Course Selection for Rising 11th graders

Curriculum Night: February 11, 2025

Course Selection: Feb. 18 – 24, 2025

PLEASE NOTE

BASED ON THE COURSES YOUR STUDENT SELECTS DURING THIS PROCESS

- TEACHERS ARE HIRED
- THE NUMBER OF SECTIONS OF COURSES ARE DETERMINED
- THE MASTER SCHEDULE IS BUILT

THEREFORE

- COURSES STUDENTS SELECT NOW WILL BE REFLECTED IN YOUR STUDENT'S SCHEDULE IN THE FALL.
- CHANGES ***WILL NOT*** BE MADE BECAUSE A STUDENT "CHANGES THEIR MIND"

IT IS EXTREMELY IMPORTANT THAT YOU GUIDE THEM TO MAKE WISE CHOICES NOW.

AP Course Guidance:

- Gain an edge in college preparation
- Stand out in the college admissions process
- Demonstrate commitment to academic excellence
- Help students choose their area of interest. More AP classes is not always the best. Each student is unique, and students should choose based on their strengths and weaknesses.

The Gwinnett School of Mathematics, Science, and Technology's

Junior Fellowship Experience

Experiential Learning in Identified Disciplines

GSMST's Partnership Program

9th Grade – Speaker Series

10th Grade – Virtual STEM College Visits

11th Grade – Junior Fellowship Experience

12th Grade – Senior Capstone Experience

Junior Fellowship Experience

The Junior Fellowship Experience (JFE) is a graduation requirement of GSMST.

- **Hands-on, real-world experiences** for students in areas related to their talents and interests
- Enhanced understanding of **college and career opportunities** and/or **community and civic engagement**
- Insights to **application of knowledge**, skills, and behaviors
- Mutually beneficial opportunities for students and school partners

JFE Options

Class of 2027

Traditional Internship

One Semester Summer, Fall, or Spring

Traditional Internship allows students to connect with a mentor who is a current practitioner in applied science, technology, mathematics, and/or engineering fields. The JFE coordinator works with students and GSMST partners to place the student in an ideal internship setting. Students are also concurrently enrolled in a JFE class with coursework attached.

Dual Enrollment

Yearlong

Students may Dual Enroll with Gwinnett Technical College to pursue the following certificates:
PC Repair/Technician, Game Developer, Cybersecurity, Healthcare Assistant
They may also pursue a certificate in Aeronautics at Embry-Riddle! Students will be enrolled in a GSMST JFE course to support this experience.

AP Research

Yearlong

AP Research, the second course in the AP Capstone™ program, allows students to conduct a yearlong investigation on a topic of personal interest. Building on skills from AP Seminar, students learn research methods, ethical practices, and advanced information analysis while addressing a research question. They document their process, reflect on skill development, and curate their work in a process and reflection portfolio.

Service-Learning

One Semester

Service-Learning is an experiential learning course. Students work together in a cohort setting to use their academic knowledge and skills to provide service in our community. Students will work together to plan and execute three school-wide service projects.

Entrepreneurship (Fabrication Lab)

Yearlong

The entrepreneurship cohort at GSMST is a unique opportunity for students to develop their creative and innovative ideas in both business and engineering. They will work in Apeiron, our fabrication lab at GSMST. Students will learn principals of entrepreneurship and bring them to life through the making and selling of custom products such as signs or gifts using the equipment like vinyl cutters and laser engravers here at school. With the fabrication lab as the primary focus, students will learn about running and maintaining a successful business from the ground up.

JFE Option	On-Campus	Off-Campus	Yearlong	Semester Long	Application Needed	Offered in Summer
Traditional Internship	✗	✓	✗	✓	✗	✓
Dual Enrollment	✓	✗	✓	✗	✓	✗
AP Research	✓	✓	✓	✗	✗	✗
Service-Learning	✓	✗	✗	✓	✗	✗
Entrepreneurship	✓	✗	✓	✗	✓	✗

Summer JFE

- **May 27-28, 8:30-2:30 pm @ GSMST (Mandatory)**
  May 29 - July 18, On-Site @ Your Internship
  - You create your own schedule with your mentor
  - 10-15 contact hours per week for approximately **4-5 weeks.** The minimum is 4 weeks.
  - Total of 50 hours
  - Work can be done both on-site and remotely
- **July 2: Virtual Class via Zoom, 9:00-10:00 am**
- **July 21-22, 8:30-2:30 pm @ GSMST (Mandatory)**

Junior Fellowship Experience

What to consider for course registration:

- Have a discussion with your student about which option might be best.
  - Career interests?
  - Overall wellness during junior year?
  - Summer vs. year-long vs semester options
- Identify limiting parameters such as **transportation**.

Junior Fellowship Experience

During course registration, students must make their JFE Option decision by 2/24. Mr. Rapley will send an online form directly to students.

