STEM SCHOOL

[Hazleton Area Academy of Sciences]

SCHOOL YEAR 2024-2025

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NONDISCRIMINATION POLICY

It is the policy of the Hazleton Area School District not to discriminate on the basis of race, sex, color, age, religion, ancestry, marital status, or disability in its educational programs, activities, or employment policies. Announcement of this policy is in accordance with State law including the Pennsylvania Human Relations Act and with Federal law, including Title VII of the Civil Rights Act of 1964, Title IX of the Education Amendments of 1972, Section 504 of the Rehabilitation Act of 1973, the Age Discrimination in Employment Act of 1967, and the Americans with Disabilities Act of 1990.

Mr. Daniel Rodgers, Title IX Coordinator
1515 W 23rd Street, Hazle Township, PA 18202
(570) 459-3111

PREFACE

Through a dynamic partnership of educators, learners, and community members, Hazleton Area High School students will develop the skills necessary to become life-long learners in a culturally diverse community. Individuals will be challenged to develop self-responsibility and to reach their highest potential in a safe and supportive environment using technology in a comprehensive curriculum.

The following course of study has been prepared after many long hours of investigation and study. It is designed to meet the needs of the students at the Hazleton Area High School. If read carefully with thought toward future goals, students will find that it offers a wide variety of choices intended for a comprehensive education and preparation for future endeavors.

The courses taken in high school can have a great impact on a student's life. They should become familiar with and consider the entrance requirements for college, career/technical schools, military careers, or employment when selecting high school courses.

Students entering the work force after high school will find that employers are looking for graduates who possess academic and career skills needed to benefit their company. Students should consult their guidance counselors and teachers for advice on course sequences.

The Hazleton Area School District uses Middle States Association of Colleges and Schools Accreditation, High Schools That Work, the Keystone Exams and district-wide assessment to provide on-going evaluation of our programs.

More information about our district and district profiles are available at these web sites:

http:www.hasdk12.org **http://www.pdesas.org**

http://www.education.state.pa.us

GUIDANCE NOTES

HAZLETON AREA VIRTUAL ACADEMY:

Cyber School opportunities are available. Contact Michele Medek at 459-3247.

PHYSICAL EDUCATION EXEMPTION:

PREREQUISITES: Hazleton Area High School students who have successfully completed a Health requirement and a Physical Education requirement are eligible to apply for a Physical Education exemption.

Students are required to substitute classes that are challenging and also academically advanced or related to their proposed college or university major.

Any physical education exemption request must be approved by the school guidance counselor. Physical Education exemption forms are available in the guidance office.

SPECIAL EDUCATION:

Special education delivers services that are comprehensive, balanced, and appropriate in guiding the students to realize their highest potential. Arrangements must be made through the guidance counselors and the Special Education department.

KEYSTONE FOCUSED COURSES:

Integrated Mathematics 10, Algebra 1A, Algebra 1B, Reading Strategies, and Literacy Skills - Students are enrolled based upon State Assessment Scores/PVAAS Predictability/CDT test scores and teacher/ administrative recommendation. Students are required to take these courses which will replace a required course or an elective.

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STEM SCHOOL

(HAZLETON AREA ACADEMY OF SCIENCES)

GUIDANCE

Guidance.....459-3221, ext. 88156

GRADE 9

OVERVIEW OF COURSE REQUIREMENTS

Students will take **8 courses** as outlined below. 4 courses will be taken during semester 1 and 4 courses will be taken during semester 2.

REQUIRED COURSES:

ENGLISH

STEM English 1 (101S)

English I integrates writing, grammar and usage, speaking and listening. It includes reading a variety of literary genres: short stories, novels, poetry, drama, and nonfiction. It also emphasizes oral and written response to literature. Writing activities include descriptive, narrative, informational, and persuasive compositions in addition to written responses to literature. Vocabulary development, reference tools, critical thinking, and cooperative learning activities are used to enhance learning.

OR

STEM Honors English 1 (1011S)

Prerequisite: 93 or above average in 8th Grade

Honors courses include more rigorous, intensive application of core content at or above grade level with required independent reading and research at an accelerated pace.

ELD Curriculum as follows:

STEM ELD English I (949S)

ELD I is designed for the student whose native language is not English. This beginning level course is geared to ease the non-speaker of English into communicating effectively in social and academic settings. Emphasis will be on oral communication, basic grammar, sentence structure and irregular verbs.

NOTE: ***To schedule this course, arrangements must be made through your guidance counselor and ESL instructor.***

STEM ELD English II (950S)

ELD II is a continuation of ELD I. This program of study is designed for the student whose native language is not English. This course focuses on refining reading comprehension and writing skills.

NOTE: ***To schedule this course, arrangements must be made through your guidance counselor and ESL instructor.***

STEM ELD English III (951S)

ELD III is a continuation of ELD II. This program is designed for the student whose native language is not English. This course is appropriate for students in the intermediate stage of English acquisition.

NOTE: ***To schedule this course, arrangements must be made through your guidance counselor and ESL instructor.***

SOCIAL STUDIES

STEM American Studies 1 (206S)

American Studies 1/Civics is a chronological study of the development of the nation from the Revolutionary Period to the Reconstruction Era. This course includes a comprehensive analysis of all relevant social, economic, governmental, political, religious and literary development in American life.

OR

STEM Honors American Studies 1 (2061S)

Prerequisite: 93 or above average in World History 1

Honors courses include more rigorous, intensive application of core content at or above grade level with required independent reading and research at an accelerated pace.

SCIENCE

STEM Honors Biology 1A (3031S)

Prerequisite: 93 or above in 8th grade science or 90 and above with teacher recommendation

This course will emphasize general principles of organism and population biology with a concentration on evolution and diversity among organisms. Emphasis will be placed on structural and physiological adaptations for such processes as nutrition, fluid and gas exchange and hormonal regulation. An understanding of the interactions between organisms and their environment will be explored. Factors that affect the environment will be covered. Research methods and inquiry based laboratories will be emphasized. A research project will be conducted throughout the semester. This course will include an introduction to S.T.E.M. skills and an overview of the disciplines that will be taught in the school. Various math and science teachers will teach segments of the class.

STEM Honors Biology 1B (3041S)

Prerequisite: 93 or above in STEM Honors Biology 1A or 90 and above with teacher recommendation

A continuation of STEM Biology 1A, topics include: water, biomolecules, enzymes; composition and organization of Prokaryotic and Eukaryotic cells; regulation of cell structure and function; communication between cells and environment; bioenergetics; photosynthesis; cellular respiration; metabolism; genetics, and the mechanisms of evolution. A scientific topic will be researched throughout the semester and culminate in a research paper at the end of the course. Research articles on current scientific topics will be evaluated throughout the semester. Emphasis will be placed on introducing and developing laboratory skills and providing hands-on experience with modern laboratory equipment.

STEM Biology 1B (304S)

A continuation of STEM Biology IA, topics include: water, biomolecules, enzymes; composition and organization of Prokaryotic and Eukaryotic cells; regulation of cell structure and function; communication between cells and environment; bioenergetics; photosynthesis; cellular respiration; metabolism; genetics, and the mechanisms of evolution. Research articles on current scientific topics will be evaluated throughout the semester. Emphasis will be placed on introducing and developing laboratory skills and providing hands-on experience with modern laboratory equipment.

MATH - ***A student will choose a math course based on his/her 8th grade math course. All students will take 2 semesters of math in sequence.***

Ninth Grade MATH Course Sequence

Algebra 1or Honors Algebra 1	Plane Geometry or Honors Plane Geometry	Algebra 2 or Honors Algebra 2

Algebra 1A (361HA)
Algebra 1A builds upon the concepts introduced in Algebra Concepts/ Foundations of Algebra which includes thorough investigation of the real number system; equations and inequalities; factoring; and simplifying polynomials.
and
Algebra 1B (361HB)
Algebra IB builds upon the concepts introduced in Algebra 1 which includes thorough graphing; systems of equations; and rational algebraic expressions, probability and statistics. Introduction of the complex number system includes a comprehensive study of the operations of radicals

STEM Algebra 1 (361S)
Prerequisite: Algebra Concepts
Algebra I builds upon the concepts introduced in Algebra Concepts which includes thorough investigation of the real number system; equations and inequalities; graphing; systems of equations; factoring; simplifying polynomials and rational algebraic expressions, probability and statistics. Introduction of the complex number system includes a comprehensive study of the operations of radicals.

OR

STEM Honors Algebra 1 (3611S)
Prerequisite: 93 or above average in Algebra Concepts.
Honors includes more rigorous, intensive application of core content at or above grade level that ensures comprehensive study of all topics with required independent research at an accelerated pace.

OR

STEM Plane Geometry (362S)
Prerequisite: STEM Algebra I
Plane Geometry is for all college bound and general education students. It includes the study of the properties of physical shapes such as angles, triangles, polygons, and circles. Integrated into the problem solving are the deductive

reasoning approach, practical applications, and the use of basic algebraic concepts to arrive at solutions.

OR

STEM Honors Plane Geometry (3621S)

Prerequisite: 93 or better Algebra I or Honors Algebra 1

Honors includes more rigorous, intensive application of core content at or above grade level that ensures comprehensive study of all topics with required independent research at an accelerated pace.

STEM Algebra II (363S)

Prerequisite: Honors Algebra I and Honors Plane Geometry

Algebra 2 is an expansion of the concepts learned in Algebra I. The topics covered are mathematical operations involving polynomials, rational expressions, irrational, and complex numbers. Higher order quadratic equations, polynomial equations, and exponential and logarithmic functions will be part of this coursework. Students will be expanding their knowledge of analytic geometry, as well as probability and statistics.

OR

STEM Honors Algebra II (3631S)

Prerequisite: 93 or above in Honors Algebra I and Honors Plane Geometry

Honors includes more rigorous, intensive application of core content at or above grade level that ensures comprehensive study of all topics with required independent research at an accelerated pace.

WORLD LANGUAGE

Languages, other than Spanish, will be taught through video conferencing with high school classes. All students need 2 years of one language.

