

2023-2024

# **COURSE CATALOG**



## **GRANT COUNTY HIGH SCHOOL**

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# **GCHS Administration**

## **Principal**

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## **Associate Principal**

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## **Assistant Principals**

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## **Curriculum Specialists**

Kate Benson

Leigh Simpson

## **ECAP Director**

Jill Buntin

## **Counselors**

Haley Carr (12th Grade/Dual Credit)

Tracy Childers (10th & 11th Grade)

Kristen Kaliin (9th Grade)

## **Mission of Grant County High School**

GCHS is committed to developing accountability, advancing academic competence, and empowering students to become active and respectful members of the community.

# BRAVES ROAD TO SUCCESS

Academics			
<a href="#">Course Offerings</a>	<a href="#">Graduation Requirements</a>	<a href="#">Standard 4 Year Plan</a>	<a href="#">Honors/AP 4 Year Plan</a>
<a href="#">Grading</a>	<a href="#">Dual Credit</a>	<a href="#">KEES Money</a>	<a href="#">Peer Tutoring &amp; School Ambassadors</a>
<a href="#">SUCCEED Criteria</a>	<a href="#">Registration Reminders</a>	<a href="#">Schedule Change Policy</a>	<a href="#">Pre-College Curriculum</a>

Programs of Interest			
<a href="#">Governor's Scholar Program</a>	<a href="#">Governor's School of the Arts</a>	<a href="#">Governor's School for Entrepreneurs</a>	<a href="#">Gatton Academy</a>

## **Registration Reminders**

1. Registration is very important! Be sure to spend time planning what you want to take. Select courses with care and carefully enter course numbers when scheduling. Be sure to involve your parents or caregivers. All courses are not offered every year so PLAN AHEAD for courses that you will need before graduation.
2. All AP and Dual Credit courses are weighted on a 5.0 scale.
3. If you need help in determining what is taught in some classes or levels of classes, discuss the class with your present teachers or counselor. They will be able to help you make decisions on whether or not to take the class.
4. If you have failed a required course, it is your responsibility to know what courses you need to make up. If you have a concern or question, see your counselor before scheduling.
5. Electives are courses you choose to take in addition to requirements. In areas where a student takes more classes than required, the additional classes become electives. For example: a fifth math class will count as an elective. It is not necessary to retake an elective course you failed.
6. All information is subject to change at any time.

## **Schedule Changes**

Schedule changes will occur due to one of the following instances **ONLY**:

1. Retaking the failed class under the same teacher
2. Unable to take the class as scheduled due to not having met requirements for that class  
Example: Geometry scheduled for Geometry but did not pass Algebra I
3. Need an academic class instead of an elective
4. Deemed necessary by Administration

## Graduation Requirements

Total credits needed to graduate	25 credits	
English Credits	4 credits	English I English II English III English IV
Math Credits	4 credits	Algebra 1 Geometry Algebra 2 4th Math Class (Pre-Calculus, Math Concepts, Dual Credit Math)
Science Credits	3 credits	Principles of Tech w/ Earth & Space Biology Chemistry
Social Studies Credits	3 credits	World History Government & Civics US History
Health & PE	1 credit	Integrated Health/PE
Arts & Humanities	1 credit	Any visual art or music class
Electives	9 credits	

# Profile of a Graduate

*A Grant County Graduate will SUCCEED!*



**Self-Aware**



**Understanding  
of Others**



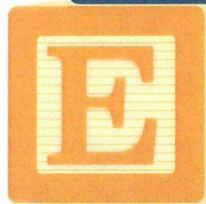
**Competent**



**Communicative**



**Ethical**



**Engaged**



**Determined**



**GRANT**  
COUNTY SCHOOLS

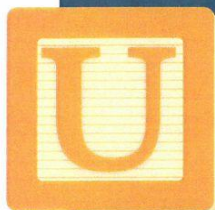


# A Grant County Student is:



**SELF-AWARE:** Self-controlled, self-motivated, self-reliant, and committed to keeping one's own mind and body healthy

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**UNDERSTANDING OF OTHERS:** Committed to others and community; appreciative of different thought; beyond oneself.

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**COMPETENT:** Confident and competent in needed academic skills; demonstrative of critical and creative thought.

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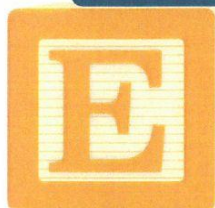
**COMMUNICATIVE:** Adaptable in changing environments; able to communicate and collaborate with others.

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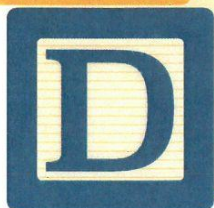
**ETHICAL:** Of noble character; demonstrative of moral excellence - embracing and exercising what is right and good.

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**ENGAGED:** Present, attentive, contributing; demonstrative of initiative for self and team.

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**DETERMINED:** Diligent and dedicated; purposeful and steadfast; persevering

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## KEES Money

The 1998 General Assembly provided Kentucky high school students with the Kentucky Educational Excellence Scholarship (KEES). KEES is funded by Kentucky Lottery proceeds. Students with an unweighted GPA of 2.5 or higher can earn scholarships for college or technical school (with the exception of AP classes, which are weighted for GPA calculation). The better a student does in high school, the more money he or she will earn toward scholarships. Students do not have to apply for a KEES award. It is sent automatically to the college the student is attending and will reduce the student's tuition bill. For each and every year of high school that a student earns an unweighted GPA of 2.5 or higher, the student will "bank" a certain amount of money to be used for tuition at any Kentucky college or post-secondary training program or qualifying out-of-state program. A student's Base Award is determined by GPA, but additional money can be earned with good scores on the ACT and AP exams (for students on free/reduced lunch). Awards are granted for any four years within five years of a student's graduation.

GPA	Money Earned
2.5	\$125
2.75	\$187
3.0	\$250
3.25	\$312
3.5	\$375
3.75	\$437
4.0	\$500

For students who have been eligible for free/reduced lunch during any year while in high school, you can receive a supplemental award for a qualifying score on an AP exam.

AP Test Score	Money Earned
3	\$200
4	\$250
5	\$300

ACT Score	Money Earned
15	\$36
16	\$71
17	\$107
18	\$143
19	\$179
20	\$214
21	\$250
22	\$286
23	\$321
24	\$357
25	\$393
26	\$428
27	\$464
28	\$500



## Sample Standard Four Year Plan

Freshman Year	
1st Semester	2nd Semester
English 1 (year long course)	English 1 (year long course)
Algebra 1 (year long course)	Algebra 1 (year long course)
Prin of Tech w/ Earth/Space	World History
Health/PE	Elective #1
Elective #2	Elective #3

Sophomore Year	
1st Semester	2nd Semester
English 2 (year long course)	English 2 (year long course)
Geometry (year long course)	Geometry (year long course)
Biology (year long course)	Biology (year long course)
Government & Civics	Elective #1
Elective #2	Elective #3

Junior Year	
1st Semester	2nd Semester
English 3 (year long course)	English 3 (year long course)
Algebra 2 (year long course)	Algebra 2 (year long course)
US History (year long course)	US History (year long course)
Chemistry	Elective #1
Elective #2	Elective #3

Senior Year	
1st Semester	2nd Semester
English IV	Algebra III or Math Concepts
Elective #1	Elective #2
Elective #3	Elective #4
Elective #5	Elective #6
Elective #7	Elective #8

## Sample Honors/AP Four Year Plan

Freshman Year	
1st Semester	2nd Semester
English 1 Honors (year long course)	English 1 Honors (year long course)
Honors Geometry (year long course)	Honors Geometry (year long course)
Honors Biology	Honors Biology
World History	Integrated Health/PE
Elective #2	Elective #3

Sophomore Year	
1st Semester	2nd Semester
English 2 Honors (year long course)	English 2 Honors (year long course)
Honors Algebra II (year long course)	Honors Algebra II (year long course)
Honors Chemistry	Government & Civics
Elective #1	Elective #2
Elective #3	Elective #4

Junior Year	
1st Semester	2nd Semester
English 3/AP Literature/Dual Credit ENG 101 (year long courses except Dual Credit)	English 3/AP Literature (year long course) Elective if ENG 101 is taken 1st semester
Pre-Calculus/Dual Credit Math (Pre-Cal is year long course, Dual Credit Math is semester course)	Pre-Calculus/Dual Credit Math/Elective (Elective can be taken if Dual Credit Math is taken 1st semester)
US History (year long course)	US History (year long course)
Elective #1	Elective #2
Elective #3	Elective #4

Senior Year	
1st Semester	2nd Semester
English IV or Dual Credit ENG 102	Elective #1
AP Calculus or Dual Credit Math	AP Calculus/Dual Credit Math/Elective
Elective #2	Elective #3
Elective #5	Elective #6
Elective #7	Elective #8

## Grading

GPA Calculations			
Non AP or Dual Credit Classes		AP or Dual Credit Classes	
A	4 points	A	5 points
B	3 points	B	4 points
C	2 points	C	3 points
D	1 point	D	2 points
F	0 points	F	0 points

Grading Scale	
A	90-100%
B	80-89%
C	70-79%
D	60-69%
F	0-59%
I	Incomplete

GCHS utilizes Standards Based Grading for most courses. If the course does not use this system, the teacher will provide that information in the course syllabus.

## Pre-College Curriculum

Any student wishing to attend/apply to a 4-year Kentucky public university should complete the following coursework:

Subject	Credits Required
Language Arts	4 credits: English I, II, III, IV or AP English
Mathematics*	3 credits: Algebra I, Algebra II, geometry
Science	3 credits: to include life science, physical science and earth/space science (at least one lab course)
Social Studies	3 credits: U.S. history, economics, government, world geography and world civilization
Health	1/2 credit
Physical Education	1/2 credit
History and Appreciation of Visual and Performing Arts	1 credit history and appreciation of visual and performing arts or another arts course that incorporates such content or students may earn the credit for specialization in an art form
Foreign Language	2 credits or demonstrated competency
Electives	7 credits (5 rigorous)*

For more information, please visit <https://www.kheaa.com/website/kheaa/home>

# Programs of Interest

## **Governor's Scholar Program (GSP)**

The Governor's Scholars Program is a summer residential program for outstanding high school students in Kentucky who are rising seniors. The Program originated in 1983 as a result of Kentucky leaders' concern that the state's "best and brightest" were leaving the Commonwealth to pursue educational and career opportunities elsewhere without fully understanding the potential of their talents at home. Students who are selected attend the Program without charge.

For more information please visit the GSP website: <https://gsp.ky.gov/Pages/index.aspx>

## **Governor's School for Entrepreneurs (GSE)**

The Governor's School for Entrepreneurs (GSE) identifies and enables Kentucky high school students to become our Commonwealth's next generation of entrepreneurs. Through our three-week residential experience, GSE participants from throughout the Commonwealth are:

1. Introduced to KY's most successful entrepreneurs and fastest growing businesses,
2. Equipped with the tools and skills to create and build their own businesses, and
3. Matched with complementary skilled peers to develop business plans and product or service prototypes. The annual GSE intensive program culminates in a pitch competition attended by a large audience representing Kentucky's entrepreneurial ecosystem.

For more information please visit the GSE website: <https://kentuckygse.com/>

## **Governor's School for the Arts (GSA)**

Every summer, our faculty of professional artists and educators guide over two hundred of Kentucky's finest young artists through three weeks of incredibly intense (and incredibly fun) arts instruction. For three solid weeks, the students live, breathe, eat and sleep the arts. It's a thrilling, often life-changing experience, as they meet new friends, explore their creativity, and discover new things about who they are and who they can be in the future.

For more information please visit the GSA website:

<https://www.kentuckyperformingarts.org/education/governors-school-for-the-arts/about>

## **Gatton Academy**

Students come from all across Kentucky to The Gatton Academy on the campus of Western Kentucky University. Those who attend finish their junior and senior years of high school while they start college. Conducting research with professors, studying abroad, and attending college classes are just a few of the opportunities our students explore during their 2-year career at Gatton. While challenged academically, our students thrive in a supportive environment designed just for them and make lifelong friends. What's more, tuition, fees, room and board are paid for by the Commonwealth of Kentucky.

For more information please visit the Gatton Academy website: <https://www.wku.edu/academy/>

# Course Offerings

## Core Classes

[English](#)

[Math](#)

[Science](#)

[Social Studies](#)

## Elective Offerings

[Health/PE](#)

[Performing Arts](#)

[Visual Arts](#)

[Media Studies](#)

[Foreign Language](#)

[Science Electives](#)

[Social Studies Electives](#)

## Career & Technical Education

[Agriculture](#)

[Automotive](#)

[Biomedical Sciences](#)

[Business](#)

[Electrical Technology](#)

[Engineering](#)

[Family and Consumer Science](#)

[Culinary](#)

[Health Science](#)

[Information Technology](#)

[JROTC](#)

[Welding Technology](#)

## Dual Credit

[Northern Kentucky University](#)

[Gateway Community and  
Technical College](#)

[Murray State University](#)



# English

All English courses are full year with the exception of English IV or dual credit equivalents to English III and/or English IV. Students must successfully complete 4 credits of English for graduation.

## English I - 230107

Grade 9 - 1 credit

Prerequisite: None

**\*Course required for graduation.** The course is designed to present a wide range of reading experiences with print and non-print texts for literary, informational, argumentative, analytical and practical purposes. Students use writing-to-learn and writing-to-demonstrate-learning strategies, as well as the writing process and criteria for effective writing, to comprehend and analyze complex texts and write in a variety of forms and for multiple audiences and purposes. Receptive and expressive skills are used to communicate information for a variety of authentic purposes, situations, and audiences. The integration of inquiry skills and technology with the other strands allows students to continue to discover and communicate ideas and information.

## English I Honors - H230107

Grade 9 - 1 credit

Prerequisite: A/B average in previous English course; Assessment data

This course meets the English I requirements but emphasizes higher level skills and serves as a feeder program for AP English Language.

## English II - 230110

Grade 10 - 1 credit

Prerequisite: English I

**\*Course required for graduation.** The course is designed to present a wide range of reading experiences with print and non-print texts for literary, informational, argumentative, analytical and practical purposes. Students use writing-to-learn and writing-to-demonstrate-learning strategies, as well as the writing process and criteria for effective writing, to comprehend and analyze complex texts and write in a variety of forms and for multiple audiences and purposes. Receptive and expressive skills are used to communicate information for a variety of authentic purposes, situations, and audiences. The integration of inquiry skills and technology with the other strands allows students to continue to discover and communicate ideas and information.

## English II Honors - H230110

Grade 10 - 1 credit

Prerequisite: A/B average in previous English course; Assessment data

This course meets the English II requirements but emphasizes higher level skills and serves as a feeder program for AP English Language.

## English III - 230113

Grade 11 - 1 credit

Prerequisite: English II

**\*Course required for graduation.** This course is designed to present a wide range of reading experiences with print and non-print texts for literary, informational, argumentative, analytical and practical purposes. Students use writing-to-learn and writing-to-demonstrate-learning strategies, as well as the writing process and criteria for effective writing, to comprehend and analyze complex texts and write in a variety of forms and for multiple audiences and purposes. Receptive and expressive skills are used to communicate information for a variety of authentic purposes, situations, and audiences. The integration of inquiry skills and technology with the other strands allows students to continue to discover and communicate ideas and information.