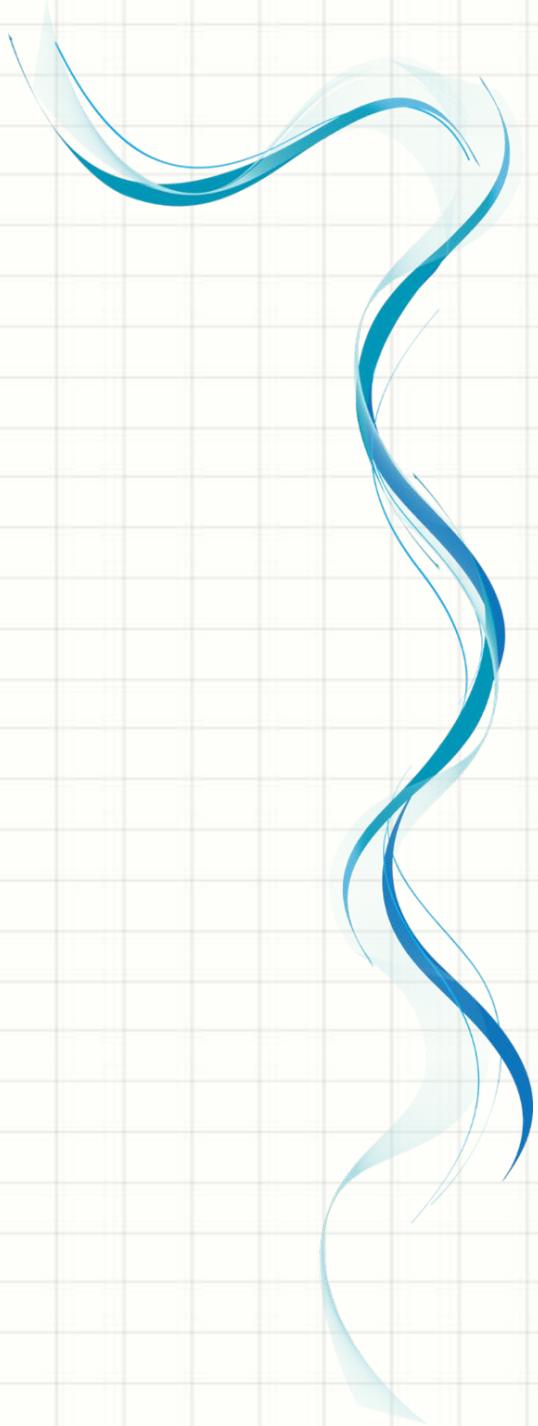
The only thing needed by 2/24 is your student's choice of JFE! Once they have made their choice, we will guide them from there.

If students do not fill out their preference form, they are defaulted into traditional internship.

Junior Fellowship Experience (JFE)

Please remind students to check their GCPS Gmail accounts frequently for communication from me (Rebecca Robbins)!

- Questions? rebecca.robbins@gcpsk12.org
- JFE Options Website:



ENGINEERING

Engineering Electives

If you have room in your schedule for an elective, you are encouraged to take an engineering elective. Please speak with an engineering teacher to find out which course would best meet your needs.

- AP Computer Science Principles 🏅
- AP Computer Science A 🏅
- Game Design: Animation & Simulation 🏅
- Game Design II 🏅
- Introduction to Digital Media (Animation and 3D Design)
- Principles and Concepts of Animation
- Advanced Animation, Game, App Design
- Advanced Physics and Robotics 🏅
- Advanced Robotics (2nd year Robotics) 🏅
- Artificial Intelligence Concepts
- Nanotechnology & Materials Engineering 🏅
- Audio/Video Technology & Film
- Entrepreneurship
- Linear Algebra/Python (1 semester)
- Data Science Analytics (1 semester)

🏅 Recognized as a **4th year science** by the State Department of Education

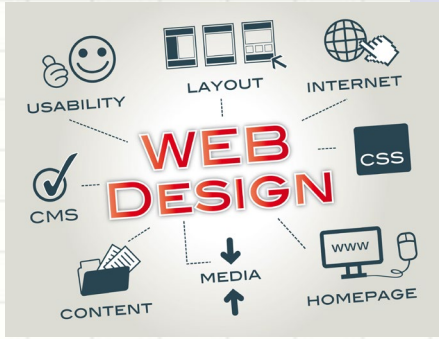
AP Computer Science Principles

Recognized as a **4th year science** by the State Department of Education

*No Pre-requisite.

(Instructors: Mr. Nguyen, Mrs. Calhoun, or Mr. Holmes-Williams)

- Programming Fundamentals in **Python** and **JavaScript**
- Introduction to **Computer Systems** and **Components**
- Digital Information: **ASCII code**, Pixel **RGB** data, File Formats, Data Compression
- **Spreadsheets** and **Data Visualization**
- **Computing Innovations** and **Impacts of Computing**
- The **Internet/Networks**, **Phishing**, **Malware**, **Encryption**
- Web Development: **HTML**, **CSS**, **JavaScript**



✅ Students also receive **course credit** for **Introduction to Software Technology** upon completion of this course.

AP Computer Science A

Recognized as a **4th year science** by the State Department of Education

*Pre-requisite is AP Computer Science Principles (90%), AI Concepts, BC Calculus or above, or faculty approval.

