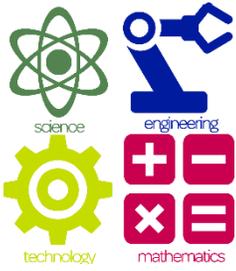


STEM Academy at Showalter



**Course Selection Handbook
2016-2017 Academic Year**



The STEM Academy at Showalter

“Unlocking Young Minds for the Future”

Jonas Crenshaw, Jr.
Principal

Tara Brown
Assistant Principal

March 10, 2016

Dear Parents and Students:

Please allow me to use this opportunity to invite you to prepare yourself for another great year at STEM Academy at Showalter. It is with a great deal of enthusiasm and a sense of purpose that we now share with you the STEM Academy Course Selection Handbook for the 2016-2017 academic year. This year, the administration, counselors, faculty, and staff have worked diligently to create a first-class educational experience for the students who attend STEM Academy. As a result of this rigorous work, we are certain that our STEM Academy graduates will be equipped with the academic and social skills needed to be successful in college and in the work force.

This course selection handbook has been created as a guide for students and parents to choose academic and elective courses for the upcoming school year. In addition to providing this guide, STEM Academy counselors will be hosting drop-in sessions in the near future to provide on-site assistance in the course selection process.

Again, we are excited about our academic program next year and are looking forward to working with you and your child in an effort to ensure that you both receive the best high school experience in our region.

Welcome to STEM....Welcome to Excellence!

Sincerely,

Jonas Crenshaw, Jr.

Jonas Crenshaw, Jr.,
Principal



Welcome to STEM Academy!

Who We Are:

STEM at Showalter is an engaging and challenging school that currently serves grades 7-12.

Our school is designed to prepare students for 21st century careers in the sciences and engineering. The philosophy behind the program is to provide students with a unique opportunity to learn through non-traditional teaching methodologies. Teaching and learning will have a heavy emphasis on project based learning, experimentation, hands on activities, and research.

In addition to our engaging curriculum, we also offer comprehensive interventions to ensure that students are successful on state assessments and the SAT. When you consider the multitude of extra-curricular activities and our very aggressive and comprehensive college and career counseling program, we think that you will discover that our academic program is second to none.

We invite you to visit our campus and learn more about the great things that happen at our school every day.

Welcome to STEM...Welcome to Excellence!

Engaging Curriculum

It is our mission to engage our learners in a wide variety of rigorous courses that ensure that they are prepared for a successful transition into college, career, the military, or a STEM-related trade school. In addition to our challenging college preparatory curriculum, students at STEM Academy can also choose from:

- 16 Science, Technology, Mathematics, or Engineering elective courses.
- 6 Arts and Humanities courses
- 4 Advanced Placement Courses
- 3 Different Dual Enrollment opportunities



I believe STEM is a great school, because the teachers interact with the students and the wide variety of classes helps students find their passion inside and outside of the school environment. Teachers are genuinely interested in your thoughts and are willing to help you out if you are struggling...This creates a class environment which allows students to ask questions without feeling awkward.

~Kylair Blackston, 10th Grade

The Daniel Hale Williams Institute for Honors Studies



Originally born in Holidaysburg, Pennsylvania, Daniel Hale Williams founded the first black-owned hospital in the United States and performed the first successful heart surgery in 1893. Williams's father died when Dr. Williams was only nine years old. Being raised in a single-parent household, Williams and his siblings relocated several times with his mother and other family members. Dr. Williams began his career as a shoemaker but realized he wanted to continue his studies. After graduating from high school, Dr. Williams would study medicine at Chicago Medical College and become an apprentice to a former Surgeon General for the State of Wisconsin.

Determined that Chicago should have a hospital where both black and white doctors could study and where black nurses could receive training, Williams rallied for a hospital open to all races. After months of hard work, he opened Provident Hospital and Training School for Nurses on May 4, 1891, the country's first interracial hospital and nursing school. In 1894, Dr. Williams became chief surgeon of Freedmen's Hospital in Washington, D.C., the most prestigious medical post available to African Americans then. The next year, he would help to organize the National Medical Association for black professionals, who were barred from the American Medical Association. In recognition for his accomplishments, Dr. Williams, in 1913, he became the first African American to be inducted into the American College of Surgeons.

Just as Dr. Williams embodied the elements of scholarship, resilience, and moral responsibility, we will instill these same traits in our Williams Honors Scholars. Scholars who attend STEM Academy at Showalter will have an opportunity to become members of the Williams Institute for Honors Studies by meeting the following criteria:

	Honors English	Honors Mathematics	Honors Science	Honors Social Studies
Grade Requirement	B or Better in ELA	B or Better in Math	B or Better in Science	B or Better in Social Studies
Standardized Test Requirement	Proficient on 8 th Grade Reading PSSA	Proficient on 8 th Grade Math PSSA	N/A	N/A
Screening Requirement	<ul style="list-style-type: none"> On-site Essay Reading Assessment 	Math Readiness Exam	N/A	<ul style="list-style-type: none"> Reading Assessment
Required Recommendations	<ul style="list-style-type: none"> ELA Teacher Counselor Administrator 	<ul style="list-style-type: none"> Math Teacher Counselor Administrator 	<ul style="list-style-type: none"> Science Teacher Counselor Administrator 	<ul style="list-style-type: none"> Social Studies Teacher Counselor Administrator

** Based on a strong teacher, counselor, and administrator recommendation, a scholar may be considered for entry into a Williams Honors course for a probationary period of one grading period if he/she does not meet the pre-requisite criteria.

The Williams Honors Experience

In addition to taking rigorous coursework, Williams Scholars will also participate in a variety of experiences that enhance and support their learning at STEM Academy. Below is a list of the Williams Institute Experiences:

- Monthly Lecture Series
- Community Service Projects
- Scholarly Field Trips
- Advanced Research Opportunities
- Academic Competitions
- Annual Opportunities to Publish Student Work

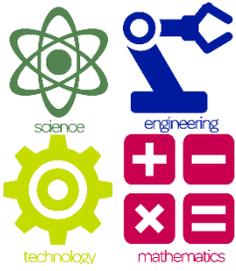
Williams Scholars at DCCC

It is our goal to accelerate the learning for our Williams Scholars in such a way that they will be prepared to take dual enrollment courses at the Community College of Philadelphia by the beginning of their 11th grade year. As such, it will be possible for our Williams Scholars to graduate from high school with as many as 48 college credit hours – allowing our scholars to reduce the amount of time to receive a bachelor’s degree as well as their college tuition.

Williams Scholars Academy Graduation Distinction

In an effort to recognize scholars who have excelled during their high school career while taking a challenging course load, STEM Academy at Showalter will grant scholars with the Williams Scholars Academy Graduation Distinction on their diplomas based on the following criteria:

<i>Class of 2017</i>	<i>Class of 2018</i>	<i>Class of 2019</i>	<i>Class of 2020 and Beyond</i>
<ul style="list-style-type: none"> • 3.25 GPA • Any combination of three (3) Honors/AP/Dual enrollment courses 	<ul style="list-style-type: none"> • 3.25 GPA • No less than (2) Honors courses • No less than (2) AP/Dual enrollment courses 	<ul style="list-style-type: none"> • 3.25 GPA • No less than (3) Honors courses • No less than (3) AP/Dual enrollment courses 	<ul style="list-style-type: none"> • 3.25 GPA • No less than (4) Honors courses • No less than (4) AP/Dual enrollment courses.



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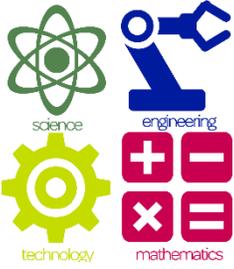
Each scholar that attends STEM Academy at Showalter will graduate with enough high school credits to be accepted into a college or university. Listed below are the graduation requirements for all STEM Academy scholars:

Classes of 2017-2018

Graduating Class Requirements	Credits
English	4
Mathematics	4
Science	4
Social Studies	4
World Language	1
Arts/Humanities	2
P.E./Health	1
STEM Electives	3
Total Required Credits	
	23 Credits

Class of 2019 and Beyond

Graduating Class Requirements	Credits
English	4
Mathematics	4
Science	4
Social Studies	4
World Language	2
Arts/Humanities	2
P.E./Health	2
STEM/CTE Electives	3
STEM/Advanced Academic/CTE Electives	3
Total Required Credits	
	28 Credits



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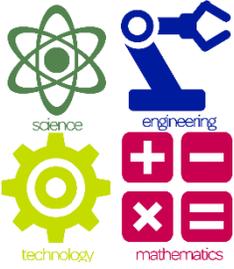
Tara Brown
Assistant Principal

**High School Scholar Program of Study
(Classes of 2017 and 2018)**

Scholar Name: _____ Graduating Class: _____

Course Name	Year Attempted	Credits Attempted	Credits Received
English and Language Arts (4 Credits)			
English I			
English II			
English III			
English IV			
Mathematics (4 Credits)			
Algebra I			
Geometry			
Algebra II			
Other: _____			
Other: _____			
Science (4 Credits)			
Biology I			
Chemistry			
Other: _____			
Social Studies (4 Credits)			
Economics			
Government			
World History			

