle. Students will demonstrate problem-solving skills, resource conversation, food sanitation, safety practices, and utilize nutritional guidelines in food planning and preparation. Technology skills will be integrated where applicable. This course is recommended for students interested in completing the program sequence for Food Science, Production, Preparation, Service or Hospitality Careers. Lab fee is required. Nutritional needs for physical fitness and good health throughout the life cycle. Students will demonstrate problem-solving skills, resource conservation, food sanitation, safety practices, and utilize nutritional guidelines in food planning and preparation. Technology skills will be integrated where applicable. This course is recommended for students interested in completing the program sequence for Food Science, Production, Preparation, Service, or Hospitality Careers. Pre-requisites: FC101 Personal Development (recommended)

FC202  CULINARY CAREERS
One-half Credit
Students in Culinary Careers focus on exploring the food service industry. Included are food science and technology, nutrition and nutrient resource conservation, and dietetics. This course is planned to follow Food for Fitness for students with an interest in the food service industry and can be used to complete the program sequence for Food Science, Production, Preparation, and Service Careers. Lab fee is required. Pre-requisites: FC101 Personal Development and FC201 Food for Fitness

FC203  HOSPITALITY CAREERS
One-half Credit
Students enrolled in the hospitality core will focus on hospitality operations on a system-wide basis, including travel arrangements and promotion for the provision of travel facilities. Included in the course are instruction in principles and operation of recreation and attractions, travel and tourism, hotel and lodging facilities, food service, and industry policies and regulations. This course is planned to follow Food for Fitness for students interested in completing the program sequence for Hospitality Careers. Lab fee is required. Pre-requisites: FC101 Personal Development and FC201 Food for Fitness (recommended)

FC204  CATERING/COMMERCIAL FOODS 1
One Credit
Grades 11-12
Students prepare for managerial, production, and service skills used in government, commercial, or independently owned institutional food establishments and related food industry occupations. Study includes planning, selecting, storing, purchasing, preparing, and serving food and food products; basic nutrition; sanitation and food safety; the use and care of commercial equipment; service techniques; and the operation of institutional food establishments. This course follows the program sequence for Food Science, Production, Preparation, and Service Careers. Lab fee is required. Pre-requisites: FC101 Personal Development, FC201 Food for Fitness and FC202 Culinary Careers (recommended)

FC205  CATERING/COMMERCIAL FOODS 2
Two Credits
Grades 11-12
Students extend and expand skills learned in Catering/Commercial Foods I, preparing occupational skills for work in public, private, and/or independently owned food occupations such as chef/cook, baker/pastry helper, pastry decorator, hospitality worker, dietetic aide/assistant, food demonstrator, mixologist, or entrepreneur. Cooperative (on-the-job) experience under the supervision of the instructor is required for a minimum of 396 hours. Lab fee is required. Pre-requisites: FC204 CATERING/COMMERCIAL FOODS 1

FC208  CATERING/COMMERCIAL FOODS 3
One Credit
Students will build upon skills gained in Culinary Arts 1 and 2. In semester one student’s will complete an extensive unit on Baking and Pastry Arts. Topics will include Danish and pastry production, wedding and specialty cakes, artisan breads, chocolate sculpture, candy making, soufflés and custards. In semester two students will go global by completing several units on world cuisine. Students will work with ingredients and learn cooking techniques from several countries. Classical French and Italian cuisines will be covered extensively. A strong emphasis will be placed on regional foods and using local and organic products. Pre-requisites: CATERING/COMMERCIAL FOODS 1 & 2

FC401  PARENTING
One-half Credit
This course is designed to allow students to explore the rewards and responsibilities of parenting and to introduce students to the skills needed to work with young children. The course focus is on decisions relating to parenting, prenatal growth and development, principles of child growth and development, learning experiences for children, and principles of guiding children in a healthy and safe environment. Technology skills will be integrated where applicable. Lab fee is required. Pre-requisites: FC101 Personal Development (recommended)

FC402  EARLY CHILDHOOD CAREERS
One-half Credit
This course is designed to introduce students to skills needed in working with young children. Instructional units include infant care, child growth and development, guidance and discipline, and planning appropriate physical education activities for children. Practical experience with children is offered through partnerships with local child care facilities and/or elementary schools. This course is planned to follow Parenting for students interested in completing the program sequence for Child Care and Education Careers. Lab fee is required. Pre-requisites: FC101 Personal Development and FC401 Parenting

FC403  EARLY CHILDHOOD PROFESSIONS
One Credit
Grades 10-12
This course is designed to introduce students to skills needed in infant care, child growth and development, guidance and discipline, and planning appropriate physical education activities for children. Practical experience with children is offered through partnerships with local child care facilities and/or elementary schools. This course follows the program sequence for students interested in Child Care and Education Careers. Lab fee is required. Pre-requisites: Prerequisites: FC101 Personal Development, FC 401 Parenting, and FC402 Early Childhood Careers (recommended)

FC601  WORK AND FAMILY STUDIES COOPERATIVE EDUCATION
Three Credits
Grades 11-12
This course is a cooperative education program which combines classroom instruction and 540 hours of supervised on-the-job training in the areas of child care services, apparel and textile industry, food production, housing and home furnishings, and institutional management. Classroom instruction includes employment skills relating to career choice, interpersonal relations, communication skills, informed decision-making, and computer applications. Lab fee is required. Pre-requisites: FC101 Personal Development or appropriate semester course related to career interest area

FC701  CONTEMPORARY LIVING
One Credit
Grades 11-12
Students enrolled in Contemporary Living focus on independent living as young adults. Units of study include family heritage and traditions, life-styles throughout the life span, choices for a healthy life-style, informed consumer decision-making, selecting and maintaining a home, responsible parenting, social etiquette, effective conflict management, and balancing work and family roles and responsibilities. Communications and practical problem solving are emphasized. Lab fee is required.