STEM French 1 (121S)

French I is an introduction to the language, culture, geography, and people of France. The course provides useful language skills from the outset based on speaking, listening, reading, and writing. Correct pronunciation and practice with the language are emphasized.

OR

STEM Honors French 1 (1211S)

Honors courses include more rigorous, intensive application of core content at or above grade level with required independent reading and research at an accelerated pace.

STEM German 1 (131S)

German I is an introduction to the language, culture, geography, and people of German-speaking countries. Speaking, listening, reading, and writing skills are emphasized. Gender of nouns and present tense verbs are used to develop basic communication skills.

OR

STEM Honors German 1 (1311S)

Honors courses include more rigorous, intensive application of core content at or above grade level with required independent reading and research at an accelerated pace.

STEM Spanish 1 for Native Speakers (150S)
Spanish I for Native Speakers focuses on students who are proficient in reading, writing, and speaking Spanish. The course is taught entirely in Spanish and reviews fundamental grammatical concepts, advanced literature topics, and pertinent historical and cultural information.
NOTE: Students are required to take a Placement Test for this course. Students who do not achieve a passing score of proficient in all testing areas will not be allowed to enroll in this course.
OR
STEM Spanish 1 (151S)
Spanish I is an introduction to the language, culture, geography, and people of the Spanish-speaking world. Basic sound patterns, functional vocabulary, and fundamental grammatical skills are introduced.
OR
STEM Honors Spanish 1 (1511S)
Prerequisite: 93 or above average for eighth grade
Honors courses include more rigorous, intensive application of core content at or above grade level with required independent reading and research at an accelerated pace.

PHYSICAL EDUCATION

STEM PE - 9 (400S)
This course includes a wide variety of sport activities, health topics, fitness and nutrition. Emphasis is placed on the development of fundamental sport skills and components of personal fitness. Collaborative problem-solving, team building, and communication skills are introduced throughout each lesson. The program teaches students the skills necessary to weigh options, to make responsible decisions and to develop behaviors that promote healthful living.
Students must take a second math class as one of their electives. That math course will be taken during semester 2.

Fine Arts

STEM Band (661S)
Prerequisite: Basic to Intermediate instrumental skills
Band will provide students with an ensemble experience in which they can develop advanced instrumental techniques while performing a variety of musical styles. There are numerous public performances to display acquired skills. An outgrowth of this group is the following performing groups: marching band, pep band, jazz ensemble, symphonic band, woodwind choir, brass choir, percussion ensemble, and other small ensembles.

STEM Freshman/Sophomore Concert Choir (664S)
The Freshman/Sophomore Concert Choir is part of the Cougar Concert Choir. The

Choir is designed for all members of the Freshman/Sophomore classes that are interested in participating in the Cougar Concert Choir. This arrangement is made for scheduling purposes. The Concert Choir will have numerous opportunities to perform many styles of choral music at school and public performances. All members of the Concert Choir will study correct vocal production and strive to improve their musicianship.

Grade 10

OVERVIEW OF COURSE REQUIREMENTS

Students will take **8 courses** as outlined below. 4 courses will be taken during semester 1 and 4 courses will be taken during semester 2.

REQUIRED COURSES:

ENGLISH

STEM English 2 (102S)

English II includes reading a variety of literary genres: short stories, novels, poetry, drama, and nonfiction. This course focuses on oral and written communication skills as well as speaking and listening. Resource skills will be utilized in the completion of a term paper. Literature activities concentrate on critical reading, analysis, and interpretation of diversified literary forms and devices.

OR

STEM Honors English 2 (1021S)

Prerequisite: 93 or above average in English 1 or Honors English 1

Honors courses include more rigorous, intensive application of core content at or above grade level with required independent reading and research at an accelerated pace.

ELD Curriculum as follows:

STEM ELD English 1 (949S)

ELD I is designed for the student whose native language is not English. This beginning level course is geared to ease the non-speaker of English into communicating effectively in social and academic settings. Emphasis will be on oral communication, basic grammar, sentence structure and irregular verbs.

NOTE: ***To schedule this course, arrangements must be made through your guidance counselor and ESL instructor.***

STEM ELD English 2 (950S)

ELD 2 is a continuation of ELD 1. This program of study is designed for the student whose native language is not English. This course focuses on refining reading comprehension and writing skills.

NOTE: ***To schedule this course, arrangements must be made through your***

guidance counselor and ESL instructor.

STEM ELD English 3 (951S)
ELD 3 is a continuation of ELD 2. This program is designed for the student whose native language is not English. This course is appropriate for students in the intermediate stage of English acquisition.
NOTE: ***To schedule this course, arrangements must be made through your guidance counselor and ESL instructor.***

SOCIAL STUDIES

STEM American Studies 2 (202S)
STEM American Studies 2 is a continuation of American Studies 1. It covers from Industrialization to World War II. Emphasis is placed on historic, economic and political developments throughout the world as well as the United States during this time period.

OR

STEM Honors American Studies 2 (2021S)
Prerequisite: 93 or above average in American Studies 1/Civics
Honors courses include more rigorous, intensive application of core content at or above grade level with required independent reading and research at an accelerated pace.

STEM Advanced Placement United States History (must take both 2051S and 2051BS)
Prerequisite: 93 or above average in STEM American Studies 1/Civics or STEM Honors American Studies 1/Civics
Advanced Placement United States History is an intense college level examination of our country's history. In-depth analysis, essays, and discussions of topics in American History help investigate the periods which have brought us to modern day America. *Students must take the Advanced Placement United States History Examination.* **This is year-long 2 credit course.**

MATH

Students must take a math in semester one and semester two in their sophomore year in sequence.

Tenth Grade MATH Course Sequence

Algebra II or Honors Algebra II	Trigonometry or Honors Trigonometry 2	Pre-Calculus or Honors Pre-Calculus

STEM Algebra II (363S)
Algebra II is an expansion of the concepts learned in Algebra I. The topics covered are mathematical operations involving polynomials, rational expressions, irrational, and complex numbers. Higher order quadratic equations, polynomial equations, and

exponential and logarithmic functions will be part of this coursework. Students will be expanding their knowledge of analytic geometry, as well as probability and statistics.

OR

STEM Honors Algebra II (3631S)

Prerequisite: 93 or above in Honors Plane Geometry or Plane Geometry

Honors courses include rigorous, intensive application of core content at or above grade level with independent reading/research at an accelerated pace.

STEM Trigonometry (366S)

Trigonometry is recommended for students who have done well in previous math courses and who have college ambitions in which math is utilized. This course places emphasis on the understanding of definitions and principles of trigonometry and their applications to problem solving. It includes the circular functions concept, identities, radian measure, triangle solutions and vectors. This course includes polar equations and logarithmic functions. Solving right triangles based on trigonometric functions is developed through the course. Scientific calculators are used throughout this course.

OR

STEM Honors Trigonometry (3661S)

Prerequisite: 93 or above in STEM Honors Algebra II or Algebra II

Honors includes more rigorous, intensive application of core content at or above grade level that ensures comprehensive study of all topics with required independent research at an accelerated pace.

STEM Pre-Calculus (365S)

Prerequisite: STEM Trigonometry or Honors STEM Trigonometry

Pre-Calculus is for students whose previous math background is strong. This course offers an excellent background in linear algebra, functions, and a complete foundation for calculus. This particular course will also address some analytical geometry and the use of equations and inequalities as mathematical models.

OR

STEM Honors Pre-Calculus (3651S)

Prerequisite: 93 or above in STEM Honors Trigonometry or STEM Trigonometry

Honors includes more rigorous, intensive application of core content at or above grade level that ensures comprehensive study of all topics with required independent research at an accelerated pace.

STEM Integrated Mathematics (380S)

This course is specifically designed and required for selected 10th grade students to advance their mastery of the state standards for mathematics, to improve achievement on the Keystone Algebra 1 test, and to enhance students' mathematics skills for success in current and future mathematics courses. This course will count as a required math course. Admission into the course is by administrative approval only.

SCIENCE

All science courses receive honors credit

STEM Honors Chemistry 1A (3101S)

STEM Chemistry 1B is required following completion of STEM Chemistry 1A Prerequisite: 93 or above in STEM Biology 1B or STEM Biology 1B

STEM Chemistry 1A is an advanced foundational course recommended for all potential scientists, engineers, and medical professionals. A variety of authentic educational strategies that are encountered in the academic and professional scientific sphere are implied as the following topics are considered: nature of science and chemical history, matter and energy, chemical nomenclature and stoichiometry, atomic electronics, phases of matter, and chemical forces. A working introduction of the following topics is included: equilibrium, thermodynamics, kinetics, and electrochemistry. Emphasis will be placed on real world applications of science, scientific literacy, and chemical research methodology. There will be an emphasis on research and research analysis.

OR

STEM Chemistry 1A (310S)

STEM Chemistry 1B is required following STEM Chemistry 1A

Prerequisite: STEM Biology 1B or STEM Biology 1B

STEM Chemistry 1A is a foundational course recommended for all potential scientists and medical professionals. A variety of authentic educational strategies that are encountered in the academic and professional scientific sphere are implied as the following topics are considered: nature of science and chemical history, matter and energy, chemical nomenclature and stoichiometry, atomic electronics, phases of matter, and chemical forces. A working introduction of the following topics is included: equilibrium, thermodynamics, kinetics, and electrochemistry. Emphasis will be placed on real world applications of science, scientific literacy, and chemical research methodology.

STEM Honors Chemistry 1B (3111S)

Prerequisite: 93 or above in STEM Chemistry 1A or Honors Chemistry 1A

STEM Chemistry 1B is an advanced topics course for students interested in pursuing chemistry or chemical engineering related professions. A rigorous and research based approach will be applied to the following topics: advanced equilibrium concepts, thermodynamics and kinetics, biochemistry and organic chemistry, materials chemistry, descriptive chemistry and applications of chemistry. A strong emphasis will be placed on scientific literacy and communication of scientific findings, as well as research based methods in the chemical laboratory. There will be an emphasis on research and research analysis.

