GERMANTOWN FRIENDS SCHOOL

2026-27

UPPER SCHOOL COURSE CATALOG

2026–27 UPPER SCHOOL

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Course Selection Process

NOTE TO STUDENTS AND PARENTS

The course selection process for the 2026–27 school year begins here. Within these pages, you will find your course and program options as well as detailed information about requirements and prerequisites. Students may not take more than six major course credits and are advised on overall course load and balance. As you plan, we urge you to seek the counsel of advisors and teachers.

Please do be sure to read this catalog carefully — we always have a range of compelling offerings, some returning and some brand new. Above all we hope you enjoy planning your journey at GFS.

CONSIDERING COLLEGE ADMISSIONS AS YOU PLAN

GFS course requirements allow you the flexibility to not only pursue your intellectual passions but also to experiment. As you plan, keep in mind that most competitive colleges expect to see four years of study in English, History/Social Sciences, Math, Science, and Modern Language. Keep in mind that "minor" courses are a vitally important as well as rewarding part of your high school experience. Minors can reflect the depth and range of your interests.

FOUR-YEAR COURSE PLANNING GRID

The planning grid on page 8 will assist you with drafting various models for your course of study from grades nine through twelve. As you sketch out a multi-year plan, noting your required and elective courses, you will see the ways in which the curriculum might unfold for you. It is crucial to repeat this process annually to make sure you are meeting all requirements for graduation.

REQUIREMENTS AND A COURSE LOAD NOTE

Ninth, tenth, and eleventh graders are required to take five major courses; twelfth graders may elect four or five majors. A student who wishes to take six major courses in any grade (an academic overload) must have the approval of the Upper School Division Director.

PREREQUISITES AND DEPARTMENTAL APPROVAL

Please note that certain courses have prerequisites or require departmental approval. That information is listed on the departmental pages in this course catalog and on the Departmental Course Offerings Grid (beginning on page 10).

COURSE SELECTION TIMELINE

- Beginning in late January, students seek course selection advice from parents, teachers, and advisors. On occasion Department Heads and Deans are also consulted. Juniors can be well served by consulting with College Counseling as well.
- Online course registration will open on Monday February 9th 2026, and close on Friday February 20th 2026. Students register for courses through their Veracross Student Portal. Parents also approve course requests through the Veracross Parent Portal. Parents and students will receive a confirmation in June indicating scheduled courses.
- Add/Drop Period: At the beginning of the school year, students will have one 8-day rotation to add or drop a course. All adds and drops must be approved by the Grade Dean.

Graduation Requirements

To graduate from GFS, students must complete satisfactory work in 19 major courses and meet all departmental major and minor course requirements. All students must participate in January Term, fulfill the Athletics requirement, and complete a Junior Project. See departmental course descriptions for more details. All exceptions to these requirements must be approved by the Academic Standards Committee.

REQUIRED MAJOR COURSEWORK

English (4 years)

History (3 years)

- Modern World History (9th Grade)
- African American History (10th Grade)
- U.S. History (11th or 12th Grade)

Language (through Level 3) Completion to level three of one classical or modern language. Typically the first level of coursework is completed by the end of Middle School (Note: 7th and 8th grade 1a and 1b study count as Level 1).

Mathematics (3 years) Information about course sequence options appears in the Mathematics Department section.

Science (3 years) Of the courses selected, one science must be physical and one biological.

REQUIRED MINOR COURSEWORK

ARTS MINORS REQUIREMENTS

- Art (1 year Foundation)
- Music (1 year or the equivalent of 2 semesters)
- Theatre (1 semester Ninth Grade Theatre)

HEALTH

- 10th grade: Health Education 10
- 12th grade: Life Issues (coordinated with Advisory)

NINTH GRADE

- Quakerism
- Theatre (1 semester Ninth Grade Theatre)

TWELFTH GRADE

College Seminar (Semester One)

Financial Literacy (Semester Two)

NEW Financial Literacy Requirement: Members of the class of 2027 and all subsequent seniors are required to take one semester of Financial Literacy, a new state requirement.

COMPUTER SCIENCE

NEW Computer Science & Digital Media requirement: Members of the class of 2030 and all subsequent classes are required to complete a semester-long minor course in Computer Science & Digital Media by the end of their sophomore year. To fulfill this requirement, students may take Explorations in Technology, Robotics I, or Computer Science I (either the standard or Girls Who Code section). Recommended for students new to GFS in 9th grade, Explorations in Technology combines an essential introduction to being a digital learner in the Upper School with a broad survey of major topics in Computer Science and Digital Media.

ATHLETICS AND PHYSICAL EDUCATION

Athletics and PE are distinct but complementary departments. Across all four years of Upper School, students participate in a movement-based activity in PE and/or Athletics, with requirements detailed below:

- Ninth grade: One semester PE 9 Fitness and Wellness; two seasons Athletics.
- Tenth grade: Three seasons: one season of Athletics; choice of Athletics or PE for other two seasons.
- Eleventh grade: Three seasons, choice of Athletics or PE each season.
- Twelfth grade: Two seasons, choice of Athletics or PE.

OTHER GRADUATION REQUIREMENTS

January Term: Students complete January Terms in grades 9, 10, and 12.

Junior Project: An independent project that takes place during the month of January of junior year.

Quick Reference Terms

Required Course

A department-specific course required for graduation.

Elective Course

A department-specific course not required for graduation.

Prerequisite

A course one must take before taking another course.

Co-requisite

A course one must take along with another course.

Major Course

A "major" typically meets five times in an 8-day cycle and counts as one of the 19 major courses mandated for graduation. There are two kinds of major courses

- **Required Major:** A major course taken to fulfill a department-specific major course requirement.
- **Elective Major:** A major course that is not required but that can count as one of the 19 majors required.

Minor Course

A "minor" meets between two and four times in an 8-day cycle.

Interdisciplinary Arts Major

For advanced credit, the Interdisciplinary Arts Major creates innovative opportunities for students in the GFS arts departments to explore and experiment at the intersections of theatre, music, and art. See department pages for a detailed description.

Overload

When a student takes six major courses rather than the standard five (done only with the permission of the Upper School Division Director).

Advisor

Advisors serve as primary academic counselors, advocates, and facilitators for students within their advisory group as they seek to learn and grow within the Upper School curriculum.

Grade Dean

Grade Deans lead the grade-level team of advisors and teachers, providing additional support, clerking grade-level meetings, overseeing grade-level programming, and supporting student/family concerns as needed in consultation with the Upper School Division Director.

Department Head

Department Heads lead their academic departments, oversee curriculum and instruction, and support the student academic experience.

Program Highlights and Notes

PROGRAM HIGHLIGHTS

Directed Independent Study

A "DIS" is an independent major or minor course requested by a student that involves a teacher-student study partnership.

Global Online Academy

A consortium of independent schools that offers online course opportunities open to GFS juniors, and seniors. Sophomores may register with the approval of the Upper School Division Director.

January Term

A month-long opportunity to explore new courses of study. Classes are innovative, hands-on course offerings composed of mixed-grade groups of 9th, 10th and 12th graders. Courses are taken on a Credit/No Credit basis.

Junior Project

The required independent project all juniors undertake in the month of January of their junior year.

Junior-Senior Seminars

Major elective courses offered each school year in innovative subjects that are often interdisciplinary in nature. These courses change year to year.

Interdisciplinary Arts Major

The Interdisciplinary Arts Major creates innovative opportunities for students in the GFS arts departments to explore and experiment at the intersections of theatre, music, and art.

REGISTRATION NOTES

Minor Classes

Please rank your minor course selections as instructed at the time of online course signup. Including alternate minor course selections is highly recommended.

Athletics and Physical Education

For all three seasons, please select a sport or rank your PE elective choices during course sign up.

Overload/A Sixth Major

Taking five major classes in a given school year fulfills our challenging standard requirement for major coursework. Taking more than five major courses is considered an "overload;" students considering a sixth course should keep in mind the additional work involved. Please note that the "overload" course cannot be a required course, and it is possible that an overload course cannot be scheduled. Any student who wishes to take six majors must receive approval from the Upper School Division Director. Students may not take more than six major course credits.

History Electives

Juniors and seniors electing semester-long courses must make selections for both semesters and rank their preferences.

Junior-Senior English Courses

Juniors and Seniors must rank their choices when selecting their yearlong English course. Students may not enroll in the same class more than once.

Departmental Approval Required

The following options are subject to departmental approval from the appropriate Department Head. After signing up for the course, if the student does not receive approval, they will be notified by the Department Head or Grade Dean and will be given the opportunity to amend their course selections.

CLASSICS

Students dropping a classical language

COMPUTER SCIENCE

Members of the class of 2030, and all classes thereafter, wishing to take a more advanced course to fulfill the Computer Science and Digital Media requirement

Students creating a Computer Science major

INTERDISCIPLINARY ARTS MAJOR

At course sign-up, students in grades 10–12 wishing to create an Interdisciplinary Arts Major should select their two minors and also select ARTSMAJOR880 Interdisciplinary Arts Major

MATHEMATICS

Students moving into or out of an accelerated or advanced course

Students dropping math in their senior year

Students new to GFS taking a math assessment for placement

MODERN LANGUAGES

Students taking Advanced classes or dropping a modern language

ATHLETICS + PHYSICAL EDUCATION

Students proposing an alternative to Athletics/PE requirements should apply using the online form, on Veracross in the Family Portal

SCIENCE

Students electing advanced Science classes

DIRECTED INDEPENDENT STUDY (DIS)

Students registering for a DIS Major must submit a formal proposal by early March that has the approval of the Director of Independent Studies and the Academic Standards Committee.

GLOBAL ONLINE ACADEMY (GOA)

Students electing to take a GOA course require approval from the GFS site director. Sophomores registering for GOA require the approval of the Upper School Division Director.

EXCEPTIONS/ALTERNATIVES TO REQUIREMENTS

Students requesting an alternative to our standard program should direct that request to the Upper School Director.

Thematic Strands Across the Curriculum

The Upper School curriculum features a number of curricular themes spanning multiple departments. These lists highlight connections between courses that may not sit within the same department.

SOCIAL JUSTICE AND INCLUSION

African American History
Climate Action & Sustainability (GOA)
Deconstructing Food
Youth Movements
History of Genocide
History and Impact of Hip Hop
Perspectives on Gender and Society (GOA)
CSI: Girls Who Code
Literature of the Diaspora
Prison and Criminal Justice System (GOA)
Race, Culture, and Community (GOA)
Social Justice Lab
History of Youth Activism
Women's History

SCIENCE, ENGINEERING & PROGRAMMING

Abnormal Psychology (GOA)
Accelerated Statistics
Applied Artificial Intelligence
Applications in Statistics
Architecture (GOA)
Biochemistry: Medicine, Drugs & Addiction (GOA)
Bioethics (GOA)
Computer Science Programming Capstone
Cybersecurity (GOA)
Developmental Psychology (GOA)
Differential Calculus
Emerging Technologies: AI, Policy, and Ethics
Game Theory (GOA)
Environmental Science
Explorations in Technology
Human Anatomy and Physiology
Integral Calculus and Series
Introduction to Blockchain and Cryptocurrency (GOA)
Linear Algebra (GOA)
Medical Problem Solving (GOA)
Multivariable Calculus I: Vector and Differential Calculus (GOA)
Multivariable Calculus ll: Integral Calculus (GOA)
Number Theory (GOA)
Organic Chemistry
Principles of Engineering
Psychology: Introduction to Psychology (GOA)
Robotics I
Robotics II: Electronics and Design
Social Psychology (GOA)
Topics in Advanced Mathematics I & II

MAKING & DESIGN

AP Art History (GOA)
Ceramics
Costume & Fashion: Design & Making
Digital Art
Digital Design I & II
Digital Music and Recording
Digital Photography (GOA)
Robotics II: Electronics and Design
Film Making I, II & III
Game Design I
Machine Studio
New Methods in Clay
Web Design and Development

INTERDISCIPLINARY

AP Art History (GOA)
Bioethics (GOA)
Emerging Technologies: AI, Policy, and Ethics
Positive Psychology (GOA)
History of the Law
History and Philosophy of Non-Violence
Film Making I, II & III

WRITING & MEDIA

Poetry Workshop
Short Story Workshop
Scriptwriting Workshop for Stage & Screen
Peer Writing Advisors
Introduction to Journalism
Journalism: Newsroom

ENTREPRENEURSHIP

Arts Entrepreneurship (GOA)
Innovation & Design Incubator
Investment (DIS)
Business Problem Solving (GOA)
Financial Literacy
Personal Finance (GOA)
Principles of Economics

FOUR-YEAR COURSE PLANNING GRID

	NINTH GRADE	TENTH GRADE
MAJORS	**5 REQUIRED**	**5 REQUIRED**
English 4 years	Introduction to Literary Analysis	Literary History and Analysis
History 3 years	Modern World History	African American History
Language Through Level 3		
Mathematics 3 years		
Science 3 years		
Jr/Sr Seminar	N/A	N/A
MINORS		
Advisory	Advisory 9	Advisory 10
Art 1 year		
Computer Science + Digital Media		
Theatre	Ninth Grade Theatre	
Health	N/A	Health Education
Music 1 year		
Other	Quakerism	
ATHLETICS & PHYSICAL EDUCATION		
	FULL YEAR • One semester PE 9 Fitness and Wellness • Two seasons of Athletics	**FULL YEAR** • One season Athletics • Choice of Athletics or PE for other two seasons
	F	**F**
	W	**W**
	S	**S**

In thinking about course choices, you may want to sketch out a plan of study incorporating graduation requirements and electives. Five majors are required of all students in grades 9-11, and either four or five may be taken in 12th grade.