## AP Language and Composition (English III) - 230166

Grade 11 - 1 credit

Prerequisite: Consent of most recent English instructor, final English II grade of at least 90% or final English II Honors grade of at least 80%, Assessment data

The AP English Language and Composition course focuses on the development and revision of evidence-based analytic and argumentative writing, the rhetorical analysis of nonfiction texts, and the decisions writers make as they compose and revise. Students evaluate, synthesize, and cite research to support their arguments. Additionally, they read and analyze rhetorical elements and their effects in nonfiction texts—including images as forms of text—from a range of disciplines and historical periods. College credit is earned with a qualifying score on an AP exam. **There is a fee associated with the AP exam.**

**\*This course will receive weighted credit at GCHS.**

## English IV - 230116

Grade 12 - 1 credit (1 semester)

Prerequisite: English III

**\*Course required for graduation.** This course is designed to present a wide range of reading experiences with print and non-print texts for literary, informational, argumentative, analytical and practical purposes. Students use writing-to-learn and writing-to-demonstrate-learning strategies, as well as the writing process and criteria for effective writing, to comprehend and analyze complex texts and write in a variety of forms and for multiple audiences and purposes. Receptive and expressive skills are used to communicate information for a variety of authentic purposes, situations, and audiences.

### **Dual Credit options for English III and/or English IV**

Students may enroll in an accredited dual credit courses to fill the requirement for English III (ENG 101) and/or English IV (ENG 101 or ENG 102). Students must meet the admission requirements of the institution in which they plan to enroll for the English course. Please see a school counselor for further instruction.

**\*Dual credit courses will receive weighted credit at GCHS.**

# Mathematics

Students must take one math class each year which must include Algebra I, Algebra II, Geometry, and a math elective. Students entering high school in the 2019-2020 school year, and following, who received Algebra I credit at the middle school level are required to complete a total of four math credits.

## **Algebra I - 270304**

Grade 9-10 - 1 credit

Prerequisite: None

**\*Course required for graduation.** This course is the study of high school Algebra 1 content. Upon completion of the course, students should be able to: (1) extend the properties of exponents to rational exponents; (2) reason quantitatively and use units to solve problems; (3) interpret the structure of linear, quadratic, and exponential expressions; (4) write expressions in equivalent forms to solve problems; (5) perform arithmetic operations on polynomials; (6) understand the relationship between zeros and factors of first and second degree polynomials; (7) create linear, quadratic, or exponential equations that describe numbers or relationships; (8) understand solving equations as a process of reasoning and explain the reasoning; (9) solve equations and inequalities in one variable and solve systems of linear equations in two variables; (10) represent and solve equations and inequalities (including systems of linear equations and inequalities) graphically; (11) understand the concept of a function, specifically a linear, quadratic or exponential function and use function notation; (12) interpret linear, quadratic and exponential functions that arise in applications in terms of the context; (13) analyze functions (especially linear and quadratic functions) using different representations; (14) build a function that models a relationship between two quantities; (15) construct and compare linear, quadratic and exponential models and solve problems; (16) interpret expressions for functions in terms of the situation they model; (17) summarize, represent and interpret data on two quantitative variables; and (18) interpret linear models. This course should be designed to meet the high school graduation credit for Algebra 1 and to build a solid foundation necessary for future high school mathematics courses.

## **Geometry - 270401**

Grade 10-12 - 1 credit

Prerequisite: Algebra I

**\*Course required for graduation.** This course is the study of high school Geometry content. Upon completion of the course, students should be able to (1) reason quantitatively and use units to solve problems; (2) experiment with transformations in the plane; (3) understand congruence in terms of rigid motions; (4) prove geometric theorems; (5) make geometric constructions; (6) understand similarity in terms of similarity transformations; (7) prove theorems involving similarity; (8) define trigonometric ratios and solve problems involving right triangles; (9) understand and apply theorems about circles; (10) translate between the geometric description and the equation for a conic section; (11) use coordinates to prove simple geometric theorems algebraically; (12) explain volume formulas and use them to solve problems; (13) visualize relationships between two-dimensional and three-dimensional objects; and (14) apply geometric concepts in modeling situations.

## **Geometry Honors - H270401**

Grade 9-11 - 1 credit

Prerequisite: Grade of A or B in Algebra I and/or teacher recommendation

This course enriches the same material as Geometry with more emphasis on theory, a higher degree of difficulty in problem solving, and independent study.

## **Algebra II - 270311**

Grade 10-12 - 1 credit

Prerequisite: Algebra I

**\*Course required for graduation.** Upon completion of the course, students should be able to (1) reason quantitatively and use units to solve problems; (2) perform arithmetic operations with complex numbers and use complex numbers as necessary within the process of solving quadratic equations; (3) perform operations on matrices and use matrices in applications; (4) interpret the structure of expressions; (5) write polynomial expressions in equivalent forms to solve problems; (6) understand the relationship between zeros and factors of polynomials; (7) create equations that describe numbers or relationships; (8) understand solving equations, including radical and rational equations, as a process of reasoning and explain the reasoning; (9) solve systems of equations consisting of linear and quadratic equations; (10) understand the concept of a function, use function notation and interpret functions that arise in applications in terms of the context; (11) analyze functions using different representations; (12) build a function that models a relationship between two quantities by combining standard function types using arithmetic operations; (13) construct and compare models and solve problems; (14) summarize, represent and interpret data on one or two categorical and quantitative variable(s); (15) understand and evaluate random processes underlying statistical experiments; (16) make inferences and justify conclusions from sample surveys, experiments and observational studies; (17) understand independence and conditional probability and use them to interpret data; and (18) use the rules of probability to compute probabilities of compound events.

## **Algebra II Honors - H270311**

Grade 10-11 - 1 credit

Prerequisite: Grade of A or B in Geometry and/or Algebra I and/or teacher recommendation

This course enriches the same material as Algebra II with more emphasis on theory, a higher degree of difficulty in problem solving, and independent study.



### **Algebra III - 270320**

Grade 11-12 - 1 credit (1 semester)

Prerequisite: Algebra I, Geometry, and Algebra II

This course is designed for students who intend to attend college and are in need of additional preparation in order to be successful in credit-bearing College Algebra.

An Algebra 3 course may include, but is not limited to, objectives that require students to solve applied (in context) problems using various types of equations (linear, quadratic, exponential, trigonometric, logarithmic and power functions piece-wise), to read and analyze real-life problems using mathematical modeling, to perform matrix operations, to graph and interpret data represented by linear, quadratic, exponential, logarithmic and power functions, to use numerical and graphical data to make reasonable and valid conclusions, to solve applied problems that can be modeled with equations and inequalities involving absolute value, to solve systems of linear equations using several techniques including matrices, to use and verify trigonometric identities, to solve applied problems that can be modeled with exponential and logarithmic equations, to find terms of sequences and to find the sum of finite series.

### **Probability and Statistics - 270602**

Grade 11-12 - 1 credit (1 semester)

Prerequisite: Algebra I, Geometry, Algebra II

Upon completion of this course, students should be able to (1) summarize, represent and interpret data on a single count or measurement variable; (2) summarize, represent and interpret data on two categorical and quantitative variables; (3) interpret linear, quadratic and exponential models; (4) understand and evaluate random processes underlying statistical experiments; and (5) make inferences and justify conclusions from sample surveys, experiments and observational studies. (6) understand independence and conditional probability and use them to interpret data; (7) use the rules of probability to compute probabilities of compound events in a uniform probability model; (8) calculate expected values and use them to solve problems; and (9) use probability to evaluate outcomes of decisions. Technology should be an integral part of this course to generate plots, regressions functions and correlation coefficients and to simulate possible outcomes relatively quickly based on a given situation.

### **Mathematics Concepts - 270661**

Grade 12 - 1 credit (1 semester)

Prerequisite: Algebra I, Geometry, Algebra II

This course is designed for students who need additional time and support to complete the Kentucky Core Academic Standards for graduation requirements or who may not have attained the benchmark ACT score in mathematics.

Topics include probability and statistics, extension of algebra and geometry concepts beyond what was addressed in the student's foundational courses, and discrete mathematics.

## **Pre-Calculus - 270501**

Grade 11-12 - 1 credit

Prerequisite: Algebra I, Geometry, Algebra II

This course is designed for students to attain the concepts necessary to be successful in a Calculus course, an AP Calculus course or a Calculus course at a college or university. Objectives for this course should include, but are not limited to solve equations and inequalities involving polynomial, rational, exponential, logarithmic and trigonometric functions, to understand and apply the behavior and properties of polynomial, rational, exponential, logarithmic and trigonometric functions, to graph polynomial, rational, exponential, logarithmic and trigonometric functions, to use technology to solve and graph various types of equations and inequalities and to prove trigonometric identities.

## **AP Calculus AB - 270513**

Grade 12 - 1 credit

Prerequisite: Pre-Calculus

(Course offering is determined based on number of students requesting course)

AP Calculus AB focuses on students' understanding of calculus concepts and provides experience with methods and applications. Through the use of big ideas of calculus (e.g., modeling change, approximation and limits, and analysis of functions), each course becomes a cohesive whole, rather than a collection of unrelated topics. Both courses require students to use definitions and theorems to build arguments and justify conclusions. The courses feature a multi representational approach to calculus, with concepts, results, and problems expressed graphically, numerically, analytically, and verbally. Exploring connections among these representations builds understanding of how calculus applies limits to develop important ideas, definitions, formulas, and theorems. A sustained emphasis on clear communication of methods, reasoning, justifications, and conclusions is essential. Teachers and students should regularly use technology to reinforce relationships among functions, to confirm written work, to implement experimentation, and to assist in interpreting results. College credit is earned with a qualifying score on an AP exam. **All students are encouraged to take the AP exam in the spring. There is a fee associated with the AP exam.**

**\*This course will receive weighted credit at GCHS.**

# Science

Students must successfully complete 3 credits of science for graduation. Courses required are noted below.

## **Principles of Technology w/ Earth and Space Science (PTESS) - 304698**

Grade 9 - 1 credit (1 semester)

Prerequisite: None

\*Course required for graduation. Students develop understandings of traditional physics and Earth/space science concepts, as outlined in the Kentucky Academic Standards for Science, through the use of the science and engineering practices. Students investigate concepts of force, work, efficiency, rate, and energy. Students apply conceptual understandings to industrial, technological, and personal situations. Students will learn these core ideas through the use of the science and engineering practices and crosscutting concepts. The science and engineering practices are the skills students will use as they investigate the natural world and develop solutions to problems. The crosscutting concepts are conceptual ways of thinking that cross the domains of science. It is suggested that Principles of Technology with Earth/Space Science be taken before either Introductory Chemistry with Earth/Space Science or Introductory Biology with Earth/Space Science.

## **Intro to Biology w/ Earth and Space Science - 304698**

Grade 10 - 1 credit

Prerequisite: Principles of Tech w/ Earth & Space

\*Course required for graduation. Students develop a conceptual understanding of biological sciences, as outlined in the Kentucky Academic Standards for Science. They experience concepts such as the cellular organization; molecular basis of heredity; biological change; interdependence of organisms; matter, energy and organization in living systems; and behavior of organisms. Students will learn these core ideas through the use of the science and engineering practices and crosscutting concepts. The science and engineering practices are the tools students will use, and skills they develop, as they investigate the natural world, and develop solutions to problems. The crosscutting concepts are conceptual ways of thinking that cross the domains of science.

## **Honors Intro to Biology w/ Earth and Space Science - H304698**

Grade 10 - 1 credit

Prerequisite: B+ or better in previous year's science course and recommendation from science teacher.

This course is an in-depth and rigorous course of study designed for students who demonstrate high academic achievement and motivation in science. The topics and depth of coverage will offer rigorous and challenging introductory life science courses.

## **Intro to Chemistry w/ Earth and Space Science - 304598**

Grade 10-12 - 1 credit (1 semester)

Prerequisite: PTESS and Biology

\*Course required for graduation. This course focuses on problem solving techniques; bonding; equilibrium; equations. Students develop a conceptual understanding of chemistry content, outlined in the Kentucky Academic Standards. Students will learn these core ideas within these topics through the use of the science and engineering practices and crosscutting concepts. The science and engineering practices are skills students will use as they investigate the natural world and develop solutions to problems. The crosscutting concepts are conceptual ways of thinking that cross the domains of science. This course satisfies the state graduation requirement for physical science.

## **Honors Intro to Chemistry w/ Earth and Space Science - H304598**

Grade 10-12 - 1 credit (1 semester)

Prerequisite: Algebra I, B- or better in Biology with a Biology teacher recommendation

A college preparatory course, this course enriches the material covered in Intro to Chemistry (above). Chemistry Honors is recommended for all students who intend to attend college– especially in the physical sciences, medical sciences (nursing, dental, veterinary science, etc.), or engineering sciences. This course satisfies the state graduation requirement for physical science.

# Science Electives

\* Science elective courses may not be offered every year.

## **Forensics - 302616**

Grade 11-12 - 1 credit (1 semester)

Prerequisite: Biology I and Chemistry I (highly recommended)

This course is a problem-based inquiry course dealing with forensic sciences. This is an elective course that does not count toward the required science credits.

## **Marine Biology - 302621**

Grade 10-12 - 1 credit (1 semester)

Prerequisite: Biology I

This course addresses key concepts related to marine science, including ocean zones, seawater, habitats, and marine taxonomy. This is an elective course that does not count towards the required science credits.

## **Meteorology - 304613**

Grade 10-12 - 1 credit (1 semester)

Prerequisite: PTESS

This course focuses on the study of weather, the atmosphere, clouds, and frontal weather conditions.

## **Geology - 304631**

Grade 10-12 - 1 credit (1 semester)

Prerequisite: PTESS

Major concepts addressed in this course include erosion, glaciation, mountain formation, and diastrophism.



# Social Studies

Students must successfully complete 3 credits of social studies for graduation.

## **World History - 450835**

Grade 9 - 1 credit (1 semester)

Prerequisite: None

\*Course required for graduation. This World History course engages students in historical thinking focused on the Pre-Modern era to the present, from 1300 to the present. History is the study of past events, often including an explanation of their causes. Students need to understand their historical roots and those of others and how past events have shaped their world. In developing these insights, students must know what life was like in the past and how things change and develop over time. Reconstructing and interpreting historical events provides a needed perspective in addressing the past, the present and the future.

## **Government and Civics (formerly Integrated Social Studies) - 451031**

Grade 10 - 1 credit (1 semester)

Prerequisite: World History

\*Course required for graduation. Government and Civics is the study of citizenship responsibilities and government - introduction; federal, state and local government; organization and function. It also covers the study of United States voting procedures; court operations; local, state and national lawmaking.

## **US History - 450812**

Grade 11 - 1 credit

Prerequisite: World History and Integrated Social Studies or Government and Civics

\*Course required for graduation. This U. S. History course explores events, movements and ideas from 1877 to the present. History is the study of past events, often including an explanation of their causes. Students need to understand their historical roots and those of others and how past events have shaped their world. In developing these insights, students must know what life was like in the past and how things change and develop over time. Reconstructing and interpreting historical events provides a needed perspective in addressing the past, the present and the future.

## **AP US History - 450814**

Grade 11 - 1 credit

Prerequisite: B or better in World History and Integrated Social Studies or Government and Civics; ability to read and comprehend college-level materials; recommendation of sophomore English and social studies teachers; assessment data

\*Course required for graduation. In AP U.S. History, students investigate significant events, individuals, developments, and processes in nine historical periods from approximately 1491 to the present. Students develop and use the same skills and methods employed by historians: analyzing primary and secondary sources; developing historical arguments; making historical connections; and utilizing reasoning about comparison, causation, and continuity and change. The course also provides eight themes that students explore throughout the course in order to make connections among historical developments in different times and places: American and national identity; work, exchange, and technology; geography and the environment; migration and settlement; politics and power; America in the world; American and regional culture; and social structures. College credit is earned with a qualifying score on an AP exam. This course requires summer work. It is the students' responsibility to get the summer assignment from the instructor and complete the work before the start of the school year. Summer assignments will be assessed during the first two weeks of the school year. All students are encouraged to take the AP exam. There is a fee associated with this exam.