OR

STEM Chemistry 1B (311S)

Prerequisite: STEM Chemistry 1A or Honors Chemistry 1A
STEM Chemistry 1B is an advanced topics course for students interested in pursuing chemistry or chemical engineering related professions. A rigorous and research based approach will be applied to the following topics: advanced equilibrium concepts, thermodynamics and kinetics, biochemistry and organic chemistry, materials chemistry, descriptive chemistry and applications of chemistry. A strong emphasis will be placed on scientific literacy and communication of scientific findings, as well as research based methods in the chemical laboratory.

WORLD LANGUAGE

Languages, other than Spanish, will be taught through video conferencing with high school classes. All students need two years of one language.

STEM French 2 (122S)

Prerequisite: French 1 or Honors French 1
French 2 provides a smooth transition from Level I with a review of the vocabulary, grammar, and cultural topics previously learned. The focus is on increasing vocabulary and grammar skills through speaking, reading, writing, and listening. Correct pronunciation and practice exercises are emphasized.

OR

STEM Honors French 2 (1221S)

Prerequisite: 93 or above average in French I or Honors French I
Honors courses include rigorous, intensive application of core content at or above grade level with independent reading/research at an accelerated pace.

STEM German 2 (132S)

Prerequisite: German I or Honors German I
German II continues to focus on developing basic communication skills by using vocabulary, grammar, and cultural topics learned in German I. Topics covered in German II expand on the essentials for reading, writing, and speaking the language.

OR

STEM Honors German 2 (1321S)

Prerequisite: 93 or above average in German I or Honors German I
Honors courses include rigorous, intensive application of core content at or above grade level with independent reading/research at an accelerated pace.

STEM Spanish 2 for Native Speakers (1523S)

Prerequisite: Spanish I for Native Speakers
Spanish II for Native Speakers continues the study of fundamental grammatical concepts, advanced literature topics, and pertinent historical and cultural information, while moving students towards a more formalized level of reading, writing, and speaking Spanish. Students discuss topics in depth, write essays, and analyze literature and poetry in their native language.

STEM Spanish 2 (152S)

Prerequisite: Spanish I or Honors Spanish I
Spanish II reviews and reinforces vocabulary and basic grammar skills taught in

Spanish I. The student is introduced to the present progressive and preterite tenses of the verb. Students converse and write using more complex grammar and vocabulary, and major cultural concepts are taught through cultural readings.

OR

STEM Honors Spanish 2 (1521S)

Prerequisite: 93 or above average in Spanish I or Honors Spanish I

Honors courses include rigorous, intensive application of core content at or above grade level with independent reading/research at an accelerated pace.

PHYSICAL EDUCATION

STEM Grade 10 Health and Wellness Education (401S)

The Physical Education courses taught in grade 10 will encourage students to participate in activities which will enhance their physical, mental and social, well-being. Students will participate in team sports, individual sports, life time sports, fitness programs and aquatic activities. In addition, all sophomore students will participate in a Family Consumer Science unit, juniors in a nutrition unit and seniors in a health unit.

ELECTIVES:

Fine Arts

STEM Band (661S)

Prerequisite: Basic to Intermediate instrumental skills

Band will provide students with an ensemble experience in which they can develop advanced instrumental techniques while performing a variety of musical styles. There are numerous public performances to display acquired skills. An outgrowth of this group is the following performing groups: marching band, pep band, jazz ensemble, symphonic band, woodwind choir, brass choir, percussion ensemble, and other small ensembles.

STEM Sophomore Concert Choir (664S)

The Freshman/Sophomore Concert Choir is part of the Cougar Concert Choir. The Choir is designed for all members of the Freshman/Sophomore classes that are interested in participating in the Cougar Concert Choir. This arrangement is made for scheduling purposes. The Concert Choir will have numerous opportunities to perform many styles of choral music at school and public performances. All members of the Concert Choir will study correct vocal production and strive to improve their musicianship.

Grade 11

OVERVIEW OF COURSE REQUIREMENTS

Students will take **8 courses** as outlined below. 4 courses will be taken during semester 1 and 4 courses will be taken during semester 2.

REQUIRED COURSES:

ENGLISH

STEM English 3 (103S)

English 3 involves an advanced study and practice of the principles of effective writing with an emphasis on the various types of discourse and the research process. Students will explore the general background, progress, and development of American literature, including appropriate vocabulary. Students are required to complete a research paper.

OR

STEM Honors English 3 (1031S)

Prerequisite: 93 or above average in English 2 or Honors English 2

Honors courses include rigorous, intensive application of core content at or above grade level with independent reading/research at an accelerated pace.

STEM College Board SAT Preparation Course (119S)

This course is a one semester elective for 11th grade students interested in preparing for the College Board entrance exam (SAT). The course will emphasize test taking skills, familiarity with the test format and grading, and review of relevant topics. Critical reading, mathematics, and writing will be covered in this one credit elective course. Prerequisites are Algebra II and English II.

ESL Curriculum as follows:

STEM ESL English 1 (949S)

ESL 1 is designed for the student whose native language is not English. This beginning level course is geared to ease the non-speaker of English into communicating effectively in social and academic settings. Emphasis will be on oral communication, basic grammar, sentence structure and irregular verbs.

NOTE: ***To schedule this course, arrangements must be made through your guidance counselor and ESL instructor.***

STEM ESL English 2 (950S)

ESL 2 is a continuation of ESL 1. This program of study is designed for the student whose native language is not English. This course focuses on refining reading comprehension and writing skills.

NOTE: ***To schedule this course, arrangements must be made through your guidance counselor and ESL instructor.***

STEM ESL English 3 (951S)

ESL 3 is a continuation of ESL 2. This program is designed for the student whose native language is not English. This course is appropriate for students in the intermediate stage of English acquisition.

NOTE: ***To schedule this course, arrangements must be made through your guidance counselor and ESL instructor.***

SOCIAL STUDIES

STEM American Studies 3 (203S)

STEM American Studies 3 is a continuation of American Studies 3. It encompasses the 1930's to the present. Emphasis is placed on historic, economic and political developments that lead to an understanding of today's American Society, its problems and its achievements.

OR

STEM Honors American Studies 3 (2031S)

Prerequisite: 93 or above average in American Studies 3

Honors courses include more rigorous, intensive application of core content at or above grade level with required independent reading and research at an accelerated pace.

MATH

Eleventh Grade MATH Course Sequence

Trigonometry or Honors Trigonometry	Pre-Calculus or Honors Pre-Calculus	Calculus I or Honors Calculus I	Calculus 2 or Honors Calculus 2

STEM Trigonometry (366S)

Prerequisite: STEM Algebra II; 93 or above in Honors Algebra II

Trigonometry is recommended for students who have done well in previous math courses and who have college ambitions in which math is utilized. This course places emphasis on the understanding of definitions and principles of trigonometry and their applications to problem solving. It includes the circular functions concept, identities, radian measure, triangle solutions and vectors. This course includes polar equations and logarithmic functions. Solving right triangles based on trigonometric functions is developed through the course. Scientific calculators are used throughout this course.

OR

STEM Honors Trigonometry (3661S)

Prerequisite: STEM Algebra II; 93 or above in Honors Algebra II

Honors includes more rigorous, intensive application of core content at or above grade level that ensures comprehensive study of all topics with required independent research at an accelerated pace.

STEM Pre-Calculus (365S)

Pre-Calculus is for students whose previous math background is strong. This course offers an excellent background in linear algebra, functions, and a complete foundation for calculus. This particular course will also address some analytical geometry and the use of equations and inequalities as mathematical models.

OR

STEM Honors Pre-Calculus (3651S)
Prerequisite: Trigonometry; 93 or above in Honors Trigonometry and
Honors includes more rigorous, intensive application of core content at or above grade level that ensures comprehensive study of all topics with required independent research at an accelerated pace.

STEM Calculus 1 (367S)
Calculus 1 includes both derivatives and integrals of polynomials, exponential functions, trigonometric functions, and logarithmic functions. Applications of derivatives and integrals are also introduced. A strong foundation in algebra and graphing functions is essential.

OR

STEM Honors Calculus 1 (3671S)
Prerequisite: 93 or above average in Honors Pre-Calculus or Pre-calculus
Honors includes more rigorous, intensive application of core content at or above grade level that ensures comprehensive study of all topics with required independent research at an accelerated pace.

STEM Advanced Placement Calculus (must take both 3701S and3701BS)
Prerequisite: 93 or above average in Honors Pre-Calculus and Honors Trigonometry
Advanced Placement Calculus is a college level calculus class designed for those students entering mathematics or science related field. The selection of topics is designed to meet the requirements set forth in the syllabus of the Advanced Placement Calculus AB Exam. Major topics include differential and integral calculus along with their applications. *Students are required to take the Advanced Placement Examination.* **This is a yearlong 2 credit course.**

STEM Calculus 2 (368S)
Calculus 2 is a course designed for those students who have successfully completed Calculus 1. The main objectives of this course are to introduce the topics of differentiation and integration of transcendental functions with a concentration of the trigonometric functions. Graphing and their applications will also be presented. Various integration techniques will be included.

OR

STEM Honors Calculus 2 (3681S)
Prerequisite: Calculus 1 or Honors Calculus 1; 93 or above average in Honors Calculus 1
Honors includes more rigorous, intensive application of core content at or above grade level that ensures comprehensive study of all topics with required independent research at an accelerated pace.

STEM Honors Calculus 3 (3691S)
Prerequisite: 93 or above in STEM Calculus 2
Calculus 3 is the third level in the Calculus sequence. Topics of study include conic sections, hyperbolic functions, polar coordinates, and infinite sequences and series. This course is designed for students who have successfully completed Calculus 2 or AP Calculus

STEM Statistics (364S)
Statistics is an introductory course that includes basic statistical concepts and methods presented in a manner that emphasizes understanding the principles of data collection and analysis. The course includes descriptive and inferential statistics, regression and correlation, hypothesis testing, and two-way tables. ***This course cannot be taken until Algebra II credit is achieved.***

OR

STEM Honors Statistics (3641S)**
Prerequisite: 93 or above in STEM Honors Algebra II or Algebra II
Honors includes more rigorous, intensive application of core content at or above grade level that ensures comprehensive study of all topics with required independent research at an accelerated pace.
This course may be taken for 3 credits from Lackawanna Community College.

