

# ANC STEM Academy

Science Technology Engineering Mathematics

## General Education Concurrent Credit Classes

The STEM Academy provides enrichment and program acceleration opportunities to outstanding high school students who have demonstrated the ability to do satisfactory college level work while still enrolled at their local high schools. STEM students will only attend the Academy for their allotted class times and will be enrolled at both the high school and the STEM Academy. This will allow courses to be offered for concurrent credit as high school units and college credit. Courses in the 35-hour general education core will transfer to all Arkansas public institutions and many other public and private institutions as long as students successfully complete the course (C or better). Students should confirm transferability with the institution of choice and verify the number of concurrent enrollment hours accepted by each. Services are offered at NO COST to the students. *Books, tuition and fees are provided through the STEM Academy and funded by the local school districts.*

### Admission Policy

Student Requirements:

- Completed application for admission form
- Present ACT (or equivalent ASSET or COMPASS) scores consistent with college-level placement in the subject area in which they wish to enroll.
- Students must have qualifying minimum scores on accepted placement tests:

To take English :			
	<b>ACT</b>	<b>ASSET</b>	<b>COMPASS</b>
English	19+	45+	75+
To take College Algebra:			
	<b>ACT</b>	<b>ASSET</b>	<b>COMPASS</b>
Math	21+	Intermediate Algebra Exam 39+	Algebra Domain 53+
To take all other General Education Courses :			
	<b>ACT</b>	<b>ASSET</b>	<b>COMPASS</b>
Reading	19+	43+	82+

### TENTATIVE Schedule for STEM Courses

High School/College Concurrent courses will be scheduled in a "block" format. Block One will be offered from 8:20 a.m.—10:05 a.m. **During the first year, students will have the opportunity to take College Algebra, Plane Trigonometry, Physical Science and Lab, and Zoology and Lab,** with other courses being added in subsequent years.

### Credit Transition Matrix

#### College Course = High School Course (by semester)

College Algebra	1/2 credit Transitions to College Math
Plane Trigonometry	1/2 credit Pre-Calculus/Trigonometry
Calculus I-first half	1/2 credit Pre-Calculus/Trigonometry
Calculus I-second half	1/2 credit Elective
Calculus II-first half	1/2 credit Elective
Calculus II-second half	1/2 credit Elective
Intro to Statistics	1/2 credit Statistics
Zoology & Lab	1/2 credit Zoology
Anatomy & Physiology I & Lab	1/2 credit Anatomy
General Chemistry I & Lab	1/2 credit Advanced Chemistry
General Chemistry II & Lab	1/2 credit Advanced Chemistry
Microbiology & Lab	1/2 credit Advanced Biology
Fundamental Physics I & Lab	1/2 credit Advanced Physics
Fundamental Physics II & Lab	1/2 credit Advanced Physics
Physical Science & Lab	1/2 credit Elective

# STEM Course Descriptions

Future course offerings could include the following:

**MA 14043 COLLEGE ALGEBRA** — A study of polynomial, rational, exponential, and logarithmic functions, including graphing techniques, finding zeros, finding inverse and composite functions and applications. Other topics may include solving systems of equations and inequalities, basic operations on matrices, and finding determinants. Prerequisite: “C” or above in MA 14083 Intermediate Algebra, ACT of 21 in math or above, ASSET Intermediate Algebra Type I score of 39 or above, or a COMPASS score of 53-100 in Type A Algebra. Students must make a “C” or above in the course to earn an Associate in Arts Degree.

**MA 14053 PLANE TRIGONOMETRY** — A study of the trigonometric functions, solutions of right triangles, fundamental identities, composite angles, oblique triangles, graphs of the trigonometric functions and inverse trigonometric functions. Prerequisite: A “C” or above in MA 14043 College Algebra.

**MA 24015 CALCULUS I** — Selected topics in analytical geometry, the study of limits and continuity, differentiation, applications of differentiation, integration, and applications of integration. Prerequisite: A “C” or above in MA 14043 College Algebra and MA 14053 Plane Trigonometry or MA 14065 Pre-Calculus.

**BI 24003 ANATOMY AND PHYSIOLOGY I** — Provides the student with a knowledge of the structure and function of the human body. The general organization of the body and the structure and function of the integumentary, skeletal, muscular, and nervous systems will be covered. Anatomy & Physiology I Lab (BI 24011) must be taken concurrently and completed as part of the class. Prerequisite of CH 14003 Survey of Chemistry and/or BI 14033 General Biology and BI 14041 General Biology Lab.

**BI 24011 ANATOMY AND PHYSIOLOGY I LAB** — Lab extends the concepts of and must be completed with Anatomy and Physiology I.

**BI 24023 ANATOMY AND PHYSIOLOGY II** — A continuation of the study of the structure and function of the human body. The structure and function of the autonomic nervous system, sense organs, and the endocrine, circulatory, lymphoid, respiratory, digestive, urinary, and reproductive systems will be covered. Lab (BI 24031) must be taken concurrently and completed as part of the class. Prerequisite: Grade “C” or above in Anatomy & Physiology I & Lab. Students must enroll in the same section of lecture and lab.

**BI 24031 ANATOMY AND PHYSIOLOGY II LAB** — Lab extends the concepts of, and must be completed with, Anatomy & Physiology II.