\*This course will receive weighted credit at GCHS.

# Social Studies Electives

Social Studies elective courses may not be offered every year.

## **Law and Justice - 451039**

Grade 11-12 - 1 credit (1 semester)

Prerequisite: World History, Integrated Social Studies or Government and Civics, completed or enrolled in US History

Law and Justice is a study of law-civil, criminal, constitutional, and international; the legal and justice systems. Students will examine the need for rules and regulations; interpretations of the constitution, both state and federal; Supreme Court decisions; the Bill of Rights, and individual rights law, criminal law, family law, and consumer law. The study of the basic social contracts of society will enable students to understand the preferred democratic values: justice, equality, responsibility, freedom, rule of law, human rights, honesty, equity, rational process and human dignity. This is an elective course that does not count toward the required social studies credits.

## **Sociology - 451121**

Grade 11-12 - 1 credit (1 semester)

Prerequisite: World History, Integrated Social Studies or Government and Civics, completed or enrolled in US History

Sociology is the scientific study of human society. It is concerned with the behavior of human beings in group situations. The study of sociology, therefore, consists of trying to understand: The basic units and institutions of social life, such as the family, schools, neighborhoods, rural and urban communities, and the many other kinds of groups with which humans identify. This group can include occupational, political, religious, ethnic, family, economic status, or ideology. The sociological perspectives focus on how those social relationships arise, why they persist, why antagonisms develop, and how they maintain social order to contribute to social change. This is an elective course that does not count toward the required social studies credits.

## **Psychology - 459901**

Grade 11-12 - 1 credit (1 semester)

Prerequisite: World History, Integrated Social Studies or Government and Civics, completed or enrolled in US History

Psychology is an introduction to the basic scientific theoretical principles of individual human behavior. Students will be exposed to various topics in the field of psychology research. This is an elective course that does not count toward the required social studies credits.

## **Political Science - 451029**

Grade 11-12 - 1 credit (1 semester)

Prerequisite: World History, Integrated Social Studies or Government and Civics, completed or enrolled in US History

Political Science is the study of local, national, and foreign political processes. This is an elective course that does not count toward the required social studies credits.

# Health and Physical Education

## Integrated Health & Physical Education - 340290

Grade 9-12 - 1 credit (1 semester)

Prerequisite: None

**\*Course required for graduation.** This course is designed to give students the opportunity to learn through a comprehensive sequentially planned Physical Education and Health Education program by combining the Kentucky Academic Standards for High School Physical Education and High School Health Education into one course. **Students are expected to dress appropriately for physical activity and wear athletic shoes. Participation is required.**

## Advanced Sports Skills - SS340219

Grade 9-12 - 1 credit (1 semester)

Prerequisite: Integrated Health & Physical Education

This course offers students the opportunity to strengthen the specific skills of different sports including team and individual sports. **Students are expected to dress appropriately for physical activity and wear athletic shoes. Students must be able to do at least 10 minutes of cardio and to participate in weight training. Participation is required.**

## Foundations of Sports and Exercise - F340219

Grade 9-12 - 1 credit (1 semester)

Prerequisite: Integrated Health & Physical Education

This course is designed for students to learn about different aspects of sports such as officiating, nutrition, rules, athletic training, and careers associated with athletics. **Students are expected to dress appropriately for physical activity and wear athletic shoes. Students must be able to do at least 10 minutes of cardio and to participate in weight training. Participation is required.**

## Advanced Physical Education - 340219

Grade 9-12 - 1 credit (1 semester)

Prerequisite: Integrated Health & Physical Education

This course is designed to be an extension of Physical Education I to provide students with the advanced skills, knowledge, attitude and confidence to be active for a lifetime. **Students are expected to dress appropriately for physical activity and wear athletic shoes. Students must be able to do at least 10 minutes of cardio and to participate in weight training. Participation is required.**

## **Advanced Physical Education II - A340219**

Grade 9-12 - 1 credit (1 semester)

Prerequisite: Advanced PE

This course is an extension of the regular health and physical education class. It is designed to expose students to a variety of movement forms through sports and games. Students are required to maintain fitness through sports, weight training, and cardio. **Students are expected to dress appropriately for physical activity and wear athletic shoes. Students must be able to do at least 10 minutes of cardio and to participate in weight training. Participation is required.**

## **Fitness Conditioning - 340214**

Grade 9-12 - 1 credit (1 semester)

Prerequisite: Integrated Health & Physical Education, approval from teacher

This course emphasizes conditioning activities that help develop muscular strength, muscular endurance, flexibility, and cardiorespiratory endurance. **Students are expected to dress appropriately for physical activity and wear athletic shoes. Students must be able to do at least 10 minutes of cardio and to participate in weight training. Participation is required.**

## **Sports Across The World - W340219**

Grade 9-12 - 1 credit (1 semester)

Prerequisite: Integrated Health & Physical Education

This course introduces various sports to the student. All of those sports will be from different countries across the globe. A few of the sports included are cricket, team handball, and squash. **Students are expected to dress appropriately for physical activity and wear athletic shoes. Students must be able to do at least 10 minutes of cardio and to participate in weight training. Participation is required.**



# Agriculture

## **Principles of Agricultural Science & Technology - 030715**

Grades 9-10 - 1 credit (1 semester)

Prerequisite: None

This course provides instruction in the foundations of various segments of the agricultural industry. Agricultural career opportunities will be emphasized. Animal science, plant and land science, and agricultural mechanics skills will be the focus of the curriculum. The selection and planning of a supervised agricultural experience program and related record keeping will be presented. Leadership development will be provided through the National FFA Organization.

## **Animal Science - 020501**

Grades 10-12 - 1 credit (1 semester)

Prerequisite: Principles of Agricultural Science & Technology

Animal Science develops basic knowledge and skills pertaining to animal identification, selection, nutrition, reproduction and genetics, health management, and marketing of farm and companion animals commonly produced in Kentucky. The latest production technologies, as well as biotechnological applications, will be included. Leadership development will be provided through the National FFA Organization.

\* Industry Certification Course (Must have completed Principles of Agriculture and Small Animal Tech to have the best opportunity of successful completion of the certification.)

## **Equine Science - 020510**

Grades 10-12 - 1 credit (1 semester)

Prerequisite: Principles of Agricultural Science & Technology

Equine Science develops knowledge and skill pertaining to breed identification and selection, anatomy, physiology, nutrition, genetics and reproductive management, training principles, grooming, health disease, parasite control, and sanitation practices. Leadership development will be provided through the National FFA Organization.

## **Veterinary Science - 020511**

Grades 10-12 - 1 credit (1 semester)

Prerequisite: Principles of Agricultural Science & Technology

Veterinary science topics include safety, sanitation, anatomy and physiology, clinical exams, hospital procedures, parasitology, posology, laboratory techniques, nutrition, disease, office management, and animal management. Careers are also explored. Leadership development will be provided through the National FFA Organization.

\* Industry Certification Course (Must have completed Principles of Agriculture)

## **Greenhouse Technology - 010641**

Grades 10-12 - 1 credit (1 semester)

Prerequisite: Principles of Agricultural Science & Technology

Greenhouse Technology provides instruction in greenhouse structures and greenhouse environment regulations. Plant growth and development and propagation are included as well as production and maintenance of bedding and container produced plants. Fundamental principles of vegetable production and commercial production of vegetable crops as well as marketing of horticulture products may be included. Leadership development will be provided through the National FFA Organization.

\* Industry Certification Course (Must have completed Principles of Agriculture)

## **Floriculture and Floral Design - 010621**

Grades 10-12 - 1 credit (1 semester)

Prerequisite: Principles of Agricultural Science & Technology

Floriculture and Floral Design provides instruction to develop floral design techniques using silk, dried, and fresh flowers. Students will learn operation and management techniques of a floral business as well as identification, production, and cultural maintenance practices of plants used in floral design and interior landscaping. Leadership development will be provided through the National FFA Organization.

## **Landscape & Turf Management - 010631**

Grades 10-12 - 1 credit (1 semester)

Prerequisite: Principles of Agricultural Science & Technology

This course includes identification of landscape plants and their characteristics, site evaluation, site design, calculation of materials needed, costs for bidding, and installing landscape plans. Landscape plant maintenance will also be presented. Selection, culture, and management of turf species used for lawns, golf courses, athletic fields and erosion control may also be included. Leadership development will be provided through the National FFA Organization.

## **Wildlife Resources - 030611**

Grades 10-12 - 1 credit (1 semester)

Prerequisite: Principles of Agricultural Science & Technology

Students develops an awareness of wildlife industry resources. This course includes: a study of ecology and ecosystems, wildlife habitat, population dynamics, management techniques that deal with wildlife in all areas, and the regulations that affect the wildlife industry. Content may be enhanced with appropriate applied scientific laboratory activities. Leadership development will be provided through the National FFA Organization.

### **Environmental Science - 030609**

Grades 10-12 - 1 credit (1 semester)

Prerequisite: Principles of Agricultural Science & Technology

This course is an intermediate scientific study of environmental technology. It is designed to develop an awareness of environmental concerns related to air, water, soil, land use management, waste management, and their interrelationship with the biological ecosystem. Soil formation, conservation, and evaluation material will also be included. Content will be enhanced with appropriate scientific laboratory activities, field experimentation, community development projects, and occupational development. Leadership development will be provided through the National FFA Organization.

### **Aquaculture - 020520**

Grades 10-12 - 1 credit (1 semester)

Prerequisite: Principles of Agricultural Science & Technology

Instruction provides the fundamentals of aquatic plant and animal biology, anatomy, morphology and physiology in aquaculture, and the unique properties of water for aquaculture. Fish and aquatic crop production principles, management, and marketing are also included. Applications of biotechnology in aquaculture and aquaculture as sustainable agriculture is also included. Content will be enhanced with appropriate applied scientific laboratory activities. Leadership development will be provided through the National FFA Organization.

### **Agriculture Sales - 010111**

Grades 10-12 - 1 credit (1 semester)

Prerequisite: Principles of Agricultural Science & Technology

This course provides an introduction to agricultural sales and marketing. Course material will include competition in the agriculture marketplace, marketing decisions, types of markets, contracting, government programs and regulations, personal development, employee and employer responsibilities, communications, promotion strategies, records, files, purchasing materials, stocking, selling, and business account procedures. Leadership development will be provided through the National FFA Organization.

### **Agriculture Communications - 010110**

Grades 10-12 - 1 credit (1 semester)

Prerequisite: Principles of Agricultural Science & Technology

This course develops an understanding of fundamental skills necessary to be successful in the agricultural communications industry. Provides guided practice and applied experience utilizing various styles of communication including oral, written, and electronic communications. Techniques of communications will include traditional print media, brochure development, photography, videography, computer program applications, and internet usage including e-mail. Leadership development will be provided through the National FFA Organization.

## Agribusiness/Farm Management - 010131

\*Not offered during 2023-2024 school year

Grades 10-12 - 1 credit (1 semester)

Prerequisite: Principles of Agricultural Science & Technology

This course introduces the free enterprise system, the study of economic principles, risk management, business law, budgets, finance, recordkeeping, and careers in agribusiness. Basic skills will be developed to manage a farm or agribusiness. Content will include managing production and inventory, equipment, credit and taxes, market analysis and developing a business plan. Leadership development will be provided through the National FFA Organization.

## GCHS Agriculture Education Program Course Offerings

They are categorized by pathways however, you can take classes in more than one pathway.  
You only need to complete one pathway to be considered Career Ready.

Take time to map out your 4 year journey through high school. Your first year you will take the only prerequisite required to take and pass to be eligible for any of the pathway courses.

GCHS Agriculture Education Course Offerings 2023-2027	Odd Years 2023-2024		Even Years 2024-2025		Odd Years 2025-2026		Even Years 2026-2027	
	Fall	Spring	Fall	Spring	Fall	Spring	Fall	Spring
Principles of Ag (Pre-req)	Butler	Butler	Butler	Butler	Butler	Butler	Butler	Butler
Principles of Ag (Pre-req)	Messer	Messer	Messer	Messer	Messer	Messer	Messer	Messer
Principles of Ag (Pre-req)		Messer		Messer		Messer		Messer
<b>Animal Science Pathway Courses</b>								
Animal Science	Butler		Butler		Butler		Butler	
Equine Science		Butler		Butler		Butler		Butler
Veterinary Science	Butler		Butler		Butler		Butler	
<b>Plant Science Pathway Courses</b>								
Greenhouse Tech		Butler		Butler		Butler		Butler
Floral Design		Butler		Butler		Butler		Butler
Landscaping/Sports Turf	Butler		Butler		Butler		Butler	
<b>Natural Resource Pathway Courses</b>								
Wildlife Resources	Messer		Messer		Messer		Messer	
Environmental Science		Messer		Messer		Messer		Messer
Aquaculture	Messer		Messer		Messer		Messer	
<b>Agribusiness Pathway Courses</b>								
Ag Sales	Messer				Messer			
Ag Communications		Messer		Messer		Messer		Messer
Agribusiness			Messer				Messer	

## **MURRAY STATE UNIVERSITY RACER ACADEMY**

### **Various Dual Credits/Grades 11-12**

**Prerequisite: 3.0 GPA and/or 18 on ACT and/or top half of class; recommendation of GCHS agriculture instructor**

Students can take various agriculture courses online. \$40 application fee (one-time fee) payable to MSU plus additional course fees (varies according to course). Students will receive the appropriate hours of college credit for completing the course assignments, quizzes, mid-term exam, and final exam. Students will have valid college transcript transferable to any state university. Contact receiving university for specific details. Students will follow all university deadlines and guidelines. Must complete an application with school counselor. Courses offered may vary from semester to semester at the discretion of MSU.

**\*Racer Academy courses will receive weighted credit at GCHS**

**Murray State Dual Credit Offerings (changes may occur from semester to semester)**

- **AGR 199:** Contemporary Issues in Ag. (3 hours) 030725\*  
Ag Communication or Special Topics in Agriculture
- **AGR 100:** Animal Science (3 hours) 030704\*  
Advanced Animal Science or Special Topics in Agriculture
- **AGR 133:** Field Applications in Agriculture (2 hours) 030726\*  
Agricultural Math or course to be determined by the local teacher
- **AGR 182:** Intro to Pre-Vet Science (3 hours, elective course) 020505\*  
Veterinary Science or Advanced Animal Science
- **AGR 130:** Intro to Agri-Business/Economics (3 hours) 010135\*  
Agribusiness Farm Mgmt, Ag. Sales and Marketing
- **AGR 140:** Plant Science (3 hours) 010615\*  
Greenhouse, Agri-science, floral design, nursery, crop science or any plant science related course
- **AGR 185:** Ag. Leadership (3 hours online) 030727\*  
Ag. Communications, Ag. Sales & Marketing or any course with leadership emphasis

**\*\*Co-operative education opportunities are available to 12<sup>th</sup> grade students in each Career and Technical Education area. Applications can be obtained from the program teacher or the Guidance Office and are to be returned to Mr. Butler after completion, including all required signatures, by deadlines provided. Students must meet all criteria as outlined in the agreement. Students will be required to maintain good attendance and submit biweekly timesheets.**

	Pathway	Pathway	Pathway	Pathway
	Animal Science	Horticulture & Plant Science	Ag-Business	Environmental Science
<b>Freshman</b>	Principles of Ag	Principles of Ag	Principles of Ag	Principles of Ag
<b>Sophomore</b>	Animal Science		Agribusiness & Farm Management	
<b>Junior</b>	Equine Science			
<b>Senior</b>	Veterinary Technology			
<b>Certification test</b>	ICEV Vet Science, ICEV Animal Science, EOP Animal Science	ICEV BASF Plant Science Certification, EOP Horticulture and Plant Science Systems	EOP-Agribusiness Systems	ICEV Ducks Unlimited Ecology Conservation & Management, EOP Environmental Science
<b>Post-Secondary Program</b>	UK, ECU, MSU	UK, ECU, MSU	UK, ECU, MSU	UK, ECU, MSU
<b>Related Occupations</b>	vet sciences, livestock producer, animal groomer, nutritionist, geneticist			

## **Animal Science Systems CIP 01.0901.00**

This pathway focuses on the scientific principles that underline the breeding, care, and management of agricultural animals and the production, processing, and distribution of agricultural animal products. This includes developing better, more efficient ways of producing and processing meat, poultry, eggs and dairy products, as well as studying genetics, nutrition, reproduction, growth and development of animals.