SCIENCE

STEM Advanced Placement Biology (3081s and 3081BS)
Prerequisite: 93 or above average in Biology B or Honors Biology B
Advanced Placement Biology is a college level course that focuses on molecular biology, genetics, evolution, anatomy and physiology, animal behavior, and ecology. This course will place special emphasis on preparing the student for successful completion of the Advanced Placement Biology Examination. *Students are required to take the Advanced Placement Examination.* **This is a year-long course.**

STEM Advanced Placement Chemistry (3131S and 3131BS)
Prerequisite: 93 or above in Honors Chemistry 1B, and 93 or above average in Honors Pre-Calculus and/or Calculus
This year-long 2 credit course is designed for those students who plan on entering a medical or engineering field of study. The course is an intensely paced introduction to a two-semester college chemistry course. *Students are required to take the Advanced Placement Chemistry examination.*

STEM Honors Physics 1 (3261S)- required by all students
Prerequisite: Concurrent Trigonometry or Completed Trigonometry, 93 or above in STEM Chemistry 1B
Physics 1 is a STEM school foundation level course intended for junior or senior year. Physics 1 uses lecture, problem solving, projects and case studies to investigate the following Newtonian physics topics: speed and acceleration, momentum, forces and vectors, work and energy, projectile and rotational motion, and simple machines. There is a research focus.

STEM Physics 1 (326PS)- required by all students
Prerequisite: Concurrent Trigonometry or Completed Trigonometry, Chemistry 1B
Physics 1 is a STEM school foundation level course for juniors or seniors. The class consists of lecture, problem solving, projects and case studies to investigate

the following Newtonian physics topics: speed and acceleration, momentum, forces and vectors, work and energy, projectile and rotational motion, and simple machines.

ELECTIVES:

Students may take a second math class as one of their electives. If they choose a second math as an elective, that math course will be taken during semester 2.

Eleventh Grade MATH Course Sequence

Pre-Calculus or Honors Pre-Calculus	Calculus 1 or Honors Calculus 1 or AP Calculus A and B	Calculus 2 or Honors Calculus 2

Science

STEM Introduction to Engineering Design Processes (321S)
Offered by Penn State University
Location: Hazleton Area Academy of Sciences, Drums, PA
Tuition: One-quarter of regular Penn State Tuition - 3 credit course
Introduction to Engineering Design - Introduction to engineering design processes, methods, and decision making using team design projects; design communication methods including graphical, verbal and written. Students will visit Penn State Hazleton at least three times during the semester. During the visits they will conduct some experiments and hands-on activities.
This is a Penn State University course. Students will receive 3 college credits and honors credit for the course.

STEM Honors Physics 2 (3271S)
Prerequisites: 93 or above in STEM Honors Physics 1 or STEM Physics 1
Physics 2 is a STEM school Mechanical/Electrical Engineering Track Junior level course that uses lecture, problem solving, projects and case studies to investigate Modern Physics topics such as: wave mechanics, electrical fields and magnetism, circuitry and AC/DC power, and fluid and thermodynamics. There is a focus on research.

STEM Physics 2 (327S)
Prerequisites: STEM Honors Physics 1 or STEM Physics 1
Physics 2 is a STEM school Mechanical/Electrical Engineering Track Junior level course that uses lecture, problem solving, projects and case studies to investigate Modern Physics topics such as: wave mechanics, electrical fields and magnetism, circuitry and AC/DC power, and fluid and thermodynamics. There is a focus on research.

STEM Principles of Engineering 1 (316S)
This course is designed to prepare students thinking of pursuing an Engineering degree in college. Electrical and mechanical theory, advanced problem solving, calculator use, career exploration, pneumatic and hydraulic systems, electrical, PLC, and computer control systems, robotics, automated manufacturing, static mechanical systems design and materials testing are explored.

STEM Principles of Engineering 2 (316BS)
This course is includes an in-depth study of electrical and mechanical theory, advanced problem solving, calculator/computer use, career exploration, pneumatic and hydraulic systems, electrical, PLC, and computer control systems, robotics, automated manufacturing, static mechanical systems design and materials testing are explored.

STEM Computer Robotics 1 (320S)
In this course, students will explore robotics and its applications in our society today and tomorrow. Students arranged in teams will design and construct their own robots to perform specific tasks. Students design will be pitted against each other in competitions to determine the best design. Students should have interest in mechanical devices as well as electronics circuits. Programming ability and experience with electronics is a plus, but not a requirement.

STEM Computer Robotics 2 (320BS)
In this course, students will study robotics and its applications in our society today and tomorrow in great depth. Students arranged in teams will design and construct their own robots to perform specific tasks. Students design will be pitted against each other in competitions to determine the best design. Students should have interest in mechanical devices as well as electronics circuits. Programming ability and experience with electronics is a plus, but not a requirement.

STEM CAD Drafting 1 (319S)
CAD Drafting is especially designed to give the pre-engineering student an advantage with introductory skills in engineering drawing, descriptive geometry, computer-aided drawing, and computer-aided manufacturing. The course will instruct through prescriptive lessons to develop fundamental skills and evolve into project based and collaborative learning.

STEM CAD Drafting 2 (3192S)
CAD Drafting 2 is especially designed to give the pre-engineering student in depth skills in engineering drawing, descriptive geometry, computer-aided drawing, and computer-aided manufacturing. The course will instruct through prescriptive lessons to develop fundamental skills and evolve into project based and collaborative learning.

STEM Honors Organic Chemistry (3142S)
Prerequisites: STEM Chemistry 1A and 1B, Algebra II or Honors Algebra II
Honors Organic Chemistry is intended for students interested in pursuing careers in the fields of science, medicine, and/or engineering. This course serves as an

introduction for the study of the chemistry of carbon compounds by applying principles rooted in general chemistry. Topics of study include: bonding in organic molecules, organic nomenclature, functional groups, organic synthesis, laboratory applications, and bio-organic chemistry.

STEM Biochemistry (318S)

Prerequisites: STEM Honors Chemistry 1A and 1B or STEM Chemistry 1A and 1B, Algebra II or Honors Algebra II

Biochemistry is an integrated course that uses the principles of chemistry to understand and explain phenomena that occur in livings systems. This course will use this integrated approach to understand two major enduring themes in biochemistry: chemical nature of bioenergetics and the process of chemical information storage in organisms. A variety of instructional methods paralleling a professional biochemistry post-secondary course will be implied and a strong emphasis will be on literacy, research methods, and career paths within biochemistry.

OR

STEM Honors Biochemistry (3181S)

Prerequisites: 93 or above in STEM Honors Chemistry 1A and 1B or STEM Chemistry 1A and 1B, Algebra II or Honors Algebra II

Biochemistry is an integrated course that uses the principles of chemistry to understand and explain phenomena that occur in livings systems. This course will use this integrated approach to understand two major enduring themes in biochemistry: chemical nature of bioenergetics and the process of chemical information storage in organisms. A variety of instructional methods paralleling a professional biochemistry post-secondary course will be implied and a strong emphasis will be on literacy, research methods, and career paths within biochemistry.

STEM Anatomy and Physiology 1 (307S)

Prerequisites: STEM Honors Biology 1A and STEM Honors Biology 1B or STEM Biology 1B, Anatomy & Physiology 2 should be taken following this class.

This course is a study of human anatomy and the relationship between structure and function. The course provides preparation in systemic physiology with concentration on major body functions and their controls. Topics include cytology, mitosis, meiosis, heredity, histology, organology and the following systems: integumentary, skeletal, muscular, and nervous. Dissections of organs and organisms will be an integral part of the course. Systemic diseases will be studied and case studies conducted. Current event topics will be researched and reviewed on a weekly basis.

STEM Anatomy and Physiology 2 (308S)

Prerequisites: STEM Honors Biology 1A and STEM Honors Biology 1B or STEM Biology 1B and Anatomy and Physiology 1

This course is a continuation of Anatomy and Physiology 1. Topics include the endocrine, cardiovascular, respiratory, digestive, urinary, and reproductive systems. Similar laboratory experiments and research will be conducted. Systemic diseases will be studied and case studies conducted. An in depth research will be conducted on a health career and a paper written. Current event topics will be researched and reviewed on a weekly basis.

STEM College Biology 1-Principles of Biology 1 (LCCC=BIO151) (314S)
Prerequisite: 93 or above average in STEM Honors Biology 1A and STEM Biology 1B or STEM Biology 1B
This honors level course introduces the principles and concepts of biology. Emphasis is placed on basic biological chemistry, cell structure and function, metabolism and energy transformation, genetics, and other related topics. Upon completion, students should be able to demonstrate understanding of life at the molecular and cellular levels. Laboratory work includes use of the compound light microscope, study of cells and cellular transport, chemical energy processes, enzymatic function, and genetics.
Students that obtain a C (3.0) or better will earn 3 lecture credits and 1 laboratory credit through LCCC. NOTE: Students also qualify to take the Advanced Placement™ Biology Exam, if they desire.

STEM College Biology 2- Principles of Biology II (LCCC=BIO152) (315S)
Prerequisite: 93 or above average in STEM Honors Biology 1A and STEM Biology 1B or STEM Biology 1B and STEM Biology 1
This honors level course is designed to cover the evolution of the major organ systems of the Kingdom Animalia to include invertebrate and vertebrate species. The development of comparative structures as influenced by natural selection will be emphasized. The anatomy and physiology of the major organ systems will be stressed. Laboratory will include gross dissection and microscopic analysis of selected specimens.
Students that obtain a C (3.0) or better will earn 3 lecture credits and 1 laboratory credits through LCCC. NOTE: Students also qualify to take the Advanced Placement™ Biology Exam, if they desire.