(Instructors: Ms. Rachkovskiy, Dr. Shukla)

- The course aligns to the College Board's AP Computer Science A course and first semester computer science college courses (Purdue CS 180, Georgia Tech CS 1331, University of Washington CSE142, among others). It provides college credit with a 4 or 5 on the AP Exam.

- Develop/Select appropriate algorithms and data structures to solve problems
- Code fluently in Java, an object-oriented paradigm programming language, including the following concepts:

-Iterations/Loops	-Concepts of Abstract & Linear Algebra/Number Theory
-Input/Output	-Algorithm Performance/Complexity Analysis/Big O Notation
-Collections/Lists	-Primitive/Reference Object Data Types
-Methods/Classes	-Searching/Sorting Algorithms
-Conditional Logic	-Inheritance/Polymorphism
-Abstract/Interface	-Event-Driven Programming/Exception Handling
-Recursion/Induction	-Multidimensional Arrays/ArrayLists

- Read/Program large labs consisting of several classes and interacting objects
- Study/Discuss ethical and social implications of computer use in our society and historical game changers in Information Technology.

Game Design: Animation & Simulation

Prerequisite - AP CSA or AP CSP or Mr. Schepens' Approval

🎖️ Recognized as a **4th year science** by the State Department of Education

- Students will learn **skills required of first year professional** software developers
- Use **professional** level development tools - Microsoft Visual Studio and Unity Game Development Platform
- Implement the Full Software Development Life Cycle for projects
- Design using UML Diagrams and Object Oriented Programming in Visual C#
- Develop software design documents and project plans
- Develop games that will be published to full size arcade cabinets in GSMST
- Create 1st and 3rd person perspective games, multiplayer networked games, animations, physics and rigid body interactions
- Ideal for creative students interested in growing strong professional development skills

Game Design II

🎖️ Recognized as a **4th year science** by the State Department of Education

Prerequisite - Game Design or Gwinnett Tech Game Design (with Mr. Schepens approval)*

- Advanced C# Programming
- Advanced Data Structures
- Procedurally Generated Content
- Gaming AI Techniques
- Networked Multiplayer Games
- Professional Software Development Programming Skills
- Creation of Professional Portfolio for Job Readiness

Introduction to Digital Media (Animation and 3D Design)

(Instructor: Mr. Boyette)

- Introduction to Digital Media is a foundation course that serves as an introduction to the animation and 3d design industry.
- Students will learn the basics of animation and modeling in both 2d and 3d software applications that would be used in industries such as animation, motion graphics, video game design, and product visualization/simulation.
- Software used will include Adobe Animate, After Effects, Photoshop, and Autodesk 3DS Max.

Principles and Concepts of Animation

(Instructor: Mr. Boyette)

- This course will take students deeper into the animation and 3d design areas that were covered in the Intro course.
- Students will gain more experience and skills in both 2d and 3d animation and design. Students will work with other classes such as Game Design to create assets to be used in video games, as well as create animations for the school.
- A focus will be put on becoming more efficient with animation and modeling as well as the 12 principles of animation. Software used will include 3DS Max, After Effects, Animate, Photoshop, Unity and many others. Students will have the opportunity to customize much of the work to fit their particular area of interest.

Advanced Animation and Game & App Design

(Instructor: Mr. Boyette)

- Students will build on the concepts from the previous two courses.
- The course will focus on individual longer-term projects that allow the students to focus on specific areas of interest related to animation and 3d design.
- Topic areas will include game design, product design, animation, software physics, scene creation, software analysis, character modeling, video production, as well as many others.

Robotics and Mechatronics

(Instructor: Mr. McDonald)

Advanced Physics and Robotics (1st Yr)
(Robotics- Ground to Air)

1st Semester

- Learn the basics of robotic movement and sensor integration with MindStorms EV3 robots using the Micropython
- Work in teams to design, build and program robots to meet "client" requirements and to accomplish objectives.

2nd Semester

- Introduction to Arial Robotics with coDrone EDU
- Introductions to C++ and advanced sensor integration and circuit design with Arduino Smart Cars
- Additive Manufacturing and 3D design

Advanced Robotics (2nd year Robotics)

(Instructor: Mr. McDonald)

- Work independently and collaboratively building and programming specialized robots using various microcontroller such as Arduinos, Raspberry pi's, esp32, etc.
- Extend our understanding of robotic movement to discreet and logic circuits.
- Continue working with drones, build up a small swarm.
- Learn how to build a network of robots that work together to accomplish task and objectives using Robotics Operating
- Continue to develop design skill use a CAD software like Inventor, On shape, and fusion 360, while learning principles of additive and subtractive manufacturing.

