

# **Cherokee Christian High School**

## **Science, Technology, Engineering, and Math (STEM) Diploma**

The Mission Statement of Cherokee Christian Schools reflects our desire to provide a “Christ-centered academically-excellent education” which will result in “Godly leadership.” In order to fulfill this mission, we are continually looking for ways we can better provide that academic excellence resulting in leadership in an ever-changing world. The culture we encounter now is vastly different than what we experienced 10, 20, or 50 years ago. As a result, Cherokee Christian Schools must be ready to address new challenges and new cultural situations.

One significant change which has taken place over the past 10 to 20 years is the importance of science, technology, and engineering (all of which are undergirded by math). From the development of personal computers to smart phones to GPS to genetic engineering, our society is inundated with scientific and technological advances. If we are going to prepare our students to serve God in this world, we must provide them with a sound training in this area.

For this reason, Cherokee Christian High School is introducing a STEM (Science, Technology, Engineering, and Math) Diploma program in the fall of 2011. Students who choose this program (which is offered alongside our traditional college-preparatory diploma) will engage in a rigorous four-year course of study which will prepare them thoroughly to pursue advanced degrees and careers in scientific and engineering fields. They will have the opportunity to learn from teachers who have been engaged in various fields of science, technology, and engineering.

The graduation requirements and scope/sequence are found on the next few pages.

**Summary of Graduation Requirements  
STEM Diploma  
(effective with freshmen entering in the fall of 2011)**

In order to graduate from Cherokee Christian High School with the STEM (Science, Technology, Engineering, and Math) Diploma, students must earn a total of 29 units as follows. ***Please note*** that these requirements are designed to exceed the entrance standards established by the Board of Regents of the University System of Georgia (all state colleges and universities). Other colleges may have different entrance requirements. It is the student's responsibility to determine those particular entrance requirements.

Subject Area	Units Required	
Bible	4.0	Bible is required each semester a student is enrolled at CCHS. The number of required units will be adjusted for students who transfer to CCHS after the freshman year.
English	4.0	See course listing
Social Studies	3.0	Must include at least 1 unit of world history, 1 unit of U. S. history, and 1 unit of government/economics
Mathematics	6.0	Algebra 1 (middle school), Geometry, Algebra 2, Pre-Calculus, AP Calculus, and another advanced math elective (examples: AP Statistics, Linear Algebra, Numerical Analysis)
Science	4.0	Chemistry, Biology, AP Physics C, and another science or engineering elective (examples: Human Anatomy/Physiology, AP Chemistry, Aeronautical Engineering, Biomedical Engineering)
Engineering	2.5	3D Modeling and Design, Principles of Engineering I (Mechanical Systems), Principles of Engineering II (Digital Systems)
Foreign Language	2.0	Must be two credits in the same foreign language
Fine Arts	1.5	Conceptual Drawing, Digital Design, and another visual art elective (examples: Studio Art, Drama, Video Media)
Technology	1.0	Introduction to Programming, and another advanced computer elective (examples: MatLab, Python, Java, C++ Programming, Computer Science)
Health	0.5	See course listing
Physical Education	0.5	See course listing

In addition, students must complete 10 hours of volunteer community service for each year they are enrolled at CCHS. A student who completes all four years at CCHS must fulfill 40 hours of community service prior to graduation; a student who transfers to CCHS for his/her junior year would need to fulfill 20 hours of service.

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### Typical Course Sequence

	Freshman	Sophomore	Junior	Senior
<b>Bible</b>	Old Testament	New Testament	Doctrine/ Apologetics	Philosophy and Ethics (with emphasis on science and technology elements)
<b>Math</b> <i>(Algebra 1 completed in middle school)</i>	<u>Geometry and Algebra 2</u>	Pre-Calculus	AP Calculus AB	Mandatory Elective in Advanced Math (examples: AP Calculus BC, AP Statistics, Linear Algebra, Numerical Analysis)
<b>Science</b>	Chemistry	Biology	AP Physics C	Mandatory Elective in Science or Engineering (examples: Human Anatomy/ Physiology, AP Chemistry, Aeronautical Engineering, Biomedical Engineering)
<b>Engineering</b>	3D Modeling and Design (1 semester)	Principles of Engineering I (Mechanical Systems)	Principles of Engineering II (Digital Systems)	
<b>Technology</b>		Introduction to Programming (1 semester)		Mandatory Electives (examples: MatLab, Python, Java, C++ Programming, Computer Science) (2 semesters)
<b>Social Science</b>		<u>World History</u> (with emphasis on scientific and engineering developments)	U.S. History	Government/ Economics
<b>Foreign Language</b>			<u>First Year Language</u>	<u>Second Year Language</u>
<b>English</b>	<u>English 9</u>	World Literature	American Literature	British Literature
<b>Fine Arts</b>	Foundational Drawing (1 semester)	Digital Design (1 semester)		
<b>PE/Health</b>	PE/Health			
<b>Total Credits</b>	<b>7</b>	<b>7</b>	<b>7</b>	<b>7</b>

In order to allow for more electives, or to allow students to spread out the course load somewhat, the underlined courses above may be taken in a summer school program, subject to these guidelines:

1. The course must be completed prior to beginning the next class in that subject area. For example, if the student takes English 9 in the summer, it must be completed prior to beginning World Literature in the sophomore year.
2. If courses are taught in a CCHS summer school on campus, the summer courses must be taken at CCHS.
3. If appropriate courses are not offered in an on-campus summer school, students may enroll in the Sevenstar online program for course work. Such work must be completed prior to the first day of classes in August.