FC702  LEADERSHIP AND PROFESSIONAL DEVELOPMENT
One Credit
Grades 11-12
The Leadership and Professional Development course focuses on the development of positive self-concept through leadership roles and responsibilities. Units of study include assessing personal leadership traits, utilizing productive leadership skills, managing effective
meetings, understanding group dynamics, practicing practical problem solving, creating a professional image, practicing professional behavior, identifying career development techniques, and balancing work and family roles and responsibilities. Activities include the practice of interpersonal, oral, and written communication skills; participation in community, home, and workplace learning projects; exploration of volunteerism; and the transfer of leadership and citizenship skills to career development. Lab fee is required.

**TRANSITIONING**

**TR101 CAREER EDUCATION**  One-half Credit
Classroom instruction includes basic occupational information without the cooperative education component; however, shadowing and mentoring opportunities will be offered. Emphasis is placed on exploring career options, career assessment, and pre-employment skills training.

**TR102 CAREER EDUCATION**  One Credit Grades 9-11
Career Education is the first in a sequence of classes that introduces students to the world of work and career planning. Emphasis is placed on exploring career options, career assessment, career research, pre-employment skills training, communication skills, and life skills needed to become a successful worker and citizen. Skills such as problem solving, critical thinking, decision making and organization are integrated into the class. Career Education provides an excellent opportunity for exploration into ANY of the career pathways.

**TR201 COOPERATIVE CAREER EDUCATION 1**  Three Credits Grades 11-12
Students have the opportunity to prepare for employment related to the many fields within the areas of trade, industrial, or technical occupations. Each student receives on-the-job training and instruction related to his or her chosen trade area. Industrial and professional establishments provide employment and supervised on the job training. Classroom instruction includes pre-employment and employment skills, communication, career research, interpersonal relationships, work ethics, budgeting and life skills, taxes, banking, and some computer application. Employment will be coordinated by the CCE coordinator, and students are required to work a total of 540 hours to receive three credits. Interested students should drive or have adequate transportation. Maturity to handle technical employment is essential.

**TR202 COOPERATIVE CAREER EDUCATION 2**  Three Credits Grade 12
Students have the opportunity to prepare for employment related to the many fields within the areas of trade, industrial, or technical occupations. The cooperative education method is available for this course. Each student receives on-the-job training and instruction related to his or her chosen trade area. Industrial and professional establishments provide employment and supervised on the job training. Classroom instruction includes pre-employment and employment skills, communication, career research, interpersonal relationships, work ethics, budgeting and life skills, taxes, banking, and some computer application. Employment will be coordinated by the CCE coordinator, and students are required to work a total of 540 hours to receive three credits. Interested students should drive or have adequate transportation. Maturity to handle technical employment is essential.

**TR203 COOPERATIVE CAREER EDUCATION 2 SENIOR INTENSIFIED**  Two Credits Grade 12
This course is for seniors who have completed a sequence of classes in other career and technical education areas or have completed a series of classes in a particular career path. The cooperative education method is available for this course. Each student receives on-the-job training and instruction related to his or her chosen trade area. Industrial and professional establishments provide employment and supervised on the job training. Classroom instruction includes pre-employment and employment skills, communication, career research, interpersonal relationships, work ethics, budgeting and life skills, taxes, banking, and some computer application. Employment will be coordinated by the CCE coordinator and students are required to work a total of 396 hours to receive two credits. Interested students should drive or have adequate transportation. Maturity to handle technical employment is essential.

**TR204 COOPERATIVE CAREER EDUCATION 2 SENIOR INTENSIFIED**  Three Credits Grade 12
This course is for seniors who have completed a sequence of classes in career and technical education areas or have completed a series of classes in a particular career path. The cooperative education method is available for this course. Each student receives on-the-job training and instruction related to his or her chosen trade area. Industrial and professional establishments provide employment and supervised on the job training. Classroom instruction includes pre-employment and employment skills, communication, career research, interpersonal relationships, work ethics, budgeting and life skills, taxes, banking, and some computer application. Employment will be coordinated by the CCE coordinator and students are required to work a total of 540 hours to receive three credits. Interested students should drive or have adequate transportation. Maturity to handle technical employment is essential.

**TR212 COOPERATIVE CAREER EDUCATION 1**  Two Credit
Students have the opportunity to prepare for employment related to the many fields within the areas of trade, industrial, or technical occupations. Each student receives on-the-job training and instruction related to his or her chosen trade area. Industrial and professional establishments provide employment and supervised on the job training. Classroom instruction includes pre-employment and employment skills, communication, career research, interpersonal relationships, work ethics, budgeting and life skills, taxes, banking, and some computer application. Employment will be coordinated by the CCE coordinator, and students are required to work a total of 396 hours to receive two credits. Interested students should drive or have adequate transportation. Maturity to handle technical employment is essential.