	ELEVENTH GRADE	TWELFTH GRADE
MAJORS	**5 REQUIRED**	**4 OR 5 REQUIRED**
English 4 years	Yearlong Elective	Yearlong Elective
History 3 years	US History: Advanced, must be taken in Eleventh or Twelfth grade	
Language Through Level 3		
Mathematics 3 years		
Science 3 years		
Jr/Sr Seminar		
MINORS		
Advisory	Navigation (Coordinated with the College Office)	Financial Literacy
Art 1 year		
Computer Science + Digital Media		
Theatre		
Health	N/A	Life Issues (Coordinated with Advisory)
Music 1 year		
GOA, DIS & Other		College Seminar
ATHLETICS & PHYSICAL EDUCATION		
	FULL YEAR • Three seasons, choice of Athletics or PE	**TWO SEASONS** • Choice of Athletics or PE
	F	**F**
	W	**W**
	S	**S**

DEPARTMENTAL COURSE OFFERINGS GRID

COURSE TITLE	GRADE 9	10	11	12	TIMES PER CYCLE	INFORMATION
ART						
Foundation	•	•	•	•	3	required minor
Color & Design		•	•	•	4	minor elective; prerequisite: Foundation
Drawing & Painting		•	•	•	4	minor elective; prerequisite: Foundation
Furniture Making		•	•	•	3	minor elective; prerequisite: Foundation
Sculpture		•	•	•	4	minor elective; prerequisite: Foundation
Ceramics		•	•	•	3	minor elective; prerequisite: Foundation
Digital Art		•	•	•	4	minor elective; prerequisite: Foundation
NEW New Methods in Clay			•	•	3	minor elective; prerequisite: Foundation
Photography I			•	•	3+	minor elective; prerequisite: Foundation
Photo II: The Journey Continues				•	3+	minor elective; prerequisite: Photo I
Senior Studio: Advanced				•	5	major elective; prerequisite: Foundation, departmental approval
Interdisciplinary Arts Major: Advanced		•	•	•	5	major elective; prerequisite: Foundation, departmental approval
CLASSICAL LANGUAGES						
Ancient Greek I	•	•	•	•	5	major elective
Ancient Greek II	•	•	•	•	5	major elective; prerequisite: Greek I
Ancient Greek III		•	•	•	5	major elective; prerequisite: Greek II
Ancient Greek IV: Advanced			•	•	5	major elective; prerequisite: Greek III
Ancient Greek V: Advanced				•	5	major elective; prerequisite: Greek IV, departmental approval
Latin I	•	•	•		5	major elective
Latin II	•	•	•	•	5	major elective; prerequisite: Latin I or Latin IB
Latin III Republic to Empire		•	•	•	5	major elective; prerequisite: Latin II
Latin IV/V: Advanced Catullus - Love on the Brain			•	•	5	major elective; prerequisite: Latin III
Latin IV/V: Advanced The Myths of Ovid			•	•	5	major elective; prerequisite: Latin III
NEW Ancient Greece, Democracy and Empire (Readings in English)		•	•	•	3	minor elective
COMPUTER SCIENCE + DIGITAL MEDIA						
NEW Applied Artificial Intelligence		•	•	•	2	minor elective
NEW Explorations in Technology	•				2	minor elective
Robotics I	•	•	•	•	2	minor elective
Robotics II: Electronics and Design		•	•	•	3	minor elective; prerequisite: CS I or Robotics I or with departmental approval
Computer Science I: Introductory Programming with Python	•	•	•	•	2	minor elective

+May use hook period / See course description for full information

COURSE TITLE	GRADE				TIMES PER CYCLE	INFORMATION
	9	10	11	12		
Computer Science I: Introductory Programming with Python - Girls Who Code	•	•	•	•	2	minor elective
CS II: Data Science & Object-Oriented Programming		•	•	•	3	minor elective; prerequisite: CS I, or departmental approval
CS III: Algorithms and Computer Organization: Advanced			•	•	3	minor elective; prerequisite: CS II, or departmental approval
Computer Science and Digital Media Programming Capstone: Advanced				•	3	minor elective; prerequisite: CS III or departmental approval
Digital Design I		•	•	•	3	minor elective
Digital Design II		•	•	•	3	minor elective; pre-requisite: Digital Design I or department approval
Web Design & Development I		•	•	•	3	minor elective
Web Design & Development II		•	•	•	3	minor elective; pre-requisite: Web Design & Development I or departmental approval
Machine Studio			•	•	3	minor elective
Game Design I		•	•	•	3	minor elective
Emerging Technologies: AI, Policy, and Ethics		•	•	•	2	minor elective
ENGLISH						
Introduction to Literary Analysis	•				5	
Literary History and Analysis		•			5	
American Literature — In Search of the American Dream: Advanced			•	•	5	requirement-fulfilling major elective
Literature and the Environment: Advanced			•	•	5	requirement-fulfilling major elective
Post-Colonial Literature: Advanced			•	•	5	requirement-fulfilling major elective
Literary Journeys: Advanced			•	•	5	requirement-fulfilling major elective
Modernist and Post-Modernist Literature: Advanced			•	•	5	requirement-fulfilling major elective
Art of Persuasion: Speaking and Writing Well: Advanced			•	•	5	requirement-fulfilling major elective
20th-Century Authors: Advanced			•	•	5	requirement-fulfilling major elective
The Great City in Literature: Advanced			•	•	5	requirement-fulfilling major elective
Short Story Workshop		•	•	•	3	minor elective
Poetry Workshop		•	•	•	3	minor elective
Reading Marathon: Accelerated		•	•	•	2	minor elective
Peer Writing Advisor Training and Practice		•	•	•	2	minor elective
Introduction to Journalism	•	•	•	•	2	minor elective
NEW Journalism: Newsroom		•	•	•	3	minor elective, prerequisite: Introduction to Journalism or Narrative Journalism
HEALTH EDUCATION						
Health Education 10		•			2	required minor
Life Issues				•	1	required minor (coordinated with Advisory)
NEW Deconstructing Food: Nutrition, Food Science, and Body Diversity	•	•	•	•	3	minor elective

+May use hook period / See course description for full information

COURSE TITLE	GRADE 9	10	11	12	TIMES PER CYCLE	INFORMATION
HISTORY						
Modern World History	•				5	required major
African American History		•			5	required major
United States History: Advanced			•	•	5	required major
HISTORY ELECTIVES						
FALL SEMESTER ELECTIVES:						
NEW Philadelphia History: From Cheesesteaks to Cityscapes: Advanced			•	•	5	major elective
History of the Law: Advanced			•	•	5	major elective
NEW Medieval Europe: Advanced			•	•	5	major elective
NEW Women's History: Case Studies from the Ancient World to the Present: Advanced			•	•	5	major elective
History and Philosophy of Nonviolence: Advanced			•	•	5	major elective
US Government and Civics: Advanced			•	•	5	major elective
SPRING SEMESTER ELECTIVES:						
NEW The Global Cold War: Advanced			•	•	5	major elective
NEW History of Genocide: Advanced			•	•	5	major elective
NEW History of Youth Activism: Advanced			•	•	5	major elective
History of American Popular Culture: Advanced			•	•	5	major elective
Modern US Political Ideologies and Issues: Advanced			•	•	5	major elective
NEW History of Utopia: Advanced			•	•	5	major elective
MULTIDISCIPLINARY OFFERINGS						
JUNIOR AND SENIOR SEMINARS						
Mythology and Monstrosity			•	•	5	major elective
NEW Innovation & Design Incubator			•	•	5	major elective
ECONOMICS AND FINANCE						
Principles of Economics			•	•	5	major elective
NEW Financial Literacy				•	1	required minor (one semester)
EQUITY AND INCLUSION						
Social Justice Lab	•	•	•	•	2	minor elective
MATHEMATICS						
Please see Mathematics section for course sequencing options, prerequisites, and departmental approval requirements.						
MODERN LANGUAGES						
French I	•	•	•		5+	major elective
French II	•	•	•	•	5+	major elective; prerequisite: French I
French III		•	•	•	5	major elective; prerequisite: French II
French IV			•	•	5	major elective; prerequisite: French III
French IV: Advanced			•	•	5	major elective; prerequisite: French III, departmental approval required

+May use hook period / See course description for full information

COURSE TITLE	GRADE				TIMES PER CYCLE	INFORMATION
	9	10	11	12		
French V			•	•	5	major elective; prerequisite: French IV
French V: Advanced			•	•	5	major elective; prerequisite: French IV, departmental approval required
Mandarin I	•	•	•		5	major elective
Mandarin II	•	•	•	•	5	major elective; prerequisite: Mandarin I
Mandarin III	•	•	•	•	5	major elective; prerequisite: Mandarin II
Mandarin IV: Advanced	•	•	•	•	5	major elective; prerequisite Mandarin III or departmental approval
Mandarin V: Advanced	•	•	•	•	5	major elective; prerequisite Mandarin IV or departmental approval
Spanish I	•	•	•		5+	major elective
Spanish II	•	•	•	•	5+	major elective; prerequisite: Spanish I
Spanish III		•	•	•	5	major elective; prerequisite: Spanish II
Spanish IV:		•	•	•	5	major elective; prerequisite: Spanish III
Spanish IV: Advanced		•	•	•	5	major elective; prerequisite: Spanish III, departmental approval required
Spanish V		•	•	•	5	major elective; prerequisite: Spanish IV
Spanish V: Advanced			•	•	5	major elective; prerequisite: Spanish IV, departmental approval required
MUSIC						
FALL						
Critical Listening in Music	•	•	•	•	2	minor elective (one semester)
Conducting	•	•	•	•	2	minor elective (one semester)
SPRING						
Sight Singing & Ear Training	•	•	•	•	2	minor elective (one semester)
YEARLONG						
Ninth Grade Musical	•				3+	minor elective (yearlong), one semester credit each for Theatre and Music
History and Impact of Hip-Hop	•	•	•	•	2	minor elective
Musical Instrument Building I	•	•	•	•	3	minor elective
Musical Instrument Building II		•	•	•	3	minor elective; pre-requisite Musical Instrument Building I or demonstration of prerequisite woodworking skills
Music Connections	•	•	•	•	2	minor elective
Songwriting	•	•	•	•	2	minor elective
Jazz Ensemble	•	•	•	•	3+	minor elective; co-requisite: private lessons, departmental approval
Jazz Lab	•	•	•	•	3	minor elective; co-requisite: private lessons
Chamber Ensembles	•	•	•	•	2	minor elective; co-requisite: private lessons

+May use hook period / See course description for full information

COURSE TITLE	GRADE				TIMES PER CYCLE	INFORMATION
	9	10	11	12		
Orchestra	•	•	•	•	3+	minor elective; co-requisite: private lessons
World Percussion Ensemble	•	•	•	•	3	minor elective
Chorus	•	•	•	•	2	minor elective
Choir	•	•	•	•	3+	minor elective (Sunday rehearsals), departmental approval, co-requisite Chorus or A Cappella
A Cappella		•	•	•	2+	minor elective, departmental approval (Saturday rehearsals)
Music Theory	•	•	•	•	4	minor elective
Music Composition: Advanced	•	•	•	•	4	minor elective; prerequisite: departmental approval
Music Lab: Advanced			•	•	5	major elective; prerequisite: two (or more) yearlong courses in Music, departmental approval.
Digital Music Recording & Production I	•	•	•	•	2	minor elective
Digital Music Recording and Production II: Advanced	•	•	•	•	2	minor elective; prerequisite: Digital Music Recording and Production I, departmental approval
Introduction to Piano	•	•	•	•	2	minor elective
Scoring and Sound Design	•	•	•	•	2	minor elective
Interdisciplinary Arts Major: Advanced		•	•	•	5	major elective; departmental approval required
PHYSICAL EDUCATION						
Please see PE section for more information about requirements and electives.						
PE 9 Fitness and Wellness	•				3	required minor (one semester)
YEARLONG						
GFS Fitness Club		•	•	•	4	minor elective
Personal Fitness		•	•	•	3	minor elective
Vinyasa Yoga		•	•	•	1-2	minor elective; Thursdays, 3:30–4:30 p.m.
NEW Strength Training with Purpose		•	•	•	3	minor elective
FALL						
Badminton/Net Games		•	•	•	2	minor elective
Wissahickon Adventures		•	•	•	2	minor elective
NEW Stage Combat		•	•	•	2	minor elective; can be taken for Theatre or PE credit
WINTER						
Archery		•	•	•	2+	minor elective
Winter Net Games		•	•	•	2	minor elective
World Dance		•	•	•	2+	minor elective; can be taken for Theatre or PE credit
SPRING						
Wissahickon Hiking		•	•	•	2	minor elective
Archery		•	•	•	2	minor elective
Modern Dance		•	•	•	2	minor elective; can be taken for Theatre or PE credit

+May use hook period / See course description for full information

COURSE TITLE	GRADE 9	10	11	12	TIMES PER CYCLE	INFORMATION
SCIENCE						
Physics	•	•			5+	major elective
Chemistry		•	•		5+	major elective
Biology			•	•	5+	required major; prerequisite: Chemistry or departmental approval
Principles of Engineering: Advanced			•	•	5+	major elective; prerequisite Chemistry, Physics and departmental approval
Advanced Chemistry			•	•	5+	major elective; prerequisite: Chemistry, departmental approval
Advanced Biology				•	5+	major elective; prerequisite: satisfactory completion of Chemistry and Biology, departmental approval
Advanced Physics				•	5+	major elective; prerequisite: completion or concurrent enrollment in Calculus or Integral Calculus, departmental approval
Environmental Science		•	•	•	5+	major elective; prerequisite: Chemistry or concurrent enrollment in Chemistry
Organic Chemistry: Advanced				•	5+	major elective; prerequisite: Chemistry
Human Anatomy and Physiology: Advanced				•	5	major elective; prerequisite: Chemistry and Biology
Science Research I		•	•	•	3	minor elective
Science Research II			•	•	3	minor elective; prerequisite: Science Research or departmental approval
THEATRE						
THEATRE COURSES						
Ninth Grade Theatre	•				3	required minor (one semester)
Ninth Grade Musical	•				3+	minor elective (yearlong), can be taken for Music or Theatre credit
Text & Performance		•	•	•	3	minor elective
Scriptwriting Workshop: Screenplays, Pilots and Plays		•	•	•	3	minor elective
Theatre Lab: Advanced				•	5	major elective; prerequisite: two (or more) yearlong courses in Theatre and involvement in at least one co-curricular Mainstage Production, departmental approval
DANCE & MOVEMENT COURSES						
NEW Stage Combat		•	•	•	2	minor elective; can be taken for Theatre or PE credit (fall trimester)
World Dance		•	•	•	2	minor elective; can be taken for Theatre or PE credit (winter trimester)
Modern Dance		•	•	•	2	minor elective; can be taken for Theatre or PE credit (spring trimester)
TECHNICAL THEATRE COURSES						
NEW Scenic Painting & Design	•	•	•	•	2	minor elective
Theatre Management		•	•	•	2	minor elective
Costume & Fashion: Designing & Making		•	•	•	3	minor elective

+May use hook period / See course description for full information

COURSE TITLE	GRADE				TIMES PER CYCLE	INFORMATION
	9	10	11	12		
FILMMAKING COURSES						
Filmmaking I: An Introduction		•	•	•	3	minor elective (yearlong)
Filmmaking II: Cinematic Storytelling & Technique			•	•		minor elective; prerequisite: Filmmaking I
Filmmaking III: The Picture is the Thing: Advanced				•	3	minor elective (yearlong); prerequisite: Filmmaking II
Interdisciplinary Arts Major: Advanced		•	•	•	5	major elective; departmental approval required
DIRECTED INDEPENDENT STUDY						
Please see Directed Independent Study description for details.						
DIS Major			•	•	appx 5	major elective, departmental approval
DIS Minor	•	•	•	•	2-3	minor elective, departmental approval
DIS Minor in World Language (American Sign Language, Arabic, German, Italian, Japanese, Russian)	•	•	•	•	2	minor elective
DIS Investment	•	•	•	•	1+	minor elective, meets weekly (Wednesday at 8am)
GLOBAL ONLINE ACADEMY (GOA)						
Please see GOA section for course descriptions and registration details.						
GOA Courses		•	•	•		major elective, departmental approval

+May use hook period / See course description for full information

ART

The Upper School Art Program offers students opportunities to cultivate keen observation through the making of visual art—learning to see relationships between ideas, people, and the world around them—as they develop their own voice, identity, and spirit. Through the exploration of various materials and media, students investigate formal and conceptual issues with increasing independence. In the studio, we are concerned not only with the making of art but also with the development of critical thinking, visual literacy, and art history awareness.

Courses are designed to both strengthen and stretch students creatively through technical skill building and the expansion of their expressive voice. Class critique is an important element in each course, where students learn to recognize effective visual communication and to appreciate the uniqueness and diversity of impactful visual works.

- The course Foundation is a required minor and a prerequisite for all other art electives.
- Students must select a first and second choice for art electives with the exception of Foundation.
- Each course may be taken only once.
- Art courses may be chosen individually as minors or together in certain configurations to form an Art Major.

INTERDISCIPLINARY ARTS MAJOR

The Interdisciplinary Arts Major creates innovative opportunities for students in the GFS arts departments to explore and experiment at the intersections of theatre, music, and art. At course sign-up, students in grades 10-12 wishing to create an Interdisciplinary Arts Major should select their two minors and also select ARTSMAJOR880 Interdisciplinary Arts Major. Departmental approval is required.

GRADUATION REQUIREMENT

Students must complete one full year of Art.

