



Dr. John D. Barge, State School Superintendent  
"Making Education Work for All Georgians"

# Student Plan of Study –Science

Name \_\_\_\_\_ Date \_\_\_\_\_ School \_\_\_\_\_

Parent/Guardian Signature \_\_\_\_\_ Date \_\_\_\_\_ Advisor/Counselor Signature \_\_\_\_\_ Date \_\_\_\_\_

**Current Area of Interest:** *Advanced Academic/Science- This PLAN OF STUDY should serve as a guide for the next four years. Courses listed in this plan are only recommended coursework and should be individualized to meet each student's educational and career goals. All plans will meet minimum high school graduation requirements. Applicants to the University System of Georgia and the Technical College System of Georgia institutions should be advised that meeting minimum requirements will not guarantee admission. Postsecondary institutions may set additional requirements.*

Grade Level	I. English/Language Arts Total 4 credits	II. Math Total 4 credits	III. Science Total 4 credits	IV. Social Studies Total 3 credits	V. Health/Personal Fitness Total 1 credit	VII. Possible electives in additional pathways (students should check the local course description catalog for these and other electives) Total 4 credits
9	9 <sup>th</sup> Literature & Composition or Approved Dual Enrollment Course  1 credit  Credit Earned <input type="checkbox"/>	1 CCGPS Cord Alg 2 CCGPS Analytic Geom 3 CCGPS Accel Cord Alg/Analytic Geom 4 CCGPS Accel Analytic Geom B/Adv Alg 1 credit *  Credit Earned <input type="checkbox"/>	Biology or Approved Dual Enrollment Course  1 credit *  Credit Earned <input type="checkbox"/>	American Government/Civics or AP Government/ Politics US or Approved Dual Enrollment Course  ½ credit  Credit Earned <input type="checkbox"/>	Health ½ credit Credit Earned <input type="checkbox"/> Personal Fitness ½ credit Credit Earned <input type="checkbox"/> <b>VI. Science Pathway Total 3 credits</b>	<b>***Career, Technical and Agricultural Education (CTAE) Pathways</b> A Career, Technical & Agricultural Education pathway may be followed in anyone of Georgia's career-related plans of study aligned with the national career clusters including, the more Georgia specific, Energy Cluster. Students must complete a series of courses to complete a career-related pathway. Upon completion of the pathway coursework, student can sit for an assessment that will award them with a credential that measures technical skill attainment and can be used for future employment or admission to a postsecondary institution. AP, <a href="#">Dual Enrollment</a> and <a href="#">Georgia Virtual School</a> courses may be available.
10	10 <sup>th</sup> Literature & Composition or World Literature & Composition or Approved Dual Enrollment Course  1 credit  Credit Earned <input type="checkbox"/>	1 CCGPS Analytic Geom 2 CCGPS Adv Algebra 3 CCGPS Accel Analytic Geom/Adv Alg 4 CCGPS Pre-Calculus  1 credit *  Credit Earned <input type="checkbox"/>	Physical Science or Physics or AP Physics or Approved Dual Enrollment Course  1 credit *  Credit Earned <input type="checkbox"/>	World History or AP World History or Approved Dual Enrollment Course  1 credit  Credit Earned <input type="checkbox"/>	**Modern World Language  1 credit  Credit Earned <input type="checkbox"/>	<b>World Language Pathways</b> **Two credits are required for admissions to University System Institutions. For a listing of world language courses offered at your high school, please check with your advisor, counselor, or local course description catalog. A world language pathway may be followed in any of the world language areas included in the state list of approved courses. Upon graduation, students earn a world language pathway when they complete three credits in one language. The third course may reflect an AP, IB or <a href="#">Dual Enrollment</a> designation. <a href="#">Georgia Virtual School</a> and ACCEL courses may be available.