### **BEST PRACTICE COURSES**

**Choose (1-2) one – two credits from the following:**

030715 Principles of Agricultural Science and Technology  
030711 Agriscience

**Choose (2-3) two – three credits from the following:**

020501 Animal Science  
020502 Animal Technology  
020510 Equine Science  
020503 Small Animal Technology  
020511 Veterinary Science

**May substitute (1) one credit below for a pathway course:**

010702 Food Science and Technology  
010701 Food Processing, Distribution and Marketing  
020520 Aquaculture  
010111 Agriculture Sales and Marketing  
030713 Agri-biology Interdisciplinary  
010131 Agribusiness and Farm Management  
010121 Agriculture Employability Skills  
030790 Agricultural Education Co-op  
030791 Agricultural Education Internship

## **Horticulture and Plant Science Systems CIP 01.1101.00**

This pathway focuses on the scientific principles that underlie the breeding, cultivation, and production of agricultural plants, and the production, processing, and distribution of agricultural plant products. Includes instruction in the plant sciences, crop cultivation and production, and agricultural and food products processing.

### **BEST PRACTICE COURSES**

**Choose (1-2) one – two credits from the following:**

030715 Principles of Agricultural Science and Technology  
030711 Agriscience

**Choose (2-3) two – three credits from the following:**

010611 Introduction to Greenhouse and Crop Production  
010621 Floriculture and Floral Design  
010641 Greenhouse Technology  
010651 Nursery and Orchard Technology  
010631 Landscape and Turf Management  
010610 Crop Technology

**May substitute (1) one credit below for a pathway course:**

010131 Agribusiness and Farm Management  
010121 Agriculture Employability Skills  
010111 Agriculture Sales and Marketing  
030713 Agri-biology Interdisciplinary  
030790 Agricultural Education Co-op  
030791 Agricultural Education Internship



## **Environmental Science and Natural Resources Systems CIP 03.0101.00**

This pathway focuses on the studies and activities relating to the natural environment and its conservation, use, and improvement. The basic principles of environmental science and natural resource management are the foundational concepts of this pathway. Subjects addressed include air, soil, water, wildlife, plants, and sources of energy. Instruction related to using these resources economically as well as recreationally is also included.

### **BEST PRACTICE COURSES**

**Choose (1-2) one – two credits from the following:**

030715 Principles of Agricultural Science and Technology  
030711 Agriscience (CTE Credit) OR 030712 (Science Credit)

**Choose (2-3) two – three credits from the following:**

030610 Forestry  
030609 Environmental Science and Technology  
030611 Wildlife Resources  
020520 Aquaculture  
010611 Introduction to Greenhouse and Crop Production  
030713 Agri-biology Interdisciplinary

**May substitute (1) one credit below for a pathway course:**

010121 Agricultural Employability Skills  
010641 Greenhouse Technology  
030790 Agricultural Education Co-op  
030791 Agricultural Education Internship

## **Agribusiness Systems CIP 01.1010.00**

Agribusiness systems contribute to the production, processing, marketing, distribution, financing and development

### **BEST PRACTICE COURSES**

**Choose (1-2) one – two credits from the following:**

030715 Principles of Agricultural Science and Technology  
030711 Agriscience (CTE Credit) OR 030712 (Science Credit)

**Choose (2-3) two – three credits from the following:**

010131 Agribusiness and Farm Management  
010121 Agriculture Employability Skills  
010111 Agriculture Sales and Marketing  
010110 Agriculture Communication  
010101 Advanced Agricultural Economics and Agribusiness Management

**May substitute (1) one credit below for a pathway course:**

010641 Greenhouse Technology  
030790 Agricultural Education Co-op  
030791 Agricultural Education Internship

# Automotive Technology

According to federal statistics 22% of all jobs are related to transportation. If you like working around, fixing, improving and building cars, trucks or anything else that has an engine, we are the program for you. There are 4 classes available: AMLR A-B-C-D. The 4 classes can be taken freshman through senior year. In all classes *students work in teams* to diagnose, research, repair various problems from individual components on school trainers to entire systems on vehicles. The automotive technology program is nationally certified through NATEF and has several articulation agreements in place with local colleges for students to continue their education. Proper work attitudes and preparation are required and graded in all classes.

## **Automotive Maintenance & Light Repair A w/ Lab - 470507**

Grade 9 - 1 credit (1 semester)

Prerequisite: None

These courses introduce the student to the principles, theories, and concepts of Automotive Technology, and include instruction in the maintenance and light repair of Engines, Brake Systems, Electrical/Electronic Systems, Suspension and Steering Systems, Automatic and Manual Transmission/Transaxles, and Engine Performance Systems. In all areas, appropriate theory, safety, and support instruction will be taught and required for performing each task, including proper care and cleaning of customers vehicles. The instruction will also include identification and use of appropriate tools and testing/measurement equipment required to accomplish certain tasks. The student will also receive the necessary training to locate and use current reference and training materials from accepted industry publications and resources, and demonstrate the ability to write work orders. **There is a \$20 lab fee associated with this course.**

## **Automotive Maintenance & Light Repair B w/ Lab - 470509**

Grades 10-12 - 1 credit (1 semester)

Prerequisite: AMLR A

These courses introduce the student to the principles, theories, and concepts of Automotive Technology, and include instruction in the maintenance and light repair of Engines, Brake Systems, Electrical/Electronic Systems, Suspension and Steering Systems, Automatic and Manual Transmission/Transaxles, and Engine Performance Systems. In all areas, appropriate theory, safety, and support instruction will be taught and required for performing each task, including proper care and cleaning of customers vehicles. The instruction will also include identification and use of appropriate tools and testing/measurement equipment required to accomplish certain tasks. The student will also receive the necessary training to locate and use current reference and training materials from accepted industry publications and resources, and demonstrate the ability to write work orders. **There is a \$20 lab fee associated with this course.**

## **Automotive Maintenance & Light Repair C w/ Lab - 470511**

Grades 11-12 - 2 credits (2 periods, 1 semester)

Prerequisite: AMLR A and B

**This course is taught in the spring for 2 periods.**

These courses introduce the student to the principles, theories, and concepts of Automotive Technology, and include instruction in the maintenance and light repair of Engines, Brake Systems, Electrical/Electronic Systems, Suspension and Steering Systems, Automatic and Manual Transmission/Transaxles, and Engine Performance Systems. In all areas, appropriate theory, safety, and support instruction will be taught and required for performing each task, including proper care and cleaning of customers vehicles. The instruction will also include identification and use of appropriate tools and testing/measurement equipment required to accomplish certain tasks. The student will also receive the necessary training to locate and use current reference and training materials from accepted industry publications and resources, and demonstrate the ability to write work orders.

Part of the class work is devoted to the student obtaining certifications. College & Career certification is needed to co-op the senior year. Students are expected to use proper shop procedures, work habits, and work attitudes at all times. **This course is taught in the spring semester only. There is a \$20 lab fee associated with this course.**

## **Automotive Maintenance & Light Repair D w/ Lab - 4705013**

Grades 11-12 - 2 credits (2 periods, 1 semester)

Prerequisite: AMLR A, B, and C

**This course is taught in the fall for 2 periods to allow seniors to co-op in the spring of their senior year.**

These courses introduce the student to the principles, theories, and concepts of Automotive Technology, and include instruction in the maintenance and light repair of Engines, Brake Systems, Electrical/Electronic Systems, Suspension and Steering Systems, Automatic and Manual Transmission/Transaxles, and Engine Performance Systems. In all areas, appropriate theory, safety, and support instruction will be taught and required for performing each task, including proper care and cleaning of customers vehicles. The instruction will also include identification and use of appropriate tools and testing/measurement equipment required to accomplish certain tasks. The student will also receive the necessary training to locate and use current reference and training materials from accepted industry publications and resources, and demonstrate the ability to write work orders.

Part of the class work is devoted to the student obtaining certifications. College & Career certification is needed to co-op the senior year. Students are expected to use proper shop procedures, work habits, and work attitudes at all times. **This course is taught in the fall semester only and allows seniors to co-op in the spring of their senior year. There is a \$20 lab fee associated with this course.**

**\*\*Co-operative education opportunities are available to 12<sup>th</sup> grade students in each Career and Technical Education area. Applications can be obtained from the program teacher or the Guidance Office and are to be returned to Mr. Butler after completion, including all required signatures, by deadlines provided. Students must meet all criteria as outlined in the agreement. Students will be required to maintain good attendance and submit biweekly timesheets.**

	<b>Pathway</b>
	<b>Auto Maintenance &amp; Light Repair</b>
<b>Freshman</b>	AMLR A
<b>Sophomore</b>	AMLR B
<b>Junior</b>	AMLR C
<b>Senior</b>	AMLR D
<b>Certification test</b>	ASE Student Certification
<b>Post-Secondary Program</b>	Gateway Community and Technical College

## **Automotive Maintenance and Light Repair Technician CIP 47.0604.01**

This is a program that prepares individuals to apply technical knowledge and skills to repair, service, and maintain all types of automobiles. It includes instruction in brake systems, electrical systems, engine performance, engine repair, suspension and steering, automatic and manual transmissions and drive trains, and heating and air conditioning systems.

### **BEST PRACTICE COURSES**

#### **Complete (4) four credits:**

470507 Automotive Maintenance and Light Repair Section A

470509 Automotive Maintenance and Light Repair Section B

470511 Automotive Maintenance and Light Repair Section C OR 470501 Co-Op (Auto)

470513 Automotive Maintenance and Light Repair Section D OR 570501 Co-Op (Auto)

# Biomedical Sciences

The PLTW Biomedical Sciences (BMS) Program is a sequence of courses, all aligned with appropriate national learning standards, which follows a proven hands-on, real-world problem-solving approach to learning. Students explore the concepts of human medicine and are introduced to topics such as physiology, genetics, microbiology and public health. Through activities, like dissecting a heart, students examine the processes, structures and interactions of the human body – often playing the role of biomedical professionals. They also explore the prevention, diagnosis and treatment of disease, working collaboratively to investigate and design innovative solutions to the health challenges of the 21st century such as fighting cancer with nanotechnology.

Throughout BMS, students acquire strong teamwork and communication practices, and develop organizational, critical-thinking, and problem-solving skills. Along the way students investigate a variety of careers in biomedical sciences. During the first year of implementation, schools are required to offer at least one of the foundation courses and ultimately implement all three foundation courses. The capstone course is optional.

BMS courses complement traditional science courses and can serve as the foundation for STEM-centered or specialized academies. The program is designed to prepare students to pursue a post-secondary education and careers in the biomedical sciences.

Biomedical Science will prepare students to enter medical degrees that require 2-10 years of college. Some Biomedical careers include Physicians, Medical Professionals, Researchers in Science, Nanotechnology, Bioinformatics, Biomedical engineering, Pharmaceutical degrees, Genetics, Microbiology, Cell Biology, Biochemistry, Medical Researcher, Lab Technician, Biomedical Salesperson, Clinical Biochemical specialists, Biomechanics, Molecular Design, and Histology.

## Principles of Biomedical Science (PBS) - 170701

Grade 9-11 - 1 credit (1 semester)

Prerequisite: None

Student work involves the study of human medicine, research processes and an introduction to bioinformatics. Students investigate the human body systems and various health conditions including heart disease, diabetes, sickle-cell disease, hypercholesterolemia, and infectious diseases. A theme through the course is to determine the factors that led to the death of a fictional person. After determining the factors responsible for the death, the students investigate lifestyle choices and medical treatments that might have prolonged the person's life. Key biological concepts including: homeostasis, metabolism, inheritance of traits, feedback systems, and defense against disease are embedded in the curriculum. Engineering principles including: the design process, feedback loops, fluid dynamics, and the relationship of structure to function are incorporated in the curriculum where appropriate. The course is designed to provide an overview of all the courses in the Biomedical Sciences program and to lay the scientific foundation necessary for student success in the subsequent courses. **There is a \$20 lab fee associated with this course.**

## **Human Body Systems (HBS) - 170702**

Grade 9-11 - 1 credit (1 semester)

Prerequisite: PBS

Students will engage in the study of the processes, structures, and interactions of the human body systems. Important concepts in the course include: communication, transport of substances, locomotion, metabolic processes, defense, and protection. The central theme is how the body systems work together to maintain homeostasis and good health. The systems will be studied as parts of a whole, working together to keep the amazing human machine functioning at an optimal level. Students will design experiments, investigate the structures and functions of body systems, and use data acquisition software to monitor body functions such as muscle movement, reflex and voluntary actions, and respiratory operation. Students will work through interesting real world cases and often play the role of biomedical professionals to solve medical mysteries. **There is a \$20 lab fee associated with this course.**

## **Medical Interventions (MI) - 170703**

Grade 10-12 - 1 credit (1 semester)

Prerequisite: PBS and HBS

Student projects will investigate various medical interventions that extend and improve quality of life, including gene therapy, pharmacology, surgery, prosthetics, rehabilitation, and supportive care. Students will study the design and development of various medical interventions including vascular stents, cochlear implants, and prosthetic limbs. They will review the history of organ transplants and gene therapy, and read current scientific literature to be aware of cutting edge developments. Using 3-D imaging software and current scientific research students will design and build a model of a therapeutic protein. **There is a \$20 lab fee associated with this course.**

## **Biomedical Innovation (BI) - 170704**

Grade 10-12 - 1 credit (1 semester)

Prerequisite: PBS, HBS, and MI

This capstone course gives student teams the opportunity to work with a mentor, identify a science research topic, conduct research, write a scientific paper, and defend team conclusions and recommendations to a panel of outside reviewers. Each team will have one or more mentors from the scientific and/or medical community guiding their scientific research. This course may be combined with the capstone course from the pre-engineering pathway, allowing students from both pathways to work together to engineer a product that could impact healthcare. **There is a \$20 lab fee associated with this course.**



## Biomedical Sciences Internship - 170550

Grade 12 - 1 credit (1 semester)

Prerequisite: PBS, HBS, MI, and BI

The practicum provides supervised on-the-job work experience related to the students' education objectives. Students participating in the practicum do not receive compensation but are required to submit biweekly timesheets.

**\*\*Co-operative education opportunities are available to 12<sup>th</sup> grade students in each Career and Technical Education area. Applications can be obtained from the program teacher or the Guidance Office and are to be returned to Mr. Butler after completion, including all required signatures, by deadlines provided. Students must meet all criteria as outlined in the agreement. Students will be required to maintain good attendance and submit biweekly timesheets.**

	Pathway
	Biomedical
Freshman	Principles of Biomed
Sophomore	Human Body Systems
Junior	Medical Interventions
Senior	Biomedical Innovations
Certification test	NOCTI- Biotechnology
Post-Secondary Program	Gateway Community and Technical College

## **Biomedical Sciences CIP 26.0102.00**

This pathway focuses on the integrative scientific study of biological issues related to health and medicine, or a program in one or more of the biomedical sciences that is undifferentiated as to title. Includes instruction in any of the basic medical sciences at the research level; biological science research in biomedical facilities; and general studies encompassing a variety of the biomedical disciplines.