Artificial Intelligence Concepts

(Instructors: Mr. Schepens, Ms. Rachkovskiy)

Combination **two AI classes in one year** – ***Foundations of AI*** and ***AI Concepts***

AI Concepts

- Supervised / Unsupervised ML Models
- Reinforcement Learning
- Computer Vision Algorithms
- Natural Language Processing
- History and Ethical use of AI tools

Advanced Programming In Python

- Significant programming lessons to implement AI Models
- Rapid introduction to Python Basics
- Programming using Python AI Libraries (Pandas, Tensorflow, Keras, PyTorch, SKLearn)

Data Science Elements

- Understand how data is being used and processed in Artificial Intelligence algorithms.
- define and understand applications of statistical concepts in data science
- Utilize visual reporting and statistical tools

Highly recommended you have previous GSMST programming class - AP CSP, AP CSA, Game Design due to the challenging nature of the programming activities

Nanotechnology & Materials Engineering

(Instructor: Dr. Stamm)

This course is a good option for students who enjoy chemistry. We focus on the application of chemistry to create and understand nanoscale materials, including many of the technologies we interact with every day.

- Topics will include:
  - Materials Science
  - Nanofabrication
  - Surface energy and surface tension
  - Characterization
  - Nanoparticle synthesis
  - Nano- and micro-particle assembly
  - Biomimetics and Biomaterials

Audio Video Technology and Film

(Instructor: Mr. Boyette)

- This course will give students an introduction to the film industry. Students will learn the equipment, software, and skills used to create productions from start to finish. Topics will include industry terminology, storyboarding, camera use, shot compositions, editing, and much more. An emphasis is put on creativity during the production process throughout the course, allowing students to showcase mastery of standards in a variety of different ways. Software used will include Adobe Premier, After Effects, Photoshop and others.

Entrepreneurship Pathway *New*

(Instructor: Mrs. Calhoun)

This course is a good option for students interested in becoming an entrepreneur or leading a large organization in the future. Students learn what it takes to start, operate and grow a small business and apply that knowledge and skills in the student run business, Apeiron.

- S1 - Introduction to Business & Technology & Legal Environment of Business
- S2 - Entrepreneurship
- Available as JFE/SCE (yearlong)
- Eligible for diploma seal
  - Complete 3 courses
  - Pass End of Pathway Assessment (EOPA) - Mar/Apr

Programming Concepts of Linear Algebra

(1 Semester)

*Pre-requisite is AP Computer Science A AND enrollment in Multi-Variable Calculus or above.

(Instructor: Mrs. Stiffler)

- Extends Linear Algebra concepts learned in Multi-Variable Calculus or Georgia Tech Calculus courses into applicable concepts in computer science.
- Counts as a math elective. 1 semester course.
- Designed off of a course developed at Brown University
- Project based Python labs include building:
  - Error Detection/Decoding/Correcting Codes
  - Checksum Functions
  - Data/Image Compression
  - Machine Learning for analyzing large data sets
  - Face Recognition Software
  - Search Engine Functionality (Google's Page Rank Algorithm)
  - Graphical Transformations in 2D/3D
  - Perspective Rendering

Data Science II (1 Semester)

*Prerequisite is AP Computer Science A or faculty approval.
(Instructor: Ms. Rachkovskiy)

- 1 Semester Course
- Content Includes:
  - Advanced Spreadsheets Data Analysis
  - Python Data Science Libraries
  - Databased design methodology and implementation
  - Structured Query Language (SQL)

- Fantastic skill to have for JFE/SCE or Employment Opportunities

HUMANITIES III

- Language Arts
- Social Studies

US History and Government

All Juniors will take the courses listed in one of the two options below:

Option A:

AP US History
AP US Government

- Seamlessly integrates two complete Advanced Placement curricula into the space of just one class
- Prepares students for two College Board examinations

Option B:

US History
American Gov/Civics

- Provides more scaffolding of content
- Does not focus on or prepare students for AP exams
- Prepares students for the Georgia Milestones exam in US History

Humanities Electives: Social Studies

AP Human Geography: 9 – 12 (yearlong)

- This year-long elective course introduces students to the systematic study of patterns and processes that have helped shaped human understanding, use, and alteration of Earth's surface. Students employ spatial concepts and landscape analysis to examine human social organization and its environmental consequences. Students also engage the methods and tools geographers use in their science and practice.

Humanities Electives: Social Studies

AP European History: 11-12 (yearlong)

- This advanced survey course encompasses the years 1300 to the present. The course deeply examines the political, diplomatic, intellectual, cultural, and economic evolution of European history, and Europe's interactions with the world. The pedagogical approach emphasizes critical thinking skills and historical changes over time, as well as analysis and synthesis. Intensive reading and writing assignments support the pedagogical approach employed, as does interaction with guest speakers. This course also provides space to explore the history of science and medicine in Europe.

AP African American Studies: 11-12 (yearlong)

- AP African American Studies examines the diversity of African American experiences through interdisciplinary encounters with varied sources. Students will explore key topics that extend from early African kingdoms to the ongoing challenges and achievements of the present moment. The course's four thematic units follow a chronological flow across the course, beginning with the origins of the African diaspora, continuing through the history of the African American freedom struggle, and concluding with the movements and debates of the twentieth and twenty-first centuries. Through the course, students will have daily encounters with a wide range of texts and sources and will develop skills in historical, literary, visual, and data analysis. AP African American Studies will prepare students for further study across various fields and will introduce them to the rich history, culture, and literature of African Americans and the larger African diaspora.