US History			
African American History			
Other: _____			
Physical Education (1 Credit)			
Physical Education			
Other: _____			
World Languages (1 Credit)			
Spanish I			
Spanish II			
Other: _____			
Other: _____			
Arts and Humanities (2 Credits)			
Course: _____			
CTE Courses			
Drafting I			
Drafting II			
Drafting III			
Engineering I			
Engineering II			
Engineering III			
Communications Technology I			
Communications Technology II			
Communications Technology III			
Other:			
Other:			
Other:			
STEM Elective Courses (3 Credits)			



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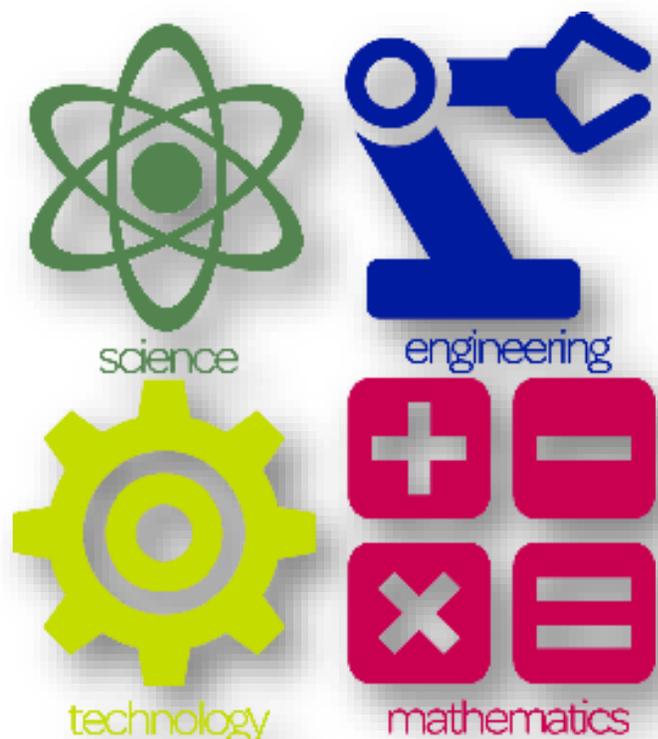
**High School Scholar Program of Study
(Classes of 2019 and Beyond)**

Scholar Name: _____ Graduating Class: _____

Course Name	Year Attempted	Credits Attempted	Credits Received
English and Language Arts (4 Credits)			
English I			
English II			
English III			
English IV			
Mathematics (4 Credits)			
Algebra I			
Geometry			
Algebra II			
Other: _____			
Other: _____			
Science (4 Credits)			
Biology I			
Chemistry			
Other: _____			
Social Studies (4 Credits)			
Economics			
Government			
World History			

US History			
African American History			
Other: _____			
Physical Education (2 Credits)			
Physical Education			
Other: _____			
World Languages (2 Credits)			
Spanish I			
Spanish II			
Other: _____			
Other: _____			
Arts and Humanities (2 Credits)			
Course: _____			
CTE Courses			
Drafting I			
Drafting II			
Drafting III			
Engineering I			
Engineering II			
Engineering III			
Communications Technology I			
Communications Technology II			
Communications Technology III			
Other:			
Other:			
Other:			
STEM Elective Courses (6 Credits)			

STEM Academy at Showalter



Course Catalog 2016-2017

English Language Arts

The Secondary Level Language Arts Program integrates all the language arts; reading, writing, speaking, listening, thinking, and researching and help scholars apply those skills to meaningful task. The goal is to have scholars achieve high academic standards in the language arts: reading independently, reading critically, analyzing and responding to literature, writing in various forms for a variety of audiences, producing compositions of high quality, speaking proficiently, and using research skills. Scholars at all grade levels are expected to know and meet district and state standards in reading, writing, speaking and listening. Technology is infused into each course in a deliberate and meaningful fashion.

English Graduation Requirement (4 Credits)

Recommended English Sequence

State Requirements and College Requirements also influence this recommended course sequence.

English I	English I – Honors
English II	English II – Honors
English III	English III – Honors
English IV	English IV – Honors

English I

Recommended Prerequisite: None

Grades Offered: 9

Credits: 1

This course concentrates on the fundamental language skills of reading, writing, conventions of written and oral language, research, and listening/speaking in an effort to build a foundation for scholar success in advanced high school English classes. As the Chester Upland School District transitions to the Common Core State Standards this integrated experience based on a survey of literature, will afford scholars the opportunity to expand, and polish their literacy skills with a variety of genres. Scholar’s practices both reading and writing as a process and perform an array of reading strategies as they work to become proficient in understanding and responding appropriately to a variety of texts. Scholars refine their reading comprehension skills through the study of fiction, literary nonfiction, poetry, drama, and informational text throughout the year. Scholars write for varied audiences and purposes and work to develop ideas, voice, word choice, fluency, and organization in their writing while applying conventions of the English language. Throughout the year, scholars develop skills to enhance media literacy.

English I Honors

Recommended Prerequisite: None

Grades Offered: 9-12

Credits: 1

Honors English offers intensive and challenging instruction to scholars who have demonstrated mastery of grade appropriate PDE English standards; require little or no targeted instruction in reading or writing to perform at an advanced level on the

Keystone Exams reading and writing assessments, have a robust and ever-expanding vocabulary; and have as strong applied knowledge of grammar and usage. The Honors English course fosters intellectual curiosity by encouraging scholars to generate thought-provoking questions and topics and to research diverse sources. Scholars will learn to evaluate these sources to distinguish valid appropriate sources from those not as desirable. Class discussion in Honors English focus on character motivation, author's use of language, and connections between works as opposed to a more rudimentary consideration of plot, character, setting and theme. Honors English scholars should demonstrate both an exceptional interest in literature and language and a clear willingness to fulfill added demands of the course.

English I–M

Recommended Prerequisite: None

Grades Offered: 9-12

Credits: 1

English 1 Foundations is a specially designed course with appropriate adaptation to the content, methodology, delivery and/or design. This course focuses on the development of basic reading, communication, and writing skills based upon scholars needs. These skills include developing oral language and listening skills, knowledge of concepts of print, phonemic awareness and decoding strategies, developing and extending reading vocabulary.

English II

Recommended Prerequisite: English I

Grades Offered: 9-12

Credits: 1

This course emphasizes continuing development of oral language and composition skills. This course is pivotal for Keystone Literature Exam. The skills and core components of this course align with eligible content outlined in Keystone Exam. Included within the study are the identification of literary themes and forms, use of effective reading strategies, and development of speaking/listening skills. As the Chester Upland School District transitions to the Common Core State Standards this integrated experience based on a survey of literature, will afford scholars the opportunity to expand, and polish their literacy skills with a variety of genres. Scholars will connect to their own lives while demonstrating proficiency of writing process through narrative, reflective, descriptive, persuasive literary analysis, and research writing. Scholars write for varied audiences and purposes and work to apply effective ideas, voice, word choice, fluency, organization, and conventions in their writing. Reading selections for this level include poetry, drama, fiction, literary nonfiction, and informational text.

English II –Honors

Recommended Prerequisite: English I

Grades Offered: 9-12

Credits: 1

Honors English offers intensive and challenging instruction to scholars who have demonstrated mastery of grade appropriate PDE English standards; requires little or no targeted instruction in reading or writing to perform at an advanced level on the Keystone Exams reading and writing assessments, have a robust and ever-expanding vocabulary; and have as strong applied knowledge of grammar and usage. The Honors English course fosters intellectual curiosity by encouraging scholars to generate thought-provoking questions and topics and to research diverse sources. Scholars will learn to evaluate these sources to distinguish valid appropriate sources from those not as desirable. Class discussion in Honors English focus on character motivation, author's use of language, and connections between works as opposed to a more rudimentary consideration of plot, character, setting and theme. Honors English scholars should demonstrate both an exceptional interest in literature and language and a clear willingness to fulfill added demands of the course.

English II-M

Recommended Prerequisite: English I

Grades Offered: 9-12**Credits: 1**

English II Foundations is a specially designed course with appropriate adaptation to the content, methodology, delivery and/or design. This course focuses on the development of basic reading, communication, and writing skills based upon scholars' needs. These skills include developing oral language and listening skills, knowledge of concepts of print, phonemic awareness and decoding strategies, developing and extending reading vocabulary.

English III**Recommended Prerequisite: English II****Grades Offered: 9-12****Credits: 1**

This course presents advanced work in composition and reading. Scholar's practice both reading and writing as a process. The course provides an overview of American literature from the Colonial Period to the Contemporary Period, allowing scholars to examine samples of traditional, classic, and multi-ethnic selections that represent this country's cultural diversity. Selections include poetry, drama, fiction, literary nonfiction, and informational texts. As scholars read, they are asked to focus on comprehension, analysis, and evaluation. As they write for varied audiences and purposes, scholars work to develop their ideas and apply effective voice, word choice, fluency, logical organization of material, and appropriate conventions of language. In addition to process pieces, scholars produce in-class, timed writings. The skills of listening/speaking and the enhancement of media literacy are addressed in the fabric of the course. Scholars will demonstrate effective use of technology through a variety of presentations formats.