**BI 14073 ZOOLOGY** — Introduces the student to the fundamental concepts and principles of animal biology. It will increase the awareness of the relationships of these principles to man. The approach will be from the single-celled to the complex organism. Offered in spring semester or on sufficient demand. Lab (BI 14081) must be taken concurrently and completed as part of the course.

**BI 14081 ZOOLOGY LAB** — Lab extends the concepts of and must be completed with Zoology and will include gross and microscopic anatomy, physiology, classification, and ecology of representative animals.

**CH 14023 GENERAL CHEMISTRY I** — The basic principles of chemistry. The correlation between electronic configurations of the elements and their chemical properties. Lab (CH 14031) must be taken concurrently and completed as part of the class. Prerequisite: Grade “C” or better in College Algebra (MA 14043).

**CH 14031 GENERAL CHEMISTRY I LAB** — Lab extends the concept of and must be completed with General Chemistry I.

**CH 14043 GENERAL CHEMISTRY II** — Continuation of General Chemistry I with a brief survey of organic chemistry. Lab (CH 14051) must be taken concurrently and completed as part of the class. Prerequisite: Grade “C” or better in General Chemistry I and Lab.

**CH 14051 GENERAL CHEMISTRY II LAB** — Lab extends the concepts of, and must be completed with, General Chemistry II. The laboratory emphasizes qualitative analysis.

**PS 14003 PHYSICAL SCIENCE** — A course designed primarily for students other than those planning a math or science major, it is concerned with concepts of matter and energy involved in the field of astronomy, chemistry, geology, and physics. The application of scientific knowledge to daily life is emphasized and stress is placed on fundamental principles and scientific methods. Lab (PS 14011) must be taken concurrently and completed as part of the class. Prerequisite: Grade “C” or better in Intermediate Algebra (MA 14083) or mathematical equivalent. This course is not open to students enrolled in General Physics I or General Chemistry I.

**PS 14011 PHYSICAL SCIENCE LAB** — Lab extends the concepts of, and must be completed with, Physical Science PS 14003.



# STEM Curriculum Implementation Schedule

## Year 1 (2008 - 2009)

### *BLOCK 1 (8:20 - 10:05)*

	TRACK 1	TRACK 2
Fall	College Algebra (MW) Physical Science & Lab (THF)	College Algebra (TH) Zoology & Lab (MWF)
Spring	Plane Trig (MW) Zoology & Lab (THF)	Plane Trig (TH) Physical Science & Lab (MWF)
Credit Hr.	14 hrs.	14 hrs.

## Year 2 (2009 - 2010)

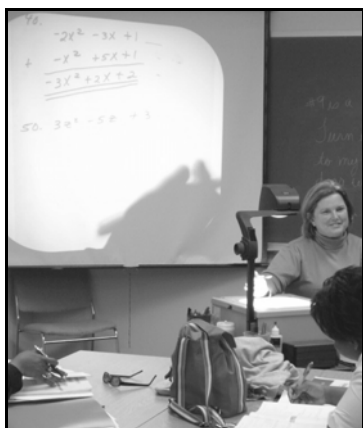
### *BLOCK 1 (8:20 - 10:05)*

	TRACK 1	TRACK 2
Fall	College Algebra (MW) Physical Science & Lab (THF)	College Algebra (TH) Zoology & Lab (MWF)
Spring	Plane Trig (MW) Zoology & Lab (THF)	Plane Trig (TH) Physical Science & Lab (MWF)
Credit Hr.	14 hrs.	14 hrs.



### *BLOCK 2 (10:10 - 11:50)*

	TRACK 1	TRACK 2
Fall	First half of Cal I (MW) Gen. Chem I & Lab (THF)	First half of Cal I (TH) A & P I & Lab (MWF)
Spring	Second half of Cal I (MW) Gen. Chem II & Lab (THF)	Second half of Cal I (TH) A & P II & Lab (MWF)
Credit Hr.	13 hrs.	13 hrs.



## Year 3 (2010 - 2011)

### *BLOCK 1 (8:20 - 10:05)*

	TRACK 1	TRACK 2
Fall	College Algebra (MW) Physical Science & Lab (THF)	College Algebra (TH) Zoology & Lab (MWF)
Spring	Plane Trig (MW) Zoology & Lab (THF)	Plane Trig (TH) Physical Science & Lab (MWF)
Credit Hr.	14 hrs.	14 hrs.

### *BLOCK 2 (10:10 - 11:50)*

	TRACK 1	TRACK 2
Fall	First half of Cal I (MW) Gen. Chem I & Lab (THF)	First half of Cal I (TH) A & P I & Lab (MWF)
Spring	Second half of Cal I (MW) Gen. Chem II & Lab (THF)	Second half of Cal I (TH) A & P II & Lab (MWF)
Credit Hr.	13 hrs.	13 hrs.

### *BLOCK 3 (1:20 - 2:50)*

	TRACK 1	TRACK 2	TRACK 3
Fall	First half of Cal II (MW) Fundamental Physics I & Lab (THF)	First half of Cal II (TH) Microbiology & Lab (MWF)	College Alg. (MW) A&P I & Lab (THF)
Spring	Second half of Cal II (MW) Fund. Physics II & Lab (THF)	Second half of Cal II (TH) Botany & Lab (MWF)	Intro to Stat (MW) A & P II & Lab (THF)
Credit Hr.	13 hrs.	13 hrs.	14 hrs.



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