# FAQs about the CCHS STEM Diploma

## *Why should a student enroll in this program?*

Students who are interested in pursuing work in STEM areas will be more than adequately prepared for advanced studies through this program. The rigor of the program will lay the groundwork for similar scholarship in undergraduate and graduate-level degree programs. Students graduating from the STEM program will not only have an impressive course of studies for their transcripts and resumes, but will have the benefit of having studied under teachers who have real-world experience in these areas.

## *What are the entrance requirements and procedure?*

Students must apply for provisional acceptance in the STEM program in the spring of the eighth grade. Students must give evidence that they are prepared academically for the level of studies, and that they are committed to achieving excellence in their studies. Evidence will include:

- A written application, including an essay explaining why the student wants to enter the STEM program
- Standardized test scores, which must show achievement at the 85<sup>th</sup> percentile or higher in math and science, and the 70<sup>th</sup> percentile or higher in English
- Recommendations from the student's current math and science teachers
- A personal interview with the heads of our math and science departments

## *What are the requirements for remaining in the STEM program?*

In the fourth quarter of the student's freshman year, he must apply for full acceptance into STEM. This application will consist of the following:

- A written application, including an essay giving specific examples of how his freshman classes have led him to continue to seek studies in STEM.
- Recommendations from the student's current math and science teachers
- A personal interview with the heads of our math and science departments.

Students who pass this application will be accepted into the STEM program. Other students will be transferred to the standard college-preparatory diploma program.

In addition, students in the STEM program must maintain an overall weighted 3.0 GPA, and must maintain at least a B average in each of their math and science courses, based on the semester grades.

## *What if the student doesn't wish to continue in the program?*

Students may withdraw from the program at any time after an interview with the heads of our math and science departments. All courses will count toward the CCHS standard college-preparatory diploma, so the student may simply move into the standard program with no penalty.

## *Is there a "STEM-Light" version, for students who are not ready for this level of rigor?*

Students in our standard college-preparatory program may take any of the STEM courses as electives as they desire, depending on having taken appropriate pre-requisite and co-requisite courses, and if space is available in the classes (first priority goes to students in the full STEM program). We do not have another set program of studies, however.

*Will the students get college credit for their work?*

For the Advanced Placement (AP) courses, the granting of college credit is determined by the individual colleges to which the student applies, based on the student's score on the AP exam in the spring. In addition, some courses may be taught on a dual-credit basis in conjunction with a local college; those courses will receive credit from that college, which may be transferred to other colleges on the same basis as any college credit.

*May home-school students enroll for individual courses and receive a CCHS STEM diploma?*

Because all the courses in our four-year STEM curriculum are designed to support each other, students must enroll in the full program for all four years to receive a STEM diploma.

*May students begin the STEM program after their freshman year?*

It may be possible to enter STEM following the freshman year if the student has met the requirements necessary. The main consideration would be the level of math. Since six credits in math (beginning with Algebra 1) are required in STEM, and since some of the upper-level engineering and science courses have particular advanced math courses as pre-requisites or co-requisites, it would be required that a student have completed math through Algebra 2 prior to the sophomore year.

*May some courses be taken during the summer?*

In order to lighten the work load somewhat during the school year, or to allow students to take additional electives, some courses may be taken during the summer, as indicated above on the "Typical Course Sequence" chart, and following the guidelines on that page.

*The college my student wants to attend requires three years of a foreign language, but you only have two years in the STEM curriculum.*

This is an instance in which summer study would be appropriate. For example, the student could take the first year of a foreign language during the summer prior to the junior year, then take the second year of the language on campus in the junior year, and complete the third year on campus in the senior year. Other alternatives would be considered as well.

*I am concerned that my student will not have time for participation in extra-curricular activities such as sports.*

The STEM program is an admittedly rigorous program, and is not designed for all students. We recognize that it will demand more hours of study than our regular college-preparatory program, and may preclude significant participation in extra-curricular activities. Students who desire to participate significantly in such activities may either take some classes during the summer (as outlined above), or may choose to enroll in our regular college-preparatory program and take some of the STEM courses as electives.

*Will the STEM program help my student receive the Zell Miller Scholarship from the HOPE program?*

The State of Georgia sets out the requirements for calculating grade point averages for HOPE and the Zell Miller Scholarship. Currently (February, 2011) they add 0.5 quality points to the HOPE GPA calculation for all AP courses, but not for any other courses (such as honors courses). All AP courses in the STEM program will thus receive additional weight for the HOPE program.