11	American Literature/ Composition or AP English Language & Composition/American Lit or Approved Dual Enrollment Course 1 credit Credit Earned <input type="checkbox"/>	1 CCGPS Adv Alg 2 CCGPS Pre-Calculus 3 CCGPS Accel Pre-Cal 4 CCGPS Cal or AP Cal  1 credit * Credit Earned <input type="checkbox"/>	Chemistry or Environmental Science or Earth Systems or AP/IB or Approved Dual Enrollment Course  1 credit * Credit Earned <input type="checkbox"/>	United States History or AP US History or IB History of the Americas or Approved Dual Enrollment Course  1 credit Credit Earned <input type="checkbox"/>	**Modern World Language  1 credit Credit Earned <input type="checkbox"/>	<b>Fine Arts/Performing Arts Pathways</b> Visual Arts, Dance, Music, Journalism, Theatre  A fine arts pathway may be followed in any one of the five areas listed above. Upon graduation, students complete a fine arts/performing arts pathway when three courses have been successfully completed in any one of the five areas. A student should consult a counselor or advisor for related coursework. AP, <a href="#">Dual Enrollment</a> and <a href="#">Georgia Virtual School</a> courses may be available.
At the end of the 11th grade, students planning to enter a University System of Georgia Institution or Technical College System of Georgia Institution should take the appropriate admissions test (SAT, ACT, Compass).						<b>Legend:</b> *Science: Approved <a href="#">4th Sciences</a> may be used to meet both the required science and required elective in a Career, Technical and Agricultural Education (CTAE) sequence of courses; see Fourth Science Requirements for more information. Student may take science courses in any sequence. *Math: Select Math sequence 1, 2, 3, 4, based on 9 <sup>th</sup> grade entry course. **Students must complete two credits of the same world language for admission to University System of Georgia institutions. *** Students should complete a CTAE pathway and take the related end of pathway assessment.  NOTE: Local systems may offer core courses in a different sequence; not all local systems offer every pathway. Students should explore all credit possibilities including <a href="#">Georgia's Virtual School Program</a> , <a href="#">Dual Enrollment</a> , Advanced Placement (AP), International Baccalaureate (IB) and Work-Based Learning (WBL) to reach their educational and career goals.
12	Advanced Composition or British Literature or AP/IB English Literature & Composition or Approved Dual Enrollment Course  1 credit Credit Earned <input type="checkbox"/>	CCGPS Pre-Cal or Adv Math Decision Making or Cal or AP Stats or AP Cal or IB Math or Approved Dual Enrollment Course  1 credit * Credit Earned <input type="checkbox"/>	AP Sci or IB Sci or Science Research I or Advanced Physics Principles/ Robotics or Chem & Mat Sci or IB Design Tech or Approved Dual Enrollment Course 1 credit * Credit Earned <input type="checkbox"/>	Econ/Business/Free Enterprise or AP Macro Econ or AP Micro Econ or IB Econ or Approved Dual Enrollment Course  ½ credit Credit Earned <input type="checkbox"/>	In lieu of one English/Language Arts course, students must complete at least one AP, IB, or Approved Dual Enrollment Course. See your counselor or advisor for a list of possible courses  1 credit Credit Earned <input type="checkbox"/>	
Sample Elective Courses	<b>Other English Elective Courses:</b> Journalism Oral/Written Communications Speech	<b>Other Math Elective Courses:</b>	<b>Other Science Elective Courses:</b> AP/IB Science	<b>Other Social Studies Elective Courses:</b> Humanities or AP/IB Soc Studies or Current Issues or World Geography		