ART310 Foundation

required minor | grades: 9, 10, 11, 12

This course is designed to introduce and investigate visual concepts. These concepts of 2D and 3D composition include line, plane, negative/positive space, perspective, color, value, figure/ground, and visual expression. Each unit of study is tailored to build technical skill and theoretical understanding, as well as to develop creative thinking and problem-solving skills regardless of prior experience. Through critiques, students learn to use a visual vocabulary to analyze the impact of visual images. Successful completion of this course is a prerequisite for all subsequent Art courses.

ART830 Color & Design

minor elective | grades: 10, 11, 12 | prerequisite: Foundation

In this course, students concentrate on how color and design can be used to describe and communicate ideas through visual means. We investigate color as it can be used emotionally and psychologically for practical and poetic ends. Students will study composition and design, using elements of realistic and abstract form. Assignments emphasize creative problem solving and varying conceptual exercises. Multiple techniques and media will be used, including collage, drawing, painting, and digital media. Skill development will underlay all of our studies.

ART840 Drawing & Painting

minor elective | grades: 10, 11, 12 | prerequisite: Foundation

Students begin with foundational drawing skills using graphite, charcoal, ink, and mixed media. They'll work from observation—sketching still lifes, figures, and landscapes—while learning structural techniques like perspective and proportion. The course then transitions to painting, where students apply color theory, practice value studies, and experiment with acrylics and watercolors. Throughout the year, students work with traditional subjects while beginning to identify personal themes and develop their individual artistic voice. Class size is limited to twelve students per section; students should list alternate art course preferences when registering.

ART880 Furniture Making

minor elective | grades: 10, 11, 12 | prerequisite: Foundation

This class will focus on creative furniture making. Students will learn traditional woodworking techniques while practicing discipline, patience, and problem-solving skills. With a strong emphasis on safety, students will develop a practical understanding of hand tools and learn to operate a jointer, planer, band saw, chop saw, drill press, and various handheld power tools. Students start the year with a suite of kitchen tools: wooden flip-tongs, a bowl, and a cutting board. These projects allow the students to learn how to measure and lay out joinery, use a variety of tools, and practice making and fixing mistakes. Students will then move on to designing and fabricating a small stool or table, and finish the year with a conceptual or functional container project. Because enrollment is limited to twelve students per section, students electing this course should specify a 2nd/3rd art course choice when they sign up.

ART810 Sculpture

minor elective | grades: 10, 11, 12 | prerequisite: Foundation

This studio course is an introduction to building three-dimensional forms. Emphasis is placed on creatively solving problems and communicating ideas through the use of a variety of materials, including chipboard, plaster, wood, metal, and found objects. We will learn methods of casting, sculpting, shaping, and joining materials to make sculptural forms. Students will also learn how to safely handle power tools. As we move through the projects, we will analyze contemporary and historical examples of art or design that incorporate similar methods. Each project will allow the students to develop their own way of handling the material and the development of their expressive voice. Because enrollment is limited to twelve students per section, students electing this course should specify a 2nd/3rd art course choice when they sign up.

ART815 Ceramics

minor elective | grades: 10, 11, 12 | prerequisite: Foundation

This course is intended for those studying ceramics for the first time and is a comprehensive introduction to the craft of clay construction. In this course, we will provide students with the opportunity to develop a basic knowledge of ceramics, hand-building, and an introduction to wheelwork. The two main goals of this course are to create and appreciate expressive, beautiful, three-dimensional clay forms through the study of other cultures and their relationship to clay and to develop the skills to become proficient at forming ceramic objects. The primary emphasis is on studio work, which will lead to a portfolio of finished pieces by the end of the semester.

Enrollment is limited to 12 students.

NEW ART 816 New Methods in Clay

minor elective | grades: 10, 11, 12 | prerequisite: Foundation and either Ceramics I or Sculpture

Building off techniques learned in either Ceramics or Sculpture, New Methods in Clay is an opportunity for students to further explore sculptural media. Projects will explore larger-scale sculpture, ceramic molds, and experimental surface designs. Students will design and fabricate their own tools in this class using the digital fabrication lab. Coursework will progress to more individualized projects, with students creating their own creative goals.

ART860 Digital Art

minor elective | grades: 10, 11, 12 | prerequisite: Foundation

This digital lab course introduces the computer as an artistic tool for drawing, painting, collage, and animation. We will take advantage of aspects that are unique to digital drawing, such as layering, scaling, the incorporation of photography, and working with states of revision. This course is about expanding the narrative possibilities of image-making through contemporary processes of edition and image construction using Photoshop and Illustrator. Students will learn advanced methods of editing still and moving images, video, and animation. Students will also learn to edit the animations and incorporate sound effects and music.

**Note — This is an art course with a focus on digital skill building for the purpose of creative expression; this course is different from Digital Design, which is a computer science course that focuses on the commercial applications Photoshop & Illustrator.*

ART850 Photography I

minor elective | grades: 11, 12 | prerequisite: Foundation

This is an introductory course that explores the technical and aesthetic possibilities of the photograph. Students will first master the skills of black and-white darkroom photography; an introduction to digital images and alternative photographic processes will follow. Throughout the course, attention will be paid to the content and composition of photographs, as students solve problems in portraiture, documentary, studio photography, and social commentary. A limited number of school cameras are available for students on an as-needed basis. Because space is limited, students electing this course should specify a 2nd/3rd art course choice when they sign up.

ART920 Photo II: The Journey Continues

minor elective | Grade 12 | prerequisite: Photography I

The Journey Continues provides students the opportunity to grow as artists. Building on their foundational knowledge in the darkroom and the digital lab, students will explore new creative approaches to the medium and learn advanced technical skills as they experiment with light and ways of seeing. As students build their photographic portfolios, they will look critically not only at their own work but also at the work of renowned photographers. The Journey Continues classroom provides students with their own computers and workspace, offering them the time, space, and occasion to organize their portfolios for the college admissions process. At the end of the year, each student will create a final presentation in a form of their own choosing.

ART610 Senior Studio: Advanced

major elective | grade: 12 | prerequisite: Foundation plus one of the following: Drawing & Painting; Color & Design; Digital Art; Photography or 3-Dimensional Art. Drawing & Painting, and Art History are strongly recommended as preparation; departmental approval required.

This advanced studio course stresses the development of technical and conceptual skills and the development of original, personal vision. Both classical and contemporary approaches to image making are encouraged, with particular emphasis on the development of original personal vision and voice. Other areas of study include color theory, abstraction, observational, conceptual, and narrative work. Guidance and support is provided for the preparation of a strong portfolio. Regular homework and some reading and critical writing are required.

ATHLETICS

The athletics program at GFS stresses participation and encourages all student athletes to develop their capabilities to the fullest extent possible. We value excellence in each sport and aim to field successful teams that are competitive within the Friends Schools League as well as with other comparable schools. We want our student-athletes to be committed to themselves, their team, the GFS school community, and the Friends Schools League. In order to do this, it is imperative for students to learn what it means to cooperate with others, set individual and team goals, manage their time with other areas of their lives, deal positively with setbacks, and to learn the physical and technical skills demanded by their sport. It is our hope that as students progress through our athletic program, they can develop holistically, not only as athletes but build upon their role within the GFS community and beyond.

GRADUATION REQUIREMENT NOTE

Students must participate in two seasons of Athletics in 9th grade and one season of Athletics in 10th grade.

SEASON	GIRLS		BOYS	
FALL	ATH802	Cross Country	ATH808	Cross Country
	ATH803	Field Hockey	ATH809	Soccer
	ATH804	Soccer	ATH806	Crew*
	ATH805	Tennis		
	ATH806	Crew*		
WINTER	ATH812	Basketball	ATH816	Basketball
	ATH813	Squash	ATH817	Squash
	ATH814	Indoor Track & Field	ATH818	Indoor Track & Field
	ATH811	Wrestling	ATH819	Wrestling
SPRING	ATH822	Lacrosse	ATH826	Baseball
	ATH823	Softball	ATH827	Tennis
	ATH824	Track & Field	ATH828	Track & Field
	ATH825	Golf	ATH825	Golf
	ATH807	Crew*	ATH807	Crew*

Several programs offer sport-specific, off-season training. Please contact the Head Coach or Athletics Director with questions.

*Note on Crew: Rowing is a co-ed sport with additional fees associated with participation. GFS is committed to making all athletic offerings available to the student body. Information about financial aid is available through the Business Office.

ATHLETES AND GENDER

GFS is committed to supporting gender-nonconforming and transgender athletes. For more on inclusion at GFS, visit the Diversity, Equity & Inclusion page within the About Us section of the GFS website. Please contact our Athletics Director with questions or concerns.

ALTERNATIVES TO ATHLETIC REQUIREMENTS

We value the sense of community, camaraderie, physical well-being, and skill development that come through participating in athletics at GFS. It is our expectation that all students will actively participate in our program and fulfill the athletic requirements.

Students who have undertaken a clear course of study and demonstrated a solid commitment to an out-of school sport may request an alternative for one athletic season at GFS. Since this out-of-school sport would replace an existing part of the school curriculum, both family and school must give careful thought to such a decision. This does not apply to an activity that is new to a student. Parents make requests by submitting the Alternatives Request Form during the course sign-up period. In addition, students must confirm this request during online course sign-up. Students will be asked for timely updates about their alternative athletic commitment and the school will be in touch with the designated coach outside of school. Decisions will be made by the Requirements Committee (Upper School Division Director, Director of Athletics, PE Department Head, and, as appropriate, the Grade Dean). Every attempt will be made to communicate these decisions in a timely manner.

Students participating in a theatre production may elect to delay a season of athletics participation to the following year with department approval.

CLASSICAL LANGUAGE

The Classics department offers Latin and Greek in grades 7-12. Our Classics teachers focus on training students to develop proficiency in the languages and become close, analytical readers of the literature. We also explore the ancient world through the lenses of class and socio-economic status, citizenship and enslavement, gender and sexual orientation, and race and ethnicity. Our program covers quite a breadth of material. Students read, analyze, interpret, and connect to a wide range of poetry and prose texts, and learn about ancient philosophy, rhetoric, culture, and history. Events like Classics Day involve our students in lively, collaborative learning, and our Classics trip every other January allows our students a chance to see their texts in context. Many students go on to study Classics in college and beyond.

GRADUATION REQUIREMENT NOTE

Students must complete a Level III modern or classical language to graduate

CLA710 Ancient Greek I

major elective | grades: 9, 10, 11, 12

This course provides an introduction to ancient Greek, beginning with learning the alphabet. From this point, students study vocabulary, syntax, and grammar with the goal of completing about half of the foundational grammar. Students compose short sentences and stories and also read short, adapted selections of Ancient Greek and explore the cultural context of the language in myth, history, and art. Along with the other Greek classes, students put on a performance for Classics Day.

CLA720 Ancient Greek II

major elective | grades: 9, 10, 11, 12 | prerequisite: Ancient Greek I

In this course, students complete their study of basic ancient Greek grammar. By the end of the year, students transition to translating original ancient Greek in preparation for reading Greek literature in the following year, whether heroic epic, myth, history or drama. Students also continue to study the cultural context of the language, with a particular eye to myth. Along with the other Greek classes, students put on a performance for Classics Day.

CLA730 Ancient Greek III

major elective | grades: 10, 11, 12 | prerequisite: Ancient Greek II

Starting in the third year, students begin to translate and explore actual ancient literature. Topics and genres will vary year to year and may include Greek history (e.g., Herodotus or Xenophon), epic (Homer), legal oratory (Lysias), or tragedy (Euripides). We will explore the social and historical context of the works as well as their literary aspects and later influences. Students will undertake related projects individually or in small groups. Along with the other Greek classes, students put on a performance for Classics Day.

CLA740 Ancient Greek IV: Advanced

major elective | grades: 11, 12 | prerequisite: Ancient Greek III

Topics and genres will vary year by year and may include Greek history (e.g., Herodotus or Xenophon), or epic (Homer), legal oratory (Lysias), or tragedy (Euripides). We will explore the social and historical context of the works as well as their literary aspects and later influences. Students will undertake related projects individually or in small groups. Along with the other Greek classes, students put on a performance for Classics Day.

CLA750 Ancient Greek V: Advanced

major elective | grade: 12 | prerequisite: Ancient Greek IV, departmental approval required

Topics and genres will vary year by year and may include Greek history (e.g., Herodotus or Xenophon), epic (Homer), legal oratory (Lysias), or tragedy (Euripides). We will explore the social and historical context of the works as well as their literary aspects and later influences. Students will undertake related projects individually or in small groups. Along with the other Greek classes, students put on a performance for Classics Day.

CLA310 Latin I

major elective | grades: 9, 10, 11

Latin I is an introduction to the basic forms, vocabulary, and grammar of Latin via reading and composition. Latin I is taught through English, with a strong emphasis on mastering grammar and forms in sentences. Students begin exploring the vocabulary and examining cognates that bring life to words in English, French, Spanish, and other languages. Alongside this, students study various aspects of the history, culture, and everyday life in Ancient Rome.

CLA320 Latin II

major elective | grades: 9, 10, 11, 12 | prerequisite: Latin I or Latin IB

This second-year course completes the study of Latin grammar, continues the building of essential vocabulary and composition skills, and provides in creasing emphasis on reading longer Latin passages about history, mythology, and life in the ancient world. Students develop the skills necessary to read Latin as the Romans wrote it, and to consider the historical and cultural implications of their language and literature.

CLA430 Latin III: Republic to Empire

major elective | grade: 10, 11, 12 | prerequisite: Latin II

Students in Latin III: Republic to Empire will immerse themselves in a cornucopia of Latin literature, sampling both prose and poetry. The readings will span from the earlier writers of the Republic (such as the legal oratory of Cicero, the military memoir of Caesar, or the spicy love poetry of Catullus) to the writers of the Empire (such as Ovid's subversive take on mythology and human relationships, Pliny's letters to the Emperor Trajan, and an excerpt one of the earliest novels). At each stage, students will examine the nature of language, the deep meaning of words, and the nuance of the poetic. Alongside learning new grammatical constructions, literary devices, and rhetorical techniques, students will explore the history and social context of this tumultuous period, and consider how our readings live today in the world of art, music, politics, and current events.

NEW CLA522 Latin IV/V Advanced: Catullus - Love on the Brain

major elective | grades: 11, 12 | prerequisite: Latin III

Are you curious about the intricate world of emotions and relationships? How does the love poetry of Catullus and other Roman poets align with our current understanding of neuroscience, psychology, and our own experiences? By delving into these ancient texts, we will examine how human emotions—rooted in our evolution as social and emotional beings—manifest in ancient but timeless poetry.

NEW CLA523 Latin IV/V Advanced: The Myths of Ovid

major elective | grades: 11, 12 | prerequisite: Latin III

Do you love mythology? This course will explore the many adventures and misadventures from Ovid's *Metamorphoses* and selected other texts. We will explore themes such as transformation, identity, power and justice, what it means to be human, and how these short stories may or may not truly combine into an epic. We will consider its literary aspects (e.g. symbolism, rhetorical tropes, poetic meter) as well as its influence on later literature and the arts (musical, visual, performative).

NEW CLA530 Ancient Greece, Democracy and Empire (Readings in English)

minor elective | grades: 10, 11, 12

This course will explore the first century of democracy in 5th century BCE Athens as well as democracy's link to empire building and the crises faced by the new political system. Key topics include the merits and weaknesses of democracy, democracy and oligarchy, political justice, imperialism, immigration, women's rights, gender, slavery, socio-economic class. We will explore the culture broadly, including daily life as well as art and archaeology, and other Greek city-states (and forms of government; especially Sparta). Students will cap the course with a role-playing game focused on a political crisis faced by Athens at the end of the 5th century (and the first 100 years of democracy).