English III- Honors**Recommended Prerequisite: English II****Grades Offered: 9-12****Credits: 1**

English III engages students in becoming skilled readers of a variety of prose selections and skilled writers who compose for varied audiences and purposes. Scholars become adept at identifying and analyzing varied rhetorical features used in writing as these features contribute to purpose and meaning of a selection. The course provides an overview of American literature, including samples of traditional, classic, and multi-ethnic selections. Reading selections include fiction, poetry, drama, literary nonfiction, and informational texts. Fused with the study of literature is the refinement of composition skills, usage skills and research skills. Practice in listening/speaking and the enhancement of media literacy occur throughout the course. This course of study is equivalent to an introductory college English course.

English III-M**Recommended Prerequisite: English III****Grades Offered: 9-12****Credits: 1**

English III Foundations is a specially designed course with appropriate adaptation to the content, methodology, delivery and/or design. This course focuses on the development of basic reading, communication, and writing skills based upon scholars' needs. These skills include developing oral language and listening skills, knowledge of concepts of print, phonemic awareness and decoding strategies, developing and extending reading vocabulary.

English IV**Recommended Prerequisite: English III****Grades Offered: 9-12****Credits: 1**

This course continues an emphasis on fundamental reading strategies and composition techniques aligned with Common Core State Standards and college learning outcomes. Selections include fiction, poetry, drama, literary nonfiction, and informational

texts from British, World, and Contemporary literature. In conjunction with the study literature is the refinement of composition skills, usage skills, and research skills needed as life-long learners. Emphasis placed on scholar's practice of reading and writing as a process. Opportunities to practice listening/speaking and an emphasis on media literacy are inherent in this course. This is a culmination course with the writing portion of the senior project infused so maximum support for scholars is embedded.

English IV- Honors

Recommended Prerequisite: English III

Grade Offered: 9-12

Credit: 1

Honors English offers intensive and challenging instruction to scholars who have demonstrated mastery of grade appropriate PDE English standards; requires little or no targeted instruction in reading or writing to perform at an advanced level on the Keystone Exams reading and writing assessments, have a robust and ever-expanding vocabulary; and have as strong applied knowledge of grammar and usage. The Honors English course fosters intellectual curiosity by encouraging scholars to generate thought-provoking questions and topics and to research diverse sources. Scholars will learn to evaluate these sources to distinguish valid appropriate sources from those not as desirable. Class discussion in Honors English focus on character motivation, author's use of language, and connections between works as opposed to a more rudimentary consideration of plot, character, setting and theme. Honors English scholars should demonstrate both an exceptional interest in literature and language and a clear willingness to fulfill added demands of the course.

English IV- M

Recommended Prerequisite: English III

Grade Offered: 9-12

English Foundation II is a specifically designed course with appropriate adaption to the content, methodology, delivery and/or design that address the scholar's unique needs that result from a disability. This course encompasses a correlated study of literature, language conventions, composition, vocabulary development, and communication based upon the adopted Pennsylvania Department of Education Standards for Language Arts.

Advanced Placement English Literature and Composition

Recommended Prerequisite: English III

Grade Offered: 12

This course follows the AP Course Audit Guidelines for the AP English Literature and Composition curriculum. It is designed to be a college level course, rich in higher level thinking, AP English Literature and Composition will challenge, inspire, and enrich the eager literature student. Using works that range from the sixteenth through twenty-first century as well as several genres and modes, the reading, writing, listening, and speaking experiences will broaden human understandings about the world around us today. Students, therefore, should expect a rigorous undergraduate English experience with intellectual challenges and a considerable workload that culminates with the AP English and Literature Exam in May. Upon earning a 3 or higher, the student will be awarded college credit, accepted at most colleges and universities.

INTERVENTIONS: These courses cannot substitute for a required English course, but they may be counted as an elective credit.

English Intervention

Recommended Prerequisite: None

Grades Offered: 11 – 12

Credits: 1 Elective

This course focuses on building skills necessary to become proficient on Literature Keystone exam. This course is only offered to scholars who have previously scored basic or below basic on a previous administration of the Keystone exam.

English Intervention – M

Recommended Prerequisite: None

Grades Offered: 9 – 12

Credit: 1 Elective

English Intervention – M is a specially designed course with appropriate adaptation to the content, methodology, delivery and/or design. It is designed to provide scholars extended time on the foundational concepts of reading, composition, grammar, critical thinking, and communication skills.

Electives/Arts and Humanities: The following courses cannot substitute for a required core English course.

Journalism

Recommended Prerequisite: None

Grades Offered: 9-12

Credits: .5(Arts and Humanities)

Students enrolled in Journalism write in a variety of forms for a variety of audiences and purposes. Students are expected to plan, draft, and complete written compositions on a regular basis, carefully examining their papers for clarity, engaging language, and the correct use of the conventions and mechanics of written English. Students will become analytical consumers of media and technology to enhance their communication skills.

Writing, technology, visual, and electronic media are used as tools for learning as students produce effective communications. Journalism students will learn journalistic traditions, research self-selected topics, write journalistic texts, and learn the principles of publication.

Creative Writing

Recommended Prerequisite: None

Grades Offered: 9-12

Credits: .5 (Arts and Humanities)

This course provides scholars with the opportunity to express themselves creatively and imaginatively in written forms (e.g., short story, poetry, dram, essay, and prose fiction).

Public Speaking

Recommended Prerequisite: None

Grades Offered: 9-12

Credits: .5 (Arts and Humanities)

The course provides scholars an introduction to public speaking, terminology, basic skills and techniques for making oral presentations and speeches. Students will develop the skills of articulation, relevant argument, poise and presence through repeated experience in practice, performance, and measured self-confidence. Public Speaking is an activity-based course, focusing on the development of speech skills through frequent opportunities to speak in a public forum, on a wide variety of personal and public issues.

Debate

Recommended Prerequisite: None

Grades Offered: 10-12

Credits: .5

Intro to Debate is a one semester- beginning level course offered for students who have never debated before. After completing this course, students will have a set of portable argumentation and advocacy skills that they can use in a variety of experiences. Students will initially learn about and practice structured extemporaneous speeches with emphasis on verbal and nonverbal delivery skills (organization, projection, inflection, eye-contact, hand gestures, and more). Students will then build a foundation for effective argumentation and advocacy (claim/warrant/evidence) by participating in “SPAR” debates and ultimately presenting one research-based persuasive speech on the official debate resolution. This class is ultimately for students who want to explore debate and may choose to participate in the debate team (usually in a beginners division).

Mathematics

Throughout each course, scholars continue to hone the **Mathematical Practices** to make sense of problem situations, construct arguments and critique the reasoning of others, reason abstractly and quantitatively, model with mathematics, use appropriate tools strategically, attend to precision, look for and make use of structure, and look for and express regularity and repeated reasoning.

Mathematics Graduation Requirement (4 Credits)

Recommended Mathematics Course Sequence: Algebra I, Geometry, Algebra II, Pre-calculus.

Scholars must take the minimum of one Mathematics Course per year.

Numerous research studies support scholars taking specific mathematics courses to ensure a strong foundation of mathematical understanding. A rigorous math progression will also help to ensure that our scholars are prepared to perform successfully on college admissions tests and are prepared for challenging course work in college.

Algebra I	Algebra I-Honors
Geometry	Geometry-Honors
Algebra II	Algebra II-Honors

Pre- Calculus	Pre-Calculus-Honors
Advanced Placement Calculus AB	Introduction to Statistics
Mathematical Principles of Accounting	Transition to Algebra

Algebra 1

Recommended Prerequisite: None

Grades Offered: 9-12

Credits: 1

This course focuses on topics that deepen and extend understanding of linear and exponential relationships by contrasting them with each other and by applying linear models to data that exhibit a linear trend. Scholars also engage in methods for analyzing, solving and using quadratic functions. The critical areas of Algebra I include relationships between quantities and reasoning with equations, linear and exponential relationships, descriptive statistics, expressions and equations, and quadratic functions and modeling. In addition, scholars will focus on foundational skills relevant to the Keystone Algebra I Exam, including representing numbers in equivalent forms, using exponents, roots and absolute value, applying estimation strategies, simplifying polynomial expressions, writing, solving and graphing equations, inequalities and systems of both, and studying linear functions, scatter plots, and probability. **All scholars who complete Algebra I will take the Keystone Algebra I Exam in the spring.**

Algebra I - Honors

Recommended Prerequisite: None

Grades Offered: 9-12

Credits: 1

Algebra I Honors is an accelerated Algebra I course. Scholars will receive an intensive program with increased pacing of content, and increased rigor in terms of application and performance expectations. The course will prepare scholars for more advanced mathematics studies in Geometry and Algebra II. Honors experiences include extended and collaborative problem solving, research-based writing assignments, independent and group projects, and exploration of the history of the subject. Extended group activities, individual projects and portfolios are incorporated to provide additional measures of scholar's progress. **All scholars who complete Algebra I Honors will take the Keystone Algebra I Exam in the spring.**

Transition to Algebra

Recommended Prerequisite: None

Grades Offered: 9-12

Credits: 1

Transition to Algebra is a specially designed course with appropriate adaptation to the content, methodology, delivery and/or design. It is designed to provide scholars extended time on the foundational concepts of Algebra I. Appropriate technology and manipulative are used to develop and extend algebraic thinking and to engage scholars reasoning. This course develops mathematical concepts through the following strands: Number and Quantity, Algebra, Functions, and Statistics and Probability.

