

Student Program of Study: Mathematics



This Program of Study may serve as a graduation guide for the next four plus years, along with other career planning and educational materials. Courses listed in this model may include recommended coursework and should be individualized to students' educational and career goals.

Each graduation plan needs to meet minimum high school graduation requirements. Dual Enrollment courses can be high school academic and/or career technical education courses.

Secondary: Advanced Academics – Mathematics					Postsecondary:		
Course/Grade	Ninth	Tenth	Eleventh	Twelfth	Diploma	Associate Degree	Bachelor of Science
English	9 th grade Lit/ Composition	10 th grade Lit/ Composition	American Lit/ Composition	World Lit/ Composition / British Lit	Entrance or Exit Point The Technical College System of Georgia offers students a variety of diploma program options. There are over 600 programs to choose from. Students who enroll in a TCSG diploma program can earn college mathematics credits at the Technical College to fulfill the requirements of a technical certificate or technical diploma. This supports students on their journey of being college and career ready and ready to enter the global workforce.	The University System of Georgia and the Technical College System of Georgia offer students a variety of associate degree options. Students who enroll in a USG or TCSG associate degree program can earn college mathematics credits at the Technical College to fulfill the mathematics degree requirements. This supports students on their journey of being college and career ready and ready to enter the global workforce.	Entrance or Exit Point The University System of Georgia offers students' higher education options at 28 institutions throughout the state, providing a wide range of academic programming including certificates and associate, baccalaureate, masters, doctoral and professional degrees. https://apps.usg.edu/ords/f?p=118:1:0
Mathematics	Option 1: GSE Coord Alg/ Algebra I	Option 1: GSE Analytic Geo/ Geometry	Option 1: GSE Adv Algebra/ Algebra II	AP*, IB**, Dual Enrollment Course Options beyond Pre-Calculus			
	Option 2: GSE Analytic Geo/ Geom	Option 2: GSE Adv Algebra/ Algebra II	Option 2: GSE Pre-Calculus				
	Option 3: GSE Advanced Algebra/ Algebra II	Option 3: GSE Pre-Calculus	Option 3: AP Calculus, AP Statistics, IB**, Dual Enrollment Course Options				
	Option 4: Accelerated Coordinate Algebra/ Analytic Geom OR Accelerated Algebra I/ Geometry	Option 4: Accelerated Analytic Geom/ Advanced Algebra OR Accelerated Geo/ Algebra II	Option 4: Accelerated Pre-Calculus OR GSE Pre-Calculus, AP*, IB**, or Dual Enrollment Course Options				
	Option 5: Accelerated Analytic Geom/Adv Alg OR Accelerated Geo/Algebra II	Option 5: Accelerated Pre-Calculus OR GSE Pre-Calculus	Option 5: AP*, IB**, or Dual Enrollment Course Options				
Science	Physical Science	Biology	Chemistry	AP Physics – Engineering AP Biology, AP Chemistry, or AP Environmental Science			
Social Studies	Social Studies Elective	World History	US History	Government (½ unit) Economics (½ unit)			
Pathway Completer	Student must complete one AP, IB, or Dual Enrollment Course Option beyond Pre-Calculus. Work-Based Learning, Youth Apprenticeship, or Capstone Project options available during senior year.						
Industry Recognized Credential (Pathway Completer)	Visit the End of Pathway Assessment Page (see note below)						
Required/ Selective Electives	Health & Personal Fitness (can be taken in grades 9-12)	Computer Science					
		<i>*One of the following CS courses may satisfy a fourth science or a sequence of two may satisfy the modern language requirement for admissions to Georgia University System Colleges/Universities</i> AP Computer Science Principles, Computer Science Principles Embedded Computing, AP Computer Science A, Game Design, Web Development, Programming, Games, Apps and Society, OR Advanced Cybersecurity					
	Modern Language/Latin		Other Electives				
	2 units required for admissions to Georgia University System Colleges/Universities For a listing of Modern Language/Latin courses offered at your high school, please contact your advisor, counselor, local course catalog or curriculum handbook.		For a listing of other elective courses offered at your high school, please check with your advisor, counselor, local course catalog, or curriculum handbook.				

NOTE: Students have many options to **ENTER** and **EXIT** from their academic studies into the workforce. When a student graduates from high school, they are eligible to choose one of many **ENTRANCE POINT** options: **1.** Enroll in either a 2 or 4-year post-secondary program; **2.** Enroll in an apprenticeship program or the military; or **3.** Enter the workforce using technical skills learned in high school. When a student finishes a 2- or 4-year degree program, they may choose to **EXIT** and **1.** Enroll in an apprenticeship program or the military; **2.** Enroll in a professional university degree program; or **3.** Enter the workforce using technical skills learned.