**TR222 COOPERATIVE CAREER EDUCATION 2**  Two Credit
Students have the opportunity to prepare for employment related to the many fields within the areas of trade, industrial, or technical occupations. The cooperative education method is available for this course. Each student receives on-the-job training and instruction related to his or her chosen trade area. Industrial and professional establishments provide employment and supervised on the job training. Classroom instruction includes pre-employment and employment skills, communication, career research, interpersonal relationships, work ethics, budgeting and life skills, taxes, banking, and some computer application. Employment will be coordinated by the CCE coordinator, and students are required to work a total of 396 hours to receive two credits. Interested students should drive or have adequate transportation. Maturity to handle technical employment is essential.

**TR301 EDUCATION FOR EMPLOYMENT 1**  One Credit
This course is designed for the ninth and tenth grade student with identified special needs. The program offers these students needed assistance to enable them to succeed in other programs and to develop the skills, knowledge, and attitudes to ensure successful employment. Students assess personal interests, aptitudes, and skills; define occupational/career goals; apply independent living skills; and practice pre-employment skills.
TR302 EDUCATION FOR EMPLOYMENT 1  Three Credits
This course is designed for the ninth and tenth grade student with identified special needs. The program offers these students needed assistance to enable them to succeed in other programs and to develop the skills, knowledge, and attitudes to ensure successful employment. Students assess personal interests, aptitudes, and skills; define occupational/career goals; apply independent living skills; and practice pre-employment skills. A total of 540 hours of supervised work experience in one or more areas is required for three credits.

TR303 EDUCATION FOR EMPLOYMENT 2  One Credit
This course is designed for the tenth and eleventh grade student with identified special needs. The program continues individual assistance necessary for students to succeed in other programs and to continue to develop the skills, knowledge, and attitudes to ensure successful employment. Students practice independent living skills, identify employer/employee expectations, develop good work habits, identify personal work ethics, and practice human relations skills.

TR304 EDUCATION FOR EMPLOYMENT 2  Three Credits
This course is designed for the tenth and eleventh grade student with identified special needs. The program continues individual assistance necessary for students to succeed in other programs and to continue to develop the skills, knowledge, and attitudes to ensure successful employment. Students practice independent living skills, identify employer/employee expectations, develop good work habits, identify personal work ethics, and practice human relations skills. A total of 540 hours of supervised work experience in one or more areas is required for three credits.

TR305 EDUCATION FOR EMPLOYMENT 3  One Credit
This course is designed for the eleventh and twelfth grade student with identified special needs. The program continues individual assistance necessary for students to succeed in other programs and to continue to develop the skills, knowledge, and attitudes to ensure successful employment. Students practice independent living skills, identify employer/employee expectations, develop good work habits, identify personal work ethics, and practice human relations skills. A total of 396 hours of supervised work experience in one or more areas is required for two credits.

TR306 EDUCATION FOR EMPLOYMENT 3  Three Credits
This course is designed for the eleventh and twelfth grade student with identified special needs. The program continues individual assistance necessary for students to succeed in other programs and to continue to develop the skills, knowledge, and attitudes to ensure successful employment. Students study problems of industry, safety issues and labor laws, financial management and problem-solving and practice computer skills as they relate to the workplace.

TR312 EDUCATION FOR EMPLOYMENT 1  Two Credit
Students have the opportunity to prepare for employment related to the many fields within the areas of trade, industrial, or technical occupations. The cooperative education method is available for this course. Each student receives on-the-job training and instruction related to his or her chosen trade area. Industrial and professional establishments provide employment and supervised on the job training. Classroom instruction includes pre-employment and employment skills, communication, career research, interpersonal relationships, work ethics, budgeting and life skills, taxes, banking, and some computer application. Employment will be coordinated by the CCPE coordinator, and students are required to work a total of 396 hours to receive two credits. Interested students should drive or have adequate transportation. Maturity to handle technical employment is essential.

TR322 EDUCATION FOR EMPLOYMENT 2  Two Credit
This course is designed for the tenth and eleventh grade student with identified special needs. The program continues individual assistance necessary for students to succeed in other programs and to continue to develop the skills, knowledge, and attitudes to ensure successful employment. Students practice independent living skills, identify employer/employee expectations, develop good work habits, identify personal work ethics, and practice human relations skills. A total of 396 hours of supervised work experience in one or more areas is required for two credits.

TR332 EDUCATION FOR EMPLOYMENT 3  Two Credit
This course is designed for the eleventh and twelfth grade student with identified special needs. The program continues individual assistance necessary for students to succeed in other programs and to continue to develop the skills, knowledge, and attitudes to ensure successful employment. Students study problems of industry, safety issues and labor laws, financial management and problem-solving and practice computer skills as they relate to the workplace. A total of 396 hours of supervised work experience in one or more areas is required for two credits.

TR401 JOBS FOR VIRGINIA GRADUATES  One-half Credit
Jobs for Virginia Graduates (JVG) provides twelfth grade students facing adverse education, personal, and family barriers with the tools to develop core skills that encourage independent, responsible, and productive living. The JVG curriculum addresses thirty competencies in career development, job attainment, and job survival, as well as basic competencies in written and verbal communications and mathematical calculations. The program promotes the Career Association, a student-led organization designed to aid students in leadership development, organizational skills development, team building, and demonstrating the ability to accomplish a set of goals. In a twelve-month follow-up upon graduation, the job specialist assists the student participants in successful job placements, military appointments, or further educational opportunities. Manchester High School only

TR402 JOBS FOR VIRGINIA GRADUATES  One Credit
Jobs for Virginia Graduates (JVG) provides twelfth grade students facing adverse education, personal, and family barriers with the tools to develop core skills that encourage independent, responsible, and productive living. The JVG curriculum addresses thirty competencies in career development, job attainment, and job survival, as well as basic competencies in written and verbal communications and mathematical calculations. The program promotes the Career Association, a student-led organization designed to aid students in leadership development, organizational skills development, team building, and demonstrating the ability to accomplish a set of goals. In a twelve-month follow-up upon graduation, the job specialist assists the student participants in successful job placements, military appointments, or further educational opportunities. Manchester High School only