COMPUTER SCIENCE & DIGITAL MEDIA

The Computer Science & Digital Media Department courses are rich in opportunities for exploring real-world technology skills in computer programming, robotics, electronics, and digital design. Students learn to be creators and innovators in computing and digital media, using cutting-edge tools such as the programming language Python, the Adobe Creative Cloud applications, VEX Robots, Laser cutters, 3D printers, and more. Students use professional-level tools, think critically about the impact of technology on society, and apply technological skills to their own work. All Computer Science & Digital Media classes are pass/fail, except for the major, giving students a low-stakes opportunity to find a place in the fast-paced fields of technology and digital media.

GRADUATION REQUIREMENT NOTE

Members of the class of 2030 and all subsequent classes are required to complete a semester-long minor course in Computer Science & Digital Media by the end of their sophomore year. To fulfill this requirement, students new to Computer Science & Digital Media learning may take Explorations in Technology, Robotics I, or Computer Science I in 9th or 10th grade. Recommended for students new to GFS in 9th grade, Explorations in Technology provides an essential introduction to being a digital learner in the Upper School and a broad survey of major topics in Computer Science and Digital Media.

COMPUTER SCIENCE & DIGITAL MEDIA MAJOR

If you have a passion for computer science and digital media, you can enroll in a Computer Science & Digital Media Major by taking two eligible classes simultaneously. Students are assigned a faculty advisor to meet with regularly, create a portfolio of work, and participate in an end-of-year showcase. At course sign-up, students wishing to create a CS & DM Major should select CS990 Computer Science Major.

NEW CS101 Explorations in Technology

minor elective | grades 9, 10, 11, 12 | prerequisite: none

This introductory course provides a broad foundation in technology, computing, and digital design. Prepare for a new school year by brushing up on your tech skills. Learn what makes a computer a computer and some major milestones in the history of computing. Understand how to speak a computer's language with basic computer programming concepts and coding projects. Explore how the internet works and make a simple webpage using HTML and CSS. Discuss the policies, ethics, and social aspects of technology in our digital world. This class emphasizes exploration and experimentation that builds your confidence in digital skills. It will help you find a technology pathway that aligns with your interests and make informed choices about pursuing advanced courses in computer science, digital media, and technology.

CS111 Robotics I

minor elective | grades: 9, 10, 11, 12 | one semester

In this hands-on course, you will learn foundational skills in building, coding, and designing robots using the VEX V5 Robotics system. Students will

practice construction techniques, and build a variety of drive bases and mechanisms including arms, claws, lifts, pneumatic systems, conveyor systems, and more. Along the way, students will deepen their understanding of engineering concepts like gears, torque vs. speed, structural design, manipulators, and motor groups. Students will also develop essential programming skills as they learn to control motors and sensors, create autonomous routines, use loops and conditionals, and code the controller for driver-operated tasks. Throughout the course, students work in teams to take on challenges modeled after the VEX V5 competition tasks. Students who take this class will be well prepared for joining the extra-curricular GFS VEX Robotics Team. Students may participate in both this course and the extra-curricular team concurrently to gain extra experience and time to collaborate on competition tasks.

CS190 Robotics II: Electronics and Design

minor elective | grades: 10, 11, 12 | prerequisite: CS I or Robotics I, or with departmental approval

This course immerses students in the hands-on applications of programming by building functioning electronic devices controlled via Arduino boards, which are mini-computers that can be embedded in physical devices. The course is a thorough exploration of circuits, electronic components, and programming fundamentals. Students begin by building an intuition of the flow of electricity and quickly progress to hands-on experiences with breadboards, circuit diagrams, and Arduino boards. Students learn to understand code, experiment with external components, including LEDs, switches, resistors, and sensors. Guided projects encourage teamwork, problem-solving, and practical application of concepts. Advanced lessons cover topics such as serial communication, arrays, and analog sensors, preparing students for an independent project where they apply their skills to create innovative electronic devices.

CS130 Computer Science I: Introductory Programming with Python

minor elective | grades: 9, 10, 11, 12

Learning computer programming opens doors to new ways of thinking creatively, solving problems, and driving innovation. This class is your ticket into the world of technology. You'll learn Python, one of the most popular and accessible programming languages. No prior experience is necessary to start writing simple code, developing your understanding of coding concepts, and advancing to more complex programs and interactive games. This class is designed for students of all skill levels to advance their skills and abilities. In a world powered by technology, knowing how to code means you can be in the driver's seat of future innovations.

CS131 Computer Science I: Introductory Programming with Python - Girls Who Code

minor elective | grades: 9, 10, 11, 12

This Girls Who Code section of Introductory Programming is the same curriculum as CS I while intentionally creating a supportive space for female and nonbinary-identifying students. The class will include discussions of the often-overlooked contributions of women and girls in computer science and feature guest speakers who share their experiences working in the field. This section reflects our commitment to widening participation and ensuring that all students see themselves in technology. Female and nonbinary-identifying students are welcome to enroll in either section of CS I that best supports their learning.

CS140 Computer Science II: Data Science & Object-Oriented Programming

minor elective | grades: 10, 11, 12 | prerequisite: CS I, departmental approval required

Take your programming skills to the next level with this second-year course, which builds on the material covered in CS I while exploring real-world uses for programming. This course will cover the fundamentals of data analysis, image manipulation, text processing, numerical simulation, and object-oriented programming. You'll learn to use advanced Python features, implement custom classes, use data structures, and design simple algorithms, while building your problem-solving skills and working on fun projects with friends.

CS150 Computer Science III: Algorithms & Computer Organization: Advanced

minor elective | grades: 11, 12 | prerequisite: CS II or with departmental approval

This course explores advanced topics in computer science, including algorithm design, recursion, data structures, and low-level programming. You'll work on classic computer science problems like Sudoku puzzle generation, maze solving, and text parsing, while learning how programming languages and computers work internally. The course is taught primarily in Python and will introduce other languages such as Java, C, and Assembly. Take CS III to solve fun, challenging problems while solidifying your skills as a software engineer.

CS171 Digital Design I

minor elective | grades: 10, 11, 12

Explore and develop your creative and technical design skills with this introduction to industry-level digital design process and practice. Using Adobe Creative Cloud tools including Illustrator, Photoshop, and InDesign, you'll create a variety of hands-on projects in vector illustration, digital compositing and online graphics, and print media design. Learn foundational skills in creative direction, typography, design principles and techniques, and human-centered design to create compelling designs for a variety of audiences. Each unit includes an original project to apply your skills and hone your design style and voice. Readings and discussions introduce a historical overview, emerging trends, and real-world examples. Students share their original work and critically reflect on their classmates' work. This class will prepare you for work on student publications such as such as *Earthquake*, *Polyphony*, and *Anno*.

CS172 Digital Design II

minor elective | grades: 10, 11, 12 | prerequisite: Digital Design I or departmental approval

Continue developing your repertoire of digital design skills as you use Adobe Creative Cloud's advanced tools to create projects such as a book jacket design, energy bar packaging, and a magazine cover and spread design. You'll delve further into techniques of digital illustration, logo design, visual metaphor, and branding. Gain more experience working with a client, pitching ideas, sketching thumbnails, and following the design iteration process. In this hands-on, project-based course, you'll share your original work and critically reflect on your classmates' work, as well as real-world examples. In the final quarter, you'll create an original design on a topic of your choice. Learn about opportunities available in creative technology fields, with the option to apply your skills to work on student publications such as *Earthquake*, *Polyphony*, and *Anno*.

CS222 Emerging Technologies: AI, Policy, and Ethics

minor elective | grades: 10, 11, 12

Are you curious about how technology could transform your future? This class goes beyond the hype and the fear to explore how emerging technologies, including artificial intelligence, are reshaping our world. Through historical, cultural, ethical, and political lenses, students will examine how technology influences work, health care, art, education, privacy, politics, the environment, and more. Together, the class will discuss, research, and debate big questions and ethical dilemmas surrounding the ways technology can help and harm society, and consider how regulation and policy can guide the rapid rise of powerful new technologies.

CS160 Web Design & Development I

minor elective | grades: 10, 11, 12

Learn about the creative design of websites and code your own webpages using HTML and CSS. You'll learn the foundations of how websites are built and make websites from scratch, using the latest web standards and tools, coding software, wireframing, browser tools, and plug-ins for web developers. Through your own projects and real-world examples, explore how design and functionality interact when creating compelling sites, as well as the strengths, constraints, and limitations of this medium. Hands-on classwork and projects culminate in a final project to create an original design for a microsite on a topic of your choice. Examine historical and emerging trends to further your craft and how you can apply these skills to future projects.

CS170 Web Design & Development II

minor elective | grades: 10, 11, 12 | prerequisite: Web Design & Development I or departmental approval

Take your coding skills to the next level to create webpages employing the latest trends and standards in web design. Explore best practices and techniques for advanced layout and interactivity, including responsive web design, CSS animations, and Javascript plugins. The workshop format allows ample time for students to immerse themselves into topics and practice techniques. The course culminates in a final project of the student's choosing, to design and implement a functional site for a real client using professional web publishing software. Readings, guest speakers, and real-world examples expose students to opportunities available in creative technology fields.

CS200 Machine Studio

minor elective | grades: 11, 12

Do you enjoy exploring complex problems that can be solved with innovative technology? This course will introduce students to the processes of developing, prototyping, and testing simple machines that include motors, gears, levers, and pendulums. Students will learn 3D modeling, 3D printing, and laser cutting, as well as traditional fabrication techniques. The class will follow a lecture and workshop format as students prototype inventions, create works of art, and critically revise design objects to update their function. This course is a collaboration between the Computer Science and Art departments.

CS300 Game Design I

minor elective | grades: 10, 11, 12

This course covers the basics of computer game development, including writing code, designing and animating characters, and implementing game mechanics. You'll learn to write 2D games with features like gravity, scorekeeping, collisions, and simple game AI. Along the way, you'll practice these skills by recreating existing games like Flappy Bird and designing your own game. From there, the class will branch out into other forms of game design including 3D games and text-based games. In this class, you'll strengthen your programming skills and learn to plan, prototype, and incorporate feedback into your software while working on fun projects.

CS155 Computer Science & Digital Media Capstone: Advanced

minor elective | grades 11, 12 | prerequisite: CS III, departmental approval required

The Capstone course in the Computer Science & Digital Media department is the culmination of the academic courses we offer in the department. This course will focus on larger projects and, in many cases, students will work in teams. Students will identify a complex problem or project that requires them to apply and extend their programming, engineering, or design skills and knowledge, and produce a Capstone-level project. Based on student interest, students in the course will drive the content of the class.

**Note that previously, this class was only open to programming students. We have modified the prerequisite to allow this course to serve as a capstone for each strand in our department.*

NEW CS224 Applied Artificial Intelligence

minor elective | grades 10, 11, 12 | prerequisite: CS I

This course provides a rigorous, hands-on foundation in artificial intelligence. Students are challenged to develop and critically assess AI systems. The curriculum encompasses the core technical systems that undergird AI, including neural networks, the fundamentals of machine learning, advanced applications such as large language models, specialized fields such as natural language processing, and computer visioning. Beyond the mechanics, Applied Artificial Intelligence emphasizes the responsible and intentional development and use of AI tools and systems. Students engage in Design Thinking to analyze the real-world impact of technologies on societal structures, including grappling with environmental considerations. Students will explore the topics above through various short and long-term projects designed to create a real-world understanding of AI and develop technical AI skills.

DIRECTED INDEPENDENT STUDY

GFS encourages students to take initiative in their own education. Last year, more than 150 students pursued their particular interests beyond the GFS course catalog by developing a Directed Independent Study (DIS) in consultation with a faculty advisor.

A DIS MIGHT BE COMPOSED OF ONE OF THE FOLLOWING:

Individual or group study with a member of the GFS community on a subject of mutual interest

Language classes taught by a part-time instructor

An online course not already included in the GFS catalog

A significant weekly project (such as tutoring in a neighborhood school)

DIS Minor

minor elective | grades: 9, 10, 11, 12

Students may elect a program of Directed Independent Study as part of their academic schedule. A DIS minor should demand the same commitment as the equivalent of a minor elective course. DIS minors may not replace a preexisting course offering. Students may create a course of study that focuses on an academic interest or a community outreach project within GFS or in the Germantown community. DIS minors have included philosophy, biology research, oil painting, creative writing, computer programming, and tutoring at GFS or local elementary schools. Students must consult with the Director of Independent Study to discuss the details of their DIS. Those who develop a DIS minor after course sign-up must register for a DIS minor before the third week in September for full-year and fall-only DIS. proposals for spring-only DISs are due the third week in January. For more details, email the Director of Independent Study.

DIS800 DIS Major

major elective | grades: 11, 12

Students in the upper grades may elect a program of Directed Independent Study as part of their academic schedule. A DIS major is equivalent to a full-credit course and is graded in the same way. DIS majors may not replace a preexisting course offering without the permission of the department in question. In the past year, students have created DIS majors in Biochemistry, Entrepreneurship, Japanese, Music Composition, and Advanced Engineering.

Proposing a DIS Major

Interested students first consult with the Director of Independent Study. Students must submit a formal proposal to the Director of Independent Study prior to Spring Break, for approval by the Academic Standards Committee. Students choosing independent study are required to keep a journal, to write a major paper each quarter, and to make periodic informal presentations of their work. In the spring, they are required to make a formal presentation of their work to their advisor and two other faculty members. Students should expect to meet once per 8-day cycle with an advisor (a member of the faculty or another adult) and with the Director of Independent Study.

Opportunities in World Languages

A variety of languages are offered for minor or major credit as part of the Directed Independent Study program that supplement the Modern Language and Classics offerings. Students may elect to take a language DIS in addition to, but not in place of, their foreign language requirement. A language DIS may be taught by an outside instructor or by a GFS teacher. Students wishing to create a DIS Major in a global language should refer to the previous section, Proposing a DIS Major. When signing up, students should indicate their level of study in the notes section of the electronic sign-up form.

DIS540 American Sign Language

minor elective | grades: 9, 10, 11, 12

This DIS in American Sign Language and Deaf Culture is a credit/no-credit course. Four levels are offered. Availability is strictly limited by the teacher's schedule.

DIS500 Arabic

minor elective | grades: 9, 10, 11, 12

This DIS in Arabic language and culture is a credit/ no-credit course. Three levels are offered. Availability is strictly limited by the teacher's schedule.

DIS900 German

minor elective | grades: 9, 10, 11, 12

This DIS in German language and culture is a credit/ no-credit course. Three levels are offered. Availability is strictly limited by the teacher's schedule.

DIS810 Italian

minor elective | grades: 9, 10, 11, 12

This DIS in Italian language and culture is a credit/ no-credit course. Three levels are offered. Availability is strictly limited by the teacher's schedule.

DIS520 Japanese

minor elective | grades: 9, 10, 11, 12

This DIS in Japanese language and culture is a credit/no-credit course. Three levels are offered. Availability is strictly limited by the teacher's schedule.

DIS970 Russian

minor elective | grades: 9, 10, 11, 12

This DIS in Russian language and culture is a credit/ no-credit course. Availability is strictly limited by the teacher's schedule.

Other Opportunities

DIS INVESTMENT Investment

minor elective | grades: 9, 10, 11, 12

Students in the Investment DIS will learn about the stock market, interest rates, and investment strategies for stocks, bonds, exchange-traded funds, and mutual funds. They will also have an opportunity to invest funds set aside in a philanthropic trust account. This DIS meets every Wednesday at 8am and requires approximately one hour of independent work per week.