Humanities Electives: Social Studies

Advanced Placement Psychology: 11 – 12 (yearlong)

- The AP Psychology course is designed to introduce students to the systematic and scientific study of the behavior and mental processes of human beings and other animals. Students are exposed to the principles and phenomena associated with major subfields within psychology. Students also learn about the ethics and methods psychologists use in their science and practice. This course is particularly suited to GSMST students as the course is equal parts science and social studies.

Controversial Issues: 11 – 12 (one semester)

- This elective class is designed for mature upper level students who are able to confront issues, both local and abroad. The purpose of this class is to explore different viewpoints and develop critical thinking skills through classroom discussions, presentations, and papers. Topics include current events and issues with social relevance.

Advanced Composition 11th

Students will learn practical, real-world skills from composing emails to community partners during PBLs to analyzing texts and discussing literature. This course will prepare students to take either AP Language or AP Literature in 12th grade.

- Business Writing
- Academic Writing
- Presentation Skills

Humanities Electives: Language Arts

Both courses provide students who are interested in journalism with an opportunity to explore and to experience the process involved in the creation of a large publication, including preplanning, designing layouts, copyrighting, proofreading, organizing visuals, and managing finances, all of which involve creativity.

Journalism/Literary Magazine: 10 – 12 (one semester or yearlong)

- Students will produce a literary magazine *Infinitas*

Journalism/Yearbook: 9 – 12 (yearlong)

- This course involves the production and sale of the *VANGUARD,* the GSMST yearbook.

WORLD LANGUAGES

Chinese | German | Spanish

CHINESE

- Chinese I
- Chinese 2
- Chinese 3
- Chinese 4

GERMAN

- German I
- German 2
- German 3
- German 4

SPANISH

- Spanish I
- Spanish 2
- Spanish 3
- Spanish 4
- Spanish AP

SPANISH

Students who took 8th grade Spanish 1 credit:

- Spanish 2, 3, 4, AP

Students starting in Spanish 1 at GSMST:

- Spanish 1, 2, 3, **4** or Spanish 1, 2, 3, **AP**

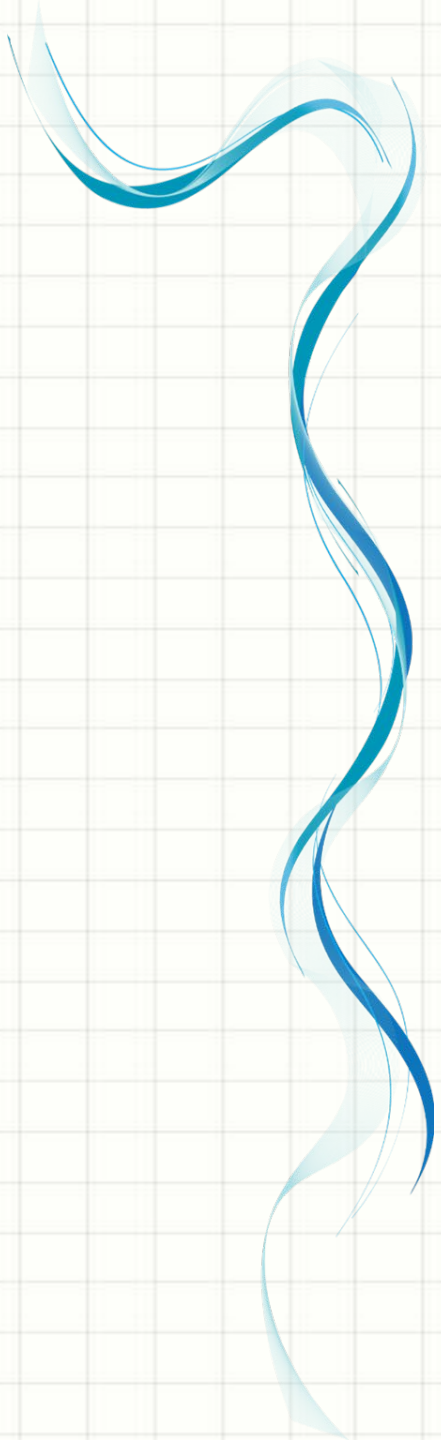
**Spanish 4: culture, history, & geography of Spanish speaking countries*

COGNITIVE BENEFITS OF WORLD LANGUAGES

Research shows that the study of World Languages enhances higher-order thinking skills: analysis, interpretation, comparison and contrast, improvisation, synthesis