Geometry

Recommended Prerequisite: Algebra I

Grade Offered: 9-12

Credits: 1

This course is an introduction to the fundamental concepts of plane geometry; coordinate geometry and transformation geometry to scholars who have successfully completed Algebra 1. Scholars will study the language of points, lines and planes. They will use measurement formulas, theorems and postulates as they relate to informal proofs, both deductive and inductive, and problem -solving strategies are used to develop these concepts. Geometric tools are often used in this class. Inquiry, hands-on activities, and technology are employed to assist scholars in developing logical thought and reasoning processes.

Geometry Honors

Recommended Prerequisite: Algebra I

Grade Offered: 9-12

Credits: 1

Geometry Honors is an accelerated Geometry course. Scholars will receive an intensive program with increased pacing of content, and increased rigor in terms of application and performance expectations. The course will prepare scholars for more advanced mathematics studies in Algebra II and college-level mathematics. Honors experiences include extended and collaborative problem solving, research-based writing assignments, independent and group projects, and exploration of the history of the subject. Extended group activities, individual projects and portfolios are incorporated to provide additional measures of scholar's progress

Algebra II

Recommended Prerequisite: Algebra I

Grade Offered: 9-12

Credits: 1

This course builds on the work of Algebra I, as scholars extend their repertoire of functions to include polynomial, rational and radical functions. Scholars work closely with expressions that define the functions and continue to extend and hone their abilities to model situations and to solve equations, including solving quadratic equations over the set of complex numbers and solving exponential equations using the properties of logarithms. In addition, scholars continue to make inferences and draw conclusions from data and statistical experiments, and apply probability concepts.

Algebra II Honors

Recommended Prerequisite: Algebra I

Grade Offered: 9-12

Credits: 1

Algebra II Honors is an accelerated Algebra II course. Scholars receive an intensive program with increased pacing of content and increased rigor in terms of application and performance expectations. The course will prepare scholars for more advanced mathematics studies in Pre-calculus and at the college level. Honors experiences include extended and collaborative problem solving, research-based writing assignments, independent and group projects, and exploration of the history of the subject. Extended group activities, individual projects and portfolios are incorporated to provide additional measures of scholar's progress.

Consumer Math

Recommended Prerequisite: Algebra I

Grade Offered: 10-12

Credits: 1

Consumer Math is a specially designed course with appropriate adaptation to the content, methodology, delivery and/or design. It is designed to provide scholars extended time on the foundational concepts of Algebra I and Algebra II. Appropriate technology and manipulatives are used to develop and extend algebraic thinking and to engage scholar reasoning. This course develops mathematical concepts through the following strands: Number and Quantity, Algebra, Functions, Geometry, and Statistics and Probability.

Mathematical Principles of Accounting

Recommended Prerequisite: Algebra I

Grades Offered: 10-12

Credits: .5 (math or elective)

This course introduces concepts and principles based on maintaining the electronic and manual financial records for a sole proprietorship, a partnership, and a corporation. It includes analyzing business transactions, journalizing, posting, and preparing worksheets and financial statements. Students will be expected to use mathematic principles in this course. This is a great course for students who intend to pursue careers in business. Accounting is the language of business and will be required of anyone attending a business school or pursuing a major or minor in business in college.

Introduction to Statistics

Recommended Prerequisite: Algebra II or co-enrolled

Grades Offered: 10-12

Credits: .5 (math or elective)

Basic statistical inference procedures of estimation, confidence intervals and hypothesis testing directed towards applications in science and medicine. Non-calculus-based applied statistics course for students with no previous background in statistics. The focus is on understanding and using statistical methods in research and applications. Topics include: descriptive statistics, probability theory, random variables, random sampling, estimation and hypothesis testing, basic concepts in the design of experiments and analysis of variance, linear regression, and contingency tables. The course has a large data-analytic component using a statistical computing package.

Transition to Algebra

Recommended Prerequisite: None

Grades Offered: 8-10

Credits: 1

Transition to Algebra course increases students' foundational math skills and prepare them for Algebra I by covering a variety of topics, such as properties of rational numbers (i.e., number theory), ratio, proportion, estimation, exponents and radicals, the rectangular coordinate system, sets and logic, formulas, and solving first-degree equations and inequalities. Transition Algebra courses include a review of such topics as properties and operations of real numbers; evaluation of rational algebraic expressions; solutions and graphs of first degree equations and inequalities; translation of word problems into equations; operations with and factoring of polynomials; simple quadratics; properties of plane and solid figures; rules of congruence and similarity; coordinate geometry including lines, segments, and circles in the coordinate plane; and angle measurement in triangles including trigonometric ratios.

Pre-Calculus

Recommended Prerequisite: Algebra II

Grades Offered: 9-12

Credits: 1

This course focuses on college-level Algebra and Trigonometry and is designed to prepare scholars for the study of Calculus. Major topics include: functions and graphs, polynomials, power and rational functions, exponential logic and logarithmic functions, trigonometric functions, analytic trigonometry, applications of trigonometry, systems and matrices, analytic geometry in two and three dimensions, discrete mathematics, and an introduction to calculus concerning limits, derivatives and integrals. Graphing calculators are an integral part of this course.

Pre-Calculus Honors

Recommended Prerequisite: Algebra II

Grades Offered: 9-12

Credits: 1

Pre-calculus Honors will address the topics of vectors, analytic geometry, theory of equations, logic and limits. Included in the

course are in-depth studies of the conic sections, higher degree equations, sequences and series, and the fundamental theorem of algebra. Honors experiences include extended and collaborative problem solving, research-based writing assignments, independent and group projects, and exploration of the history of the subject. Extended group activities, individual projects and portfolios are incorporated to provide additional measures of scholar's progress.

Advanced Placement Calculus AB

Recommended Prerequisite: Honors Pre-Calculus

Grades Offered: 12

Credits: 1

This course follows the AP Course Audit Guidelines for the AP Calculus AB curriculum. It is representative of a typical Calculus I college-level course and is intended for those who will be required to take such a course in college, including those who plan to concentrate their collegiate study in disciplines such as mathematics, physics, engineering, chemistry, biology, medicine, the physical sciences, computer science, business, etc. Emphasis is placed on mathematical investigations of functions using the methods of Calculus which will include limits, differentiation, and integration. The principal method of instruction will be through student-centered activities that will stress the development problem-solving and of critical thinking skills through inquiry-based instruction designed to meet the Scoring Components as detailed in the AP Calculus – AB Course Description. The course culminates with the AP Calculus AB Exam in May. Upon earning a 3 or higher, the student will be awarded college credit, accepted at most colleges and universities.

Mathematics Interventions

These courses cannot substitute for required core Mathematics courses; they will count as Elective credits.

Algebra I Keystone Intervention

Recommended Prerequisite: Algebra I

Grades Offered: 9 – 12

Credits: .5

Algebra I Keystone Intervention is an elective for scholars who have not succeeded in passing the Keystone Algebra I exam and are eligible for the Keystone Project-Based Assessment. The project-based computer modules will be completed through this course and supplementary instruction will be provided as needed. Scholars may re-take the Keystone Algebra I exam upon completion of this course.

Math Intervention – M

Recommended Prerequisite: None

Grades Offered: 9-12

Credits: 1

Math Intervention – M is a specially designed course with appropriate adaptation to the content, methodology, delivery and/or design. It is designed to provide scholars extended time on the foundational concepts of Algebra 1. Appropriate technology and manipulative are used to develop and extend algebraic thinking and to engage scholars reasoning. This course develops mathematical concepts through the following strands: Number and Quantity, Algebra, Functions, and Statistics and Probability. This course is an intervention and must be taken in conjunction with a regular math course.

Science

The Science Courses are designed to allow scholars the option of becoming involved in specific aspects of the Sciences that parallel specific interests. The Courses are designed to consider the development of the intellectual capabilities of each scholar, leading him/her to become an articulate and rational thinker. Coupled with this, is an emphasis on the application of higher order thinking processes including the skills connected with decision-making, problem solving, and critical and creative thinking. Scholars will gain the necessary

knowledge, intellectual and social awareness, and communicative skills to function and succeed in the twenty-first century.

Science Graduation Requirement (4 Credits)

Recommended Science Course Sequence

Numerous research studies taking specific science courses to ensure a strong foundation of scientific understanding. While Biology I and Chemistry are the only two required science courses at STEM Academy, scholars must choose at least two additional credits of science to meet graduation requirements.