ENGLISH

Students engage in lively dialogue with texts in English classes at Germantown Friends School. Close critical reading of novels, poems, plays, and essays invites students to develop an appreciation for literature, and the classroom provides a forum for the exploration and expression of ideas. Through thoughtful analysis, creative response, and reflective writing, students grapple with the perspectives and ideas of a diverse and ever-expanding repertoire of authors. Students contemplate a range of issues introduced within texts and consider the larger social implications of their reading. We also ask them to consider historical context. Writing is at the center of everything we do, from personal and analytical essays, short stories, and poems to chapbooks, manifestos, scenes, podcasts, and newspapers. Along the way, students gain increased syntactic flexibility and precision through the study of grammar, vocabulary, and rhetoric. Our program cultivates writers and readers who are joyous, reflective, honest, and artful.

GRADUATION REQUIREMENT NOTE

Students must complete four years of major coursework.

ENG320 Introduction to Literary Analysis

required major | grade: 9

Over the course of ninth-grade English, students begin to take themselves seriously as meaning-makers. The department challenges students to become conscious of literary art as a tool to gain access to deeper critical thinking and more effective communication. Through spoken and written discourse, students in ninth-grade English explore texts and emerge with an understanding of the foundational techniques of literary analysis. Students are challenged to look closely at textual evidence and write with attention to its specific characteristics. The course introduces students to a comprehensive literary vocabulary and gives opportunities to apply it in the context of a diverse body of texts. Over the course of the year, students develop their ability to craft an argumentative claim out of what they have discovered through this process of close reading. Students read shared texts (novels, poems, personal essays, and plays, including one by Shakespeare) and write frequent passage analyses and argumentative essays. Throughout the year, students are given creative writing assignments as a means of experimenting with the styles and forms they encounter in class. Vocabulary and grammar lessons are taught during an extended class period. Recent texts include *Annie John* by Jamaica Kincaid, *When the Emperor Was Divine* by Julia Otsuka, *Oedipus Rex* and *Antigone* by Sophocles, *Twelfth Night* and *Much Ado About Nothing* by William Shakespeare, *Things Fall Apart* by Chinua Achebe, and *Maus* by Art Spiegelman.

ENG421 Literary History and Analysis: Drama, Poetry, and the Novel

required major | grade: 10

In the second year of Upper School English, students build on the foundational skills they learned in ninth grade to engage with a range of literary texts that nurture their sophistication, confidence, and fluency as readers and writers. Tenth-grade English develops students' understanding of form, genre, and literary history, and places added emphasis on exploring the way historical and cultural contexts inform interpretation. Through encounters with novels, short fiction, plays, and poems, students continue developing their strengths as close readers, becoming adept at identifying rich sites in the text, unpacking the multiple meanings embedded in language, and learning how to handle ambiguity and figurative language. Students will practice speaking, writing, and theorizing with power and clarity in multiple modalities, including class discussions, creative and analytical writing assignments, group projects, and presentations. Students continue their study of vocabulary, often with words drawn directly from our texts for a context-based understanding of how words make meaning. Possible texts include *Frankenstein* by Mary Shelley, *Never Let Me Go* by Kazuo Ishiguro, *A Raisin in the Sun* by Lorraine Hansberry, *The Great Gatsby* by F. Scott Fitzgerald, *Interpreter of Maladies* by Jhumpa Lahiri, *1984* by George Orwell, *We Have Always Lived in the Castle* by Shirley Jackson, *Go Tell It on the Mountain* by James Baldwin, and *Macbeth* by William Shakespeare.

JUNIOR-SENIOR ENGLISH COURSES

In order to fulfill their four-year requirement in English, Juniors and Seniors must select one of the courses listed below at the time of course sign-up. All courses are yearlong. Students desiring intensive English study may sign up for more than one English course in Junior and/or Senior year.

ENG520 American Literature — In Search of the American Dream: Advanced

requirement-fulfilling major seminar | grade: 11 or 12

What are the myths that animate the American imagination? How are we still negotiating the fallout from the dream of the so-called "New World"? The fervent belief in expansion, individual freedoms, self-determination, and a path to prosperity and growth has captivated generations of Americans. However, American writers and artists of varied perspectives and identities have turned a critical eye to the repercussions of these stories we tell ourselves. American literature explores the tensions underlying these utopian ideals. Old ideas of Manifest Destiny and westward expansion linger with us in our own time as we strike out in search of technological and ecological frontiers. Possible authors: Anthony Veasna So, Ralph Ellison, Toni Morrison, Walt Whitman, Nathaniel Hawthorne, F. Scott Fitzgerald, Louise Erdrich, William Faulkner, Maya Angelou, Richard Wright, Langston Hughes, Maxine Hong-Kingston, Charles Yu, Jesmyn Ward, Joy Harjo, H.T. Tsiang, and more.

ENG523 Modernist and Post-Modernist Literature: Advanced

requirement-fulfilling major seminar | grade: 11 or 12

At the beginning of the 20th century, artists began to push the previously accepted limits of their respective forms. "Modernism" refers to a concrete period of artistic production that took place at the beginning of the 20th century. Oftentimes related to changes in society and technological revolutions, Modernism also refers to a series of innovative and sometimes contradictory aesthetic practices that reflect and interrogate previously "stable" categories such as "the self" "the nation," "civilization," "God,"

and language. We will study the modernist injunction to "Make it new!" through the innovative use of metaphor, altered perspectives, and ruptured language. The modernist project involved deconstructing stable ideas with the (maybe naive, maybe beautiful) goal of creating a new world. By contrast, Postmodernists abandoned this project of reimagining the relationship of art to politics by embracing the deconstruction of categories without any aim of rebuilding them. According to the Postmodernists, once we have departed from previously stable relationships, there can be no turning back, no renewal. Our texts - poems, novels, plays, and works that defy classification - allow us to understand how both the modernist and postmodernist movements relate to specific historical and aesthetic conditions. Possible authors: Langston Hughes, T.S. Eliot, H.D., Gertrude Stein, Jean Toomer, William Faulker, Sherwood Anderson, Robert Musil, Thomas Pynchon, Don DeLillo, and Ishmael Reed.

ENG534 20th Century Authors: Advanced

requirement-fulfilling major seminar | grade: 11 or 12

Artists and writers of the 20th Century saw themselves not merely as transcribers of the cultural conflicts, revolutions, and global migrations of their time, but as active participants in them. They began to understand their work as a way of intervening in historical processes, protesting and refracting the changes they represent in their texts. Literature is a field and proving ground to interrogate our changing world. In this class, we will explore work by three prominent literary figures of the 20th century: James Baldwin, Virginia Woolf, and Gabriel Garcia Márquez. Each writer protests and subverts what they saw as limiting and dangerous conditions. Reading their novels, stories, and essays, we will study how these writers respond to the moral complexity of their century. We will focus on a range of topics: friendship and family, gender, sexuality, the relationship between race, religion, and nation, and also between anguish and hope. Possible texts: *Go Tell It on the Mountain, The Fire Next Time, Love in the Time of Cholera* or *A Hundred Years of Solitude, To the Lighthouse*, and short stories by Virginia Woolf.

ENG532 Literature and the Environment: Advanced

requirement-fulfilling major seminar | grade: 11 or 12

At the center of the climate crisis lies a failure of imagination; new possibilities and alternative futures must be dreamed and imagined before they can be implemented. We all know that scientists and engineers will be integral to building a more adaptive society, but do we neglect what literature and other humanistic approaches have to offer us in the face of these modern problems? Our cultural texts give us all kinds of messages from a young age about how to be in the world and how to relate to other living things. This class will use literature to ask: What are the consequences and stakes of depictions of nature and the environment? How does language invite us to think with categories such as natural vs. unnatural or human vs. animal? How does fiction in particular allow us access to nonhuman perspectives like the global, geological, or cosmic? How do our built environments support, alter, or disrupt our relationships with each other and the world around us? The course will feature a variety of genres and modes, from scientific treatise to utopian writing, pastoral elegy, lyric, and the novel. Possible authors include: William Wordsworth, Thomas Hardy, Zora Neale Hurston, Raymond Williams, Mary Oliver, Toni Morrison, Thomas Pynchon, Jeff VanderMeer, Margaret Atwood, Ursula LeGuin, Octavia Butler, Herman Melville, Virginia Woolf, Barbara Kingsolver, H.G. Wells, Arundhati Roy, Robin Wall Kimmerer, Richard Powers, and John Steinbeck.

NEW ENG512 Post-Colonial Literature: Advanced

requirement-fulfilling major seminar | grade: 11 or 12

The history of the world is the history of people who have had to leave their homes behind and remake themselves in new places. Given the multiplying reasons for global migration, literature provides an urgently-needed tool for understanding and navigating social forces of belonging as they dissolve and re-form around us. This course will explore modern postcolonial literature. Reading novels, short stories, memoirs, plays, and poems from postcolonial Africa, India, Latin America, and the Caribbean, and work produced by a variety of writers in the wake of the dissolution of European empires, we will examine the relationship between nationalism, migration, and literary form. In a rapidly globalizing world, what place do national identities have, if any? How are contemporary writers decolonizing the mind? Do postcolonial texts exist in the Western imagination as "exotic" commodities or as sites of resistance? Or both? What new forms of literature, cultural celebration, and political empowerment have arisen from the project of postcoloniality?

Possible authors: Jhumpa Lahiri, lê thi diem thúy, Claude McKay, Sam Selvon, YiYun Li, Claire Keegan, Valeria Luiselli, Teju Cole, Anna Burns, Zadie Smith, James Joyce, and Min Jin Lee.

NEW ENG514 Literary Journeys: Advanced

requirement-fulfilling major seminar | grade: 11 or 12

Journeys will be the overarching theme of this course. For millennia, human beings have roamed the earth, we have adventured, we have yearned for travel. There is something else that distinguishes us as a species: we are storytellers. We tell stories of our most primal desire to venture far from home. Spanning from the Late Middle Ages to the present, this course brings together works of fiction and poetry that feature journeys. The collection of texts we read aspires to as wide a coverage as possible in space and time. Along the way, we will encounter an array of free spirits and troubled wanderers. We will travel by such diverse forms of transit as boat, train, plane, automobile, and foot; and we will cover long stretches of physical and emotional terrain. The world is shrinking; we are all more connected, and travel is the most direct way to counteract the division and distrust so prevalent today. We will cultivate an understanding of the planet and our fellow inhabitants through the medium of great literature. There's a world out there to explore, and getting lost in it, led by our curiosity, just might lead to a journey of self-discovery that can change us for the better. Possible authors: Dante, Chaucer, Conrad, Morrison, Luiselli, and a variety of poets from diverse traditions. All aboard!

ENG544 Art of Persuasion: Speaking and Writing Well: Advanced

requirement-fulfilling major seminar | grade: 11 or 12

This course spotlights six major works from across rhetorical and literary history: Aristotle's *Rhetoric* (treatise), the poems of Elizabeth Bishop (lyric), *Paradise Lost* (epic), *Persuasion* (comic novel), The *Souls of Black Folk* (essays), and speeches by Abraham Lincoln and Frederick Douglass (oratory). These texts reside at the intersections of knowledge and judgment, poetics and rhetoric, fiction and nonfiction; in some cases, we will discuss readings that involve issues of political or social justice, dissent and reform, which overlap with issues covered in U.S. History. At the same time, students will learn rhetorical strategies and modes of analysis that underpin different kinds of discourse and different fields of knowledge. They will receive instruction each week and participate in "Writing Labs," where they will acquire skills in rhetoric through a sequence of composition exercises in constructing and defending effective arguments, analyzing and applying structure and style, and developing grace and felicity in their discourse. Altogether, students will improve their composition and communication, as well as enhance their ability to form arguments, to shape (and question) their own convictions, and persuade others of them. The goal is an open exploration and candid exchange—listening as well as advocating—that puts forth solid arguments.

ENG533 The Great City in Literature: Advanced

requirement-fulfilling major elective | grade: 11 or 12

Cities draw writers into their clutches—and with good reason! After all, there is so much for a writer to see and experience within densely-populated neighborhoods: scandal, crime, punishment, and love, both thwarted and fulfilled. Our cities can be gateways to reinvention of the self; they can be merciless traps that foreclose on our potential. Our class will read texts set in and inspired by the social fabric of cities. As we travel about the United States and abroad, we will meet our share of ambitious idealists and corrupt

cynics, citizens young and old, wealthy and impoverished. Possible authors, texts, and sites: *NW*, Zadie Smith, London; *Open City*, Teju Cole, New York; *Père Goriot*, Honoré de Balzac, Paris; *Passing*, Nella Larsen, Chicago and New York City; *The Jolly Corner*, Henry James, New York City; *The Picture of Dorian Gray*, Wilde, London; *Tales*, Edgar Allen Poe, Philadelphia; *Such a Fun Age*, Kiley Reid, Philadelphia; *Tomorrow and Tomorrow and Tomorrow*, Gabrielle Zevin, Boston.

MINOR ELECTIVES

ENG710 Short Story Workshop

minor elective | grades: 10, 11, 12

In this course, students will be introduced to advanced elements of storytelling and have the opportunity to explore and apply the principles of fiction writing. Various readings, including short stories and texts about the process of creative writing, will expose them to the many possibilities open to the fiction writer. Students will workshop their pieces, learning the art of giving and receiving constructive feedback, and must be comfortable sharing their work and integrating the input of their peers into their revisions. This workshop will provide students the opportunity to produce a portfolio of polished writing that they can use as a supplement to their college applications as well as to submit to literary competitions, such as the annual Scholastic Writing Competition.

ENG700 Poetry Workshop

minor elective | grades: 10, 11, 12

In Poetry Workshop, we work together to develop a writing practice for ourselves and each other, placing composition and the development of literary voice at the center of our work as we explore the aesthetic, political, and transformational possibilities of language. Students produce new work for each class session. We highlight and celebrate experimentation with poetic form. As we read contemporary poetry and the poetry of previous centuries aloud, we will observe successful elements of composition. Students will master a vocabulary for discussing and analyzing poetry. As we learn about ourselves and each other as readers and writers of poetry, we will construct a portfolio of a year's worth of work, organize several readings/events, and seek out opportunities for growth and exposure to poetry in the Philadelphia area. We will also hold ourselves accountable to GFS as a poetic community, highlighting poetry and fostering poetic connections between disciplines and divisions.

ENG431 Introduction to Journalism

minor elective | grades: 9, 10, 11, 12

In this survey course, students learn the fundamentals of journalism, from how to write a catchy headline and a compelling lead to how to conduct an interview, develop a story angle, and pitch an article. We will cover a variety of formats, including the basic news story, Q&As, profiles and more, and will learn and apply the Associated Press style. Weekly assignments may include reading, research, reporting, writing projects, and peer editing. The goals for this course are for each student to publish at least one piece in the Upper School's news magazine, *Earthquake* (in print or online), learn how to read and analyze the news, and emerge with a new set of editing and writing skills.

NEW ENG433 Journalism: Newsroom

minor elective | grades: 10, 11, 12 | prerequisite: Introduction to Journalism or Narrative Journalism

In Newsroom, students who have taken Introduction to Journalism and/or Narrative Journalism will have an opportunity to further hone their skills by becoming prolific, seasoned reporters. Participants in the class will wear two hats: on the one hand, they are students of journalism who will depthen their knowledge of the craft, gain fluency and experiment in a variety of genres, and cement their knowledge of the AP style; on the other hand, they are reporters for the Upper School news journal, *Earthquake*, who will pitch ideas, conduct interviews, write articles, edit and fact-check the work of their peers, and publish their work to be read by the GFS community. The classroom will function as a newsroom, wherein students hunt for, pitch, workshop, and write pithy, exciting news stories. Potential genres of focus include podcasting, beat reporting, reviews, long-form investigative reporting, op-eds, and satire. Students will conclude the year with an extensive portfolio of journalistic work and a comprehensive toolkit of reporting skills that they can apply to *Earthquake* and their college careers.