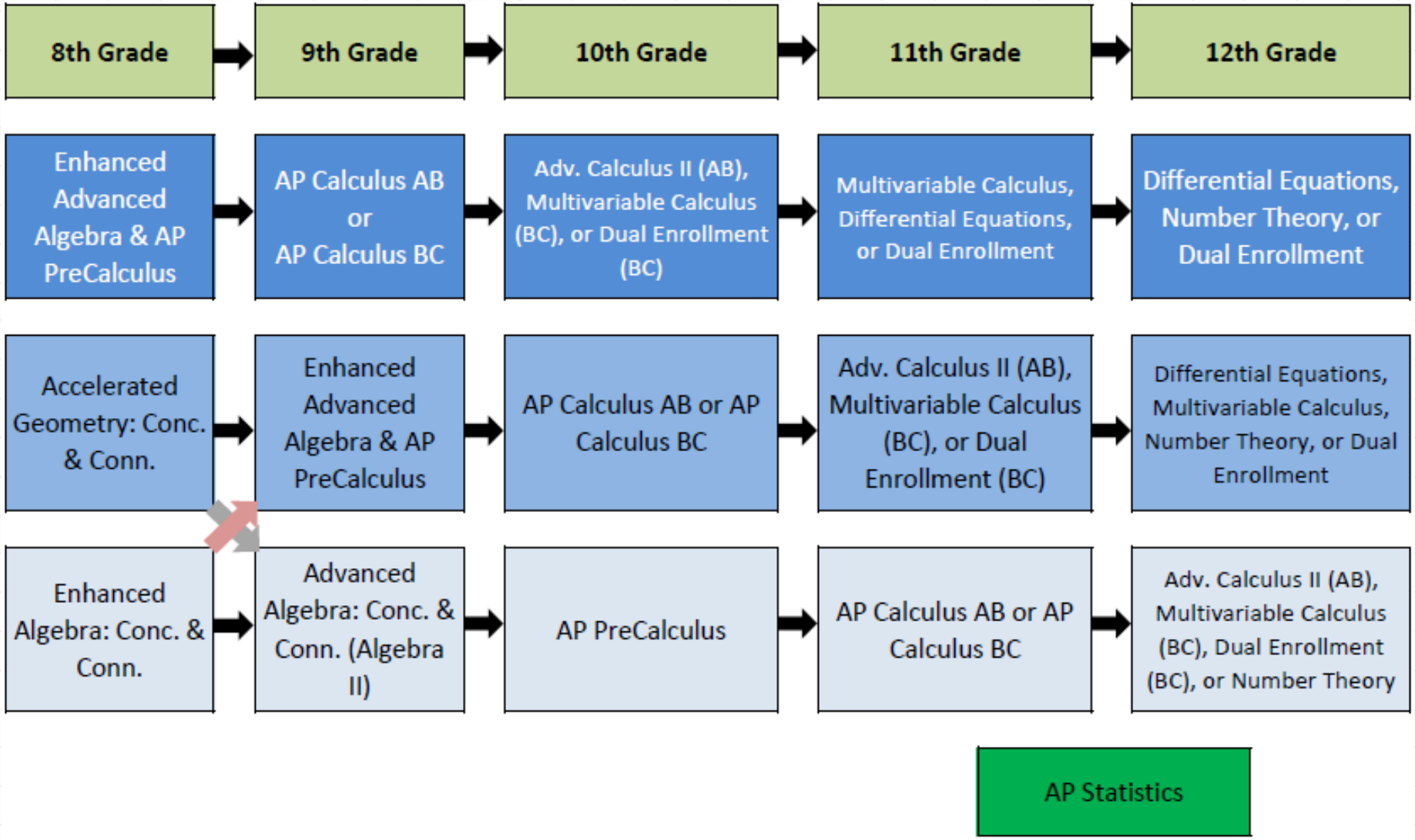
COLLEGES REQUIRING 3 OR MORE YEARS OF WORLD LANGUAGE

- Duke
- Emory
- Stanford
- Princeton
- Clemson
- Boston College
- Providence, RI
- University of Colorado
- College of Charleston
- University of Connecticut
- University of Delaware
- St. Olaf College, MN
- University of Michigan
- Brown University
- Dartmouth College
- University of Wisconsin
- Florida State University
- Middlebury College
- University of Pittsburgh
- Virginia Military
- California University System



MATHEMATICS

Mathematics Sequence



If Your Student Is Currently Taking

Advanced Algebra: C & C

AP Precalculus

This course is designed to dive deep into the trigonometric relationships that students have surveyed in the past. While this course is the end of a math pathway at some schools, Precalculus at GSMST is specifically designed to look towards the Calculus requirement on the horizon.

Prerequisite: Adv. Algebra: C & C

If Your Student Is Currently Taking

Enh. Adv. Algebra & AP Precal OR AP Precal

AP Calculus AB/BC (Teacher Recommendation)

The objectives follow the AP syllabus developed by the College Board for the Advanced Placement (AP) Calculus AB/BC Examination. This college level course provides an in-depth examination of limits, derivatives, and integrals of algebraic and transcendental functions; continuity; applications of derivatives to related rates; maxima and minima; curve sketching; integration formulas; applications of the definite integral; methods of integration, graphing, and integrating in polar coordinates; infinite sequences and series; power series, vectors; and differential equations.