TR403 JOBS FOR VIRGINIA GRADUATES COE  Three Credits
Jobs for Virginia Graduates (JVG) provides twelfth grade students facing adverse education, personal, and family barriers with the tools to develop core skills that encourage independent, responsible, and productive living. The JVG curriculum addresses thirty competencies in career development, job attainment, and job survival, as well as basic competencies in written and verbal communications and mathematical calculations. The program promotes the Career Association, a student-led organization designed to aid students in leadership development, organizational skills development, team building, and demonstrating the ability to accomplish a set of goals. In a twelve-month follow-up upon graduation, the job specialist assists the student participants in successful job placements, military appointments, or further educational opportunities. Manchester High School only

INTERNATIONAL STUDY ABROAD

Through specific courses, students experience learning about languages and culture while studying in content areas. Experiential learning is a positive means for students to enhance the skills learned in the academic program. Through association with agencies in various parts of the world, CCPS has designed specific courses of study for students who are interested in travel and in learning abroad.
International Studies courses must fit the criteria of an extension of the school learning environment, focus on educational goals, embrace language learning, and include exposure to diversity and cultures of other peoples nations. Courses offered in International Studies require extensive student time, are in compliance with hourly requirements for credit, and involve learning activities with performance assessed by CCPS teachers. Grades, however, are on a pass-no pass system.

15571 FRENCH LANGUAGE STUDY IN FRANCE
One elective credit
Students engage in French instruction for 80 hours at the American School of Paris in St. Cloud, Paris. The students join the summer program offered in this suburban community of Paris. The emphasis in the class is on conversational French and students are placed in classes appropriate to their level of spoken French. In addition students spend 60 hours in organized field trips learning about the history of Paris, its culture, arts, and social fabric. These field trips include the Louvre, Versailles, Giverny, and numerous museums in the city of Paris. Students live with families as a part of the French exchange program with CCPS. Students complete logs of activities and develop a paper on a special project and/or prepare for a presentation to be given to their French class back at their high school in the Fall.

15573 ECOLOGY SCIENCE AND SPANISH LANGUAGE STUDY IN BELIZE
One-half credit (.5) 2 week course – Elective
Students engage in ecology field study instruction for 80 hours over a 2-week period at two sites in Belize: the Rio Bravo Research Station in the rain forest and at Water Cay Marine Biology Station on the shores of the Caribbean. This ecological program is offered by the Save the Rainforest, Inc., a US non-profit agency located in New Mexico. The emphasis in the class is on science field study and research. While Spanish is not a major focus of instruction, students are introduced to the language and can use their Spanish language skills with local guides. Instruction is in English to ensure safety as students do lab work and explore the local environment. Some of the activities include the following: learning about ecology of the rainforest, observing and participating in conservation projects, organic farming, craft making, selective logging, visiting Mayan archeology, studying coral reefs, island ecology, mangrove habitats, invertebrate marine life and fish life. In addition students spend 20 hours in instructional seminars at the research stations learning about the history of Belize, its culture, arts, and social fabric. Students live in a dormitory setting at the research stations while undertaking this study program. Students complete logs of activities and develop a paper on a special project and/or prepare for a presentation to be given to their science and/or Spanish class back at their school in the Fall.

15574 ENVIRONMENTAL SCIENCE AND SPANISH LANGUAGE STUDY IN COSTA RICA
One-half credit - 2 wk course or One credit - 3 week course – Elective
Students engage in science field study instruction for 80 hours over a 2-week period at the Guanacaste environmental camp located in northwest Costa Rica along the Pacific coast. The students join the summer program offered by the Country Day School, a US-accredited school in San Jose, Costa Rica. The emphasis in the class is on science field study and research. While Spanish is not a major focus of instruction, students are introduced to the language and can use their Spanish language skills. Instruction is in English to ensure safety as students do lab work and explore the local environment. Some of the activities include the following: exploration of the dry forest, kayaking on the estuary, learning about the ocean and scientific analysis of surfing, the Paloverde river trip, an archeology dig, and rope climbing. Guides for science field trips are provided by the Organization for Tropical Studies. In addition students spend 20 hours in instructional seminars at the camp in Guanacaste learning about the history of Costa Rica, its culture, arts, and social fabric. For students who complete the 3rd week of study, activities include 60 additional hours involving exploring the Monteverde rain forest, Arenal Volcano, the Children’s reforest, and visiting the Butterfly Farm. Students live in a dormitory setting while undertaking this study program. Students complete logs of activities and develop a paper on a special project and/or prepare for a presentation to be given to their science and/or Spanish class back at their school in the Fall.