ENG455 Reading Marathon: Accelerated

minor elective | grades: 10, 11, 12

This ambitious reading program, scheduled to meet twice in the 8-day cycle, is for students who want more exposure to more books and to do so within a community of readers sharing ideas. We plan to cover about 80-100 pages of reading each week. Students are required to keep up with the pace of readings and contribute meaningfully to discussions and class activities. We will read books from a variety of times and historical contexts, and we will encounter a diverse group of writers, representing many perspectives. The goals of the course are to help students develop and maintain consistent reading habits and increase their reading fluency while deepening their knowledge of texts and authors. Please note that the class is offered credit/no credit, and, while students will not write papers in this course, credit is only given to students who keep up with and demonstrate knowledge of the assigned readings. Possible authors: Isabel Allende, Wilkie Collins, Henry James, Virginia Woolf, Toni Morrison, Thomas Hardy, Emily Brontë, Kazuo Ishiguro, Stendhal, Edgar Allen Poe, Kurt Vonnegut, and more.

ENG990 Peer Writing Advisor Training and Practice

minor elective | grades: 10, 11, 12

Peer Writing Advisors are students trained to work with other students one-on-one on writing assignments. They believe that writing is communicating. Throughout this yearlong minor, topics will include: how to "read" a school culture to offer a relevant service, the politics of teaching grammar, and how to lead a writing workshop to a group. Peer tutoring is a constantly shifting field with a rich history of research and technique. We will read scholarly articles on "peer tutoring," role-play various scenarios, and ask the essential questions of writing instruction: What kind of feedback is worth giving? What is the difference between critique and criticism, editing and correcting? Assessments include committee work, self-assessments, presentations, and publicly available blog entries and writing assignments.

HEALTH EDUCATION

The wellbeing of our bodies, minds, and spirits informs all that lies before us in life. The goal of the Health Education Department is to lead students in understanding that our individual health does not exist in isolation. It is integrated into every aspect of our lives and is greatly impacted by our identity and our community. Our aim is to educate students on the merits of clear communication and the clarification of their values. We also show them how to access credible health information. Health Education courses are comprehensive and developmentally appropriate and cover a range of health topics, including sexuality, mental health, mindfulness, safety, substance use and other life topics. Health education is interdisciplinary by its very nature—we continually collaborate with other departments across the school.

GRADUATION REQUIREMENT NOTE

A full year of the minor course Health Education 10 is required in grade 10. A full year of the minor course Life Issues is required in grade 12 and is offered during the Advisory block.

HEA401 Health Education 10

required minor | grade: 10 | yearlong course

Health Education is a course focused on decision-making and information gathering on the topics of drug education, mental and emotional health, and sexuality. We examine substance abuse both at a societal level and also the individual consequences of choosing to use, including addiction. We explore drug-related issues through various lenses, including current research, statistics, history, media, societal norms, and direct and indirect pressure. For the mental health unit, we partner with the counseling team on how to recognize when someone needs support and how to seek help for yourself or others. Sleep, addiction, depression, anxiety, and disordered eating are also addressed. This work builds to the mindfulness-based stress reduction program, where together we explore and practice different forms of meditative practices to support our wellbeing. We also discuss stress and our stress reactions, how we experience and process the world through our body, thoughts, and emotions, and ways to cultivate gratitude in our everyday lives guided by Quaker Values. Sexuality is presented in a holistic comprehensive manner, and the topics include sexual identity, gender and society, reproductive health, intimacy and building and maintaining healthy relationships. All topics in the course are explored through information gathering, analysis of media, personal reflection, and discussion.

HEA600 Life Issues

required minor | grade: 12 | yearlong course

The objective of the Life Issues course is to provide students with the information and tools they need to navigate their senior year and the transition into the next phase of their life, including college. The course is coordinated with Advisory meetings throughout the year. Our time together focuses on a list of topics that the students help generate, including mental health, stress management, healthy relationships, consent, safer sex practices, substance use, living with a roommate, personal finance and a panel discussion on life in college. We recognize that many parents and caregivers are also reflecting on how to prepare students for their lives after GFS and are happy to offer resources to support these conversations.

HEA530 Deconstructing Food: Nutrition, Food Science, and Body Diversity

minor elective | grades: 9, 10, 11, 12

In this course, we will be looking at food and what it means in our society. As a class, we will build a foundation for the practical application of the scientific understanding of nutrition. Once we understand the science the class can begin investigating food and nutrition history, ethical and sustainability issues in the food and nutrition industries, as well as emerging food production trends and technologies. Throughout the class, we will examine how food and nutrition are linked to body diversity, health, and discrimination. Students should end the year with a solid understanding of the science around nutrition as well as the ability to look at food and food culture with a critical eye. During class we will use passages from *What We Don't Talk About When We Talk About Fat*, *The Body Is Not An Apology*, and other text.

HISTORY

In our history classrooms, students and faculty explore and challenge ideas together, building on the foundational Quaker belief in continuing revelation. Examining differences and empathizing with multiple perspectives are central to this process. We endeavor to help students make meaning out of a variety of sources through thoughtful questioning, close reading, analysis, and research. Students and faculty practice communicating ideas with clear, direct expression supported by evidence. Creating historical consciousness — the consciousness that people in the past had different values, assumptions, and worldviews from people in the present — is foundational to our work together. Our hope is to gain a deeper sense of our own identities and those of others, develop moral understanding, and foster engaged citizenship that will contribute positively to the world.

GRADUATION REQUIREMENT NOTE

Students must complete 3 years of major coursework in History. Required courses are Modern World History 9, African American History 10, and United States History: Advanced 11 or 12, which is a Pennsylvania State requirement.

HIS312 Modern World History

required major | grade: 9

This course has been designed to help students develop a strong historical understanding of the cultural, social, and geographical forces that have created the world around them since the 15th century. How have different eras of globalization affected the way we live our lives? How do we make sense of the crises and catastrophes of recent centuries? Where do we find moments of justice and hope in modern history and the contemporary world? Themes include economic exchange, religion, political systems, and revolutions. Topics include the Indian Ocean World and Columbian Exchange; the Transatlantic Slave Trade and Age of Revolutions; colonialism and empire; WWI and the Armenian Genocide; WWII and the Holocaust; totalitarianism, decolonization, and the Cold War. As we examine the making of the modern world, the course focuses heavily on helping students build and hone essential academic skills including efficient and organized reading, annotation, and research habits; clear and persuasive analytical writing; and collaboration with peers.

HIS500 African American History

required major | grade: 10

This course takes a comprehensive approach to studying the African American experience in the U.S. through explorations of African and African Diasporic histories and the contributions of Black people to the origins and development of the nation and the city of Philadelphia. Students will critically examine the traditional national narrative as they study the centrality of African American history to American history and the complex ways people come to know and live race in U.S. society. Historical readings and original documents emphasize African American voices and agency, with attention to not only race but also gender, class, sexuality, and other identities. The course also introduces a set of more sophisticated historical thinking and writing skills, including reading the work of leading historians, interpreting primary texts, and conducting independent research. Students communicate their understanding in essays, tests, projects, and presentations.

HIS610 United States History: Advanced

required major | grades: 11, 12

United States History is a survey course that examines the origins and development of the U.S. as a cultural, political, and economic entity from the pre-colonial history of North American Indigenous nations to the recent past. The course emphasizes the interpretive work of history through the analysis of primary sources as well as historiographical trends. Secondary sources include recent books by historians, selected scholarly articles, and documentary films. Students are required to express their historical understanding through a combination of intensive classwork, papers, tests, debates, and presentations.

HISTORY ELECTIVES

Students wishing to enroll in electives must select both a fall and a spring course.

FALL SEMESTER-LONG ELECTIVES

HIS410 History of the Law: Advanced

major elective | grades: 11, 12

In this semester-long elective, students will explore key themes in the history of the law, including the sources of law and how the law evolves, through topics such as federal Indian law and policy, students' rights to free speech, the 14th Amendment and citizenship, civil rights, voting rights, mass incarceration and the school-to-prison pipeline. We will examine key legal figures like Thurgood Marshall and Constance Baker Motley, Pauli Murray, and Ruth Bader Ginsburg to understand how they transformed the field through their advocacy. We will also study how historians have approached researching and writing about the law and society. Readings will draw from Supreme Court opinions, primary sources, and the work of historians. Students in this discussion based seminar will also research topics in history of the law and write short analyses of them, participate in group projects, and give presentations.

NEW HIS421 Women's History: Case Studies from the Ancient World to the Present: Advanced

major elective | grades: 11, 12

This course will dive deeply into learning about women and their experiences across continents, cultures, and time, including a significant focus on women in the ancient world. Whenever possible we will use source material written and created by women themselves to learn about their experiences. We'll also consider some of the unique challenges of uncovering women's stories when the practice of history has been historically male-dominated. Case studies will include covering specific women and groups, like Enheduanna, Hypatia of Alexandria, and Mahsa Amini, as well as larger events that had a tremendous effect on women and their experiences, such as colonization, the rise of capitalism, and political revolutions.

NEW HIS453 Medieval Europe: Advanced

major elective | grades: 11, 12

From moat-surrounded castles to King Arthur, Medieval Europe has long captured the public imagination. In this seminar-style course, students will look beyond these myths to explore the rich history of the era, roughly from the fall of the Roman Empire to the early modern period. Key areas of study will include the Crusades; the entwined worlds of Christians, Jews, and Muslims; the rise of monarchies and the papacy; the culture of chivalry; and the Black Death and other plagues. A particular emphasis will be placed on the social history of the period—on the lives and cultures of ordinary people. While geographically focused on Europe, this course will also explore cross-cultural connections, particularly with the Islamic world. Students should expect to closely read primary and secondary sources; engage in class discussions; and complete a semester-end project on a topic of their choosing

HIS484 History and Philosophy of Nonviolence: Advanced

major elective | grades: 11, 12

Can humans end war and the suffering that comes with it? Are there viable alternatives to violence as a means to solve social problems? Is it at all realistic—and not merely naive—to give peace a chance,

as John Lennon and Yoko Ono sang? This seminar on the history and philosophy of nonviolence introduces students to political activists, faith leaders, philosophers, and ordinary citizens who over the past five-thousand years—from ancient Mesopotamia and East Asia to modern India and Russia —said "Yes!" to such questions, creating ideas and campaigns that changed the world. Through scriptures, speeches, essays, films, and other primary sources, students will explore the long history of the idea of nonviolence, the peacemaking tradition in world religions (including Quakerism), and the nonviolent movements and revolutionaries that have shaped our recent past.

HIS431 United States Government & Civics: Advanced

major elective | grades: 11, 12

In our modern twenty-four-hour news cycle, we are continuously inundated with news about our government: The Supreme Court is considering a case that could grant new powers to the president or change abortion laws, the president is unilaterally changing immigration law or environmental policy, Congress is gridlocked and cannot seem to pass anything. But what does it all mean? This advanced government class will teach you the most important facts about how our government runs and will encourage you to think deeply about how it should run. Topics might include how the federal courts should interpret the Constitution, why the president is so powerful, the extent to which democracy is beneficial to society, and possible reforms to improve government functioning.

NEW HIS452 Philadelphia History: From Cheesesteaks to Cityscapes: Advanced

major elective | grades: 11, 12

Philadelphia is both a physical location and a fertile idea. William Penn called it a "holy experiment," and the United Nations has deemed it America's first World Heritage City. Yet, most Philadelphians, as well as much of the country, view the city through a very different lens, one smeared with the residue of a cheesesteak, jostled by Rocky's left hook, and drowned out by the incessant booing of an Eagles fan. In this semester-long course, we'll step beyond those common tropes. Instead, we'll explore Philadelphia's biblical roots, its founding utopian ideals, and, of course, its role in the Founding of the United States. But, importantly, we'll also examine Philadelphia in a more granular manner, too. Topics will include the history of various neighborhoods, immigration, labor movements, deindustrialization, white flight, urban planning, education, religion, and, of course, popular culture, each of which helps make the City of Brotherly Love an American city unlike any other.

SPRING SEMESTER-LONG ELECTIVES

HIS412 History of American Popular Culture: Advanced

major elective | grades: 11, 12

In this semester-long elective, students will explore key themes in the history of popular culture — the study of how people in different time periods created meaning about the world around them and how those ideas spread and were contested. We will consider topics including modes of mass entertainment and visual media (like the rise of Hollywood film and network television), theories of "high" versus "low" culture, the growth of national advertising and consumerism, popular music (such as ragtime and rock 'n roll), youth culture and social media. Readings will draw from a wide range of primary sources including music and film, as well as historians and theorists of culture. Students in this discussion-based seminar will also research different aspects of the history of popular culture based on their own interests, write short papers, and give presentations.

HIS489 History of Utopia: Advanced

major elective | grades: 11, 12

"A map of the world that does not include Utopia is not worth even glancing at," quipped the playwright Oscar Wilde. This discussion-based seminar examines the long, storied, and global history of "utopia"—both as an imagined idea of an ideal society and as a quest to actually create it, often in the face of resistance and against great odds. What has been the purpose of utopian thought over the past several millennia, across culture and continents? What did ancient and medieval visions of utopia have in common, and where did they diverge? Which attempts to create the perfect community achieved success, and which failed? What

was their impact on the larger society? To explore these questions, students will dive into diverse primary sources, including sacred texts such as the Old and New Testaments and the *Dao De Jing*, poetry by Ovid and Tao Yuanming, scholarly articles, and blueprints for a range of intentional communities, from 19th century religious utopias through 1970s radical communes. Students can expect weekly writing and a project of their own design.

NEW HIS454 The Global Cold War: Advanced

major elective | grades: 11, 12

In this semester-long course, students will explore the economic, social, and cultural developments of the Cold War, from the wake of World War II to the dissolution of the Soviet Union. By taking a global approach, this course aims to reframe the Cold War as more than a battle of superpowers. This course will cover a number of key events and themes, including but not limited to the "hot" wars in Vietnam and Korea, the rise of Mao Zedong and the People's Republic of China, decolonization movements in Africa and Latin America, and the global uprisings of 1968. Students should expect a discussion-based course focused on primary texts, including excerpts from Che Guevara's memoir The Motorcycle Diaries, speeches by political figures Patrice Lumumba and Salvador Allende, and the poetry of Soviet dissidents. Visual sources, including era-documentaries and narrative film, will also guide our study. At the end of the semester, studentswill undertake a project on a topic of their own choosing.

HIS462 Modern U.S. Political Ideologies and Issues: Advanced

major elective | grades: 11, 12

We live in a culture that encourages us to demonize those who hold different political views than we do. In fact, an increasing number of Americans view members of the opposing political party not as just wrong but as morally disgusting and evil. This class seeks to overcome that divide by discovering how kind, thoughtful people can come to drastically different conclusions about what is best for the country. After spending half of the semester seeking to uncover the core values of conservatives and liberals, the course will turn to analyses of modern issues that divide the American electorate, such as immigration, healthcare, and inequality. The final project will require groups of students to research a modern issue of their choosing, find compelling arguments from the political left and right about how to solve that issue, and lead the class through a careful analysis of the arguments.