STEM College Chemistry 151 (312S)
Prerequisite: 93 or above in Honors Chemistry 1A and 1B, and 93 or above average in Honors Pre-Calculus and/or Calculus
College Chemistry 151, offered by Luzerne County Community College, is a first semester advanced general chemistry course and laboratory. This honors level course focuses on the following topics: matter, electronic and molecular structure, phases of matter, thermochemistry, gases and stoichiometry.
Students that obtain a C (3.0) or better will earn 3 lecture credits and 1 laboratory credit through LCCC. NOTE: Students also qualify to take the Advanced Placement™ Chemistry Exam, if they desire.

STEM College Chemistry 152 (313S)
Prerequisite: 93 or above in Honors Chemistry 1A and 1B, and 93 or above average in Honors Pre-Calculus and/or Calculus
College Chemistry 151, offered by Luzerne County Community College, is the second semester continuation of College Chemistry 151. This honors level course focuses on the following topics: solids and liquids, kinetics, equilibrium, acids and bases, thermodynamics, electrochemistry, organic chemistry and biochemistry. **Students that obtain a C (3.0) or better will earn 3 lecture credits and 1 laboratory credit through LCCC. NOTE: Students also qualify to take the Advanced Placement™ Chemistry Exam.**

STEM Advanced Chemistry Seminar (322S)

Prerequisite: 93 or above in Honors Chemistry 1A and 1B, and 93 or above average in Honors Pre-Calculus and/or Calculus
Advanced Chemistry Seminar is an intensely-paced, survey course for students interested in chemistry-related majors and careers. Course topics will include aspects of pharmacology, forensics and chemical engineering in addition to other chemistry-related topics based on student interest. Emphasis will be placed on solving real-world problems and promoting scientific literacy and communication. Students will be required to complete a research-based capstone publication and presentation as part of this course.

STEM Human Disease (325S)
Prerequisite: 93 or above average in STEM Honors Biology 1A and STEM Biology 1B or STEM Biology 1B
This course covers the study of human disease. The class gives an overview and considerable specific detail concerning the nature of human illness. It will stimulate further interest in understanding of disease. This course is designed for all health care specialties with specific discussion (case analysis) sessions for dental, pharmacy, physical therapy, physician's assistant, nursing, and medical school students. The course components consist of lectures, textbook, core exams, discussion sessions and evaluations.

STEM Genetics (314S)
Prerequisite: STEM Honors Biology 1A and STEM Honors Biology 1B or STEM Biology 1B
Genetics is an accelerated class that begins with a review of basic biological concepts in genetics. The course continues with an in-depth study of genetics. Students who are considering careers in biology, science technology, health service or related fields should find this course a valuable asset to their continuing education.

STEM Neurobiology Psychology (223S)
Prerequisite: STEM Honors Biology 1B or STEM Biology 1B
This course covers the anatomy and physiology of the brain and nervous system and structure and function relate to psychology and psychological diseases.

STEM Pharmacology (317S)
Prerequisite: STEM Honors Chemistry 1B and STEM Chemistry 1B
STEM Pharmacology deals with various aspects of drugs and poisons in the body. By definition, it is the subject concerned with pharmacodynamics and pharmacokinetic aspects of drugs. It is the study of what a drug does to the body and what body does to the drug.

STEM Environmental Biology (306S)
Prerequisite: STEM Biology 1A and STEM Biology 1B
Environmental Biology is an introduction to how the world we live in works, how we use and abuse nature, and what we can do to protect our environment for ourselves and future generations. The topics include ecology, populations, natural resources, pollution, society, and the environment.

OR

STEM Honors Environmental Biology (3061S)

Prerequisite: 93 or above in STEM Biology 1B and STEM Chemistry 1B

Honors Environmental Biology is an advanced science in which students will investigate major ecological concepts and analyze environmental problems, both natural and human-made, to assess the relative risks related to these problems and to study alternative solutions for resolving and/or preventing them. Laboratory work, research, and field studies will be included to educate students toward a sustainable future and to prepare for future studies in environmental science, biology, and related disciplines.

STEM Astronomy (324S)

Prerequisite: Physics1

Astronomy is a senior level course with dual emphasis on conceptual and mathematical comprehension of the universe. The classroom will investigate the composition of solar systems, modern space theories, stellar observation, and the orbits and forces of celestial objects through lecture, calculation, projects and telescopic observation.

Technology

STEM Introduction to Computer Science and Programming (771S)

This subject is aimed at students with little or no programming experience. It provides students with an understanding of the role computation can play in solving problems. It also helps students, regardless of their major, to feel justifiably confident of their ability to write small programs that allow them to accomplish useful goals. The class will use the Python™ programming language.

STEM JAVA 1 (772S)

Prerequisite: Introduction to Computer Science and Programming

This course is an introduction to software programming, using the Java™ programming language. Students will learn the fundamentals of Java™. The focus is on developing high quality, working software that solves real problems.

STEM JAVA 2 (773S)

Prerequisite: JAVA 1

JAVA 2 is a continuation of JAVA 1. Students will continue to utilize the Java programming language and apply more advanced aspects of coding to solve real world problems.

STEM Digital Design/Web Design (774S)

This is a "hands-on" course emphasizing traditional illustration skills such as visual problem solving, composition, and drawing. Students spend time working on sketches and concepts for illustration assignments and executing these assignments in digital applications. There will be an opportunity to create illustrations using more than one computer application.

STEM Management Information Systems (775S)

This is a study of how individuals, groups, and organizations evaluate, design, implement, manage, and utilize systems to generate information to improve efficiency and effectiveness of decision making, including systems termed decision support systems, expert systems, and executive information systems. The class is structured to represent real world situations using experimental, individual, and team-based learning. The class develops interpersonal skills through labs, projects, presentations, and team activities.

STEM Advanced Placement Principles of Computer Science (7761S)

In this course, students will learn to design and evaluate solutions and to apply computer science to solve problems through the development of algorithms and programs. They will incorporate abstraction into programs and use data to discover new knowledge. Students will also explain how computing innovations and computing systems, including the Internet, work, explore their potential impacts, and contribute to a computing culture that is collaborative and ethical.

World Language

Languages, other than Spanish, will be taught through video conferencing with classes at the high school.

STEM French 3 (123S)

Prerequisite: French 2 or Honors French 2

French III continues to build upon skills in conversation, reading, and writing. Students are introduced to the past tense and further expansion of vocabulary. Topics of interest include learning about French homes, understanding French government, and learning interesting facts about well-known French cities.

OR

STEM Honors French 3 (1231S)

Prerequisite: 93 or above average in French 2 or Honors French 2

Honors courses include more rigorous, intensive application of core content at or above grade level with required independent reading and research at an accelerated pace.

STEM German 3 (133S)

Prerequisite: German 2 or Honors German 2

German III continues to build and refine communication skills in both the present and past tense by means of longer and more complex conversational patterns and writing assignments. Emphasis is placed on correct pronunciation and grammatically correct phrase and sentence structure.

OR

STEM Honors German 3 (1331S)

Prerequisite: 93 or above average in German 2 or Honors German 2

Honors courses include more rigorous, intensive application of core content at or above grade level with required independent reading and research at an accelerated pace.

STEM Spanish 3 (153S)
Prerequisite: Spanish 2 or Honors Spanish 2
Spanish III is designed to review the basic grammar skills learned in Spanish I and Spanish 2. Students are introduced to more complicated grammar structures. Speaking, writing, reading, and listening skills are reinforced through active student participation in class activities.

OR

STEM Honors Spanish 3 (1531S)
Prerequisite: 93 or above average in Spanish 2 or Honors Spanish 2
Honors courses include more rigorous, intensive application of core content at or above grade level with required independent reading and research at an accelerated pace.

Physical Education

STEM Grade 11 Physical Education (402S)
The Physical Education courses taught in grade11will encourage students to participate in activities which will enhance their physical, mental and social, well-being. Students will participate in team sports, individual sports, life time sports, fitness programs and aquatic activities.

Fine Arts

STEM Marching Band (661S)
Prerequisite: Intermediate instrumental skills
Marching Band will provide students with an ensemble experience in which they can develop advanced instrumental techniques while performing a variety of musical styles. There are numerous public performances to display acquired skills. An outgrowth of this group is the following performing groups: pep band, stage band, woodwind choir, brass choir, and other small ensembles.
STEM Sophomore Concert Choir (664S)
The Freshman/Sophomore Concert Choir is part of the Cougar Concert Choir. The Choir is designed for all members of the Freshman/Sophomore classes that are interested in participating in the Cougar Concert Choir. This arrangement is made for scheduling purposes. The Concert Choir will have numerous opportunities to perform many styles of choral music at school and public performances. All members of the Concert Choir will study correct vocal production and strive to improve their musicianship.

Social Studies

STEM Science, Technology, and Society (228S)
A study of science and technology and how it affects society and vice versa throughout history. The course will examine the influence science, technology, and innovations have had in societal development and the role of government policy, ethics, and morals in the STEM fields. The course will allow for individual focus on topics of interest.

Communication Arts and Sciences (CAS)

STEM CAS 100 (GWS) This course will be co-taught with a professor from Penn State University for 3 college credits and honors credits.
Effective Speech (3) Introduction to speech communication: formal speaking, group discussion, analysis and evaluation of messages. It is the objective of these courses to teach students to communicate information clearly and set forth their beliefs persuasively both orally and in writing. In particular, it is expected that students become sufficiently proficient in writing, such that their expository prose meets the expectations of educated readers in both form and style.

GRADE 12

OVERVIEW OF COURSE REQUIREMENTS

Students will take **8 courses** as outlined below. 4 courses will be taken during semester 1 and 4 courses will be taken during semester 2.

REQUIRED COURSES:

ENGLISH

STEM English 4 (104S)
English IV consists of the chronological organization of English Literature including nonfiction, short stories, plays, novels, and poetry, which shows the progression of themes through the various eras of English history. Attention is also given to the inductive and deductive writing process and to advanced points of grammar. An integral part of the course will be to write a research paper and to master correct research paper format. Students will read and critically analyze British Literature. Required compositions will concentrate on literary elements.

OR

STEM Honors English 4 (1041S)
Prerequisite: 93 or above average in English III or Honors English III
Honors courses include more rigorous, intensive application of core content at or above grade level with required independent reading and research at an accelerated pace.