### **BEST PRACTICE COURSES**

#### **Complete (4) four credits:**

170701 Principles of Biomedical Sciences

170702 Human Body Systems

170703 Medical Interventions

170704 Biomedical Innovations

# Business Technology

Business and technology are prominent components of our society, thus it is strongly suggested that all students take Digital Literacy. In addition to being a valuable life skill, Digital Literacy serves as a prerequisite for advanced classes and fulfills course requirements for most Career and Tech career majors. It is recommended that students take Digital Literacy as early in their high school career as possible.

In business technology education, students learn many necessary and valuable skills which will increase their marketability as they enter college or the business world. The business curriculum offers interdisciplinary courses, dual credit and highly sought after industry certifications.

Any student who enrolls in a business technology class has the opportunity to join FBLA–Future Business Leaders of America--a co-curricular organization that provides students with an opportunity to develop leadership skills. Our chapter actively participates in community service, social activities, and competitions. All students are encouraged to get involved; FBLA offers students the opportunity to travel, build friendships, and have fun!

## **Business & Marketing Essentials - 060111**

Grade 9-11 - 1 credit (1 semester)

Prerequisite: None

Business and Marketing Essentials is an introductory business course which enables students to acquire a realistic understanding of business processes and activities. Students examine fundamental economic concepts, the business environment, and primary business activities. They develop an understanding of and skills in such areas as customer relations, economics, emotional intelligence, financial analysis, human resources management, information management, marketing, operations, professional development, and strategic management. Throughout the course, students are presented ethical dilemmas and problem-solving situations for which they must apply academic and critical-thinking skills. Leadership will be provided through FBLA and/or DECA.

## **Accounting and Finance Foundations - 060122**

Grade 11-12 - 1 credit (1 semester)

Prerequisite: Business & Marketing Essentials

This course will provide an introduction to both areas of accounting and finance. Topics will include banking, credit, financial literacy, career exploration, spreadsheet usage, and technical writing. The major focus of the course is on the accounting cycle and the communication of financial information to decision-makers. The accounting principles taught in this course are based on a double-entry system and include preparing bank reconciliations, payroll taxes, and financial statements. Detailed career exploration in the various fields of accounting will be available. Leadership development will be provided through FBLA and/or DECA.

## **Digital Literacy - 060112**

Grade 9-12 - 1 credit (1 semester)

Prerequisite: None

Students will use computer and application software including word processing, presentations, database, spreadsheets, internet, and email to prepare documents and reports. The impact of computers on society and ethical issues are presented. Leadership development will be provided through FBLA and/or DECA.

**\* This course meets technology competency standards for Class of 2022 and following.**

## **Principles of Entrepreneurship - 080310**

Grade 10-12 - 1 credit (1 semester)

Prerequisite: Business & Marketing Essentials

Principles of Entrepreneurship introduces students to a wide array of entrepreneurial concepts and skills, including the role of entrepreneurship in our economy, entrepreneurial discovery processes, ideation, and preliminary start-up venture planning. Students also develop an appreciation for marketing's pivotal role in the development and success of a new business. They become acquainted with channel management, pricing, product/service management, and promotion. Students conduct thorough market planning for their ventures: selecting target markets; conducting market, SWOT, and competitive analyses; forecasting sales; setting marketing goals and objectives; selecting marketing metrics; and setting a marketing budget. The capstone activity in the course is the development of detailed marketing plans for students' startup businesses. Throughout the course, students are presented ethical dilemmas and problem-solving situations for which they must apply academic and critical-thinking skills. Leadership development will be provided through FBLA and/or DECA.

## **Marketing Principles - 080716**

Grade 9-12 - 1 credit (1 semester)

Prerequisite: Business & Marketing Essentials

Marketing Principles introduces students to the dynamic processes and activities in marketing. The course develops student understanding and skills in the functional areas of marketing, as well as business law, communication skills, customer relations, economics, human resources management, and operations. Current technology will be used to acquire information and to complete activities. Throughout the course, students are presented ethical dilemmas and problem-solving situations for which they must apply academic and critical-thinking skills. Leadership development will be provided through FBLA and/or DECA.

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	<b>Pathway</b>
	<b>Management &amp; Entrepreneurship</b>
<b>Freshman</b>	Business Marketing or Prin. of Marketing
<b>Sophomore</b>	Digital Literacy
<b>Junior</b>	Accounting & Finance Foundations
<b>Senior</b>	Principles of Entrepreneurship/ Marketing Principles
<b>Certification test</b>	ASK- Fundamental Business Concepts, EOP- Management & Entrepreneurship
<b>Post-Secondary Program</b>	Gateway Community and Technical College, Sullivan University, University of the Cumberlands
<b>Related Occupations</b>	Account Manager, Administrative Service Manager, Entrepreneur, General Manager, Public Relations Manager

## **Management and Entrepreneurship CIP 52.0701.00**

This pathway generally prepares individuals to plan, organize, direct, and control the functions and processes of a firm or organization. Includes instruction in management theory, human resources management and behavior, accounting and other quantitative methods, purchasing and logistics, organization and production marketing, and business decision making.

### **BEST PRACTICE COURSES**

**Choose (2-3) two – three credits from the following:**

060111 Business & Marketing Essentials  
060411 Introduction to Management  
060122 Principles of Entrepreneurship

**Choose (1-2) one – two credits from the following:**

060112 Digital Literacy OR 110110 Computer Literacy  
060596 Business Economics (Economics Credit) OR 080317 Business Economics (CTE Credit)  
060108 Business Education Internship  
060107 Business Education Co-Op  
080708 Marketing Education Internship  
080707 Marketing Education Co-Op  
080716 Marketing Principles  
070750 Microsoft Office Specialist (MOS/MCAS)  
060109 Ethical Leadership  
060122 Accounting and Finance Foundations  
060155 Business Communications

**May substitute (1) one credit below for Accounting & Finance Foundations course:**

070125 Advanced Accounting  
080719 Personal Finance (Math Credit)  
060170 Personal Finance (CTE Credit)  
070122 Financial Management  
060399 Financial Analysis for Managers  
080772 Business Math (CTE Credit)  
080780 Business Math (Math Credit)

# Electrical Technology

## **Circuits 1 - 460316**

Grades 9-11 - 1 credit (1 semester)

Prerequisite: None

Introduction to basic theory of DC and AC circuits, including circuit analysis techniques, introductory magnetism, and transformer principles. **There is a \$20 fee associated with this course.**

## **Electrical Construction - 460312**

Grades 9-12 - 1 credit (1 semester)

Prerequisite: Circuits 1

Involves the study of materials and procedures used in construction wiring. **There is a \$20 fee associated with this course.**

## **Electrical Motor Controls - 460331**

Grades 10-12 - 1 credit (1 semester)

Prerequisite: Circuits 1

This course addresses the diversity of control devices and applications used in industry today. Safety and electrical lockouts are also included. **There is a \$20 fee associated with this course.**

## **Rotating Machinery Electrical Motor Controls - 460325**

Grades 10-12 - 1 credit (1 semester)

Prerequisite: Circuits 1

This course focuses on the construction, operation and maintenance of DC motors and generators and AC motors and alternators. This course addresses the diversity of control devices and applications used in industry today. Safety and electrical lockouts are also included. **There is a \$20 fee associated with this course.**

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	<b>Pathway</b>
	<b>Industrial Electrician Assistant</b>
<b>Freshman</b>	Circuits I
<b>Sophomore</b>	Electrical Construction I
<b>Junior</b>	Electrical Motor Controls
<b>Senior</b>	Rotating Machinery Electrical Motor Controls
<b>Certification test</b>	NCCER- Core Curriculum & Electrical Technician Level 1
<b>Post-Secondary Program</b>	Gateway Community and Technical College

### **Industrial Electrician Assistant CIP 46.0302.02**

This pathway prepares individuals to apply technical knowledge and skills to install, operate, maintain, and repair electric apparatus and systems in residential, commercial, and industrial electric-power wiring, DC and AC motors controls, and electrical distribution panels. The pathway includes instruction in the principles of electronics and electrical systems, wiring, power transmission, safety, industrial and household appliances, job estimation, electrical inspecting and inspection, and applicable codes and standards. Instruction includes the principles of electronics and electrical systems, wiring, power transmission, safety industrial and household appliances, job estimation, electrical testing and inspection, and applicable codes and standards.

### **BEST PRACTICE COURSES**

**Complete (4) four courses:**

460312 Electrical Construction 1  
 460316 Circuits 1  
 460331 Electrical Motor Controls  
 460325 Rotating Machinery Electrical Motor Controls



# Engineering

\* All Engineering courses meet technology competency standards for Class of 2022 and following.

## Engineering I - 210221

Grades 9-12 - 1 credit (1 semester)

Prerequisite: None

This course applies the skills, concepts, and principles of engineering. Students explore various technological systems and engineering processes in related career fields. Topics include investigating technological system, design optimization, and problem solving. Students utilize CAD and physical and virtual modeling concepts to construct, test, collect, and report data. Participation in Kentucky Technology Student Association will greatly enhance instruction. **There is a \$10 lab fee associated with this course.**

## Engineering II - 210222

Grades 10-12 - 1 credit (1 semester)

Prerequisite: Engineering I

A project and research based course that extends the learning experiences where students focus on mechanical, electrical, fluid and thermal systems allowing in depth exploration in selected disciplines of engineering areas such as manufacturing, power/energy/transportation, bio-medical, robotics, hydraulics, electricity/electronics, communications, construction systems, alternative energy, computer aided design and problem solving. Participation in Kentucky Technology Student Association will greatly enhance instruction. **There is a \$10 lab fee associated with this course.**

## Civil Engineering - 210223

Grades 10-12 - 1 credit (1 semester)

Prerequisite: Engineering I and Engineering II

This is an introduction to residential and light commercial building construction and design. Students will learn basic sketching, mechanical drafting skills with an emphasis on computer aided drafting. In this class, students will design a structure relevant to today's modern architecture and create models of their designs with various materials and tools. Students will experience and solve many problems in designing or building structures with regards to environment and community impact and limitations from town planning, urban design and landscape architecture to furniture and objects. Participation in Kentucky Technology Student Association will greatly enhance instruction. **There is a \$10 lab fee associated with this course.**

## **Mechanical Engineering - 210118**

Grades 11-12 - 1 credit (1 semester)

Prerequisite: Engineering I and Engineering II

This course includes activities and real world projects with state-of-the-art equipment and trainers. Students explore and study an introduction to engineering, engineering design problem solving, and engineering graphics with a 3D parametric modeling software. Students prototype a part design and prepare the manufacturing process using a 3D printer, CNC Vertical Mill, CNC turning center, a material handling robot and/or plastic molding machine. Participation in Kentucky Technology Student Association will greatly enhance instruction. **There is a \$15 lab fee associated with this course.**

## **Electrical/Electronics Engineering - 210232**

Grades 10-12 - 1 credit (1 semester)

Prerequisite: Engineering I and Engineering II

In this course students will gain skills and knowledge through classroom and lab activities in the areas of basic DC and AC circuits, circuit components, codes, testing, electromagnetism and inductance, capacitance, power supplies, power generation and distribution, amplification, digital circuits, and computer fundamentals. Students will develop a basic understanding of the various types of energy and how energy is obtained. Students will learn the safe use of the tools, test instruments, equipment and supplies used in this course plus information on career opportunities in this field. Hands-on and problem solving activities will expose students to areas of electron theory, Ohm's Law, insulators, conductors, electronic components, oscillators, and electronic fabrication. Participation in Kentucky Technology Student Association will greatly enhance instruction. **There is a \$20 lab fee associated with this course.**

## **Robotics Automation and Design - 210238**

Grades 9-12 - 1 credit (1 semester)

Prerequisite: Engineering I or Recommendation from middle school science teacher

This course provides students with the foundation in content and skills associated with robotics and automation, including artificial intelligence, electronics, physics, and principles of engineering. Participation in Kentucky Technology Student Association will greatly enhance instruction. **There is a \$35 lab fee associated with this course.**

## **Engineering Capstone - 210110**

Grades 11-12 - 2 credits (2 semesters)

Prerequisite: Engineering I, Engineering II, and one other Engineering course

Engineering scope, content, and professional practices are presented through practical applications in this capstone course. Students in engineering teams apply technology, Kentucky Academic Standards, and skills to solve engineering design problems and create innovative designs. Students research, develop, test and analyze engineering designs using criteria such as design effectiveness, public safety, human factors and ethics. Participation in Kentucky Technology Student Association will greatly enhance instruction. One option is UK's College of Engineering Transition to Engineering course. This course introduces students to creativity that is inherent in how engineers and computer scientists approach innovation, design, and problem solving. Students are introduced to general engineering content, tools of the trade, and ethical implications of creative engineering endeavors. Students will engage in a hands-on project with an emphasis on problems and techniques common across various engineering domains with a focus on coding. **There is a \$25 lab fee associated with this course.**

## **Engineering Co-Op - 210330**

Grade 12 - credits vary

Prerequisite: Must be preparatory in Engineering (3 or more classes completed) and meet all co-op requirements

Cooperative education is a paid educational program consisting of in-school instruction combined with the program related on-the-job work experience in a business or industrial establishment. These are planned experiences supervised by the school and the employer to ensure that each phase contributes to the students Individual Learning Plan (ILP). Refer to the KDE Work Based Learning Manual for further specifications. Participation in Kentucky Technology Student Association will greatly enhance instruction.

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	<b>Pathway</b>	
	<b>Civil Engineering</b>	<b>Mechanical Engineering</b>
<b>Freshman</b>	Engineering I	Engineering I
<b>Sophomore</b>	Engineering II	Engineering II
<b>Junior</b>	Civil Engineering	Mechanical or Robotics Engineering
<b>Senior</b>	Engineering Capstone	Engineering Capstone
<b>Certification test</b>	NOCTI-CAD, EOP- Civil Engineering	NOCTI-CAD, EOP- Mechanical Engineering
<b>Post-Secondary Program</b>	Eastern KY University	Eastern KY University
<b>Related Occupations</b>	Land Surveyor, City Planner, Waste Water Management, Transportation Engineering, Transportation Dept.	Robotics, Industrial Engineering, Automotive Engineer, Manufacturing Engineer

## **Mechanical Engineering CIP 14.3501.00**

This pathway prepares individuals to apply mathematical and scientific principles to the design, development and operational evaluation of physical systems used in manufacturing and end product systems for specific uses including machine tools, jogs and other manufacturing equipment; stationary power units and appliances; engines; self-propelled vehicles; housings and containers; hydraulic and electric systems for controlling movement; and the integration of computers and remote control operating systems. Mechanical Engineers design, develop, build, and test mechanical and thermal sensors and devices including tools, engines, and machines.

### **BEST PRACTICE COURSES**

**Choose (1-2) one – two credits from the following:**

210221 Engineering I  
210222 Engineering II

**Choose (1-2) one – two credits from the following:**

210238 Robotics Engineering  
210118 Mechanical Engineering

**Choose (1-2) one - two credits from the following:**

332001 Introduction to 3D Painting Technology  
210232 Electrical/Electronic Engineering  
210117 Advanced Design Applications  
210251 Unmanned Aircraft Systems  
210110 Engineering Capstone  
210330 Engineering Co-Op OR 210331 Engineering Internship  
331034 Principles of Career and Technical Education  
110701 AP Computer Science Principles A OR 110711 AP Computer Science Principles OR  
110251 Computational Thinking

## **Civil Engineering CIP 14.0801.00**

This pathway generally prepares individuals to apply mathematical and scientific principles to the design, development and operational evaluation of structural, load bearing, material moving, transportation, water resource, and material control systems; and environmental safety measures. Civil engineers design, build, supervise, operate, and maintain construction projects and systems in the public and private sector, including roads, buildings, airports, tunnels, dams, bridges, and systems for water supply and sewage treatment.