Biology I	AP Physics
Chemistry	Forensics
Honors Chemistry	Physical Science
Physics	Astronomy
Honors Physics	Botany
Environmental Science	Anatomy and Physiology
Organic Chemistry	Ecology

Biology I

Recommended Prerequisite: None

Grades Offered: 9-12

Credits: 1

This course features the study of the fundamental process of living organisms, with an emphasis on the role of molecular biology and biotechnology in our world. Topics include: biochemistry, structure and function of cells, the cell cycle, reproduction, genetics, protein synthesis, evolution, cellular respiration and photosynthesis. Human anatomy and physiology are connected to these core topics, along with basic principles of ecology. The laboratory program consists of quantitative experiments that stress experimental design, data collective and graphical analysis.

Chemistry

Recommended Prerequisite: Algebra I

Grades Offered: 10-12

Credits: 1

This course is designed to give students a basic understanding of chemical principles. Upon completion of this course students should have the skills and content necessary to succeed in college level science courses. Major topics covered are atomic structure, bonding, reactions, states of matter, and solutions. Since there is an emphasis on both the theoretical and practical aspects of chemistry, students should expect an emphasis on problem solving and laboratory work. This course is especially designed to prepare students planning to attend college who must complete a lab-based science course.

Honors Chemistry

Recommended Prerequisite: Algebra 1

Grades Offered: 10-12

Credits: 1

This course is designed to give students a basic understanding of chemical principles. Upon completion of this course students should have the skills and content necessary to succeed in college level science courses. Major topics covered are atomic structure, bonding, reactions, states of matter, and solutions. Since there is an emphasis on both the theoretical and practical aspects of chemistry, students should expect an emphasis on problem solving and laboratory work. This course is specifically designed for students who are interested in majoring in science or a related field in college.

Physics

Recommended Prerequisite: Chemistry, Algebra II

Grades Offered: 11-12

Credits: 1

This course may only be taken by students who have passed chemistry. The main purpose of this class is to look at the principles of physics. It is designed to prepare students to live in a world in which science and technology are becoming increasingly essential for all of us and to help make students aware of some of the ways in which physics influences their daily lives. Topics in this course include scientific methods, Newton's Laws of motion, fluid mechanics, gravity, heat, electricity and magnetism, sound and light waves, and quantum mechanics. This course is designed for students planning to attend a four-year college, but not major in science or math.

Honors Physics

Recommended Prerequisite: Chemistry, Algebra II

Grades Offered: 11-12

This course is designed for all students planning to attend a four-year college and who will be majoring in science, math or a related field. It provides a systematic introduction to the major principles of physics and emphasizes the development of problem-solving ability. While just a basic understanding of trigonometry skills (sine, cosine, tangent, etc) will be sufficient, in order to do well in this course you should be very proficient in algebra. Major units of emphasis include: Newtonian mechanics, sound and wave motion, optics, electricity and magnetism, and atomic and nuclear physics. The scientific method and inquiry-based learning are integrated throughout this course.

Advanced Placement Physics – C (Mechanics)

Recommended Prerequisite: Algebra II Completed/AP Calculus Concurrently

Grades Offered: 12

Credits: 1

This course is a year-long course that follows the AP Course Audit Guidelines for the AP Physics – C (Mechanics) curriculum. It is representative of the typical calculus-based introductory level college Physics I course and is intended for those who will pursue a major in college that requires a background in physics, including those who plan to study physics, mathematics, engineering, chemistry, biology, the physical sciences, computer science, physical therapy, etc. Emphasis is placed on the mathematical description of physical phenomena using fundamental methods of calculus (differentiation and integration.) Laboratory work is a major component of the course. The principal method of instruction will be through student-centered activities that will utilize the scientific method as a primary tool to develop problem-solving and critical thinking skills. Students will be guided through this process primarily through inquiry-based instruction. The course culminates with the AP Physics – C (Mechanics) test in May.

Forensics Science (lab based)

Recommended Prerequisite: Algebra II or co-enrolled

Grades Offered: 10-12

Credits: 1(science or elective)

This course is designed to introduce the student to practical applications of chemistry, physics, and biology in the study of forensics. The course will provide students with an introduction to the theoretical understanding and practical applications of

forensic science techniques including forensic DNA typing, understanding and practical application of relationship between forensic science and legal studies, and career opportunities in forensics. Students will learn the scientific protocols for analyzing crime scene and how to use chemical and physical separation methods to isolate and identify materials.

Organic Chemistry (lab based)

Recommended Prerequisite: Algebra II or co-enrolled

Grades Offered: 10-12

Credits: 1 (science or elective)

This course is designed to provide a fundamental overview of organic chemistry to students interested in pursuing a career in the sciences. Upon successful completion of this class, students will understand the relationship between structure and function of molecules, the major classes of reactions, reaction energetics and mechanisms, synthesis of organic compounds, and how to determine structure via various spectroscopic techniques. Several themes are prevalent in each unit of study: nomenclature, chemical and physical properties, structures, mechanisms, common molecules, and the diversity of organic molecules in plants, bacteria, and animals.

Environmental Science (lab based)

Recommended Prerequisite: Biology I

Grades Offered: 10-12

Credits: .5 (science or elective)

Environmental Science is a 1-semester course designed to show thematic connections between a variety of science disciplines including biology, chemistry, and physics. It gives students a coherent and realistic picture of the applications of a variety of scientific concepts as they manifest in our environment. During the course students will focus on human population growth, natural resources, and ecosystem dynamics. The aim of the course is to increase students' knowledge of the environmental challenges of today, while continuing to cultivate scientific critical thinking skills.

Botany (lab based)

Recommended Prerequisite: Biology I

Grades Offered: 10-12

Credits: .5 (science or elective)

Botany is a 1-semester, project-based, advanced biology course with a focus on plants. Students will study plant anatomy (parts), plant physiology (function), horticulture (naming and classifying), plant ecology (interactions) and biomes, and students will also study the basics of gardening. Many different kinds of activities combine to help the student build knowledge and skills in biological concepts as they relate to plants. Integrated throughout the course may be related topics in other areas such as Chemistry, Geology, and Sociology.

Ecology (lab based)

Recommended Prerequisite: Biology I

Grades Offered: 10-12

Credits: .5 (science or elective)

Ecology is the study of the interactions between organisms and their environment. This course provides a background in the fundamental principles of ecological science, including concepts of natural selection, population and community ecology, biodiversity, and sustainability. Students will acquire an "ecological literacy" about how the natural world works, and develop an understanding of how scientific methods are used to construct ecological knowledge. The course will also explore some of today's major ecological challenges, and the important research that is being done to address these concerns.

Anatomy and Physiology (lab based)
Recommended Prerequisite: Biology I
Grades Offered: 10-12
Credits: .5 (science or elective)

Human Anatomy and Physiology is a laboratory-based course that investigates the structure and function of the human body. Topics covered will include the basic organization of the body; biochemical composition; and major body systems along with the impact of diseases on certain systems. Students will engage in many topics and competencies related to truly understanding the structure and function of the human body. Students will be responsible for proper use of lab equipment, lab reports, and projects assigned throughout each unit. One of the goals of this course is to prepare students with the skills necessary to be successful in future science classes in college.

Astronomy (lab based)
Recommended Prerequisite: Algebra I
Grades Offered: 10-12
Credits: .5 (science or elective)

This course will provide the student with an introduction to the concepts of modern astronomy, the origin and history of the Universe and the formation of the Earth and the solar system. Students will compare the Earth's properties with those of the other planets and explore how the heavens have influenced human thought and action. The course gives a description of astronomical phenomena using the laws of physics. The course treats many standard topics including planets, stars, the Milky Way and other galaxies, black holes to more esoteric questions concerning the origin of the universe and its evolution and fate. Although largely descriptive, the course will occasionally require the use of sophomore-high level mathematics.

Physical Science (lab based)
Recommended Prerequisite: Algebra I
Grades Offered: 10-12
Credits: 1 (science or elective)

The course is designed as an introduction to the major concepts in chemistry and physics. The course includes concepts such as: structure of atoms, periodic table principles, motion, forces, conservation of matter and energy, gravity, machines, electricity and the behavior of waves. These concepts are investigated through laboratory experiences designed to promote and develop appropriate skills in science inquiry.

<p style="text-align: center;">Science Interventions</p>

<p>These courses cannot substitute for required core Science courses; they will count as Elective credits.</p>

Biology I Keystone Intervention
Recommended Prerequisite: None
Grades Offered: 9-12
Credit: 1 Elective

Biology I Keystone Intervention is an elective for scholars who have not succeeded in passing the Keystone Biology I exam and are eligible for the Keystone Project-Based Assessment. The project-based computer modules will be completed through this course and supplementary instruction will be provided as needed. Scholars may re-take the Keystone Biology I exam upon completion of this course.

Social Studies

The Social Studies program is designed to allow scholars the option of becoming involved in aspects of the social sciences that parallel with scholars' specific interests. The program is designed to consider the development of the intellectual capabilities of each scholar which will in turn, lead the scholar to become a more rational thinker. Coupled with this is an emphasis on the application of the many higher order thinking processes including the various skills connected with decision making, problem solving, critical and creative thinking. The scholar will have the necessary knowledge, intellectual, and social awareness, including communicative skills to function and develop in the 21st Century.