STEM AP English Literature and Composition (1061S and 1061BS)
Prerequisite: 93 or above average in Honors English III or approval of class-room teacher.
This course engages students in the careful reading and critical analysis of imaginative literature. Through the close reading of selected texts, students 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. The course includes intensive study of representative works from various genres and periods, concentrating on works of recognized literary merit. *Students are required to take the Advanced Placement Literature and Composition Examination.*

This is a year-long 2 credit course.

ELD Curriculum is as follows:

STEM ELD English 1 (949S)
ELD 1 is designed for the student whose native language is not English. This beginning level course is geared to ease the non-speaker of English into communicating effectively in social and academic settings. Emphasis will be on oral communication, basic grammar, sentence structure and irregular verbs.
NOTE: ***To schedule this course, arrangements must be made through your guidance counselor and ESL instructor.***

STEM ELD English 2 (950S)
ELD 2 is a continuation of ELD 1. This program of study is designed for the student whose native language is not English. This course focuses on refining reading comprehension and writing skills.
NOTE: ***To schedule this course, arrangements must be made through your guidance counselor and ESL instructor.***

STEM ELD English 3 (951S)
ELD 3 is a continuation of ELD 2. This program is designed for the student whose native language is not English. This course is appropriate for students in the intermediate stage of English acquisition.
NOTE: ***To schedule this course, arrangements must be made through your guidance counselor and ESL instructor.***

STEM ELD English 4 (952S)
ELD 4 is a continuation of ELD 3. This program is designed for the student whose native language is not English. This course is appropriate for students in advanced stages of English acquisition.
Note: To schedule this course, arrangements must be made through your guidance counselor and ESL instructor.

SOCIAL STUDIES

STEM Economics (212S)
Economics is a senior level course where students will engage in topics that explore basic economics reasoning, economic systems as well as American Free Enterprise. Personal and Institutional relationships with markets, business, and labor, money, banking, and finance will also be discussed.
OR
STEM Honors Economics (2121S)
Prerequisite: 93 average or above in United States History 2
Honors courses include more rigorous, intensive application of core content at

or above grade level with required independent reading and research at an accelerated pace.

STEM United States Government (204S)
United States Government is a senior level course that introduces the student to various levels of government and politics in the United States. The course emphasizes constitutional development, citizenship and rights, the electoral process, and the role of each branch of government. Students will also examine the government's ability to handle contemporary issues both domestic and foreign.

OR

STEM Honors United States Government (2041S)
Prerequisite: 93 or above average in United States History 2
Honors courses include more rigorous, intensive application of core content at or above grade level with required independent reading and research at an accelerated pace.

SCIENCE

STEM Advanced Placement Biology (3081S and 3081BS)
Prerequisite: 93 or above average in Biology 1B or Honors Biology 1B
Advanced Placement Biology is a college level course that focuses on molecular biology, genetics, evolution, anatomy and physiology, animal behavior, and ecology. This course will place special emphasis on preparing the student for successful completion of the Advanced Placement Biology Examination. *Students are required to take the Advanced Placement Examination.* **This is a year-long course.**

STEM Advanced Placement Chemistry (3131S and 3131BS)
Prerequisite: 93 or above in Honors Chemistry 1B, and 93 or above average in Honors Pre-Calculus and/or Calculus
This year-long 2 credit course is designed for those students who plan on entering a medical or engineering field of study. The course is an intensely paced introduction to a two-semester college chemistry course. *Students are required to take the Advanced Placement Chemistry examination.*

STEM Honors Physics 1 (3261S) - required by all students; also offered for seniors
Prerequisite: Concurrent Trigonometry or Completed Trigonometry
Physics 1 is a magnet school foundation level course intended for the first semester of sophomore year. Physics 1 uses lecture, problem solving, projects and case studies to investigate the following Newtonian physics topics: speed and acceleration, momentum, forces and vectors, work and energy, projectile and rotational motion, and simple machines.

OR

STEM Physics 1 (326PS)- required by all students
Prerequisite: Concurrent Trigonometry or Completed Trigonometry
Physics 1 is a STEM school foundation level course for juniors or seniors. The class consists of lecture, problem solving, projects and case studies to investigate the following Newtonian physics topics: speed and acceleration, momentum,

forces and vectors, work and energy, projectile and rotational motion, and simple machines.

MATH

STEM Pre-Calculus (365S)

Pre-Calculus is for students whose previous math background is strong. This course offers an excellent background in linear algebra, functions, and a complete foundation for calculus. This particular course will also address some analytical geometry and the use of equations and inequalities as mathematical models.

OR

STEM Honors Pre-Calculus (3651S)

Prerequisite: Trigonometry; 93 or above in Honors Trigonometry Honors Algebra II

Honors includes more rigorous, intensive application of core content at or above grade level that ensures comprehensive study of all topics with required independent research at an accelerated pace.

STEM Calculus 1 (367S)

Calculus 1 includes both derivatives and integrals of polynomials, exponential functions, trigonometric functions, and logarithmic functions. Applications of derivatives and integrals are also introduced. A strong foundation in algebra and graphing functions is essential.

OR

STEM Honors Calculus 1 (3671S)

Prerequisite: Pre-Calculus or Honors Pre-Calculus; 93 or above in Honors Pre-Calculus and Honors Trigonometry

Honors includes more rigorous, intensive application of core content at or above grade level that ensures comprehensive study of all topics with required independent research at an accelerated pace.

STEM Advanced Placement Calculus (must take both 3701S and 3701BS)

Prerequisite: 93 or above average in Honors Pre-Calculus and Honors Trigonometry

Advanced Placement Calculus is a college level calculus class designed for those students entering mathematics or science related field. The selection of topics is designed to meet the requirements set forth in the syllabus of the Advanced Placement Calculus AB Exam. Major topics include differential and integral calculus along with their applications.

Students are required to take the Advanced Placement Examination. **This is a yearlong 2 credit course.**

Advanced Placement Calculus BC (3691S)

Prerequisite: 93 or above in Honors Pre-Calculus and Honors Trigonometry and Advanced Placement Calculus AB.

Advanced Placement Calculus BC is a college level calculus class designed for those students entering mathematics or science related field. The selection of topics is designed to meet the requirements set forth in the syllabus of the Advanced Placement Calculus BC Exam. The course includes a review of differential and integral calculus along with their applications. New topics covered include sequences and series improper integrals and parametric curves. Students

are required to take the Advanced Placement BC Examination. **This is a one semester 1 credit course.**

STEM Calculus 2 (368S)
Calculus 2 is a course designed for those students who have successfully completed Calculus 1. The main objectives of this course are to introduce the topics of differentiation and integration of transcendental functions with a concentration of the trigonometric functions. Graphing and their applications will also be presented. Various integration techniques will be included.

OR

STEM Honors Calculus 2 (3681S)
Prerequisite: 93 or above average in Honors Calculus 1 or Calculus 1
Honors includes more rigorous, intensive application of core content at or above grade level that ensures comprehensive study of all topics with required independent research at an accelerated pace.

STEM Honors Calculus 3 (3691S)
Prerequisite: 93 or above in STEM Calculus 2
Calculus 3 is the third level in the Calculus sequence. Topics of study include conic sections, hyperbolic functions, polar coordinates, and infinite sequences and series. This course is designed for students who have successfully completed Calculus 2 or AP Calculus

STEM Statistics (364S)
Statistics is an introductory course that includes basic statistical concepts and methods presented in a manner that emphasizes understanding the principles of data collection and analysis. The course includes descriptive and inferential statistics, regression and correlation, hypothesis testing, and two-way tables. ***This course cannot be taken until Algebra II credit is achieved.***

OR

STEM Honors Statistics (3641S)**
Prerequisite: 93 or above in Honors Algebra 2
Honors includes more rigorous, intensive application of core content at or above grade level that ensures comprehensive study of all topics with required independent research at an accelerated pace.
This course may be taken for 3 credits from Lackawanna Community College.

ELECTIVES:

Students may take a second math class as one of their electives. If they choose a second math as an elective, that math course will be taken during semester 2.

Twelfth Grade MATH Course Sequence

Algebra 2 Trigonometry	Pre-Calculus Honors Pre-Calculus	Calculus 1 Honors Calculus 1	AP Calculus	Calculus 2	Calculus 3

World Language

STEM French 1 (121S)

French 1 is an introduction to the language, culture, geography, and people of France. The course provides useful language skills from the outset based on speaking, listening, reading, and writing. Correct pronunciation and practice with the language are emphasized.

OR

STEM Honors French 1 (1211S)

Prerequisite: 93 or above average for eighth grade

Honors courses include more rigorous, intensive application of core content at or above grade level with required independent reading and research at an accelerated pace.

STEM French 2 (122S)

French 2 provides a smooth transition from Level I with a review of the vocabulary, grammar, and cultural topics previously learned. The focus is on increasing vocabulary and grammar skills through speaking, reading, writing, and listening. Correct pronunciation and practice exercises are emphasized.

OR

STEM Honors French 2 (1221S)

Prerequisite: 93 or above average in STEM French I or Honors French 1

Honors courses include more rigorous, intensive application of core content at or above grade level with required independent reading and research at an accelerated pace.

STEM French 3 (123S)

French 3 continues to build upon skills in conversation, reading, and writing. Students are introduced to the past tense and further expansion of vocabulary. Topics of interest include learning about French homes, understanding French government, and learning interesting facts about well-known French cities.

OR

STEM Honors French 3 (1231S)

Prerequisite: 93 or above average in French 2 or Honors French 2

Honors courses include more rigorous, intensive application of core content at

or above grade level with required independent reading and research at an accelerated pace.

STEM German 1(131S)
German I is an introduction to the language, culture, geography, and people of German-speaking countries. Speaking, listening, reading, and writing skills are emphasized. Gender of nouns and present tense verbs are used to develop basic communication skills.

OR

STEM Honors German 1 (1311S)
Prerequisite: 93 or above for eighth grade
Honors courses include more rigorous, intensive application of core content at or above grade level with required independent reading and research at an accelerated pace.