15575 SPANISH LANGUAGE STUDY IN MEXICO
One-half elective credit
Students engage in Spanish instruction for 120 hours over a 3-week period at the Cemanahuac Spanish Language Institute in Cuernavaca, Mexico. The emphasis in the class is on conversational Spanish and students are placed in classes appropriate to their level of spoken Spanish. In addition students spend 36 hours in organized field trips learning about the history of Mexico, its culture, arts and social fabric. These field trips include Mexico City ancient Aztec ruins, Teotihuacan, Zochimilco, the gardens of Ochimilco, the Autonomous University of Mexico, Tempotzlan, the Cathedral and Basilia Guadalupe in Mexico City, the National Archeological Museum, the homes of Frida Kahlo and Diego Rivera, and Tasco. Another 44 hours of seminars and special classes are offered at the Institute dealing with Mexican cooking, art production, music, and cultural activities and the locations of importance in and near Cuernavaca, including the Borda Gardens, Villa Hidalgo in the Central Market, and the Governmental buildings. Students spend one week in classes in Buena Vista, the rural campus of Cemanahuac. Students stay in the homes of Mexican citizens. Students complete logs of activities and develop a paper on a special project and/or prepare for a presentation to be given to their Spanish class at their high school in the Fall.

15576 SPANISH LANGUAGE STUDY IN SPAIN
One elective credit
Students engage in Spanish instruction for 120 hours over a 3-week period at the Centro de Ensenarzanza de Espanol in La Herradura and Granada, Spain. The emphasis in the class is on conversational Spanish and students are placed in classes appropriate to their level of spoken Spanish. In addition students spend 36 hours in organized field trips learning about the history of Spain, its culture, arts, and social fabric. These field trips include visits to Malaga, Sevilla, and Granada. In Granada the focus is on the study of the Moorish influence in Spain with special emphasis on the Alhambra, Cathedral, and important public buildings, whose architecture was influenced by the Moors. Museum visitations are included. Students spend time in Granada with special classes amounting to 10 additional hours of instruction. Another 24 hours of special classes in dance and sports are offered at the Spanish Institute, including flamenco. Students stay in homes of Spanish citizens. Students complete logs of activities and develop a paper on a special project and/or prepare for a presentation to be given to their Spanish class back at their high school in the Fall.

15578 JAPANESE LANGUAGE STUDY IN JAPAN
One elective credit
Students engage in Japanese instruction for 160 hours over a 4-week period in Kosai City, Japan. CCPS partners with the Kosai City Public Schools to offer the unique opportunity to study Japanese and to learn about the culture of Japan. The students join the summer program offered in conjunction with the University of Richmond summer program directed by Akira Suzuki, Japanese instructor. The emphasis in the class is on conversational Japanese and students are placed in classes appropriate to their level of spoken Japanese. In addition students spend 40 hours in organized field trips learning about the history of Japan, its culture, arts and social fabric. These field trips include visits to temples, museums, local schools, Hamamatsu, and Tokyo. Students ride the bullet train to Tokyo, experience the subway system, visit museums, temples, and national landmarks. Students live with families, some of whom participate in the Kosai City/CCPS student exchange. Students complete logs of activities and develop a paper on a special project and/or prepare for a presentation to be given to their Japanese class back at their high school in the Fall.
IS579  ECOLOGY SCIENCE AND SPANISH LANGUAGE STUDY IN ECUADOR AND THE GALAPAGOS

Students participate in one-half credit (.5) 2 week course – Elective. Students engage in ecology field study instruction for 80 hours over a 2-week period at two sites in Ecuador: one is the Congal Research Station south of Quito and the other is located at a camp on San Cristobal Island in the Galapagos. This ecological program is offered by the Save the Rainforest, Inc., a US non-profit agency located in New Mexico. The emphasis in the class is on science field study and research. While Spanish is not a major focus of instruction, students are introduced to the language and can use their Spanish language skills with local guides. Instruction is in English to ensure safety as students do lab work and explore the local environment. Some of the activities include the following: learning about ecology of the rainforest, observing and participating in conservation projects, local craft making indigenous to Ecuador, studying coral reefs and ecology, invertebrate marine life, fish life, and the delicate balance of life in the Galapagos. In addition students spend 20 hours in institutional seminars at the research stations learning about the history of Ecuador and the Galapagos, its culture, arts, and social fabric. Students live in a dormitory setting at the research stations while undertaking this study program. Students complete logs of activities and develop a paper on a special project and/or prepare for a presentation to be given to their science and/or Spanish class back at their school in the Fall.

IS580  SPANISH LANGUAGE STUDY IN SPAIN

One elective credit

Students engage in Spanish Instruction for 120 hours over a 3-week period at the Escuela Internacional in Salamanca, Spain. The emphasis in the class is on conversational Spanish and students are placed in classes appropriate to their level of spoken Spanish. In addition students spend 36 hours in organized field trips learning about the history of Spain, its culture, arts, and social fabric. These field trips include visits Toledo, Madrid, and Avila. In Madrid they visit the art museums and the Palace. In Salamanca, numerous museums are visited and study associated with art, history, and politics is included in the class conversations in Spanish. In Toledo, the students visit and study the works of Greco, and other famous artistic and literary figures. In all places the public buildings and churches are a focal point for understanding Spanish culture and history. In addition, students spend an additional 36 hours in special activities and classes involving modern day Salamanca and Spain, including emphasis on commerce, foods, customs, etc. Students stay in homes of Spanish citizens. Students complete logs of activities and develop a paper on a special project and/or prepare for a presentation to be given to their Spanish class back at their high school in the Fall. Spanish Immersion students have specific requirements as stated by the program.