Prerequisite Enh. Adv. Algebra & AP Precal or AP Pre-Calculus

AP Statistics - Also Available as a Math Elective

If Your Student Is Currently Taking

AP Calculus AB

Advanced Calculus II

This course is the study of integral evaluation, limits of sequences, application of function concepts, and application of polar coordinates, L'Hospital's Rule, Pappus's Theorem on surface area, differentiation & integration of power series, three-dimensional coordinate geometry, vectors, and vector calculus.
Prerequisite: AP Calculus AB

AP Calculus BC (with Teacher Recommendation)

AP Statistics (with Teacher/Counselor Recommendation)

If Your Student Is Currently Taking

AP Calculus BC or Advanced Calculus II

Multivariable Calculus

This course is the study of three-dimensional coordinate geometry, matrices & determinants, eigenvalues & eigenvectors of matrices, limits & continuity of functions with two dependent variables, partial differentiation, multiple integration, the gradient, the divergence, the curl, Theorems of Green, Stokes and Gauss, line integrals, integrals independent of path and linear first-order differential equations. ***Prerequisite: AP Calculus BC***

Dual Enrollment with Georgia Tech (BC only)

Multivariate Calculus/Linear Algebra

AP Stat or Number Theory also available as Math Electives.

Math Electives

AP Statistics

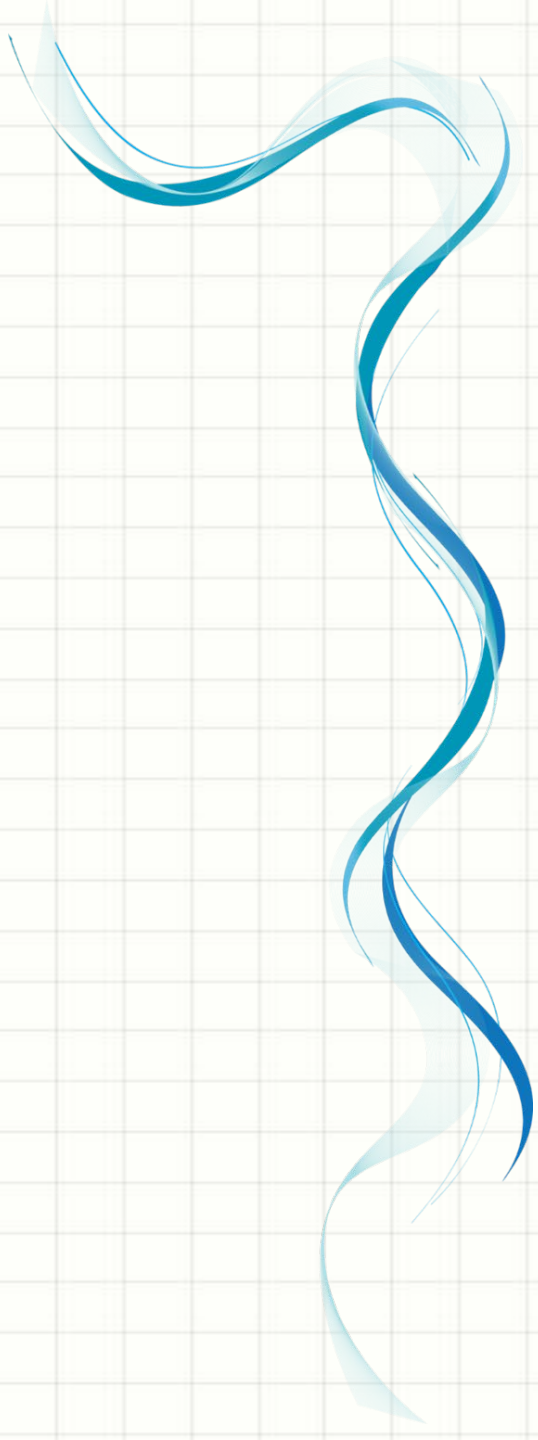
This college level course provides an in-depth experience in statistical concepts and methods, including data collection and exploration, experimental and theoretical probability, probability distributions, and descriptive and inferential statistics. Projects involve planning a study, anticipating patterns, producing models, and confirming models. The objectives for this course follow the College Board syllabus, preparing students for the optional Advanced Placement exam. This is an elective math course for students and not in the required curriculum.

Number Theory

The main goal of this course is to develop a strong foundation for rigorous mathematics. Students will be expected to learn how to understand and write rigorous mathematical proofs. This will be motivated through a study of the integers and algebra. We will us the typesetting software LaTeX to create mathematics documents, homework, etc. This course provides an overview of theoretical mathematics and would be ideal for students who wish to continue their education in mathematics.

Linear Algebra with Python

This semester-long course explores applications of Java in connection to advanced mathematical topics. ***Prerequisites include AP Calculus BC and AP CSA.***



SCIENCE

Science Options for 2025-2026

- Analytical Forensic Investigation
- AP Chemistry (2 periods)
- AP Environmental Science
- Anatomy and Physiology
- AP Physics C: Mechanics only
- AP Physics C: Mechanics and Electricity & Magnetism (2 periods)
- Chemistry II: Introduction to Organic Chemistry (1 Sem)
- AP Research
- BioTechnology

Analytical Forensic Investigations

- College-level theory and application ***(Not CSI)***

Theory	**Examples and Applications**
Optics	Polarized light microscopical analysis of fibers, crystals, and compounds
Biology	Investigations of biological samples using microscopy and electrophoresis
Organic Chemistry	Composition of organic compounds and their analysis using infrared and mass spectrometry techniques