STEM German 2 (132S)
German II continues to focus on developing basic communication skills by using vocabulary, grammar, and cultural topics learned in German I. Topics covered in German II expand on the essentials for reading, writing, and speaking the language.

OR

STEM Honors German 2 (1321S)
Prerequisite: 93 or above average in STEM German 1 or Honors German 1
Honors courses include more rigorous, intensive application of core content at or above grade level with required independent reading and research at an accelerated pace.

STEM German 3 (133S)
Prerequisite: STEM German 2 or Honors German 2
German III continues to build and refine communication skills in both the present and past tense by means of longer and more complex conversational patterns and writing assignments. Emphasis is placed on correct pronunciation and grammatically correct phrase and sentence structure.

OR

STEM Honors German 3 (1331S)
Prerequisite: 93 or above average in STEM German 2 or Honors German 2
Honors courses include more rigorous, intensive application of core content at or above grade level with required independent reading and research at an accelerated pace.

STEM German 4 (134S)
Prerequisite: STEM German 3 or Honors German 3
German 4 includes a general review of material and topics presented in introductory courses before moving on to the finer points of grammar and vocabulary. Language competency is demonstrated through detailed projects showcasing the language skills that the students have acquired.

OR

STEM Honors German 4(1341S)
Prerequisite: 93 or above average in STEM German 3 or Honors German 3
Honors courses include rigorous, intensive application of core content at or

above grade level with independent reading/research at an accelerated pace.

STEM Spanish 1 (151S)
Spanish I is an introduction to the language, culture, geography, and people of the Spanish-speaking world. Basic sound patterns, functional vocabulary, and fundamental grammatical skills are introduced.

OR

STEM Honors Spanish 1 (1511S)
Prerequisite: 93 or above average for eighth grade
Honors courses include rigorous, intensive application of core content at or above grade level with independent reading/research at an accelerated pace.

STEM Spanish 2 (152S)
Prerequisite: STEM Spanish 1I or Honors Spanish 1
Spanish 2reviews and reinforces vocabulary and basic grammar skills taught in Spanish 1. The student is introduced to the present progressive and preterite tenses of the verb. Students converse and write using more complex grammar and vocabulary, and major cultural concepts are taught through cultural readings.

OR

STEM Honors Spanish 2 (1521S)
Prerequisite: 93 or above average in STEM Spanish 1 or Honors Spanish 1
Honors courses include rigorous, intensive application of core content at or above grade level with independent reading/research at an accelerated pace.

STEM Spanish 3 (153S)
Prerequisite: STEM Spanish 2 or Honors Spanish 2
Spanish 3 is designed to review the basic grammar skills learned in Spanish 1 and Spanish 2. Students are introduced to more complicated grammar structures. Speaking, writing, reading, and listening skills are reinforced through active student participation in class activities.

OR

STEM Honors Spanish 3 (1531S)
Prerequisite: 93 or above average in STEM Spanish 2 or Honors Spanish 2
Honors courses include rigorous, intensive application of core content at or above grade level with independent reading/research at an accelerated pace.

STEM Spanish 4 (154S)
Prerequisite: STEM Spanish 3 or Honors Spanish 3
Spanish IV stresses learning advanced grammar skills to increase conversation and writing abilities. Students are introduced to geography, history, literature, and the fine arts through various readings and films. The focus is on intensifying student understanding of the Spanish culture.

OR

STEM Honors Spanish 4 (1541S)
Prerequisite: 93 or above average in STEM Spanish 3 or Honors Spanish 3
Honors courses include more rigorous, intensive application of core content at or above grade level with required independent reading and research at an accelerated pace.

Fine Arts

STEM Band (661S)

Prerequisite: Basic to Intermediate instrumental skills

Band will provide students with an ensemble experience in which they can develop advanced instrumental techniques while performing a variety of musical styles. There are numerous public performances to display acquired skills. An outgrowth of this group is the following performing groups: marching band, pep band, jazz ensemble, symphonic band, woodwind choir, brass choir, percussion ensemble, and other small ensembles.

STEM Sophomore Concert Choir (664S)

The Freshman/Sophomore Concert Choir is part of the Cougar Concert Choir. The Choir is designed for all members of the Freshman/Sophomore classes that are interested in participating in the Cougar Concert Choir. This arrangement is made for scheduling purposes. The Concert Choir will have numerous opportunities to perform many styles of choral music at school and public performances. All members of the Concert Choir will study correct vocal production and strive to improve their musicianship.

Communication Arts and Sciences (CAS)

STEM CAS 100 (GWS) This course is a college course which will be co-taught with a professor from Penn State University for 3 college credits and honors credit.

Effective Speech - Introduction to speech communication: formal speaking, group discussion, analysis and evaluation of messages. It is the objective of these courses to teach students to communicate information clearly and set forth their beliefs persuasively both orally and in writing. In particular, it is expected that students become sufficiently proficient in writing, such that their expository prose meets the expectations of educated readers in both form and style.

STEM Professional Speaking and Writing Course (1083S):

The overriding goal of this course is to prepare students to write and present for the needs of their various chosen professions. Upon completion each student will improve the quality of their speeches and confidence with which they present them. Students will practice the writing of proposals to companies in their career choices, along with cover letters and resume writing.

Science

STEM Introduction to engineering design processes (321S)

Offered by Penn State University

Location: Hazleton Area Academy of Sciences, Drums, PA

Tuition: One-quarter of regular Penn State Tuition - 3 credit course

Introduction to Engineering Design - Introduction to engineering design processes, methods, and decision making using team design projects; design communication methods including graphical, verbal and written. Students will visit Penn State Hazleton at least three times during the semester. During the visits they will conduct some experiments and hands-on activities.

This is a Penn State University course. Students will receive 3 college credits and honors credit for the course.

STEM Honors Physics 2 (3271S)
Prerequisites: STEM Honors Physics 1 or STEM Physics 1
Physics 2 is a STEM school Mechanical/Electrical Engineering Track Junior level course that uses lecture, problem solving, projects and case studies to investigate Modern Physics topics such as: wave mechanics, electrical fields and magnetism, circuitry and AC/DC power, and fluid and thermodynamics. There is a focus on research.

OR

STEM Physics 2 (327S)
Prerequisites: STEM Honors Physics 1 or STEM Physics 1
Physics 2 is a STEM school Mechanical/Electrical Engineering Track Junior level course that uses lecture, problem solving, projects and case studies to investigate Modern Physics topics such as: wave mechanics, electrical fields and magnetism, circuitry and AC/DC power, and fluid and thermodynamics. There is a focus on research.

STEM Principles of Engineering 1 (316S)
This course is designed to prepare students thinking of pursuing an Engineering degree in college. Electrical and mechanical theory, advanced problem solving, calculator use, career exploration, pneumatic and hydraulic systems, electrical, PLC, and computer control systems, robotics, automated manufacturing, static mechanical systems design and materials testing are explored.

Principles of Engineering 2 (316BS)
This course is includes an in-depth study of electrical and mechanical theory, advanced problem solving, calculator/computer use, career exploration, pneumatic and hydraulic systems, electrical, PLC, and computer control systems, robotics, automated manufacturing, static mechanical systems design and materials testing are explored.

STEM Computer Robotics 1 (320S)
In this course, students will explore robotics and its applications in our society today and tomorrow. Students arranged in teams will design and construct their own robots to perform specific tasks. Students design will be pitted against each other in competitions to determine the best design. Students should have interest in mechanical devices as well as electronics circuits. Programming ability is a plus, but not a requirement.

STEM Computer Robotics 2 (320BS)
In this course, students will study robotics and its applications in our society today and tomorrow in great depth. Students arranged in teams will design and construct their own robots to perform specific tasks. Students design will be pitted against each other in competitions to determine the best design. Students should have interest in mechanical devices as well as electronics circuits. Programming ability and experience with electronics is a plus, but not a requirement.

STEM CAD Drafting 1 (319S)
CAD Drafting is especially designed to give the pre-engineering student an advantage with introductory skills in engineering drawing, descriptive geometry, computer-aided drawing, and computer-aided manufacturing. The course will instruct through prescriptive lessons to develop fundamental skills and evolve into project based and collaborative learning.

STEM CAD Drafting 2 (3192S)
CAD Drafting 2 is especially designed to give the pre-engineering student in depth skills in engineering drawing, descriptive geometry, computer-aided drawing, and computer-aided manufacturing. The course will instruct through prescriptive lessons to develop fundamental skills and evolve into project based and collaborative learning.

STEM Honors Organic Chemistry (3142S)
Prerequisites: STEM Chemistry 1A and 1B or Honors STEM Chemistry 1A and 1B, Algebra 2 or Honors Algebra 2
Honors Organic Chemistry is intended for students interested in pursuing careers in the fields of science, medicine, and/or engineering. This course serves as an introduction for the study of the chemistry of carbon compounds by applying principles rooted in general chemistry. Topics of study include: bonding in organic molecules, organic nomenclature, functional groups, organic synthesis, laboratory applications, and bio-organic chemistry.

STEM Biochemistry (318S)
Prerequisites: Magnet Chemistry 1A and 1B, Algebra IIK or Honors Algebra IIK
Biochemistry is an integrated course that uses the principles of chemistry to understand and explain phenomena that occur in livings systems. This course will use this integrated approach to understand two major enduring themes in biochemistry: chemical nature of bioenergetics and the process of chemical information storage in organisms. A variety of instructional methods paralleling a professional biochemistry post-secondary course will be implied and a strong emphasis will be on literacy, research methods, and career paths within biochemistry.

OR

STEM Honors Biochemistry (3181S)
Prerequisites: 93 or above in STEM Honors Chemistry 1A and 1B or STEM Chemistry 1A and 1B, Algebra 2 or Honors Algebra 2
Biochemistry is an integrated course that uses the principles of chemistry to understand and explain phenomena that occur in livings systems. This course will use this integrated approach to understand two major enduring themes in biochemistry: chemical nature of bioenergetics and the process of chemical information storage in organisms. A variety of instructional methods paralleling a professional biochemistry post-secondary course will be implied and a strong emphasis will be on literacy, research methods, and career paths within biochemistry.