Social Studies Graduation Requirements (4 Credits)

Recommended Social Studies Sequence

The goal of the Social Studies Sequence at STEM Academy is to ensure that all scholars have a rich background in the social sciences prior to their graduation.

World History	
Economics/Government	
American History	
African American History	

World History

Recommended Prerequisite: None

Grades Offered: 9

Credits: 1

This course is an exploration of themes of world history, including the origins of man, the foundation of world religions and beliefs, exploration, intellectual revolutions, violent revolutions, industrial revolution, nationalism/imperialism through the world wars, cold wars, the quest of countries seeking independence and changes in current global patterns.

Government and Economics

Recommended Prerequisite: None

Grades Offered: 9-12

Credits: 1

Government and Economics provides a study of political, legal, and economic systems in the United States and around the world. This course encourages scholars to hone citizenship skills as they engage in critical issues facing contemporary society.

American History

Recommended Prerequisite: None

Grades Offered: 9-12

Credits: 1

This course examines the major turning points in American history beginning with the events leading up to the American Revolution, the origins of our constitution, reform movements, Manifest Destiny, the Civil War and Reconstruction, the impact of the frontier, the changing nature of business and government, World War I, the Great Depression, World War II, the growth of the United States as a world power, the Cold War and the struggle to achieve class, ethnic, racial, and gender equality. The course extends to the modern day. Contemporary world issues such as globalization, economic interdependence, and terrorism and world cultures will also factor into our analysis of international conflict and cooperation.

African American History

Recommended Prerequisite: None

Grades Offered: 9-12

Credits: 1

This course of study will investigate and celebrate the culture, social and intellectual history of African Americans. This course will be enriched by the study of Black Literature, art, music, and politics. An emphasis will be placed on the scholar inquiry related to Philadelphia history and current events. Additionally, scholars will be encouraged to develop leadership and problem-solving skills.

Advanced Placement American History

Recommended Prerequisite: None

Grades Offered: 11-12

Credits: 1

This course is a year-long course that follows the AP Course Audit Guidelines for the AP American History curriculum. It is a college level survey course of American History from 1660 to present day. The course requires extensive reading of our primary textbooks, but also additional resources. It is the expectation of the instructor that students will have read on time, write, submit work in a timely fashion, and participate when asked to. This course will prepare the students to perform at a high level on the Advanced Placement test in May.

Electives: The following courses cannot substitute for a required core Social Studies course

Psychology

Recommended Prerequisite: None

Grades Offered: 9-12

Credits: .5

Psychology will include an investigation of some basic topics in the field of human behavior. These include motivation, learning, intellectual, moral and personality development, and behavior disorders, as well as an examination of the manner and techniques employed by behavioral scientists in their pursuit of knowledge. Behaviorism, Freudian psychology, Gestalt or field psychology, and humanism will also be examined as schools of psychology that have made significant contributions to the study of human behavior.

Sociology

Recommended Prerequisite: None

Grades Offered: 9-12

Credits: .5

Sociology will include an investigation of how individuals, groups, and institutions interact to make up human societies. The course is designed to introduce students to the sociological study of society. Sociology focuses on the systematic understanding of social interaction, social organization, social institutions, and social change. Major themes in sociological thinking include the interplay between the individual and society, how society is both stable and changing, the causes and consequences of social inequality, and the social construction of human life.

Youth Court

Recommended Prerequisite: None

Grades Offered: 9-12

Credits: 1

Youth Court is a student government system whereby students hold trials for their peers who have committed minor disciplinary infractions. There is a focus on the power of positive peer pressure to help individual student offenders interrupt destructive patterns of behavior. Youth court members learn to encourage offending students to change harmful behavior by using restorative practices that provide a positive and supportive alternative to punitive school discipline policies. Youth court is a student run program, which transforms students into leaders within the school.

Law

Recommended Prerequisite: None

Grades Offered: 9-12

Credits: .5

This academic course will provide an overview of the legal system in the United States of America. Examined are relevant examples of civil and criminal laws, law-enforcement methods, court procedures, and efforts toward corrective justice. Students also examine problems within the legal and justice systems.

Physical Education, Health Wellness

Physical Education Graduation Requirements (1 Credit), Health Wellness Graduation Requirements (.5 Credits)

Physical Education

Recommended Prerequisite: None

Grades Offered: 9

Credits: .5

In this course individual skills and fundamentals of sports will be stressed. This course includes: methods to achieve total physical fitness, cardiovascular and muscular development, flexibility and coordination (hand-eye and body movement). These concepts will be taught through the following activities: Weight Training, Circuit Training, Football, Basketball, Softball, Volleyball, and other team sports.

Strength and Conditioning – Males only

Recommended Prerequisite: None

Grades Offered: 9-12

Credits: .5

This course will allow scholars to practice fundamental skills in various athletic sports and also builds in weight and cardio training and conditioning.

Aerobics – Females only

Recommended Prerequisite: None

Grades Offered: 9-12

Credits: .5

Aerobics is a choreographed fitness class with music, incorporating cardio, strength, and stretch moves for a total body workout. The moves are taken from hip-hop, yoga, Pilates, kickboxing, modern dance and resistance training.

Arts and Humanities

Arts and Humanities Graduation Requirements (2 credits)

Music Appreciation

Recommended Prerequisite: None

Grades Offered: 9-12

Credits: .5

This course will explore the impact of music throughout the ages to help scholars become informed consumers and culturally aware participants in the twenty-first century. Scholars explore music in a wide variety of musical styles and time periods in this course. They learn about the relationship of music to art, architecture, and history as well as learning about music technology and its use in today's music.

Choral Music

Recommended Prerequisite: None

Grades Offered: 9-12

Credits: .5

This course explores choral music from a wide variety of cultures and time periods through study and performance. The core curriculum emphasizes the basics of vocal technique, sight-reading, music theory, and music history.

Instrumental Music

Recommended Prerequisite: None

Grades Offered: 9-12

Credits: .5

The study of music assists in the acquisition of 21st Century Skills. The cooperative learning setting of music ensembles allows scholars to develop both individually and as members of a larger community. The creativity inherent in the creation or interpretation of a musical selection fosters creative thinking and problem-solving strategies that permeate other facets of life.

Drama

Recommended Prerequisite: None

Grades Offered: 9-12

Credits: .5

The course introduces the student to beginning acting techniques and theatre appreciation. Using improvisation, performance techniques, voice, and body, scholars will learn how to bring text to life. Scholars will discover how to communicate meaning to an audience and learn how to analyze scenes and plays in terms of character objective, characterization, and author's meaning. From directing, to lighting to auditioning, scholars will study the gamut of theatre life.

3D Design and Print

Recommended Prerequisite: None

Grades Offered: 9-12

Credits: .5

The 3D printing course introduces scholars to the latest developments and critical challenges of 3D printing, and provides students with related techniques and practical experience in developing 3D printing processes and applications. This course will prepare students for advanced careers related to manufacturing. There is an emphasis on active learning strategies, pertinent literature, discussion of research problems, and the identification of possible contributions to the manufacturing field. Scholars will gain a deep understanding of additive manufacturing and related technologies.

SAT PREP

Recommended Prerequisite: None

Grades Offered: 9-12

Credits: .5 (elective or Humanities)

SAT Prep is a comprehensive course that provides thorough preparation for all areas of the New SAT exam. It covers content reviews to promote content mastery and teaches students the most dynamic and updated strategy and methods available. SAT Prep course is designed to introduce and enrich the skills needed to score highly on the SAT critical reading, writing & math section.

Digital Photography

Recommended Prerequisite: None

Grades Offered: 10-12

Credits: .5

This course will help the students become well rounded in the fundamentals of digital photography. Four areas of instruction will be emphasized: How cameras work, how composition works, how lighting works, how to use photo editing software. Students will, generally, receive basic instruction, demonstration, and see samples of the desired outcomes, at the beginning of each period. They will be allowed to go outside and shoot assignments, based on what they are learning.

Graphic Design

Recommended Prerequisite: None

Grades Offered: 10-12

Credits: .5

This course introduces the interaction of text and image and the fundamental components of graphic communication. Students will develop and hone skills in working with text and image as they create solutions to a series of design problems. Visual literacy will be increased through exposure to contemporary design issues and graphic design history. Students will be expected to expand their proficiency in all aspects of the design process, including the use of formal design principles, type as image, creative brainstorming, conceptualizing, critical thinking, collaboration, and presentation.

World Language

Foreign Language Graduation Requirements (2 credits of the same language)

S

Spanish I

Recommended Prerequisites: None

Grades Offered: 9-12

Credits: 1

Scholars will develop novice-level proficiency skills in listening, speaking, reading, and writing. Analyze and use basic grammatical skills and structures as tools for effective communication. Scholars will use developed language learning strategies and skill-building techniques. Scholars will gain confidence in the ability to speak another language and communicate in the target language with the teacher and scholar individually, in pairs, and in groups.