Advanced Academics

SAMPLE Pathway OCCUPATIONS See <a href="#">*Georgia's HOT Careers to 2020</a> for more information on high-skilled, High-wage, and high-demand occupations.			
Occupation Specialties	Entry Level of Education Needed	2012 Annual Wage	Annual Openings 2012-2020
Biological Scientists	Advanced Degree	\$71,100	20
Archaeologists	Advanced Degree	\$47,800	Increase +21% nationally
Chemists	Bachelor's Degree	\$71,600	40

Source: Georgia Department of Labor/ONET

For more information about your education and career planning, including valuable financial aid information that includes grants and scholarships, see your school counselor.

**** <a href="#">Current Georgia Graduation Rule</a>			
Coursework	Credits	Coursework	Credits
I. English/Language Arts	4	V. Health & Physical Education	1
II. Math	4	VI. **Career, Technical & Agricultural Education and/or	
III. *Science	4	***World Languages, and/or Fine Arts	3
IV. Social Studies	3	VII. Electives	4
		TOTAL	23

\*Selected [4th Science](#) courses may be used to meet both the required science and required elective in a CTAE sequence of courses.

\*\*Students must complete three credits to complete a CTAE pathway and take the end of pathway assessment.

\*\*\*Students must complete two credits of the same world languages for admission to Georgia Board of Regents colleges/universities.

\*\*\*\* Current graduation requirements should be met in all content areas.

NOTE: This plan represents minimum graduation requirements. Local systems may require additional coursework.

**Postsecondary Transition:**

- Students who will continue their education in a Program of Study at one of the University System of Georgia institutions should prepare to take the ACT or SAT for admissions. Tests for admissions may vary from institution to institution. Contact the selected institution for specific testing information. Additional admissions information can be found at [Staying On Course](http://www.usg.edu/student_affairs/documents/Staying_on_Course.pdf). ([www.usg.edu/student\\_affairs/documents/Staying\\_on\\_Course.pdf](http://www.usg.edu/student_affairs/documents/Staying_on_Course.pdf))
- Students who will continue their education in a Program of Study at one of Georgia's Technical Colleges should prepare to take the COMPASS test for admissions.
- Students who will continue their education and training in the US Military should take the ASVAB assessment.
- Students should utilize electronic college and career databases to select the most appropriate postsecondary opportunities including registered apprenticeships to match their selected career field.
- Students can earn both high school and postsecondary credit while in high school. Georgia has multiple [dual enrollment](#) programs, including ACCEL, AP, IB, Dual Hope, Move On When Ready and Articulation.

**Possible Student Assessment Opportunities:**

Students completing a pathway are eligible to take a Credentialing/End of Pathway Assessment (EOPA) upon successful completion of the three required courses in the pathway. For specific assessment information, refer to <http://www.gadoe.org/Curriculum-Instruction-and-Assessment/CTAE/Pages/CTAE-Georgia-Assessments.aspx>

**\*Related Pathway Occupations:**  
 Computer & Information Research Scientists  
 Materials Scientists  
 Soil & Plant Scientists  
 Environmental Scientists  
 Life Scientists  
 Animal Scientists  
 Medical Scientists  
 Bioinformatics Scientists

\*ONET Online

**Advanced Academics/Science**

Science contributes to our everyday lives. Wherever and whatever one is doing, they are probably enjoying the benefits that result from scientific work. For example, sound engineers make movies and music better. Doctors study diseases and discover new cures and treatments. Chemists create health and beauty aids - from medicines to soap and perfume. Agricultural scientists help bring fresh, nutritious produce to supermarkets. Physicists develop theories to explain phenomena at all scales. Their theories are then applied to human-scale projects to bring new technologies. Simply stated, science is an important part of many different kinds of occupations.

Many people in the United States understand that in order for our society to remain competitive in an advanced technological era and in a global economy, a good science education is critical. Secondary students who enjoy discovery and problem solving should strongly consider completing career-related coursework in Biotechnology and Engineering in the Science, Technology, Engineering and Math (STEM) career cluster. STEM related skills are spreading to occupations in manufacturing and mining. Scientific and technological skills are fast becoming staples in the job market. Holland Codes for most occupations include Investigative (I) and Realistic (R). Some occupations will include a third code which usually reflects the focus of the research or development. Students can access Holland Codes from GAcollege411 under the Career Planning tab to assist in the narrowing process.

In general scientists perform complex calculations, express observations and conclusions in mathematical models. In addition, they analyze data from research, write papers for scientific journals or present information at scientific conferences, and collaborate with other scientists in the design, development, and testing of experimental, industrial, or medical equipment, instrumentation, and procedures.

Most occupations will require at least a Bachelor's Degree and the salary will vary depending on demand and level of education required. Jobs that will grow faster than the average are Biomedical Engineers, Automotive Engineers, Biochemists and Biophysicists, Computer Systems Engineers, Energy Engineers, Geneticists, Forensic Scientists, and Fuel Cell Engineers.

Some information adapted from "The Rising Value of a Science Degree"

<http://economix.blogs.nytimes.com/2011/10/20/the-rising-value-of-a-science-degree/>