STEM Anatomy and Physiology 1 (307S)

Prerequisites: STEM Honors Biology 1A and STEM Biology 1B or Honors 1B, STEM Anatomy and Physiology 2 should be taken following this class. This course is a study of human anatomy and the relationship between structure and function. The course provides preparation in systemic physiology with concentration on major body functions and their controls. Topics include cytology, mitosis, meiosis, heredity, histology, organology and the following systems: integumentary, skeletal, muscular, and nervous. Dissections of organs and organisms will be an integral part of the course. Systemic diseases will be studied and case studies conducted. Current event topics will be researched and reviewed on a weekly basis.

STEM Anatomy and Physiology 2 (308S)

Prerequisites: STEM Honors Biology 1A and STEM Biology 1B or STEM Honors Biology 1B, Anatomy and Physiology 1.

This course is a continuation of Anatomy and Physiology II. Topics include the endocrine, cardiovascular, respiratory, digestive, urinary, and reproductive systems. Similar laboratory experiments and research will be conducted. Systemic diseases will be studied and case studies conducted. An in depth research will be conducted on a health career and a paper written. Current event topics will be researched and reviewed on a weekly basis.

STEM College Biology 1-Principles of Biology 1 (LCCC=BIO151) (314S)

Prerequisite: 93 or above average in STEM Honors Biology 1A and STEM Honors Biology 1B or STEM Biology 1B

This honors level course introduces the principles and concepts of biology. Emphasis is placed on basic biological chemistry, cell structure and function, metabolism and energy transformation, genetics, and other related topics. Upon completion, students should be able to demonstrate understanding of life at the molecular and cellular levels. Laboratory work includes use of the compound light microscope, study of cells and cellular transport, chemical energy processes, enzymatic function, and genetics.

Students that obtain a C (3.0) or better will earn 3 lecture credits and 1 laboratory credit through LCCC. NOTE: Students also qualify to take the Advanced Placement™ Biology Exam, if they desire.

STEM College Biology 2- Principles of Biology 2 (LCCC=BIO152) (315S)

Prerequisite: 93 or above average in STEM Honors Biology 1A and STEM Honors Biology 1B or STEM Biology 1B and STEM College Biology 1

This honors level course is designed to cover the evolution of the major organ systems of the Kingdom Animalia to include invertebrate and vertebrate species. The development of comparative structures as influenced by natural selection will be emphasized. The anatomy and physiology of the major organ systems will be stressed. Laboratory will include gross dissection and microscopic analysis of selected specimens.

Students that obtain a C (3.0) or better will earn 3 lecture credits and 1 laboratory credits through LCCC. NOTE: Students also qualify to take the Advanced Placement™ Biology Exam, if they desire.

STEM College Chemistry 151 (312S)

Prerequisite: 93 or above in STEM Honors Chemistry 1A and 1B or STEM Chemistry 1A and 1B, and 93 or above in Honors Pre-Calculus and/or Calculus

College Chemistry 151, offered by Luzerne County Community College, is a first semester advanced general chemistry course and laboratory. This honors level course focuses on the following topics: matter, electronic and molecular structure, phases of matter, thermochemistry, gases and stoichiometry.
Students that obtain a C (3.0) or better will earn 3 lecture credits and 1 laboratory credit through LCCC. NOTE: Students also qualify to take the Advanced Placement™ Chemistry Exam, if they desire.

STEM College Chemistry 152 (313S)
Prerequisite: 93 or above in STEM Honors Chemistry 1A and 1B or STEM Chemistry 1A and 1B and 93 or above average in Honors Pre-Calculus and/or Calculus 1
College Chemistry 151, offered by Luzerne County Community College, is the second semester continuation of College Chemistry 151. This honors level course focuses on the following topics: solids and liquids, kinetics, equilibrium, acids and bases, thermodynamics, electrochemistry, organic chemistry and biochemistry. **Students that obtain a C (3.0) or better will earn 3 lecture credits and 1 laboratory credit through LCCC. NOTE: Students also qualify to take the Advanced Placement™ Chemistry Exam, if they desire.**
STEM Advanced Chemistry Seminar (322S)
Prerequisite: 93 or above in STEM Honors Chemistry 1A and 1B or STEM Chemistry 1A and 1B
Advanced Chemistry Seminar is an intensely-paced, survey course for students interested in chemistry-related majors and careers. Course topics will include aspects of pharmacology, forensics and chemical engineering-in addition to other chemistry-related topics based on student interest. Emphasis will be placed on solving real-world problems and promoting scientific literacy and communication. Students will be required to complete a research-based capstone publication and presentation as part of this course.

STEM Human Disease (325S)
Prerequisites: 93 or above in STEM Biology 1B or Honors 1B
This course covers the study of human disease. The class gives an overview and considerable specific detail concerning the nature of human illness. It will stimulate further interest in understanding of disease. This course is designed for all health care specialties with specific discussion (case analysis) sessions for dental, pharmacy, physical therapy, physician's assistant, nursing, and medical school students. The course components consist of lectures, textbook, core exams, discussion sessions and evaluations.

STEM Genetics (314S)
Prerequisite: STEM Honors Biology A and STEM Honors Biology B or STEM Biology B
Genetics is an accelerated class that begins with a review of basic biological concepts in genetics. The course continues with an in-depth study of genetics. Students who are considering careers in biology, science technology, health service or related fields should find this course a valuable asset to their continuing education.

STEM Neurobiology Psychology (223S)
Prerequisite: STEM Honors Biology 1B or STEM Biology 1B

This course covers the anatomy and physiology of the brain and nervous system and structure and function relate to psychology and psychological diseases.

STEM Pharmacology (317S)

Prerequisite: STEM Honors Chemistry 1B and STEM Chemistry 1B

STEM Pharmacology deals with various aspects of drugs and poisons in the body. By definition, it is the subject concerned with pharmacodynamics and pharmacokinetic aspects of drugs. It is the study of what a drug does to the body and what body does to the drug.

STEM Environmental Biology (306S)

Prerequisite: STEM Biology 1A and STEM Biology 1B

Environmental Biology is an introduction to how the world we live in works, how we use and abuse nature, and what we can do to protect our environment for ourselves and future generations. The topics include ecology, populations, natural resources, pollution, society, and the environment.

OR

STEM Honors Environmental Biology (3061S)

Prerequisite: 93 or above in STEM Biology 1B and STEM Chemistry 1B

Honors Environmental Biology is an advanced science in which students will investigate major ecological concepts and analyze environmental problems, both natural and human-made, to assess the relative risks related to these problems and to study alternative solutions for resolving and/or preventing them. Laboratory work, research, and field studies will be included to educate students toward a sustainable future and to prepare for future studies in environmental science, biology, and related disciplines.

STEM Astronomy (324S)

Prerequisite: Physics1

Astronomy is a senior level course with dual emphasis on conceptual and mathematical comprehension of the universe. The classroom will investigate the composition of solar systems, modern space theories, stellar observation, and the orbits and forces of celestial objects through lecture, calculation, projects and telescopic observation.

Technology

STEM Introduction to Computer Science and Programming (771S)

This subject is aimed at students with little or no programming experience. It provides students with an understanding of the role computation can play in solving problems. It also helps students, regardless of their major, to feel justifiably confident of their ability to write small programs that allow them to accomplish useful goals. The class will use the Python™ programming language.

STEM JAVA 1 (772S)

Prerequisite: Introduction to Computer Science and Programming

This course is an introduction to software programming, using the Java™ programming language. Students will learn the fundamentals of Java™. The focus is on developing high quality, working software that solves real problems.

STEM JAVA 2 (773S)

Prerequisites: JAVA 1

JAVA 2 is a continuation of JAVA 1. Students will continue to utilize the Java programming language and apply more advanced aspects of coding to solve real world problems.

STEM Digital Design/Web Design (774s)

This is a "hands-on" course emphasizing traditional illustration skills such as visual problem solving, composition, and drawing. Students spend time working on sketches and concepts for illustration assignments and executing these assignments in digital applications. There will be an opportunity to create illustrations using more than one computer application.

STEM Management Information Systems (775S)

This is a study of how individuals, groups, and organizations evaluate, design, implement, manage, and utilize systems to generate information to improve efficiency and effectiveness of decision making, including systems termed decision support systems, expert systems, and executive information systems. The class is structured to represent real world situations using experimental, individual, and team-based learning. The class develops interpersonal skills through labs, projects, presentations, and team activities.

STEM Advanced Placement Principles of Computer Science (7761S)

In this course, students will learn to design and evaluate solutions and to apply computer science to solve problems through the development of algorithms and programs. They will incorporate abstraction into programs and use data to discover new knowledge. Students will also explain how computing innovations and computing systems, including the Internet, work, explore their potential impacts, and contribute to a computing culture that is collaborative and ethical.

Social Studies

STEM Science, Technology, and Society (228S)

A study of science and technology and how it affects society and vice versa throughout history. The course will examine the influence science, technology, and innovations have had in societal development and the role of government policy, ethics, and morals in the STEM fields. The course will allow for individual focus on topics of interest.

NOTES:

**** Honors Probability and Statistics, Honors Economics, Honors Spanish 4, Honors Calculus 1, and Honors Physics 2 may be taken for college credit through the Passport Program. (See your Guidance Counselor for details.)**

IMPORTANT:

All STEM students must maintain an 85 overall GPA. Math and Science grades must be a minimum of 85% each. Students may not be failing any subjects. Students will be put on academic probation for one semester if these requirements are not met and maintained. If a student improves, but does not reach the 85% in math, science, and GPA and they have teacher recommendation, the student will remain on academic probation for one more semester and be reevaluated. If a student does not improve or have teacher recommendation, an alternative placement will be discussed with the student and parent/guardian. Each case will be reviewed on an individual basis.

***Courses so indicted (Honors American Studies 3, Honors US Government, Anatomy and Physiology, Honors English 4, and Honors Spanish 4 may be taken for college credit at Luzerne County Community College (LCCC). See your Guidance Counselor for details.