IS581  JAPANESE LANGUAGE STUDY IN JAPAN

One elective credit

Students engage in Japanese instruction for 120 hours over a 3-week period in Ota, Japan. CCPS partners with the Ota Public Schools to offer the unique opportunity to study Japanese and to learn about the culture of Japan. The students join the summer program offered in conjunction with the University of Richmond summer program directed by Akira Suzuki, Japanese instructor. The emphasis in the class is on conversational Japanese and students are placed in classes appropriate to their level of spoken Japanese. In addition students spend 40 hours in organized field trips learning about the history of Japan, its culture, arts, and social fabric. These field trips include visits to temples, businesses, local schools, Ota, and Tokyo. Students ride the bullet train to Tokyo, experience the subway system, visit museums, temples, and national landmarks. Students live with families, some of whom participate in the exchange program to CCPS. Students complete logs of activities and prepare for a special project to be presented to their Japanese class back at their high school in the Fall.

ESL courses are designed for students of limited English proficiency (LEP) whose language dominance is not English. Classes are structured for total immersion—conversing, reading, and writing in English at selected ESL attendance centers. ESL students are identified during school registration through testing that determines appropriate ESL instructional language level. The stages of English as a Second Language learning are: Beginning (I), Developing (II, III), and Expanding (IV). The time it takes for a student to progress from the beginning stages through the developing and expanding stages depends on many factors, one of which is contact time with the language and the culture. Secondary students with no English-speaking proficiency may be placed in HILD (High Intensity Literacy Development) classes.

ES028  TUTOR

One Credit

This course is to be taken by students not actively participating in the ESL program. It is a course offered to regular education students who desire to tutor ESL students. Tutors help ESL students to communicate in English, complete assignments, and understand North American culture.

ES104  ENGLISH 1

One Credit

This course is designed to help beginning level non-English speaking students who have a very limited knowledge of the English language. Listening, speaking, reading, and writing skills are developed through the use of survival level materials. The content of the course is designed to rapidly give the student the vocabulary necessary for everyday use.

ES105  ENGLISH 2

One Credit

This course is designed for developing level ESL students who have a basic understanding of the English language. Students will expand on their knowledge of English and increase their abilities in oral and written communication.

ES106  ENGLISH 3

One Credit

This course is designed for developing level students who can demonstrate a working knowledge of the English language. Complex grammatical structures are included in the instruction of speaking and writing skills. Course content will expand on their English language skills.

ES107  ENGLISH 4

One Credit

This course is designed for expanding level ESL students who are preparing to exit the ESL program. This course is designed to expand and refine English skills and is to be taken concurrently with a regular English course in the ninth, tenth, eleventh, or twelfth grades.

ES124  READING SKILLS 1

One Credit

This course is designed to introduce beginning students to basic word attack skills with emphasis on phonics, pronunciation, and sight word recognition. Short passages are used to instruct students in areas of comprehension such as vocabulary development, detail, and sequence. Dictation and writing are incorporated in the course to reinforce comprehension skills.

ES125  READING SKILLS 2

One Credit

This course is designed to continue instruction for developing level ESL students to expand on their reading skills. Longer passages are used with the continued emphasis on vocabulary development. Dictation and writing are incorporated in the course to reinforce comprehension skills.

ES126  READING SKILLS 3

One Credit

This course is designed to continue instruction for developing level ESL students to expand on reading skills. Reading passages and comprehension skills are used as the basis for speaking and writing exercises. Students are exposed to a variety of literature. This course is designed to prepare the student for language-rich content courses.

ES132  READING IN THE CONTENT AREA 1

One Credit

This course is designed to prepare beginning ESL students for content
area courses in math, health, and science. Course concentration will be on basic content vocabulary presented in conjunction with basic concepts.

ES133 READING IN THE CONTENT AREA 2 One Credit
This course is designed to give the ESL student additional exposure to content instruction in the areas of math, science, and health. This course is recommended for ESL English 2 students only who need further literacy development prior to entering core courses in the content areas listed above.

ES142 LANGUAGE AND CULTURE 1 One Credit
This course is designed to help ESL students, who are at the beginning level of learning English, adjust to life in their community and school environment. American customs and culture are presented. The student will be immersed in a language-rich environment.

ES143 LANGUAGE AND CULTURE 2 One Credit
This course is designed to help ESL students, who are at a developing level of English proficiency, learn about American history, geography, and government. Concentration on basic vocabulary and facts will help the student prepare for the language-rich content courses in these subject areas.

ES155 HILD VOCABULARY DEVELOPMENT One Credit
This course is designed to give beginning ESL students background knowledge through the teaching of vocabulary and basic concepts in the areas of math, science, health, history, and geography.

ES156 HILD ENGLISH One Credit
This course parallels ESL English 1, but will give students extended practice in English language usage in everyday situations. Students will be given opportunities to engage in oral and written English in a variety of settings.

ES157 HILD READING One Credit
This course will provide for beginning instruction in reading skills. Recognition of the alphabet, beginning word attack skills, pronunciation, and beginning writing skills are emphasized. This course is designed to prepare students for ESL Reading 1.

ES158 HILD LANGUAGE AND CULTURE One Credit
This course parallels ESL Language and Culture 1, but will also incorporate the use of many hands-on materials to prepare students for participation in school and community life.

ES159 HILD MATH One Credit
This course is designed to give beginning ESL students the opportunity to master basic math skills, including addition, subtraction, multiplication, division, fractions, percentage, and graphing. This course will give ESL students the foundation needed to further math education.

SPECIAL EDUCATION
All curriculum course offerings are available as appropriate for students with disabilities. For students expected to meet grade level expectations, refer to the general education course descriptions.

Classes offered may be collaboratively taught, meaning general and special educators plan and instruct together.

Special education is provided in accordance with an Individualized Education Plan (IEP). The following classes are designed to meet unique educational needs and are taught at the students’ instructional levels which may be different from students’ grade levels.