Spanish II

Recommended Prerequisites: Spanish I

Grades Offered: 10-12

Credits: 1

This course promotes the scholars' oral and written communicative skills with emphasis on continued vocabulary and grammar acquisition. The scholars will use the language to exchange and interpret information, to make connections between Spanish and American cultures and to present topics relating to personal experiences.

Computer and Business Technology

Electives

Microsoft Office Suite

Recommended Prerequisite: None

Grades Offered: 9-12

Credits: .5

In this course scholars will apply fundamental computer skills in a business setting using the Microsoft Office suite in a Windows environment. The course builds upon the applications and integration of word processing, spreadsheets, data base management, and multi-media presentations. Upon completion of this course, scholars will have developed the skills necessary to pursue entry-level employment as well as the background necessary for college course applications.

Web Design

Recommended Prerequisite: None

Grades Offered: 10-12

Credits: 1.0

This course provides scholars with hands on experience in developing websites for business and personal endeavors. Web Design skills allow people to convey and exchange information on a new and exciting ways.

This Course content includes exposure to advanced Web design, graphics, animations, and the complex site design. It provides scholars the opportunity to acquire advanced skills in both theory and practical application of Web design and in leadership and interpersonal skill development.

Entrepreneurship

Recommended Prerequisite: None

Grades Offered: 10-12

Credits: .5

In this course you will learn the basics needed to plan and launch your own business. Do you have what it takes to start a new business? Do you have an idea for a business but need the tools to get started? This course will provide you with the core skills you need to become successful. In this course you will study the characteristics of successful entrepreneurs. You will also learn about self-employment and basic economic concepts related to small businesses, such as competition and production. This course will also walk you through the steps of setting up a business, including developing a business plan, a mission and a vision, attracting investors, and marketing your company.

Career Discovery

Recommended Prerequisites: None

Grades Offered: 9-12

Credits: .5

Career Discovery offers scholars an introduction to the process of career decision-making, educational planning, and job searching. Topics include: analyzing personal career interests, values, skills and aptitudes, surveying and researching fields and jobs with related educational and training requirements, learning and using the career decision-making process and acquiring basic job search skills such as informational interviewing, networking, writing letters of application, developing a resume, and interviewing for a position.

Google Applications

Recommended Prerequisite: None

Grades Offered: 10-12

Credits: .5

This is a conceptual overview with hands-on tutorials for harnessing the educational potential of Google Apps. Explores the widespread adoption of Google Apps in schools; demonstrates how to get a free Google Apps domain to learn how to do these things. The course begins by teaching participants how to create a Google Apps domain for your school or workplace. Second, you set up messaging apps that enable individuals to communicate via email, chat, and shared calendaring. Third, you configure collaboration apps that empower students to use Google Docs and Sites to demonstrate what they are learning.

Career and Technical Education

Mission

The mission of the Office of Career and Technical Education is to prepare students to become productive citizens in a global workforce, by developing and delivering quality programs, which provide students with viable and authentic entry level career skills, as well as academic knowledge and life skills necessary for employment and/or post-secondary education.

Career and Technical Education

Career and Technical Education (CTE) gives high school students the chance to get a head start on preparing for college and careers. In CTE programs you will learn how core school subjects like math, science, reading, and writing are used in the workplace. As a CTE student, you will have the opportunity to participate in hands-on training in your chosen program and gain real world experience through job shadows and cooperative education positions. Many programs offer you the opportunity to earn nationally recognized certifications, which will enable you to get a job that will help you pay for college or start your career straight out of high school!

For all CTE programs, in addition to taking all of the required core courses, you will take three CTE courses. In your sophomore year, the first course in your program will give you a basic understanding of the field you have chosen and lay a solid foundation for the more advanced courses that you will take. In your junior year, you will take the training level course in your program. In this course, you will gain more advanced technical skills used in the field. You may participate in competitions, earn industry-recognized certifications, and attend a job shadow. The last class that you will take in your program will be during your senior year. This class is an advanced training course that will build upon all the knowledge and skills that you have gained in the previous two years. During this course, you will earn certifications, participate in scholarship competitions, and hold a cooperative education position.

In addition to being skillfully trained in your chosen CTE program, all CTE programs are part of Pennsylvania's [SOAR \(Students Occupationally and Academically Ready\)](#) program. The SOAR program offers a chance for you to earn college credits, towards a degree or certificate in your chosen CTE field, while enrolled in a CTE program. This helps you by saving money on college tuition, and saving time by shortening college attendance. To participate in the SOAR program and earn college credits, you must earn a high school diploma, with a minimum 2.5 GPA in your chosen CTE program, achieve

proficiency on all tasks on your program's competency task list, and achieve competent or advanced level on the NOCTI (National Occupational Competency Testing Institute) exam, which is taken at the end of your third year in your chosen CTE program. Please talk to your school counselor about SOAR credit options for your chosen CTE program

Communications Technology I, II, III

The Communications Technology program prepares students to apply knowledge and skills in the field of multimedia technology, in a variety of areas associated with typography, web and graphic design, video, audio and television production, animation, and photography. Students in the first year course will learn audio/visual technology, computer operation and maintenance, computer graphics, image capture, and audio/video techniques. Students will apply those technical skills while developing creative visual designs and story-telling through computerized technology and digital audio editing.

In the advanced courses students will learn technology troubleshooting techniques, data transmission and management, oral and written communication, concept development, layout and design, web related technologies, and animation. Students will write and photograph for the school's yearbook and other publications, broadcast the school's new, design and maintain the school's website, and complete community and industry projects. During the advanced courses, students will also have the opportunity to earn certifications for Adobe Certified Associate for Adobe Creative Suite applications and Final Cut Pro X.

Engineering Technologies I, II, III

The Engineering Technologies program prepares students for high-demand, life-sustaining, STEM careers in the engineering, welding, fabricating and manufacturing fields. During the student's first year, the comprehensive curriculum covers the history, philosophy, principles, ethics, power and energy, problem solving, teamwork, safety and quality control associated with engineering and manufacturing. Throughout this course, students use problem based learning assignments to apply their technical skills and develop and understanding of leadership and cooperation within the engineering field.

Students in the advanced courses will delve deeper into project based learning assignments and learn about computer-aided design, electronics, fluidics, hydraulics, mechanical advantage, mechanical drawing, robotics, strength/properties of materials, and manufacturing systems and processes, and precision measurement. Students will have the opportunity to participate in competitions, and use 3D printers, laser engravers, and CNC milling machines, while creating various projects and prototypes. Students are trained on specific industry equipment and have the opportunity to earn many industry-recognized certifications, while enrolled in Engineering Technologies.

Computer Aided Drafting and Design I, II, III

CADD students explore drafting careers and are introduced to the theory and the manipulative skills necessary to produce and complete accurate drawings based upon the ideas and sketches of engineers, architects and designers. Students in the first year course focus on performing mechanical drafting and design operations, using Computer Aided Drafting and Design (CADD). This course is a program in which students learn drafting skills using Auto CADD to solve detailed engineering drawing problems. Students work on projects related to mechanical tool design, jig and fixture design, assembly drawings, and other in-depth applications of the CADD system.

Students in the advanced courses learn to master the theory and manipulative skills necessary to produce complete and accurate drawings based upon the ideas and sketches of engineers, architects, and designers. Topics covered include extrusions, orbits, faces, surfaces, constructions, edges, and rendering. Students are taught to recognize historical and current events related to engineering design and their effect on society, to understand the effective use of engineering design

equipment, to choose appropriate measurement systems as they apply to engineering and design, and to explore careers in drafting, including industry certification options.

Computer Repair (Formerly Computer Networking Technology)

The Computer Repair program prepares students to be employed as network and computer systems administrators, computer repair technicians and computer hardware engineers. Students apply basic engineering principles and technical skills in support of professionals, who use computer systems, software and hardware. Students in the first year course receive instruction in basic computer design and architecture, programming, problems of specific computer application, component and system maintenance, inspection procedures and customer service procedures.

In the advanced courses, students learn hardware and software problem diagnosis, and repair and report preparation. Students also apply technical knowledge and skills to assemble, install, operate, maintain, and repair computers, power supplies, number systems, memory structure, buffers and registers, microprocessor design, peripheral equipment, programming, security, and networking. Students are trained on specific industry equipment and have the opportunity to earn many industry-recognized certifications, while enrolled in the Computer Repair program.

<h2>Engineering Electives</h2>

Digital Electronics

Recommended Prerequisites: None

Grades Offered: 10-12

Credits: .5

Digital Electronics is a course in which scholars will construct and test fundamental digital logic circuits such as gates, counters, oscillators, and switches. A/D and D/A convertors will be applied to signal processing. Microcontroller programs will be modified and microcontrollers applied to closed circuit control systems. Emphasis is on hands on activities, real-world equipment, and technology.

Civil Engineering

Recommended Prerequisites: None

Grades Offered: 9-12

Credits: 1

Students will learn the basic concepts of civil engineering, including the design, construction and maintenance of large scale infrastructure such as bridges, buildings, roads, canals and dams. Scholars will have the opportunity, through project-based learning to apply mathematical concepts to elements of engineering design.