AP Chemistry

Integration of Concepts and Calculation

- Block Course, Two Class Periods
- Prerequisite: Accelerated Precalculus

1st Semester Concepts	2nd Semester Concepts

• Structure of matter / atomic theory / quantum mechanics
• States of matter / gas laws
• Molecular geometry
• Reactions (MAJOR FOCUS)
  ○ Stoichiometry
  ○ Solutions and net ionic equations
	• Reactions (MAJOR FOCUS)
	  ○ Kinetics
	  ○ Equilibrium & Solubility
	  ○ Acids/Bases
	  ○ Thermodynamics
	  ○ Electrochemistry

Yearlong concepts	
Critical thinking Problem solving Deriving formulas Descriptive chemistry Explaining phenomena using theories & models Experimental design & laboratory	

AP Environmental Science

- Increases student awareness of the consequences of human interaction with the environment.
- Covers material from biology, ecology, chemistry, earth sciences, current events, economics and public policy.
- Includes some outdoor field experiences.

Course expectations include:

- Summer assignment (Choose one among numerous Environmental Science/Ecology/ Biology etc. books and view an amazing video!)
- Course is PBL-based and requires a lot of group work/collaboration.
- Group Presentations for each unit

Anatomy and Physiology

Prerequisite: AP Biology

Are you interested in …

- a career in medicine?
- learning how the body works?
- personal health?
- Anatomy & Physiology = Survey of the human body's form and function
- be comfortable with performing/ watching dissections

AP Physics C - Mechanics Only

Prerequisite: AP Calculus and successful completion of first year physics

- This course ordinarily forms the first part of the college sequence that serves as the foundation in physics for students majoring in the physical sciences or engineering. The sequence is parallel to or preceded by a mathematics course that include calculus. The focus of the course is mechanical systems.
- 1st semester: kinematics, dynamics, energy
- 2nd semester: momentum, rotation, gravitation

AP Physics C - Mechanics and E&M

<u>Prerequisites:</u> Successful completion of AP Calculus BC and first year Physics. Concurrent enrollment in Multivariable Calculus or Georgia Tech Calculus II/III

- This course ordinarily forms the first part of the college sequence that serves as the foundation in physics for students majoring in the physical sciences or engineering. The sequence preceded by a mathematics course that includes calculus. Methods of calculus are used wherever appropriate in formulating physical principles and in applying them to physical problems. In addition to mechanical systems, students study electricity and magnetism. <u>The course takes two class periods in the schedule and meets daily</u>.

- 1st semester: kinematics, dynamics, energy, momentum, rotation, gravitation
- 2nd semester: electric fields & potential, capacitors, DC circuits, magnetostatics, induction

Chem II: Intro to Organic Chemistry

- One semester
- An introductory course, it can bridge the GSMST 9th grade chemistry experience to what might be involved in college, and given its content area, it can help more advanced students prepare for more formal college organic courses.
- This class introduces students to key ideas in organic chemistry – naming compounds, molecular structure and functional groups, and common reactions.
- Course work includes regular laboratory work along with content lectures and readings combined with student projects. The course emphasizes the role of organic chemicals in the modern world with a strong emphasis on biological applications of organic molecules.

AP Research

- The second course in a pathway leading to the Capstone Diploma
- Students will conduct independent college-level science research projects
- Ideal for students interested in pursuing research in college or as a career
- Students will have a university mentor and this often leads to laboratory internships
- Students will present their research at local and national competitions
- Potential to submit to publications
- Satisfies the JFE or SCE requirements

Biotechnology

- **Prerequisite: AP Biology**
- The interdisciplinary study of how technology can aid in the study of life.
- This lab-based course incorporates the entire biotechnology pathway into one year for three course credits.
- In this class we will discuss and practice groundbreaking laboratory techniques that biologists are using to study life at the molecular level, including stem cells, cloning, pipetting, electrophoresis, bacterial plating, PCR, ELISA testing, and more.
- As part of the pathway, students will also learn the basics of healthcare and become BLS level CPR certified.

FINE ARTS
&
HEALTH/PE

Summer Health/PE @ GSMST

Cost: $250 each

(payable on MyPaymentsPlus)

***Registration closes on May 16th (or earlier if class capacity is reached)*

Health: June 2 – June 25

Course is completed entirely online. Final exam is online on June 25th at a specific time (TBD).

Personal Fitness: June 2 – June 25

Course is completed entirely online. Final exam is online on June 25th at a specific time (TBD).

**In order to take part in Personal Fitness, you must have access to a phone with a fitness tracking app which you will carry/wear during exercise to track your pace (Fitbit app is recommended and is a free download to any smartphone).

FINE ARTS & HEALTH/PE PROGRAMS

To learn about all the different course offerings available in Fine Arts (Music/Art) and Health/Personal Fitness, use the QR code below.

Fine Arts & Health/PE Elective Options

Summer Health & PE Flyer

THANK YOU FOR COMING!