IP032 STUDY HALL No Credit
This course is designed for students who require assistance in completing class assignments or monitoring of homework assignments on a daily basis. Students may be admitted to the course only if it is indicated as a need on the Individualized Education Program (IEP).

IP100 ESSENTIAL ENGLISH SKILLS No Credit
This course is designed to teach the student skills for everyday survival. Instruction will focus on reading labels, directions, schedules, and maps and writing friendly letters and letters of complaint.

IP101 LIFE SKILLS ENGLISH No Credit
This course is designed to help students learn the skills they will need in real-life situations. Emphasis will be placed on building vocabulary to improve written communication skills. This course will also include learning how to use reference books and community resources.

IP102 LANGUAGE ARTS FUNDAMENTALS One-half Credit
This course is designed for students who need to refine basic skills in comprehension and writing. Course content emphasizes strategies to memorize vocabulary, analyze reading passages, frame concepts, and organize ideas into written paragraphs and themes using assignments from general education courses. This class is an elective credit for students with an IEP and does not meet credit requirements in any content area. Class repeats for credit.

IP103 LANGUAGE ARTS FUNDAMENTALS One Credit
This course is designed for students who need to refine basic skills in comprehension and writing. Course content emphasizes strategies to memorize vocabulary, analyze reading passages, frame concepts, and organize ideas into written paragraphs and themes using assignments from general education courses. This class is an elective credit for students with an IEP and does not meet credit requirements in any content area. Class repeats for credit.

IP104 MULTISENSORY STRUCTURED LANGUAGE 1 One Credit
This course is designed for students whose word analysis and decoding skills are below fifth grade level and who have significant deficits when reading independently, but comprehend material when it is read to them. Word structure is presented sequentially, step-by-step. Students learn how to decode and spell with direct multi-sensory methods. This class is designed as an elective credit for students with an IEP and does not meet requirements for any content area. Prerequisite: Current diagnostic reading evaluation

IP105 MULTISENSORY STRUCTURED LANGUAGE 2 One Credit
This course is designed for students who need continued remediation in word analysis and decoding skills. Course content includes introduction of new linguistic concepts; controlled vocabulary stories that build on mastered concepts; abstract, figurative, and pragmatic language development; composition; and oral language activities. This class is designed as an elective credit for students with an IEP and does not meet requirements for any content area. Pre-requisite: Multisensory Structured Language 1

IP132 STUDY SKILLS METHODOLOGY One-half Credit
This course is designed to teach study skills and learning strategies that will enhance student performance in general and vocational classes. The course follows a specified curriculum and students apply strategies learned to assignments from content classes. Curriculum focuses on understanding content material, taking tests effectively, organizing time and materials, accessing and utilizing resource materials for oral and written projects, and developing technology and self-advocacy skills. This class is open only to students whose IEP goals and objectives indicate a need for study skills and learning strategies instruction. This class is designed as an elective credit for students with an IEP and does not meet requirements for any content area.

IP133 STUDY SKILLS METHODOLOGY One Credit
This course is designed to teach study skills and learning strategies that will enhance student performance in general and vocational
classes. The course follows a specified curriculum and students apply strategies learned to assignments from content classes. Curriculum focuses on understanding content material, taking tests effectively, organizing time and materials, accessing and utilizing resource materials for oral and written projects, and developing technology and self-advocacy skills. This class is open only to students whose IEP goals and objectives indicate a need for study skills and learning strategies instruction. This class is designed as an elective credit for students with an IEP and does not meet requirements for any content area.

**IP134 FOCUS READING** One Credit
This course focuses on instruction for the student who is reading significantly below grade level. Instruction will be individualized to meet the specific needs of each student. Word recognition, vocabulary development, comprehension, and functional reading skills will be stressed.

**IP138 STUDY SKILLS FOR THE COLLEGE BOUND** One-half Credit
This course is individualized to meet the unique needs of college bound students with disabilities. Course objectives include extension of skills taught in Study Skills Methodology and emphasis on methods of research, use of technology, learning strategies, and higher order thinking skills as they relate to academic courses. This class is open only to students whose IEP goals and objectives indicate a need for study skills and learning strategies instruction. This class is designed as an elective credit for students with an IEP and does not meet requirements for any content area.

**IP139 STUDY SKILLS FOR THE COLLEGE BOUND** One Credit
This course is individualized to meet the unique needs of college bound students with disabilities. Course objectives include extension of skills taught in Study Skills Methodology and emphasis on methods of research, use of technology, learning strategies, and higher order thinking skills as they relate to academic courses. This class is open only to students whose IEP goals and objectives indicate a need for study skills and learning strategies instruction. This class is designed as an elective credit for students with an IEP and does not meet requirements for any content area.

**IP201 SOCIAL STUDIES/ SCIENCE ENHANCEMENT 9** One Credit
This elective class is designed for students enrolled in Earth Science and World History/Geography, to 1500 AD, who need to develop effective strategies to understand, organize, and recall curriculum content. Course objectives focus on improving time management, comprehension, memory, note taking, study, and test taking skills. Course assignments are directly related to the content in these specific science and social studies courses.

**P202 SOCIAL STUDIES/ SCIENCE ENHANCEMENT 10** One Credit
This elective class is designed for students enrolled in Biology and United States History who need to develop effective and efficient strategies to understand, organize, and recall curriculum content. Course objectives focus on improving time management, comprehension, memory, note taking, study, and test taking skills. Course assignments are directly related to the content in these specific science and social studies courses.