### **BEST PRACTICE COURSES**

**Choose (1-2) one – two credits from the following:**

210221 Engineering I  
210222 Engineering II

**Complete (1) one credit:**

210223 Civil Engineering

**Choose (1-2) one - two credits from the following:**

332001 Introduction to 3D Printing Technology  
210241 Introduction to Geographical Information Systems (GIS)  
210117 Advanced Design Applications  
210251 Unmanned Aircraft Systems  
210110 Engineering Capstone  
210330 Engineering Co-Op OR 210331 Engineering Internship  
331034 Principles of Career and Technical Education  
110701 AP Computer Science Principles A OR 110711 AP Computer Science Principles OR  
110251 Computational Thinking

# Family and Consumer Science

## Family and Consumer Science Essentials - 200113

Grades 9-11 - 1 credit (1 semester)

Prerequisite: None

\* Meets financial literacy standards for Class of 2024 and following

Introductory Course; meal preparation and nutrition; home environment; child development; consumer education; family living; family health; careers; enabling skills and processes. **There is a \$15 fee associated with this course.**

## Early Lifespan Development (ELD) - 200223

Grades 10-12 - 1 credit (1 semester)

Prerequisite: Family & Consumer Science Essentials

This course addresses the concepts related to understanding the areas and stages of human growth and development, recognizing effects of heredity and environment on human growth and development, meeting the needs of exceptional children, promoting optimum growth and development in the infancy, toddler, and preschool stages. Careers in child/human development are explored. Leadership development will be provided through the Family, Career and Community Leaders of America. **There is a \$15 fee associated with this course.**

## Middle to Late Lifespan Development (MLD) - 200226

Grades 10-12 - 1 credit (1 semester)

Prerequisite: Family & Consumer Science Essentials

This course addresses the practical problems related to understanding the types and stages of human growth and development, recognizing effects of heredity and environment on the life stages, meeting the needs of exceptional children, promoting optimum growth and development in the middle childhood, adolescent, and adulthood stages. Careers in child/human development and adult care services are explored. Leadership development will be provided through the Family, Career and Community Leaders of America. **There is a \$15 fee associated with this course.**

## **Principles of Teaching - 331020**

Grades 10-12 - 1 credit (1 semester)

Prerequisite: ELD or MLD, and teacher approval

This course provides opportunities for students with an interest in teaching to develop skills, strategies, and techniques used for instruction at various grade levels for a diverse population of student learners. Instruction addresses the principles and procedures for promoting the physical, emotional, social, and intellectual development of children, adolescents and developmentally appropriate practices in educational settings. Students will gain work experience in classrooms with certified teachers as part of their course work. Other components include the development of a four-year post-secondary plan, PGES (Professional Growth and Effectiveness System) requirements, Kentucky Code of Ethics, and educational pedagogy. Leadership experiences will be provided through various extra and co curricular student organizations. **There is a \$15 fee associated with this course.**

## **Child Development Services I - 200261**

Grades 11-12 - 1 credit (1 semester)

Prerequisite: FACS Essentials, ELD, and teacher approval

This course provides training for entry-level positions in day care centers, nurseries, kindergartens, and private homes. Students study careers in child development, child development and guidance, children's health and well-being in group care, value of play, teaching strategies and management, and curriculum development. The subject content is reinforced with work experience in a variety of childcare establishments. **There is a \$15 fee associated with this course.**

**\* Transportation to employer/observation site required to be provided by students. This course is highly recommended for any students interested in teaching or coaching as a career choice. Attendance is crucial for this course and will be factored into the course grade.**

## **Child Development Services II - 200262**

Grades 12 - Up to 5 credits

Prerequisite: FACS Essentials, ELD, and teacher approval

Preparation for developing and managing effective child care programs and facilities. Includes instruction in the management of financial operations; selecting and developing facilities; selecting staff and staffing patterns; providing for staff development opportunities; developing a total program for children and working with parents, community organizations and others concerned with children. **There is a \$15 fee associated with this course.**

**\* Transportation to employer/observation site required to be provided by students. This course is highly recommended for any students interested in teaching or coaching as a career choice. Attendance is crucial for this course and will be factored into the course grade.**



	<b>Pathway</b>	
	<b>Early Childhood Education</b>	<b>Fundamentals of Teaching</b>
<b>Freshman</b>	FCS Essentials	FCS Essentials
<b>Sophomore</b>	Early Lifespan Development or Mid-Late Lifespan Development	Early Lifespan Development
<b>Junior</b>	Child Development Services I	Middle-Late Lifespan Development
<b>Senior</b>	Child Development Services II	Principles of Teaching
<b>Certification test</b>	Commonwealth Child Care Credential, KY Early Care and Ed. Orientation, Pediatric Abusive Head Trauma, EOP- Early Childhood Ed.	Pre-PAC, EOP-Early Childhood Ed.
<b>Post-Secondary Program</b>	Campbellsville University, EKU, Murray State, UK, WKU	
<b>Related Occupations</b>	Daycare Director, Daycare employee, Preschool teacher, Elementary School Teacher, Nanny, Special Education Teacher, School Psychologist	

## **Early Childhood Education CIP 13.1210.00**

The Early Childhood Education Pathway will address a skill set necessary for success in early childhood education so that individuals can teach students ranging in age from infancy through eight years (grade three), depending on the school systems or state regulations. This pathway is targeted for individuals preparing for careers related to early childhood education, such as those associated with child care, teaching, community-based children's programs, social services or counseling for children, and after-school programs.

### **BEST PRACTICE COURSES**

#### **Complete (3) three credits:**

200223 Early Lifespan Development  
200261 Child Development Services I  
200262 Child Development Services II

#### **Choose (1) one credit from the following:**

200113 FACS Essentials OR 200161 FACS Essentials Health (.5 credit)  
331020 Principles of Teaching  
200171 Relationships (.5 or 1 credit)  
200173 Parenting (.5 or 1 credit)  
200210 Co-Op: Early Childhood Education  
200201 Internship: Early Childhood Education

Students who complete the pathway are eligible to earn the following certifications:

- Intro to Early Care & Orientation Certification
- Commonwealth Childcare Credential (CCCC)
- Child Development Associate (CDA) \*Independent Study
- Abusive Head Trauma

In addition, these certifications can articulate to credit at the following institutions:

- Western Kentucky University (3 credit hours)
- Sullivan University (12 credit hours)
- KCTCS (9 credit hours)
- College for Technical Education (10 credits)
- Campbellsville University (6 credit hours)

### **Fundamentals of Teaching CIP 13.1308.00**

The Fundamentals of Teaching pathway will facilitate employment in early career ladder positions and promote continuing education at the post-secondary level preparing for careers associated with education and training in public and private school programs, elementary, middle, and secondary schools, after-school programs; higher education, nonprofit, and corporate settings.

#### **BEST PRACTICE COURSES**

##### **Complete (3) three credits:**

200223 Early Lifespan Development  
200226 Middle to Late Lifespan Development (.5 or 1 credit)  
331020 Principles of Teaching

##### **Choose (1) one credit from the following:**

200199 FACS Leaders at Work  
200113 FACS Essentials  
200171 Relationships (.5 or 1 credit)  
200291 Co-Op: Fundamentals of Teaching  
200292 Internship: Fundamentals of Teaching

# Culinary

## **Foods and Nutrition - 200441**

Grades 9-11 - 1 credit (1 semester)

Prerequisite: None

This course is designed to assist students in making critical decisions about food, which contributes to health and well-being. Laboratory instruction is included as an application process. Practical problems addressed relate to attitudes toward food, nutrition facts, special health concerns and diets, management of food resources, preparation skills, food safety, sanitation and careers in nutrition and food service. **There is a \$20 fee associated with this course.**

## **Advanced Foods and Nutrition - 200442**

Grades 10-11 - 1 credit (1 semester)

Prerequisite: Successful completion of Foods & Nutrition

This course is designed to assist students in principles related to food preparation. Specific content addressed will include planning, serving, food presentation, special diets, nutrition for the lifespan, serving, and food planning for entertainment services. An emphasis on careers related to food service and nutrition (i.e. catering, dietician and other culinary careers). Lab instruction emphasizes the application process. Leadership development will be provided through the Family, Career and Community Leaders of America. **There is a \$20 fee associated with this course.**

## **Culinary I - 200411**

Grades 11-12 - 1 credit (1 semester)

Prerequisite: Successful completion of Foods & Nutrition

This advanced course allows students to increase competencies in a variety of food preparation techniques. Emphasis will be placed on food presentation, garnishing, menu planning and the skills necessary to prepare for a career in the culinary arts. Leadership development will be provided through the Family, Career and Community Leaders of America. **There is a \$30 fee associated with this course.**

## **Culinary II - 200412**

Grades 11-12 - 2 credits (Spring semester, 2 periods)

Prerequisite: Successful completion Culinary I and Industry Certification

In this course students resume progress in pursuing competencies in food production and services. Orientation to the food service industry and development of food preparation skills are reinforced. Food service management functions are introduced. More in-depth information is provided and higher levels of skills are taught. Time is provided for work based learning opportunities. Leadership development will be provided through the Family, Career and Community Leaders of America. Food preparation; bakery operation; dinner catering; model restaurant; laws and regulations; unions; safety, sanitation; receive, store and issue food are addressed. **There is a \$30 fee associated with this course.**

**\*\*Co-operative education opportunities are available to 12<sup>th</sup> grade students in each Career and Technical Education area. Applications can be obtained from the program teacher or the Guidance Office and are to be returned to Mr. Butler after completion, including all required signatures, by deadlines provided. Students must meet all criteria as outlined in the agreement. Students will be required to maintain good attendance and submit biweekly timesheets.**

	<b>Pathway</b>
	<b>Culinary Arts</b>
<b>Freshman</b>	Foods & Nutrition
<b>Sophomore</b>	Culinary Arts I
<b>Junior</b>	Culinary Arts II
<b>Senior</b>	Advanced Foods & Nutrition
<b>Certification test</b>	ServSafe, EOP- Culinary
<b>Post-Secondary Program</b>	Cincinnati State Tech and Community College

## **Culinary and Food Services CIP 12.0500.00**

The Culinary and Food Service Pathway addresses a skill set necessary for success in the culinary industry. The courses in this pathway will help students develop skills in early career ladder positions and promote continuing education at the post-secondary level preparing for careers associated with restaurants, institutional food service, hospitality, and catering, as well as food and beverage operations.

### **BEST PRACTICE COURSES**

#### **Complete (3) three credits:**

200441 Foods and Nutrition

200411 Culinary Arts I

200412 Culinary Arts II

#### **Choose (1) one credit from the following:**

200113 FACS Essentials OR 200161 FCS Essentials Health (.5 or 1 credit)

200442 Advanced Foods and Nutrition (.5 or 1 credit)

200409 Co-Op: Culinary Arts

200478 Internship: Culinary Arts

# Foreign Language

## **Spanish I - 161108**

Grades 10-11 - 1 credit (1 semester)

Prerequisite: None

High School course. Introductory course. It engages students in the target language with developmentally appropriate activities to acquire the language necessary to communicate (interpret, exchange, and present information, concepts and ideas both within the classroom and beyond on a variety of topics including connections to other subject areas). Cultural aspects are typically included in order to understand the relationship among the products, practices and perspectives of the target language's culture. In addition, students develop insight into their own language and culture.

## **Spanish II - 161109**

Grades 10-12 - 1 credit (1 semester)

Prerequisite: Successful completion of Spanish I

High School course. Intermediate course. It engages students in the target language with developmentally appropriate activities to acquire the language necessary to communicate and the skills necessary to perform interpersonal, interpretive and presentational communicative tasks; interpret, exchange, and present, information, concepts and ideas both within the classroom and beyond on a variety of topics including connections to other subject areas; and understand the relationship among the products, practices and perspectives of other cultures. In addition, students develop insight into their own language and culture.

# Health Sciences

The Health Science Program provides students with orientation and exploration of a variety of health occupations in a medical field of study. Students can obtain an industry certification as a Certified Nursing Assistant as a capstone course. Courses are sequenced to provide continuous student progress toward achievement of a career major goal in either an Allied Health, Pre-Pharmacy, or Pre-Nursing major. Many of the courses are available as dual credit so the student can obtain college credits while taking these elective courses if they complete with a "C" or better.

This program assists the student in developing essential cognitive, affective, and psychomotor skills and the flexibility to design an individual course of study focused on specific learning goals. Students are taught to use critical thinking to solve real world problems that are experienced in this career area.

The program is designed for students who desire entry-level training and/or plan to pursue a career in a Medical Field of Study. Students can obtain the skills to pursue immediate employment in a healthcare field such as a hospital or other health care facilities.

Students may be exposed to a variety of opportunities such as various guest speakers, visiting health care settings such as a hospital, job shadowing, field trip experiences to see Nursing and Allied Health Programs, attending the Health Career Showcase, and other unique experiences such as being selected to go see a live surgery with other students in the Greater Northern KY Region.

## Principles of Health Sciences (PHS) - 170111

Grades 9-11 - 1 credit (1 semester)

Prerequisite: None

Orientation and foundation for occupations and functions across the health care cluster. Includes broad health care core standards which specify the knowledge and skills that the vast majority of health care workers should have. Prerequisite to additional courses in the Health Science Program. **There is a \$10 lab fee associated with this course.**

## Body Structures and Functions - 170167

Grades 10-11 - 1 credit (1 semester)

Prerequisite: Principles of Health Science

This course is designed to provide knowledge of the structure and function of the human body with an emphasis on normalcy. The interactions of all body systems in maintaining homeostasis will promote an understanding of the basic human needs necessary for health maintenance. Academic knowledge from life science core content as it relates to the human body (including anatomy and physiology) are included. **There is a \$50 lab fee associated with this course.**



**Medical Terminology (AHS 120) - 170131**  
**Emergency Procedures (KHP 100 & CPR 100) - 170141**

Grades 11-12 - ½ credit each (1 semester)

\* Both courses taken simultaneously

Prerequisite: Principles of Health Science

An intense study of the medical language used in all health career major areas. Pronunciation, spelling and application rules of medical terminology are included.

This course is intended to combine all existing courses in the Health Science Cluster to include foundational emergency skills for all Health Science Career Pathway students. This course will include certifications in: Cardiopulmonary Resuscitation for the Healthcare Provider; AED; bloodborne pathogen; first aid; and emergency care as outlined by an approved first aid/CPR/Bloodborne Pathogen certifying agency as put forth by the American Heart Association, National Safety Council or American Red Cross. **There is a \$25 lab fee associated with this course.**

**Medicaid Nurse Aide - 170631**

Grade 12 - 2 credits (Fall semester/ 2 class periods)

Prerequisite: Completion of the following courses with a “C” or better: Principles of Health Sciences, Medical Terminology, and Emergency Procedures; may require an application

An instructional program that prepares individuals to perform routine nursing-related services to patients in hospitals or long-term care facilities, under the training and supervision of an approved registered nurse or licensed practical nurse. State Registry is available upon successful completion of state written and performance examination. Prior to offering this course, the instructor and health science program must be approved for meeting state requirements set by the Cabinet for Health and Family Services. **There is a \$85 lab fee associated with this course.**

\* Students must complete all requirements to attend the required clinical rotation at a health care facility. Students can earn 3 college credit hours from Gateway Community and Technical College upon successful completion of this course and will have an opportunity to earn a State Certification as a SRNA. \*\*\*This course is a double-period, one-semester, Fall semester only.