Mathematics Pathway Completers – Credentialing or Internship options for High School Students

Upon completion of sequenced courses in the Mathematics Pathway, students are eligible to complete a credentialing or internship option to apply skills they have learned in high school. Secondary students completing the Mathematics pathway will be able to _____. Once mastery is reached, students will receive recognition for completion and use this credential in conjunction with their job or continuing training. For specific assessment information, refer to: <http://bit.ly/GAM>.....

Sample High Demand Careers in Georgia

Source: GDOL Labor Market Explorer

Occupation Specialties	Level of Education Needed	Georgia Average Salary	Annual Average Openings in Georgia	2014 – 2024 Employment Outlook
Actuaries	Bachelor's Degree	\$94,100	30	High Demand, High Skill
Statisticians	Bachelor's Degree	\$80,700	30	High Demand, High Skill
Computer Network Architects	Bachelor's Degree	\$79,600	11,030 (nationally)	High Demand, High Skill

Career Enhancement Opportunities	Career-Related Education Activities <input type="checkbox"/> Career Awareness <input type="checkbox"/> Career Exploration <input type="checkbox"/> Instructional Related <input type="checkbox"/> Connecting <input type="checkbox"/> Work-Based Learning <ul style="list-style-type: none"> • Employability Skill Dev. • Cooperative Education • Internship • Youth Apprenticeship • Clinicals 	Postsecondary Options <ul style="list-style-type: none"> • 4-Year Universities/ Colleges • 2-Year Colleges • Technical Colleges • State Registered Apprenticeships • Special Purpose Schools • On-the-Job Training • Military 	Earning Postsecondary Credits While in High School A vital way to get ahead and realize you can pass college courses is by earning postsecondary credits as a high school student. Georgia offers a dual credit program titled Dual Enrollment. You need to talk with your parents, school counselor, or advisor about the proper courses to take each year in high school and dual credit. Students completing the course work in this Plan, will have earned/completed an Industry Credential, Technical Certificate of Credit (TCC), Associates of Applied Science Degree, and/or Bachelor's Degree.
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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. (www.usg.edu/assets/student_affairs/documents/Staying_on_Course.pdf)
- Students who will continue their education in a Program of Study at one of the Technical College System of Georgia institutions should prepare to complete a placement exam.
- 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 to match their selected career field, including registered apprenticeships.
- Georgia's dual-credit programs have been combined into one program entitled Dual Enrollment, in which high school students may earn their high school course credits while taking college courses.

Related Pathway Occupations	Other Related Occupations
<ul style="list-style-type: none"> • Actuaries • Statisticians • Industrial Engineers • Mathematics Teachers: Middle, High School, Postsecondary • Materials Scientists 	<ul style="list-style-type: none"> • Mechatronics Engineers • Software Developers • Engineering Technicians <p style="text-align: right;">*ONET Online</p>

Visit GAfutures at www.gafutures.org for more information about your education programming options and career planning, including valuable financial information (grants and scholarships including HOPE Program, grants and loans, FAFSA, and CSS forms).

Mathematics Pathway Description

Career clusters like Science, Technology, Engineering & Math (STEM) contain occupations in the same field of work that require similar knowledge and skills. Students and their families can utilize the cluster model to help focus educational plans towards obtaining the necessary knowledge, competencies, and training for success in the world of work. Secondary students who select this field of study should consider additional coursework in a more specific career-related pathway such as Engineering in the STEM cluster or Advanced Programming in the Information Technology career cluster. Career-related Holland Codes for people who would enjoy these types of occupations are Investigative (I), Conventional (C), and Artistic (A).

Mathematical techniques and concepts are foundational skills needed in all occupations. Mathematicians use math and technology to develop new principles of math and solve real-world problems. Some specific occupations that require a higher-level of mathematics. Computer Programmers, Actuarial Scientists, Bioinformatics Research Scientists, Forensic Analysts, Climate Analyst, Epidemiologists, and Quantitative Financial Analysts are examples of occupations that require a higher-level of mathematics sometimes coupled with a high-level of science. Some workers use particular techniques in math while others specialize in a particular branch of mathematics. Some people who study mathematics and enjoy working with people become math teachers/professors. Many mathematicians work for the federal government in agencies such as NASA or the Department of Agriculture, scientific research and development services in a hospital or in medical research labs and colleges/universities such as the University of Georgia as well as local school systems. "Where Can Studying Math Take You?" YouTube Video at <http://www.youtube.com/watch?v=X59pYR8UudI>