**IP240 CIVICS 1** One Credit
This course is for students with disabilities whose curriculum focuses on life skills. The course will focus on state and local government, the rights and responsibilities of citizens and how to affect change in the community.

**IP241 CIVICS 2** One Credit
This course is for students with disabilities whose curriculum focuses on life skills. The course will focus on how three branches of government, and the rights and responsibilities of citizens.

**IP302 MATHEMATICS FUNDAMENTALS** One-half Credit
This course is designed to allow students the opportunity to continue to refine basic arithmetic skills. This course also provides necessary support for students to be successful while learning fundamental algebra topics and basic geometric principles. Concepts and skills presented in general education math courses will be reinforced. This class is designed as an elective credit for students with an IEP and does not meet requirements for any content area. Class repeats for credit.

**IP303 MATHEMATICS FUNDAMENTALS** One Credit
This course is designed to allow students the opportunity to continue to refine basic arithmetic skills. This course also provides necessary support for students to be successful while learning fundamental algebra topics and basic geometric principles. Concepts and skills presented in general education math courses will be reinforced. This class is designed as an elective credit for students with an IEP and does not meet requirements for any content area. Class repeats for credit.

**IP309 LIFESKILLS MATH** One Credit
This course is designed to reinforce basic computational skills in the context of real-life situations. Course content will include instruction and practice on basic math operations, including whole numbers, fractions, decimals, percents, and measurements. This course is designed as an elective for students with an IEP.

**IP310 PRACTICAL MATH** One Credit
Practical Math will focus on applying basic math skills in the home and in the community. It will include paying taxes, buying food, banking, managing a household, and shopping for clothes. This course is designed as an elective for students with an IEP.

**IP380 COMPUTER APPLICATIONS 1** One Credit
This course is designed to teach basic skills in areas of keyboarding, data entry, word processing, and simple graphic programs.

**IP381 COMPUTER APPLICATIONS 2** One Credit
This course is designed to teach basic skills in areas of keyboarding, data entry, word processing, and simple graphic programs.

**IP602 FUNDAMENTALS OF KEYBOARDING** One Credit
This course focuses on acquiring basic keyboarding skills at the rate and pace students are able to learn.

**IP650 WORK RELATED BEHAVIORS** No Credit
Manchester High School only

**IP770 Occupational Orientation** No Credit
This course will provide employment and education opportunities for selected individuals with significant disabilities. The program is dedicated to workforce development that benefits the individual, community and workplace. It is based on a collaborative effort with Chesterfield Employment Services, Department of Rehabilitative Services, Chesterfield County Government and CCPS. It is modeled after Project Search, the nationally recognized vocational preparation program.

**IP780 EMPLOYABILITY SKILLS** One Credit
Emphasis will be placed on teaching students those skills needed to acquire and retain a job. Job acquisition skills will include matching individual skills with job requirements, identifying and practicing appropriate work related behaviors, understanding the job application process, and developing money management skills.

**IP786 TRANSITION TO COLLEGE** One Credit
This course is designed to teach students self-advocacy and self-determination skills needed to be successful in college. Hands-on activities will be included to expose and prepare students to the expectations of college life. This course is designed as an elective for students with an IEP.
IP788  TRANSITION TO EMPLOYMENT          One Credit
This course is designed to teach students self-advocacy and self-
determination skills needed to be successfully employed. Hands-on
activities will be included to expose and prepare students to the
expectations of employment. This course is designed as an elective for
students with an IEP.

IP790  COPING SKILLS 1                 One Credit
This course is designed to teach thinking skills, problem solving
techniques, and social skills to students in special education who
require instruction in these areas. Students may be admitted to this
course only if it is indicated as a need on the Individualized Education
Program (IEP).

IP791  COPING SKILLS 2                 One Credit
This course places emphasis on having students refine and apply the
skills developed in Coping Skills 1. Improvements in overall behavior
are achieved by developing the student's ability to use thinking skills
and social skills to solve personal and interpersonal problems. Students
may be admitted to this course only if it is indicated as a need on the
Individualized Education Program (IEP).

IP801  COMMUNITY SKILLS               No Credit
This course is designed to provide instruction to develop functional
skills needed to be successful in the community. It includes reading
simple signs, using skills that facilitate successful participation in
community activities, and money handling skills.

IP802  RECREATION/ LEISURE             No Credit
This course is designed to provide instruction in how to participate in
age-appropriate activities that facilitate friendship building and
enhance socialization, communication, and language skills.

IP803  HOME ECONOMICS/TECHNICAL EDUCATION No Credit
This course is designed to provide instruction in basic cooking and
simple household responsibilities.

IP804  VOCATIONAL SKILLS              No Credit
This course is designed to provide instruction in the areas of
developing appropriate work related behavioral expectations and
developing skills to complete simple job tasks.

IP808  BUILDING MAINTENANCE 1         One Credit
This course is designed to teach basic skills in areas of floor
maintenance, landscape and design, woodworking/carpentry, light
fixture maintenance (i.e. changing light bulbs), self-employment
strategies and facility office/room setup.

IP809  BUILDING MAINTENANCE 2         One Credit
This course is designed to teach basic skills in areas of floor
maintenance, landscape and design, woodworking/carpentry, light
fixture maintenance (i.e. changing light bulbs), self-employment
strategies and facility office/room setup.

IP886  LIFE SKILLS                    One Credit
Emphasis will be placed on teaching students those skills that will
enable them to be independent in the home, community, and work
place. Students will be taught how to work with others, care for their
personal needs, make responsible expenditures, and utilize community
resources.