**\*\*Co-operative education opportunities are available to 12<sup>th</sup> grade students in each Career and Technical Education area. Applications can be obtained from the program teacher or the Guidance Office and are to be returned to Mr. Butler after completion, including all required signatures, by deadlines provided. Students must meet all criteria as outlined in the agreement. Students will be required to maintain good attendance and submit biweekly timesheets.**

	<b>Pathway</b>	
	<b>Allied Health</b>	<b>Pre-Nursing</b>
<b>Freshman</b>	Principles of Health Science	Principles of Health Science
<b>Sophomore</b>	Body Structures & Functions	Emergency Procedures/ Medical Terminology
<b>Junior</b>	Emergency Procedures/ Medical Terminology	Body Structures & Functions
<b>Senior</b>	WBL/Co-op/ Internship	Medicaid Nurse Aide
<b>Certification test</b>	NOCTI- Healthcare Core	SRNA Certification
<b>Post-Secondary Program</b>	Gateway Community and Technical College	Gateway Community and Technical College
<b>Related Occupations</b>	Medicaid Nurse Aide, EKG Tech, Home Health Aide	Medicaid Nurse Aide, EKG Tech, Home Health Aide, Associate Degree Nurse

## **Pre-Nursing CIP 51.2699.01**

This pathway prepares individuals for admission to a professional program in nursing. This pathway focuses on caring for residents in a long-term care facility.

### **BEST PRACTICE COURSES**

#### **Complete (3) three credits:**

170111 Principles of Health Science

170141 Emergency Procedures (.5 credit) AND 170131 Medical Terminology (.5 credit or 1 credit)

170631 Medicaid Nurse Aide

#### **Choose (1) one credit from the following:**

170167 Body Structures and Functions OR 302631 Anatomy (Science course)

170169 Medical Math (.5 or 1 credit)

170601 Co-Op (Nursing)

170550 Internship: Allied Health

# Information Technology

\* All IT courses meet technology competency standards for Class of 2022 and following.

## **Introduction to Programming - 110201**

Grades 9-12 - 1 credit (1 semester)

Prerequisite: None

This course focuses on the general writing and implementation of generic and atomized programs to drive operating systems. Instruction includes software design, languages, and program writing, and troubleshooting. Students are introduced to fundamental programming concepts using an industry-specific or emerging programming language. Includes data types, control structures, simple data structures, error-handling, modular programming, information and file processing, and uniqueness of the language used in the course. Students spend at least 20 hours programming and applying learned concepts through programming. Programming is defined, by the K-12 CS Framework, as the craft of analyzing problems and designing, writing, testing, and maintaining programs to solve them. **There is a \$20 lab fee associated with this course.**

## **Web Page Development - 110801**

Grades 10-12 - 1 credit (1 semester)

Prerequisite: None

This course introduces web pages through the use of HTML and CSS. Students use text and/or web editors to create web documents with various formats and page layouts, multimedia, tables and forms. Instruction emphasizes W3C web design and accessibility standards. Students spend at least 20 hours programming and applying learned concepts through programming. Programming is defined, by the K-12 CS Framework, as the craft of analyzing problems and designing, writing, testing, and maintaining programs to solve them. **There is a \$20 lab fee associated with this course.**

## **Website Design and Production - 110804**

Grades 10-12 - 1 credit (1 semester)

Prerequisite: Web Page Development

This course introduces web site production processes with particular emphasis on design involving layout, navigation, interactivity, and using web production software. Students spend at least 20 hours programming and applying learned concepts through programming. Programming is defined, by the K-12 CS Framework, as the craft of analyzing problems and designing, writing, testing, and maintaining programs to solve them. **There is a \$20 lab fee associated with this course.**

## **Intro to Computer Science (Computer Science Essentials) - 110710**

Grades 9-11 - 1 credit (1 semester)

Prerequisite: None

Introduction to Computer Science is designed to introduce students to the breadth of the field of computer science through an exploration of engaging and accessible topics. Rather than focusing the entire course on learning particular software tools or programming languages, the course is designed to focus on the conceptual ideas of computing and help students understand why certain tools or languages might be utilized to solve particular problems. The goal of the course is to develop in students the computational practices of algorithm development, problem solving and programming within the context of problems that are relevant to the lives of today's students. Students will also be introduced to topics such as interface design, limits of computers, and societal and ethical issues. Students spend at least 20 hours programming and applying learned concepts through programming. Programming is defined, by the K-12 CS Framework, as the craft of analyzing problems and designing, writing, testing, and maintaining programs to solve them. **There is a \$20 lab fee associated with this course.**

## **AP Computer Science - 110711**

Grades 9-11 - 1 credit (1 semester)

Prerequisite: Computational Thinking or Intro to Programming

AP Computer Science Principles introduces students to the breadth of the field of computer science. 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. Students spend at least 20 hours of programming and applying learned concepts through programming. (Programming is defined, by the K-12 CS Framework, as the craft of analyzing problems and designing, writing, testing, and maintaining programs to solve them). **There is a \$20 lab fee associated with this course.**

**College credit is earned with a qualifying score on the AP Exam. There is a fee associated with the AP Exam. \*This course will receive weighted credit at GCHS.**

## **Computational Thinking - 110251**

Grades 10-11 - 1 credit (1 semester)

Prerequisite: None

Computational Thinking promotes understanding of computer programming and logic by teaching students to think like a computer. It covers skills needed to develop and design language-independent solutions to solve computer-related problems. Instruction covers development and design basics including use of variables, control and data structures, and principles of command-line and object-oriented languages. Students spend at least 20 hours programming and applying learned concepts through programming. Programming is defined, by the K-12 CS Framework, as the craft of analyzing problems and designing, writing, testing, and maintaining programs to solve them. **There is a \$20 lab fee associated with this course.**

## **Object-Oriented Programming (Visual Basic I) - 110220**

Grades 10-11 - 1 credit (1 semester)

Prerequisite: None

This course introduces students to fundamental programming concepts using an Object-Oriented Programming language(s). Teachers select the programming language that is most appropriate for their students. Topics include data types, control structures, simple data structures, arrays, GUI, modular programming and error-handling. Students spend at least 20 hours programming and applying learned concepts through programming. Programming is defined, by the K-12 CS Framework, as the craft of analyzing problems and designing, writing, testing, and maintaining programs to solve them. **There is a \$20 lab fee associated with this course.**

## **Object-Oriented Programming (Visual Basic II) - 110221**

Grades 10-12 - 1 credit (1 semester)

Prerequisite: Visual Basic I

This course provides students with an extensive overview of designing and developing advanced object-oriented applications. Teachers select the programming language(s) that is most appropriate for their students. Topics include input and output streams (file processing), polymorphism, inheritance, multithreading, recursion, mobile computing, and other advanced topics. Students spend at least 20 hours programming and applying learned concepts through programming. Programming is defined, by the K-12 CS Framework, as the craft of analyzing problems and designing, writing, testing, and maintaining programs to solve them. **There is a \$20 lab fee associated with this course.**

**\*\*Co-operative education opportunities are available to 12<sup>th</sup> grade students in each Career and Technical Education area. Applications can be obtained from the program teacher or the Guidance Office and are to be returned to Mr. Butler after completion, including all required signatures, by deadlines provided. Students must meet all criteria as outlined in the agreement. Students will be required to maintain good attendance and submit biweekly timesheets.**

	Pathway	Pathway
	Computer Programming	Web Development/Admin
<b>Freshman</b>	<ul style="list-style-type: none"> <li>• Computational Thinking</li> <li>• Web Design I</li> <li>• Visual Basic I</li> <li>• Intro to Computer Science</li> <li>• IT Essentials</li> </ul>	<ul style="list-style-type: none"> <li>• Computational Thinking</li> <li>• Intro to Computer Science (PLTW, TEDS Mod)</li> <li>• Web Design I</li> </ul>
<b>Sophomore</b>	<ul style="list-style-type: none"> <li>• Computational Thinking</li> <li>• Intro to Programming (Game)</li> <li>• Intro to Computer Science</li> <li>• Visual Basic I</li> <li>• Visual Basic II</li> <li>• Web Design I</li> <li>• Web Design II (Development)</li> <li>• IT Essentials</li> </ul>	<ul style="list-style-type: none"> <li>• Computational Thinking</li> <li>• Intro to Computer Science (Addition)</li> <li>• Web Design I</li> <li>• Web Design II (Development)</li> </ul>
<b>Junior</b>	<ul style="list-style-type: none"> <li>• Computational Thinking</li> <li>• Intro to Programming</li> <li>• Intro to Computer Science</li> <li>• Visual Basic I</li> <li>• Visual Basic II</li> <li>• Web Design I</li> <li>• Web Design II (Development)</li> <li>• IT Essentials</li> <li>• AP Computer Science Essentials</li> </ul>	<ul style="list-style-type: none"> <li>• Computational Thinking</li> <li>• Intro to Computer Science (Addition)</li> <li>• Web Design I</li> <li>• Web Design II (Development)</li> </ul>
<b>Senior</b>	<ul style="list-style-type: none"> <li>• Intro to Computer Science</li> <li>• IT Essentials</li> <li>• AP Computer Science Essentials</li> </ul>	<ul style="list-style-type: none"> <li>• Computational Thinking</li> <li>• Intro to Computer Science (Addition)</li> <li>• Web Design I</li> <li>• Web Design II (Development)</li> </ul>
<b>Certification test</b>	EOP- Computer Programming	EOP- Web Development & Administration
<b>Post-Secondary Program</b>	<ul style="list-style-type: none"> <li>• 2 yr - KCTCS</li> <li>• Centre College</li> <li>• Georgetown College</li> <li>• Murray State College</li> <li>• NKU</li> <li>• U of L</li> <li>• Campbellsville University</li> <li>• WKU</li> <li>• Morehead State University</li> <li>• Kentucky State University</li> </ul>	<ul style="list-style-type: none"> <li>• 2 yr - KCTCS</li> <li>• Centre College</li> <li>• Georgetown College</li> <li>• Murray State College</li> <li>• NKU</li> <li>• U of L</li> <li>• Campbellsville University</li> <li>• WKU</li> <li>• Morehead State University</li> <li>• Kentucky State University</li> </ul>

<p><b>Related Occupations</b></p>	<ul style="list-style-type: none"> <li>• Computer Network Support Specialists</li> <li>• Computer Programmers</li> <li>• Database Admin</li> <li>• Computer Systems Analyst</li> <li>• Information Security Analysts</li> <li>• Network &amp; Computer Systems Admin</li> <li>• Comp Network &amp; System Architects</li> <li>• Comp &amp; Informational Systems Managers</li> <li>• General &amp; Operations Managers</li> </ul>
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## Computer Programming CIP 11.0201.01

The Computer Programming pathway courses will prepare students to design and create apps, as well as troubleshoot the latest programming languages used in industry. The coursework will include instruction in the principles of Computational science, Computational development and computer programming. Upon completion of this career pathway, students will be prepared for an entry level position or continue their education in computer programming.

### BEST PRACTICE COURSES

#### Complete (4) four credits:

110110 Computer Literacy OR 060112 Digital Literacy  
 110251 Computational Thinking  
 110201 Introduction to Programming  
 110710 Introduction to Computer Science  
 110205 JAVA Programming I  
 110206 JAVA Programming II  
 110220 Object-Oriented Programming I (Visual Basics I)  
 110221 Object-Oriented Programming II (Visual Basics II)  
 110230 Cybersecurity  
 110226 Project-Based Programming  
 110701 AP Computer Science A  
 110711 AP Computer Science Principles  
 110801 Web Page Development  
 110809 JavaScript  
 110821 App Development with Swift  
 110918 Information Technology Co-Op OR 110919 Information Technology Internship



## **Web Development/Administration CIP 11.0801.01**

The Web Development/Administration pathway involves creating, designing, and producing interactive multimedia products and services. This will include development of digitally generated or computer-enhanced media, and the adherence to web standards, as used in business, training, communications and marketing. Organizations of all types and sizes use digital media, web pages, and websites to communicate with existing and potential customers, to track transactions, and to collaborate with colleagues. This pathway will prepare students to enter the workforce ready to participate as leaders in a broad range of careers and further their education.

### **BEST PRACTICE COURSES**

#### **Complete (4) four credits:**

110110 Computer Literacy OR 060112 Digital Literacy  
110251 Computational Thinking  
110801 Web Page Development  
110809 JavaScript  
110804 Website Design and Production  
110213 Design for the Internet  
110917 Internet Technologies  
110918 Informational Technology Co-Op OR 110919 Information Technology Internship

# JROTC

## (Junior Reserve Officer Training Corp)

This pathway introduces students to the theory and practice of military science, life in the U.S. Army and prepares them for cadet status (Junior ROTC or JROTC) or for service as commissioned reserve or active duty officers (Senior AROTC or ROTC). Programs are offered as adjuncts to regular high school instructional programs. Co-curricular activities such as color guard/drill team club are also non-required extensions of the course.

### **LET 1.0 - 580240**

### **LET 1.5 - S580240**

Grades 9-12 - 1 credit each (1 semester each)

Prerequisite: None

**\* Students who successfully complete both semesters of LET-1 (LET-1 and LET-1.5) and receive a passing grade on the comprehensive health exam will complete the requirements for the high school Health/PE credit**

### **LET 2.0 - 580241**

### **LET 2.5 - S580241**

Grades 10-12 - 1 credit each (1 semester each)

Prerequisite: Minimum of one semester of LET-1

### **LET 3.0 - 580242**

### **LET 3.5 - S580242**

Grades 11-12 - 1 credit each (1 semester each)

Prerequisite: LET-1 and 2 and consent of Senior Army Instructor

### **LET 4.0 - 580244**

### **LET 4.5 - S580244**

Grade 12 - 1 credit each (1 semester each)

Prerequisite: Let-1, 2, 3 and consent of Senior Army Instructor

	<b>Pathway</b>
	<b>JROTC</b>
<b>Freshman</b>	LET 1
<b>Sophomore</b>	LET 2
<b>Junior</b>	LET 3
<b>Senior</b>	LET 4
<b>Certification test</b>	Training Certificate (after completing Let 3)
<b>Post-Secondary Program</b>	Air Force, Army, Coast Guard, Marines, Navy, National Guard

# Media Studies

## **Yearbook Production - 239141**

Grades 10-12 - 2 credits (2 semesters)

Prerequisite: Application with teacher recommendation

Content for this course may vary. Possible topics include yearbook production, publication, format, layout, photographs and financial management. This state course code can be repeated for students that take multiple years of this course.

## **Broadcast Journalism - 239611**

Grades 10-12 - 2 credits (2 semesters)

Prerequisite: Application with teacher recommendation

Content for this course may vary but may include researching, reporting, writing, filming/recording and editing in digital and/or online formats.

# Performing Arts

Students may choose one of any of the Performing Arts or Visual Arts courses to fulfill the visual/performing arts requirement for graduation.

## **History/Appreciation of Visual/Performing Arts (HAVPA) - 500111**

Grades 10-12 - 1 credit (1 semester)

Prerequisite: None

This survey course includes the standards contained in the Kentucky Academic Standards (KAS) for Visual and Performing Arts. The KAS for Visual and Performing Arts incorporates the five arts disciplines of dance, media art, music, theatre and visual art. Within these five arts disciplines, students should engage with the four Artistic Processes of Creating, Performing/Presenting/Producing, Responding and Connecting. Students will achieve and move beyond the grounding in the arts achieved at the middle school level toward proficiency in the arts. Emphasis for these students should be placed on exposing students to a variety of arts through active experiences, and developing further understanding and appreciation of the historical and cultural significance of the arts. A higher emphasis on the process of responding to the arts is a natural outcome of this more general approach to art education; however engagement in the creative aspects of the arts remains critical in the general education of all students and promotes deep understanding and appreciation of the arts.