Industrial Manufacturing

Recommended Prerequisite: None

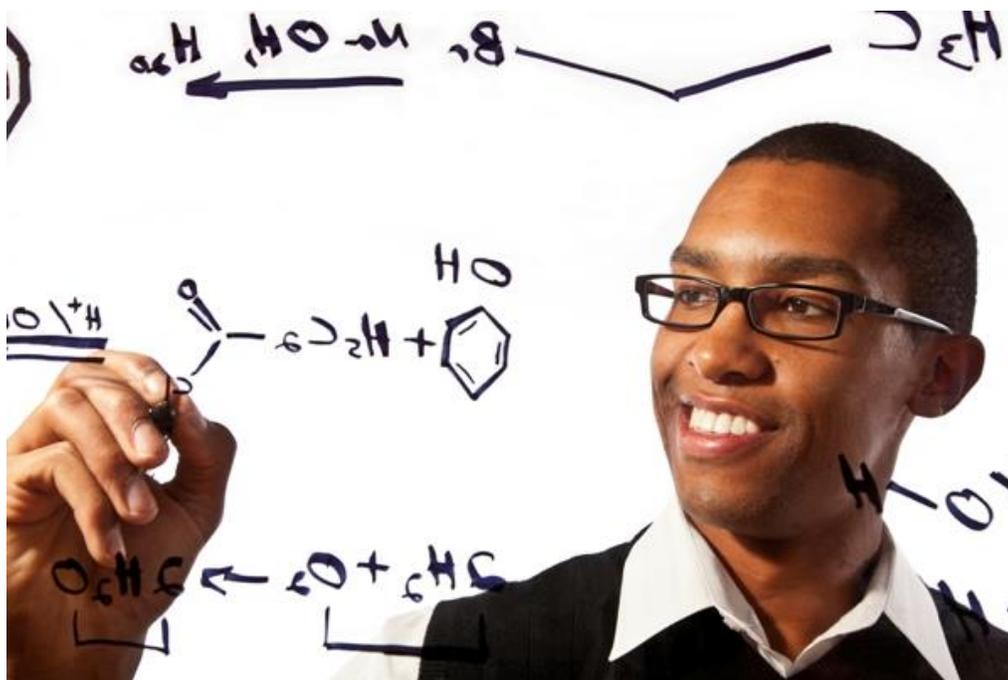
Grades Offered: 10-12

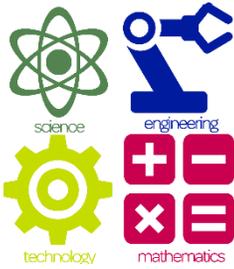
Credits: .5

Manufacturing involves creating a finished product from raw materials using efficient and effective processes to meet a specified quality standard. If you like building things, can follow detailed instructions, or are good at organizing people and processes; then this might be the cluster for you. Students learn the importance of being able to problem-solve and visualize an end-product and develop the smaller steps necessary to achieve the creation of that product. This cluster provides opportunities to learn a skill or trade in a classroom/laboratory equipped to emulate industry.

Dual Enrollment

Dual Enrollment courses are offered while students attend high school. The Chester Upland School District, in partnership with Delaware County Community College (DCCC) currently has a program in place that allows students to receive college credit while taking courses during high school. In order to be accepted to the DCCC Dual Enrollment program, students must apply and take a placement test to gauge readiness for college level courses. Students must place into a college level reading or math course in order to participate in the program. Students who place into a remedial level course will not be accepted into the program. Once accepted, students travel to DCCC during the school day, twice per week to take their class. Dual Enrollment students are responsible for making up any and all missed work from STEM during their absence. At course completion, students who received a passing grade will receive both college credit and credit toward their high school graduation requirements, which will be reflected on their transcript.





The STEM Academy at Showalter

“Unlocking Young Minds for the Future”

Jonas Crenshaw, Jr.
Principal

Tara Brown
Assistant Principal

Student's Name: _____

Current Grade: _____

Course Selection Worksheet 2016-2017

English and Language Arts (Must choose one)

- ___ English I
- ___ English II
- ___ English III
- ___ English IV
- ___ Honors English I
- ___ Honors English II
- ___ Honors English III
- ___ Honors English IV
- ___ AP Literature and Composition

ELA Elective Courses

- ___ Journalism (0.5 credit)
- ___ Public Speaking (0.5 credit)
- ___ Creative Writing (0.5 credit)
- ___ Debate (0.5 credit)

Social Studies (Must choose one)

- ___ World History
- ___ Government/Economics
- ___ United States History
- ___ African American History

Social Studies Elective Courses

- ___ Psychology (0.5 credit)
- ___ Sociology (0.5 credit)
- ___ Youth Court (0.5 credit)
- ___ AP American History (11th/12th)

World Languages

- ___ Spanish I
- ___ Spanish II

Mathematics (Must choose one)

- ___ Transition to Algebra
- ___ Algebra I
- ___ Geometry
- ___ Algebra II
- ___ Pre-Calculus
- ___ Consumer Mathematics
- ___ Honors Algebra I
- ___ Honors Geometry
- ___ Honors Algebra II
- ___ Introduction to Statistics (0.5 credit)
- ___ Mathematical Principles of Accounting (0.5 credits)
- ___ Honors Pre-Calculus
- ___ Honors Calculus
- ___ AP Calculus

Physical Education

- ___ Physical Education (Sem. – 0.5 credit)
- ___ Strength/Conditioning (0.5 credit)
- ___ Aerobics/Zumba (0.5 credit)

Computer and Business Technology

- ___ Microsoft Office Suite (0.5 credit)
- ___ Web Design (0.5 credit)
- ___ Entrepreneurial Studies (0.5 credit)
- ___ Google Applications (0.5 credit)
- ___ Career Discovery (All 9th Grade Students must take this course) (0.5 credits)

Science (Must choose one)

- ___ Biology
- ___ Chemistry
- ___ Physics
- ___ AP Physics
- ___ Anatomy and Physiology (0.5 credit)
- ___ Botany (0.5 credit)
- ___ Astronomy (0.5 credit)
- ___ Ecology (0.5 credit)
- ___ Environ. Science (0.5 credit)
- ___ Forensic Science (0.5 credit)
- ___ Organic Chemistry

Arts and Humanities

- ___ Digital Photography (0.5 credit)
- ___ Graphic Design (0.5 credit)
- ___ 3D Design and Print
- ___ Technology (0.5 credit)
- ___ Music Appreciation (0.5 credit)
- ___ Choral Music (0.5 credit)
- ___ Instrumental Music (0.5 credit)
- ___ Drama (0.5 credit)
- ___ Survey of Humanities (Summer only – 0.5 credit)
- ___ SAT Prep

**CTE Courses at STEM
(3.0 credits)**

- ___ Engineering I (10th only)
- ___ Engineering II (11th only)
- ___ Communications Technology I (10th only)
- ___ Communications Technology II (11th only)
- ___ Computer Repair Tech. I (10th only)
- ___ Drafting III (12th only)

**CTE Courses at DCTS
(3.0 credits)**

- ___ Advertising and Commercial Art
- ___ Apple Systems and Design
- ___ Building Trades
- ___ Computer Networking and Digital Forensics
- ___ Dental Technology
- ___ Electrical Construction
- ___ Emergency and Protective Services
- ___ Exercise Therapy and Sports Science
- ___ Health Sciences/Medical Careers

Engineering Electives

- ___ Civil Engineering
- ___ Digital Electronics
- ___ Industrial Manufacturing (0.5 credit)

For Office Use Only:

1. Does the scholar need credit recovery? ___ yes ___ no
2. Does the scholar need ELL services? ___ yes ___ no
3. Does the scholar have an IEP? ___ yes ___ no
 - a. If yes, please describe the level of support. ___ itinerant ___ supplemental
 - b. If supplemental, please describe academic area(s) of support. ___ ELA ___ Math ___ Both
4. Does the scholar take courses at DCTS? ___ yes ___ no
 - a. If yes, please share the name of the course. _____
5. Is the scholar enrolled in Dual Enrollment Courses? ___ yes ___ no
 - a. If yes, please share the name(s) of the course(s): _____

Signatures

I have carefully reviewed the course offerings at STEM Academy and have thoughtfully selected my courses for the 2016-2017 school year at STEM Academy. I understand that the school will make every attempt to honor my course requests, however, I do acknowledge that the courses I've selected are dependent upon available teaching staff, specific programmatic needs, and/or my ability to graduate from high school on time.

Scholar Signature: _____ Date: _____

Parent Signature: _____ Date: _____

11th Grade

Course Name	Credits	Selected Course
English III	1.0	
Algebra II	1.0	
Chemistry	1.0	
U.S. History	1.0	
Elective	0.5	

12th Grade

Course Name	Credits	Selected Course
English IV	1.0	
Math	0.5	
Math	0.5	
Science	1.0	
African American History	1.0	
Elective	0.5	

**** Please be sure to cross reference the STEM graduation requirements and the STEM Program of Study as you select your courses each year.**