NEW HIS455 History of Genocide: Advanced

major elective | grades: 11, 12

This semester-long course will explore genocide as a historical phenomenon, as a distinct legal concept, and as a tragic influence on the course of human history. While not legally defined until the late 1940s, genocide is a crime that can be traced in both directions over the course of the human timeline. As such, our course of study will trace the historic roots of the ideology of ethnic cleansing to modern examples of genocide, both physical and cultural. We will work to understand the various elements that constitute genocide, as well as the psychological and sociological influences that allow for such horrific events to be carried out. We will also seek to understand resistance plans, individual experiences, and the perspectives of descendants of genocide survivors.

NEW HIS456 History of Youth Activism: Advanced

major elective | grades: 11, 12

This course will focus on youth-led movements for social change in the twentieth century, exploring historical case studies from across the globe as well as more recent, ongoing activism. We will consider the role that time and place played in the causes, strategies, successes, and failings of each movement, and why young people led the way. We will also examine the legacy and memory of these events in the present day. Topics may include the Soweto Youth Uprising and Anti-Apartheid movement in South Africa, the Tiananmen Square protests and democracy reform in China, the East LA Walkouts and Chicano Rights Movement, the Arab Spring protests in North Africa and the Middle East, and recent civil unrest in Iran. We will also consider contemporary activists such as Malala Yousafzai and Greta Thunberg.

MULTIDISCIPLINARY OFFERINGS

JUNIOR AND SENIOR SEMINARS

SEM430 Mythology and Monstrosity

major elective | grades: 11, 12

Why are myths over 3,000 years old still so alive today? Myths explore what it means to be humans, both as individuals and in a collective society. Monsters lurk not only outside but lie even more dangerous within if we lose our sense of humanity. How true are myths and what is their relationship to facts? As Madeleine L'Engle once said, "Truth is what is true, and it's not necessarily factual." This course will delve into such questions. The central focus of the class will be on ancient Greece, but we will also examine mythic traditions from other parts of the world. We will explore ancient myths and their influence down through the ages to modern times. We will examine them not just through the lens of narrative, but also anthropology, art, history, psychology, and drama (theater and film), and include ancient works such as Homer's epics, the plays of Sophocles, Euripides, and stories of Ovid among others as well as modern pieces, such as Bruegel and Bearden's visual artworks, poems by Auden and William Carlos Williams, and a novel by Shamsie.

NEW SEM450 Innovation & Design Incubator

major elective | grades: 11, 12

The Innovation & Design Incubator is an elective designed for students ready to move beyond theory and into creation. Across 85 class meetings, students will engage in the full product development process from ideation and market research to 3D prototyping and packaging design. The course operates as a hands-on incubator, where students conceive, design, and refine innovative products or solutions to real-world problems.

Students will learn to balance creativity with feasibility, developing not only the technical skills to bring ideas to life but also the entrepreneurial mindset needed to test, iterate, and launch. By the end of the year, each student (or small team) will have developed a prototype, created a cohesive brand identity, and designed packaging that communicates their product's value to potential consumers or investors.

ECONOMICS AND FINANCE

SEM441 Principles of Economics

major elective | grades: 11, 12

This introduction to economics will focus on foundational ideas from both microeconomics and macroeconomics. Our range of exploration will provide students with the opportunity to learn the fundamental conceptual vocabulary of economics and, through case studies and simulations, to explore those core concepts that have, over time, profoundly influenced thinking about economics. Topics to be explored: ethics as it relates to business, classical economics, supply and demand, scarcity, choice, and opportunity cost, market structures, income distribution, monetary policy and how it connects to unemployment and inflation, economic growth and bubbles, the peace testimony as it relates to economics and international economic relations.

NEW SEM452 Financial Literacy

required minor | grade: 12

Students will explore the foundations of personal financial management through real-world simulations, case studies, and decision-making challenges. Through guided exploration of borrowing, credit, and debt, students will weigh the costs and benefits of financial decisions and learn how to navigate banking and digital financial services to access and transfer money safely. The course also emphasizes risk management strategies to protect against potential loss and explores how saving and investing habits shape long-term financial independence.

EQUITY AND INCLUSION

SEM950 Social Justice Lab

minor elective | grades: 9, 10, 11, 12

> *"Injustice anywhere is a threat to justice everywhere." —Dr. Martin Luther King*

Are you interested in discussing social justice issues? If so, join us for investigational conversation around the issues affecting our society and impacting our community. Learn to imagine, design, and develop plausible solutions to the most pressing problems facing U.S. society and the world in the 21st-century. Using the methodology of Intergroup Dialogue, this course offers students a supportive environment to engage in "real talk" about issues of race, class, gender, sexual orientation, social identity, and power. Students in this class lean into the work of building a learning community comprised of people of different backgrounds and social identities. Through the process, students learn to have difficult conversations and work across differences as they become social justice leaders. Students will research, design and facilitate a class on a topic of interest.

MATHEMATICS

The math program strives to equip each student with the skills to think logically and analytically and to articulate strategies for solving problems, particularly those related to math and science. We seek to develop a student's understanding of algebra and other mathematical concepts throughout the curriculum. Topics in each subject are explored visually, symbolically, and verbally. Scientific and graphing calculators and various software applications are used as instruments for exploration and deeper understanding. Our aim is to encourage students to become confident in their math abilities and to recognize math as a powerful subject and tool. The standard mathematics progression is rigorous, leading to advanced courses in calculus and statistics. In addition, accelerated courses are offered at each grade level, starting in eighth grade. These courses move at a faster pace and explore topics in greater depth and breadth.

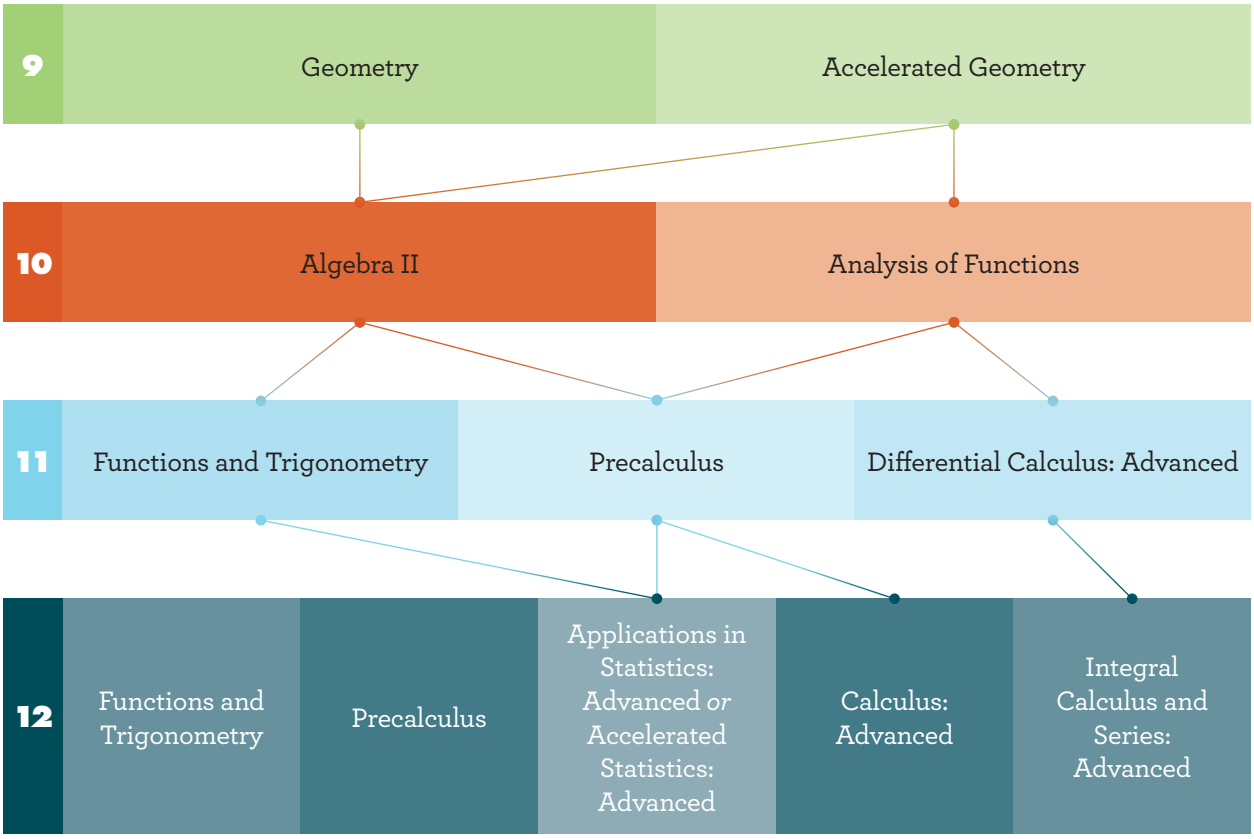
GRADUATION REQUIREMENT NOTE

Students must complete three years of major coursework to graduate. Because students progress through the math program differently, there is a range of courses that can be elected to fulfill these three years of required coursework. Please attend closely to information about prerequisites and departmental approval.

- Placement in accelerated courses is based on student performance, teacher recommendation, and the approval of the math department.
- Students in an accelerated course who wish to continue on to the next accelerated math class must have the approval of the math department.
- Students who wish to move from a standard course to an accelerated course must have the approval of the math department and earn an A in the current standard course.
- A student who moves out of an accelerated course, or who drops math before the requirement is met, must have the approval of the math department.
- The courses Accelerated Geometry and Analysis of Functions can lead to the equivalent of two years of college-level Differential and Integral Calculus. When enrolling in Differential Calculus, students must commit to taking the full two-year sequence: typically Differential Calculus in eleventh grade and Integral Calculus and Series in twelfth grade.

MATHEMATICS COURSE OFFERINGS 2025–26

Lines indicate typical course progression, but students may deviate from this in some instances. Calculus or Integral Calculus students may concurrently add a Statistics course in twelfth grade with departmental approval.



MTH420 Geometry

can fulfill the required major for grade 9 | prerequisite: Algebra I or Accelerated Algebra I

This course in Euclidean geometry includes the study of geometric figures, shapes, angles, parallel lines, similarity and congruence, circles, area and volume, coordinate geometry, and introductions to analytic geometry, and trigonometry. The deductive thought process is emphasized throughout this course, and algebraic skills are reviewed and reinforced. Through the process of writing two-column proofs, students construct logical arguments and develop valid conclusions. Students will explore and visualize concepts using dynamic geometric software. The goal of this course is for students to think geometrically and to see geometry in the world around them.

MTH430 Accelerated Geometry

can fulfill the required major for grade 9 | prerequisite: Accelerated Algebra I; departmental approval required

This course takes a strong analytical approach to the study of Euclidean geometry. Progression through this course is broader and more rigorous than MTH420 Geometry. Some topics of study include geometric figures, shapes, angles, parallel lines, similarity and congruence, circles, area and volume, coordinate geometry, and trigonometry. Proofs are emphasized throughout the year to develop strong deductive reasoning. Students will explore and visualize concepts using dynamic geometric software. Algebra will be used frequently in the development and solving of problems. Through the process of making conjectures and testing hypotheses, students will develop a deeper appreciation of thinking geometrically, as they defend their thought processes.

MTH520 Algebra II

can fulfill the required major for grade 10 | prerequisite: Geometry

Building from the topics covered in Algebra I, this course guides students through an exploration of linear and nonlinear functions. Students gain fluency in translating between representations of patterns as equations, tables, and graphs. Students also examine function behavior, particularly by exploring transformations and function inverses. Throughout the course, real-world applications and problem-solving activities will provide students with the opportunity to demonstrate a deeper understanding of the material.

MTH530 Analysis of Functions

can fulfill the required major for grade 10 | prerequisite: Accelerated Geometry; departmental approval required

This accelerated-level course moves at a brisk pace while covering a robust selection of topics from Algebra II and Precalculus. The course focuses on algebraic manipulation of expressions, equations, and inequalities. Students will make deep connections between functions and their graphs and explore graphs of non-functions not encountered in previous courses. Rich problem-solving and proof-writing opportunities are integrated into each unit, providing students with a solid base to enter the two-year Differential and Integral Calculus sequence. Students are encouraged to engage with each other to develop understanding through class room discourse and to persevere through complex, abstract topics.

MTH610 Functions and Trigonometry

can fulfill the required major for grade 11 | prerequisite: Algebra II; Functions and Trigonometry can be an alternative to Precalculus.

This course expands on topics from Algebra II and focuses on enhancing students' algebra and problem-solving skills. Topics include exponential and logarithmic functions, polynomial and rational functions, and trigonometric functions, sequences, and series. This course is for students who have completed Algebra II and wish to strengthen and broaden their mathematical background through exploration of Precalculus topics.

MTH620 Precalculus

can fulfill the required major for grade 11 | prerequisite: Algebra II; departmental approval required

Precalculus builds on material from Algebra II and provides a necessary foundation for further mathematical studies. Polynomial, rational, exponential, and logarithmic functions are explored graphically and algebraically. Additionally, Precalculus includes a study of trigonometry from analytical and graphical perspectives, bringing together concepts learned in Geometry and Algebra II. Students planning on taking Calculus must take Precalculus.

MTH630 Differential Calculus: Advanced

can fulfill the required major for grade 11 | prerequisite: Analysis of Functions; departmental approval required

Differential Calculus delves deeply into the topics of limits, derivatives, and derivative applications. This is the first year of our accelerated two-year study of calculus. It covers material that is typically found in the first course of college calculus. In addition to the foundational skills of calculus, the course covers selected advanced precalculus topics. Students in Differential Calculus can expect to explore and discover differentiation rules and their underlying reasoning through labs, proofs, and technology. This course aims to build strong mathematical thinkers and communicators and an emphasis is placed on proper notation and the formation of a strong mathematical argument. Students who take this course are expected to complete the calculus sequence by taking Integral Calculus the following year.

MTH720 Calculus: Advanced

major elective | grade: 12 | prerequisite: Precalculus; departmental approval required

Calculus begins with a review of essential material from previous courses, which leads to the central calculus concept of a limit, the underlying foundation of the derivative, and the integral. In addition to exploring these big ideas, the course delves into the procedures involved in differentiating and integrating a variety of functions and then explores applications of these calculus techniques. This course covers the skills and concepts of a first-year college-level course.

MTH730 Integral Calculus and Series: Advanced

major elective | grade: 12 | prerequisite: Differential Calculus; departmental approval required

Integral Calculus is a thorough investigation of the integral and its role in the study of calculus. This is the second year of our accelerated two-year study of calculus. It covers material that is typically found in the second course of college calculus. The integral is built upon the ideas of limits, summation, and the infinite; that is where the course starts. The main content consists of techniques of integration, applications of the integral, and infinite series. The work is rich, algebraically intense, and detailed. Students are guided to craft solid and clear mathematical arguments, and they will see many previously learned techniques surface throughout this work.

MTH710 Applications in Statistics: Advanced

major elective | grade: 12 | prerequisite: Algebra II or Analysis of Functions

If mathematics is the language that describes the natural world, statistics is the language of society. This yearlong, project-based course emphasizes statistical literacy through exposure to the foundational concepts of statistics while also exploring the relevance and role of modern-day statistics. Topics included are displaying data numerically and visually in one and two quantitative variables, designing experiments and surveys, understanding basic probability, and introductory statistical inference. The main goal of the course will be to use these tools and techniques to represent and interpret data in meaningful ways while also developing the tools to critically evaluate verbal and written claims made from data by individuals and organizations in our society. In addition, students will be required to read at least one nonfiction work reflecting current scholarship in statistics.