## **Music Ensemble (Percussion Studies) - 500921**

Grades 9-12 - 1 credit (1 semester)

Prerequisite: Open to any GCHS student who auditions and interviews with the Band Director in the spring and demonstrates the commitment, discipline, and basic musical understanding required to be a member of the Grant County Band. Middle school band experience is not required. Students who have been a member of the middle school band are not required to audition or interview.

Students study and perform a variety of traditional styles such as traditional chamber music, and contemporary or popular styles, such as jazz and rock, while also cultivating students' technique on instruments appropriate to the style(s) performed -- brass, woodwind, string, percussion instruments, and/or electronic. Courses typically range in size from 2 to 20 performers. Coursework provides students with opportunities for growth through rehearsal and performance, improvisation, or creating and performing their own compositions and also responding to music. These courses teach students the appropriate care, handling, and maintenance of musical instruments.

### **General Band - 500913**

Grades 9-12 - 2 credits (2 semesters)

Prerequisite: Completion of middle school band OR audition with high school band director

Courses in General Band are designed to promote students' technique for playing Brass, Woodwind, and Percussion instruments and cover a variety of band literature styles (e.g., Concert, Marching, Orchestral, and Modern) primarily for performances and also include experiences in creating and responding to music. These courses teach students the appropriate care, handling, and maintenance of musical instruments. Band courses may be offered on multiple skill levels to accommodate student proficiency. General Band courses may include marching activities for a portion of the year.

### **Symphonic Band - 500917**

Grades 9-12 - 2 credits (2 semesters)

Prerequisite: Approval from band director

Courses in Symphonic Band are designed to promote students' playing technique for brass, woodwind, and percussion instruments, and cover a variety of music styles. Literature for Symphonic Band courses is usually more advanced and incorporates orchestral literature transcribed for band. These courses emphasize rehearsal and performance experiences and also include experiences in creating and responding to music. These courses teach students the appropriate care, handling, and maintenance of musical instruments. Symphonic band courses are offered on multiple skill levels to accommodate proficiency. This state course code can be repeated for students that take multiple years of this course. **A \$25 fee is associated with this course.**

### **Concert Choir - 500925**

Grades 9-12 - 2 credits (2 semesters)

Prerequisite: None

Students develop vocal skills in the context of a large choral ensemble as a means to study and perform a variety of styles. These courses are designed to develop students' vocal techniques and their ability to sing parts and include experiences in creating and responding to music. Courses are offered on multiple levels to accommodate proficiency.

### **Chamber Singers - 500926**

Grades 9-12 - 2 credits (2 semesters)

Prerequisite: Audition Only

Students refine vocal techniques and the ability to sing parts in small ensembles. Students develop vocal techniques focusing primarily on musical literature styles such as chamber, madrigal, traditional jazz, jazz improvisation, popular, rock, barber shop, gospel, show choir and cultural. These ensembles may include both instrumental and vocal music such as a small vocal ensemble with instrumental accompaniment. Course goals include the development of solo singing ability and emphasize one or several ensemble literature styles. These ensembles include experiences in creating and responding to music. Courses are offered on multiple levels to accommodate proficiency.

## **Music Theory - 500928**

Grades 9-12 - 1 credit (1 semester)

Prerequisite: Approval from band director or choir teacher

Music Theory courses provide students with an understanding of the fundamentals of music and include one or more of the following topics: melody, harmony, composition, arrangement, analysis, aural development, and sight reading.

## **Guitar - 500923**

Grades 9-12 - 1 credit (1 semester)

Prerequisite: None

Students explore the fundamentals of music and guitar-playing techniques, such as strumming and chords. These courses may also include more advanced guitar-playing techniques. Coursework may also apply to Banjo, Bass, Dulcimer, Mandolin, Ukulele and other plucked string instruments. Formal and informal performances are included as part of the instructional program as well as experiences in creating and responding to music. These courses teach students the appropriate care, handling, and maintenance of musical instruments. Courses are offered on multiple levels to accommodate proficiency. **There is a \$10 fee associated with this course.**

No previous experience is necessary. Classroom guitars are also available for students who do not have their own acoustic guitars.

## **Introduction to Musical Theatre - 500533**

Grades 9-12 - 1 credit (1 semester)

Prerequisite: None

Students experience various aspects of musical theater, including auditioning, singing, acting, and dancing. They review the history and evolution of musical theater, its literature and artists, and styles of composition and vocal presentation. Students work collaboratively on performances, including solo, duet, and ensemble work. These courses may also provide a discussion of career and post-secondary placement opportunities.

# Visual Arts

Students may choose one of any of the Performing Arts or Visual Arts courses to fulfill the visual/performing arts requirement for graduation.

## **Visual Art Fundamentals - 500710**

Grades 9-12 - 1 credit (1 semester)

Prerequisite: None

Students are introduced to the basic fundamentals of artistic expression. The course includes experiences in drawing, painting, two-and three-dimensional design, sculpture, and other art forms. The course emphasizes observations, interpretation of the visual environment, visual communication, imagination and symbolism, and an introduction to various visual arts techniques and media. The focus of the course is on application of the fundamental processes of artistic expression and application of the concepts and approaches in the symbolic aspects of art and design to two- and three-dimensional problems so that they demonstrate a range of abilities and versatility with technique, problem solving, and ideation. A study of historical and contemporary art and artists from a worldwide perspective, and instruction and practice in peer review through the critique process, presentation of their work, responding to art and connecting their art to the world around them are included. **There is a \$20 fee associated with this course.**

## **Painting - P500712**

Grades 9-12 - 1 credit (1 semester)

Prerequisite: Visual Art Fundamentals recommended but not required

Students focus on the blend and relationships that occur between drawing and painting. Attention is given to two-dimensional work and utilizes one or more mediums, such as pen-and-ink, pencil, chalk, watercolor, tempera, oils, and acrylics. Students extend and refine knowledge in the creative process to visually communicate personal intent. Advanced students extend and refine knowledge in the creative process. They are encouraged to develop their own artistic styles. Students focus on making meaning by investigating and reflecting their awareness of their perceptions, knowledge, and experiences of life. The course may emphasize either drawing or painting or combine both. **There is a \$20 fee associated with this course.**

## **Drawing - D500712**

Grades 9-12 - 1 credit (1 semester)

Prerequisite: Visual Art Fundamentals recommended but not required

Students focus on the blend and relationships that occur between drawing and painting. Attention is given to two-dimensional work and utilizes one or more mediums, such as pen-and-ink, pencil, chalk, watercolor, tempera, oils, and acrylics. Students extend and refine knowledge in the creative process to visually communicate personal intent. Advanced students extend and refine knowledge in the creative process. They are encouraged to develop their own artistic styles. Students focus on making meaning by investigating and reflecting their awareness of their perceptions, knowledge, and experiences of life. The course may emphasize either drawing or painting or combine both. **There is a \$20 fee associated with this course.**



## **Ceramics I - 500212**

Grades 10-12 - 1 credit (1 semester)

Prerequisite: Visual Art Fundamentals

Ceramics/Pottery courses engage students in learning experiences that encompasses the historical and cultural context of ceramics, critiquing their own work and the work of others, aesthetic inquiry, and creative production. They develop knowledge of ceramic techniques and processes with an emphasis on creative design and craftsmanship. Experience includes, but is not limited to, clay modeling, hand building, coil building, casting and throwing on the potter's wheel. Students develop a working knowledge of kiln firing and glazing techniques. Students balance experimentation and safety, freedom and responsibility while developing and creating artworks. **There is a \$20 fee associated with this course.**

## **Sculpture - 500713**

Grades 10-12 - 1 credit (1 semester)

Prerequisite: Visual Art Fundamentals

Sculpture courses promote creative expression through three-dimensional works. Students explore representational and abstract sculpture through subtractive (carving), additive (modeling), and assemblage techniques in one or more media. They produce representational and abstract sculptures that communicate personal ideas and messages through the application of the fundamentals of artistic expression while incorporating elements of art and principles of design. A study of historical and contemporary sculpture and sculptors from a worldwide perspective, and instruction and practice in the critique process are addressed. **There is a \$20 fee associated with this course.**

# Welding Technology

## Cutting Processes - 480501

Grade 9 - 1 credit (1 semester)

Prerequisite: None

A working knowledge of various cutting processes used by the welding industry. Will include, but is not limited to, safety, theory of operation, setup and operating techniques, troubleshooting, and making minor equipment repairs, terms and definitions, identification, evaluation, repair and prevention of discontinuities of cut surfaces. Includes oxy-fuel cutting, plasma arc cutting, exothermic cutting, air carbon arc cutting, shielded metal arc cutting, and mechanical cutting process. S.E.N.S.E. certificate of completion will be given in this course of Cutting Process once student has completed all cuts. **There is a \$20 lab fee associated with this course.**

## Shielded Metal Arc Welding (SMAW) - 480521

Grades 10-12 - 1 credit (1 semester)

Prerequisite: Cutting Process

This course provides experiences in which students acquire the manipulative skills to do groove welds in all positions with backing. Students will receive S.E.N.S.E. Certificate of completion in this course over 2G and 3G guided Bend Test. Students must complete Oxy-Fuel Cutting Process to receive this certificate. **There is a \$20 lab fee associated with this course.**

## Gas Metal Arc Welding (GMAW) - 480522

Grades 11-12 - 2 credits (2 semesters)

Prerequisite: Shielded Metal Arc Welding (SMAW)

This course is designed to teach students the identification, inspection, and maintenance of GMAW machines; identification, selection and storage of GMAW electrodes; principles of GMAW; and the effects of variables on the GMAW process. Theory and applications of related processes such as FCAW and SAW and metallurgy are also included. Students will receive S.E.N.S.E. Certificate of completion in this course over GMAW Short circuit, FCAW and Spray Test. Students must complete Oxy-Fuel Cutting Process to receive this certificate. **There is a \$20 lab fee associated with this course.**

## Gas Tungsten Arc Welding (GTAW) - 480525

Grades 11-12 - 2 credits (2 semesters)

Prerequisite: Gas Metal Arc Welding (GMAW)

This course is designed to teach students the identification, inspection, and maintenance of GTAW machines; identification, selection and storage of GTAW electrodes; principles of GTAW; the effects of variables on the GTAW process; and metallurgy. This course also teaches the theory and application of Plasma Arc Cutting. Students will receive S.E.N.S.E. certificate of completion in this course over GTAW of carbon steel, stainless steel and aluminum test. Students must complete Oxy-Fuel Cutting Process to receive this certificate. **There is a \$20 lab fee associated with this course.**

**\*\*Co-operative education opportunities are available to 12<sup>th</sup> grade students in each Career and Technical Education area. Applications can be obtained from the program teacher or the Guidance Office and are to be returned to Mr. Butler after completion, including all required signatures, by deadlines provided. Students must meet all criteria as outlined in the agreement. Students will be required to maintain good attendance and submit biweekly timesheets.**

	Pathway
	Welding
Freshman	Cutting Processes
Sophomore	Shield Metal Arc Welding
Junior	GMAW
Senior	GTAW
Certification test	AWS Sense Certification (Level 1)
Post-Secondary Program	Gateway Community and Technical College, Tulsa Welding, KWI

## **Welder-Entry Level CIP 48.0508.01**

An entry level welder demonstrates the ability to assist lead welders in the fabrication of steel and metal structures. Students must be adept at performing basic welding functions and calculating dimensions as well as operating power equipment, grinders and other related tools. Students must be proficient in reading and interpreting basic blueprints and following work procedure specifications (WPS).

### **BEST PRACTICE COURSES**

#### **Complete (4) four credits:**

480505 Blueprint Reading for Welding (.5 or 1 credit) OR 499920 Basic Blueprint Reading (.5 credit) AND 480524 Basic Welding (.5 or 1 credit)  
480523 Oxy-Fuel Systems (.5 or 1 credit) OR 480501 Cutting Processes (.5 or 1 credit)  
480521 Shielded Metal Arc Welding (SMAW)  
480522 Gas Metal Arc Welding (.5 or 1 credit)  
480533 GMAW Groove Lab  
480528 SMAW Groove Welds with Backing Lab  
480535 SMAW Open Groove Lab  
480525 Gas Tungsten Arc Welding (.5 or 1 credit)  
480538 Gas Tungsten Pipe Welding Pipe Lab A  
480530 GTAW Groove Lab  
480540 GMAW Pipe Lab A  
480534 GMAW Aluminum Lab (.5 credit)  
480536 Shielded Metal Arc Welding Pipe Lab A  
480541 Co-Op (Welding) OR 480544 Internship (Welding)

# Dual Credit

## Northern Kentucky University School-Based Scholars

Grades 11-12 - credits vary

Prerequisite: Application, 3.0 GPA, ACT benchmarks met, additional prerequisites may apply to specific classes.

The SBS program allows eligible high school students to take up to 8 NKU classes prior to high school graduation. Course offerings will be presented by NKU in the semester prior to enrollment. If a SBS student applies to NKU as a freshman, the application fee will be waived.

## Gateway Community & Technical College Regional Academy

Grades 11-12 - credits vary

Prerequisite: Application, 3.0 GPA, ACT benchmarks met

In KCTCS dual-credit programs, such as Gateway Community and Technical College, eligible students can earn credit that goes towards their high school requirements; and at the same time, also earn college credit. Course offerings will be presented by GCTC in the semester prior to enrollment. Student must meet with the dual-credit counselor to select their courses.

**\* Note: Though NKU and Gateway are the most often access dual-credit offerings in which GCHS students enroll, other options may be available. In this case, a student should talk with the dual-credit counselor.**

**\* All dual-credit courses obtained through an accredited university or college will receive weighted credit at GCHS.**

# Service Learning

All students who enroll in service learning will be permitted to participate in only one class period per semester. Students will agree to sign and abide by a statement of confidentiality and will commit to attend a training session to be held on the first day for freshman in August. Service learners will receive one credit per course period served and a grade of Pass/Fail.

Potential Service Learners must complete an application. Attendance and behavior records will be reviewed. Students who are truant or have serious offenses will not be considered.

## **Peer Tutoring - 906010**

Grade 12 - 1-2 credits

Prerequisite: Application

This course is designed to train students in effective peer tutoring skills and provide experiences in peer tutoring. Peer tutors will assist students in regular and special education classrooms with a variety of activities that include but are not limited to the following: note taking, reading, completing assignments, remaining on task, and participating in classroom activities. Peer tutors are expected to serve as a positive role model and to be engaged in the classroom at all times.

- If peer tutoring in Math or English, the student must have met the ACT benchmark in that area and must have previously achieved an A or B in the course in which he/she is peer tutoring.
- If peer tutoring in subjects outside of Math or English, the student must have received an A or B in the course.
- Elective teachers may have peer tutors in introductory level courses only.
- Service Learning information above applies.

## **School Ambassador (Office/Teacher Aide) - 909020**

Grade 12 - 1-2 credits

Prerequisite: Cumulative GPA of 2.5 or higher, no class failures for previous year, see Service Learning above

Student ambassadors are interested in providing service to school operations through office-type positions (main office, counselors, YSC, media center). Ambassadors will participate in a variety of activities that include but are not limited to the following: interacting with students and parents, answering phones, orienting new students to the building, and supporting school staff in daily building operations. Student ambassadors are expected to serve with positivity and professionalism at all times. This course must be assigned to a certified individual.