MTH810 Accelerated Statistics: Advanced

major elective | grade: 11, 12 | prerequisite: Analysis of Functions or Precalculus; departmental approval required

This accelerated course begins with the same foundational topics and goals of Applications in Statistics. However, students in this class move through these concepts at a quicker pace, exploring more challenging problems and examples with a stronger emphasis on the formal mathematical derivations of procedures as they are developed. Students will cover the full range of inference procedures from a first-semester college statistics course, including one and two means and proportions, slope, and chi-square. It will then move on to more advanced topics, including curve straightening, statistical programming, multiple regression, and nonparametric tests.

MTH832 Topics in Advanced Mathematics I

minor elective | grades: 11, 12 | corequisite: Precalculus or Differential Calculus; departmental approval required

Study in advanced mathematics is available to students who want to explore advanced topics outside of our typical course progression. Based on the number of qualified students, as well as their interests and background, course offerings and course formats may vary. Previous offerings have included Graph Theory, Political Geometry and Number Theory. Interested students should consult with the department head.

MTH834 Topics in Advanced Mathematics II

major elective | grade: 12 | prerequisite: Integral Calculus; departmental approval required

Study in advanced mathematics is available to students who have completed our typical course offerings. Based on the number of qualified students, as well as their interests and background, course offerings and course formats may vary. Previous offerings have included Discrete Math, Linear Algebra and Multivariable Calculus. Students have studied advanced topics in mathematics courses offered by GFS faculty or outside institutions. Interested students should consult with the department head about available course offerings.

MODERN LANGUAGES

The goal of the Modern Language Department is to equip students with the skills to achieve fluency in a new language. Graduates of the program will approach the world with a sustained curiosity, greater empathy, and openness to new people, places, and cultures. Students will develop listening, speaking, reading, and writing skills in the target language as well as cultural competencies. The department offers many diverse opportunities for student travel in line with our departmental goals.

GRADUATION REQUIREMENT NOTE

Students must complete a Level III modern or classical language to graduate. A second language, not fulfilling the graduation requirement, must be completed through Level II before it may be dropped.

ADDITIONAL NOTE

Grade levels listed for courses are typical. Students wishing to take a course out-of-grade should see the department head.

MOD310 French I

major elective | grades: 9, 10, 11

This course sets the foundation for the acquisition of a modern language. Students will develop the linguistic skills necessary to learn a language in an immersion setting through the use of targeted vocabulary and expressions. The emphasis is on building communication skills through dynamic and interactive activities focused on the four skills (listening, speaking, reading, and writing) while developing cultural competencies.

MOD320 French II

major elective | grades: 9, 10, 11, 12 | prerequisite: completion of the two-year course in Middle School (French Ia and Ib) or French I

A dynamic classroom environment conducted uniquely in French provides ample opportunity to practice new language skills grounded in real-life scenarios. Several creative projects require Internet exploration on French-language sites, including a dedicated unit on the Francophone world. Students also read leveled French readers, designed to improve all language skills. Basic grammatical structures and thematic vocabulary are acquired through the use of Bien Dit!, the second textbook in a series. Continued exposure to French music, poetry, and rhymes provides students with the opportunity to improve their pronunciation and increase their aural comprehension. Students engage in spontaneous conversations and develop more extensive reading and writing skills by working with authentic and diverse materials.

MOD410 French III

major elective | grades: 10, 11, 12 | prerequisite: French II

Students complete a thorough grounding of grammatical concepts and pertinent vocabulary supported by the textbook Adomania, news articles, and authentic texts such as poetry and fables. Spontaneous conversation and oral presentations are used to improve proficiency and to gain confidence in oral expression. Aural comprehension is enhanced by exposure to podcasts, music, and French voices from around the world. Language skills are also reinforced through analytical and creative writing. Throughout the course of the year, Francophone culture is investigated through videos, Internet articles, and current events.

MOD512 French IV

major elective | grades: 11, 12 | prerequisite: French III | departmental approval required

This course stresses oral and writing skills and grammar is thoroughly reviewed. The students learn how to improve on oral expression by studying specialized vocabulary in specific situations. Oral proficiency is further emphasized through debates on various topics, according to the interest of the students and through various real-life situations that the students must act out spontaneously. The students write their own creative stories and explore the rich literature of the Francophone world. Texts will be carefully curated and will be a mix of authentic resources and documents designed to facilitate second language acquisition.

MOD510 French IV: Advanced

major elective | grades: 11, 12 | prerequisite: French III | departmental approval required

This advanced level class provides a systematic review of finer communication skills, written and oral, as well as providing an introduction to literary analysis. A grammar textbook will provide an intense review of the language, while the International Baccalaureate coursebook will guide students through a variety of contemporary topics. Selected authors will represent the Francophone world with a concentration in the 19th, 20th, and 21st centuries through various genres, such as poetry, short story, novel, film, Internet articles, and a comic book. Students will demonstrate their proficiency through various assessments: quizzes, tests, oral presentations, essays, and group projects.

MOD612 French V

major elective | grades: 11, 12 | prerequisite: French IV

This course is designed to improve students' mastery of grammar, reading comprehension, and oral fluency through targeted grammar instruction, short readings, discussion, dramatizations, as well as creative and analytical reading and writing. Students will further explore the people, places, culture, and history of the Francophone world. The curriculum may include units on identity, immigration, and folklore. Additional readings may include short stories, poetry, essays, and periodical literature. Students will demonstrate their proficiency through various assessments: tests, quizzes, oral presentations, essays, and collaborative group projects.

MOD610 French V: Advanced

major elective | grades: 11, 12 | prerequisite: French IV | departmental approval required

This advanced-level French course is designed to further strengthen the students' expressive language skills, cultural competencies, and creative and analytical abilities in the target language. Finer points of grammar and stylistics are reviewed and enriched through the study of Francophone literature, art, cinema, news, and magazine articles. Literary pieces may include readings of Camus, Sartre, Colette, Baudelaire, Schmitt, and contemporary short story authors. Formal writing assignments, oral presentations, and extemporaneous interactive discussions are required.

MOD810 Mandarin I

major elective | grades: 9, 10, 11

Students are introduced to the speaking and writing of Mandarin within a thematic context. Vocabulary is introduced in authentic encounters, including greetings, family, sports, music, and school life, through authentic videos, websites, music, and readings. Additionally, with the support of the textbook and workbook, students will be given a solid foundation in reading, writing, listening, and speaking. Assessments of student learning will be based on oral and written mastery, with an emphasis on interpersonal and presentational skills.

MOD820 Mandarin II

major elective | grades: 9, 10, 11, 12 | prerequisite: completion of the two-year course in Middle School (Mandarin Ia and Ib) or Mandarin I

Students will work towards the mastery of speaking and writing Mandarin within a broader context. Basic grammatical structures and thematic vocabulary are acquired through the use of Go Far with Chinese, a newly released textbook series. Continued exposure to Chinese music and rhymes provides students with the opportunity to improve their pronunciation and increase their aural comprehension. Students engage in spontaneous conversations and develop more extensive reading and writing skills by working with authentic and diverse materials. Assessments of student learning will be based on oral and written mastery, with an emphasis on spontaneous production.

MOD825 Mandarin III

major elective | grades: 9, 10, 11, 12 | prerequisite: Mandarin II

Students will work towards mastery of speaking and writing Mandarin. Within authentic contexts, students will work on further developing their vocabulary as well as their ability to converse fluently. Readings of increasing complexity from contemporary newspapers will help students to develop their language skills and cultural awareness. In this course, students will continue to strengthen their reading, writing, speaking, and aural comprehension of Mandarin. In this beginner-intermediate level course, students will do oral presentations on contemporary and cultural topics. Assessments will be based on oral and written mastery, with an emphasis on spontaneous production.

MOD840 Mandarin IV: Advanced

major elective | grades 9, 10, 11, 12 | prerequisite: Mandarin III or departmental approval

In Mandarin IV, students will strengthen their command of grammar while expanding the depth and sophistication of their conversational fluency and writing skills. Authentic readings, drawing from current events, literature, and Pop culture, will support students in navigating linguistic nuance, deepening cultural awareness, and understanding diverse perspectives. Students will engage in presentations, discussions, and negotiation of real-life tasks and socially relevant topics. Assessments will focus on both oral and written mastery, with a strong emphasis on spontaneous language production.

MOD850 Mandarin V: Advanced

major elective | grades 9, 10, 11, 12 | prerequisite: Mandarin IV or departmental approval

Mandarin V is an advanced course designed to prepare students for life beyond high school. Students will explore topics such as selecting colleges and majors, looking for internships, and adapting to new environments. They will take a closer look at the modern cities of Shanghai and Taipei, examining what makes a place international by exploring food, culture, iconic landmarks, environmental protection efforts, emerging industries, and job opportunities. Students will engage with authentic materials, including vlogs, news articles, and posts online, to strengthen their speaking, listening, and overall communication skills. By the end of the course, students will be equipped with the linguistic and cultural tools needed to navigate real-world situations in Mandarin.

MOD710 Spanish I

major elective | grades: 9, 10, 11

This course sets the foundation for the acquisition of a modern language. Students will develop the linguistic skills necessary to learn a language in an immersion setting through the use of targeted vocabulary and expressions. The emphasis is on building communication skills through dynamic and interactive activities focused on the four skills (listening, speaking, reading, and writing), while developing cultural competencies.

MOD720 Spanish II

major elective | grades: 9, 10, 11, 12 | prerequisite: completion of the two-year course in Middle School (Ia and Ib) or the yearlong Spanish I course

This course provides a continuation of the goals of beginning Spanish at a more advanced level. The use of authentic materials such as film, articles, short stories, and music, in addition to leveled readers, will enhance cultural awareness while developing reading, writing, and oral comprehension skills. Students are expected to speak exclusively in the target language and will begin to develop increased spontaneous speaking skills focusing on real-life scenarios.

MOD730 Spanish III

major elective | grades: 10, 11, 12 | prerequisite: Spanish II

Students complete a thorough grounding of basic grammatical concepts and increasingly sophisticated vocabulary as presented thematically in short stories and other authentic materials. Spontaneous conversation and oral presentations are used to improve proficiency and to gain confidence in oral expression. Aural comprehension is enhanced through exposure to podcasts, music, and Spanish voices from around the world. Language skills are also reinforced through analytical and creative writing. Throughout the course of the year, Spanish and Latin American culture is explored through videos, internet articles, and current events.

MOD742 Spanish IV

major elective | grades: 10, 11, 12 | prerequisite: Spanish III

This course stresses oral and writing skills and grammar is thoroughly reviewed. The students learn how to improve on oral expression by studying specialized vocabulary in specific situations. Oral proficiency is further emphasized through conversations and debates on various topics, according to the interest of the students and through various real-life situations that the students must act out spontaneously. The students engage in creative and analytical writing and explore the rich literature and culture of the Spanish-speaking world. Texts will be carefully curated and will be a mix of authentic resources and documents designed to facilitate second language acquisition.

MOD740 Spanish IV: Advanced

major elective | grades: 10, 11, 12 | prerequisite: Spanish III, departmental approval required

This course is designed to improve students' mastery of grammar, reading comprehension, and oral fluency through short readings, discussion, dramatizations, as well as creative and analytical reading and writing. The curriculum will include units on identity, war and propaganda, and folklore. Additional readings may include short stories, Spanish Theatre, poetry, essays, and periodical literature. Authors may include Horacio Quiroga, Federico García Lorca, Julia Alvarez, and Carlos Fuentes. Students will demonstrate their proficiency through various assessments: tests, quizzes, oral presentations, essays, and collaborative group projects.

MOD752 Spanish V

major elective | grades: 11, 12 | prerequisite: Spanish IV

This course is designed to improve students' mastery of grammar, reading comprehension, and oral fluency through targeted grammar instruction, short readings, discussion, dramatizations, as well as creative and analytical reading and writing. Students will further explore the people, places, culture, and history of Latin America and its relationship to Spain. The curriculum may include units on identity, immigration, and folklore. Additional readings may include short stories, Spanish Theatre, a Latin American novel, poetry, essays, and periodical literature. Students will demonstrate their proficiency through various assessments: tests, quizzes, oral presentations, essays, and collaborative group projects.

MOD750 Spanish V: Advanced

major elective | grades: 11, 12 | prerequisite: Spanish IV | departmental approval required

This advanced-level course will focus on increasing both students' language skills and their analytical abilities through the study of a novel, short stories, poetry, art, film, and online resources. Students will further explore the people, places, culture, and history of Latin America and its relationship to Spain. Authors may include Gabriel García Márquez, Isabel Allende, Sor Juana Inés de la Cruz, and Antonio Skármeta. Students will explore the Spanish Conquest of Latin America, 20th-century Latin American literature, dictatorships in the Southern Cone, and Latinidad in the United States today while improving writing and speaking skills through guided discussions and directed grammatical study.

MUSIC

Rooted in the conviction that students learn most about music when making and experiencing it, the Music Department offers numerous performance and skill-based classes. Large and small ensemble coursework typically culminates in public performances, and academic music classes include the study of historical topics, technical skills, and theoretical and practical understanding.

GRADUATION REQUIREMENT NOTE

Two semesters taken in grades 9–12.

INTERDISCIPLINARY ARTS MAJOR

The Interdisciplinary Arts Major creates innovative opportunities for students in the GFS arts departments to explore and experiment at the intersections of theatre, music, and art. At course sign-up, students in grades 10-12 wishing to create an Interdisciplinary Arts Major should select their two minors and also select ARTSMAJOR880 Interdisciplinary Arts Major. Departmental approval is required.

FALL OFFERINGS

MUS360 Conducting

minor elective | grades: 9, 10, 11, 12 | one semester

By the end of this course, students will be able to conduct an ensemble, such as an orchestra or choir. No prior music performance experience is required, as course skills are adaptable for both novice and experienced musicians. Students will learn to communicate musical ideas through conducting gestures, covering topics such as baton technique, expressive and independent hand use, beat patterns, cueing, and control of tempo, dynamics, and phrasing. The course will also include reviews of musical terminology, instrument transpositions, and score reading.

MUS310 Critical Listening in Music

minor elective | grades: 9, 10, 11, 12 | one semester

This class invites students to develop deeper, more thoughtful listening skills through both recorded and live music. We will explore the connection between listening and mindfulness across diverse musical genres, including classical, ambient/electronic, jazz, and world music. Topics include understanding dissonance in music and art, distinguishing between thematic and experiential content, and how basic music theory concepts can enhance our musical perception. Students can expect extensive listening, discussions, and creative writing assignments designed to help them articulate and reflect on their listening experiences.

SPRING OFFERINGS

MUS350 Sight Singing & Ear Training

minor elective | grades: 9, 10, 11, 12 | one semester

This course develops students' skills to hear music in their head before it is performed, much like reading a book without speaking the words aloud. By the end of the class, students will be able to sight-read and sing melodies, as well as notate music they hear. Coursework includes solfège, rhythm and meter, key signatures, scales, pitch and interval recognition, dictation and error detection, conducting patterns, and applying sight-reading to musical scores. Basic piano skills may be introduced to help students understand pitch relationships. This course establishes fundamental aural and sight-singing abilities, building confidence for advanced musical performance.

YEARLONG COURSES

THT840 Ninth Grade Musical

minor elective | grade: 9 | yearlong

In this course, students engage in the process of producing a musical play. Students will have the option of performing or being a part of the stage crew. Performers can be involved as dancing and singing members of the ensemble or in featured solo roles. Stage Crew works on building the set and preparing lights, sound, and other technical aspects of the production. Performances occur in early May and will require evening and/or weekend rehearsals. No previous singing, acting, or technical experience is necessary. *A year-long course, this class offers a one semester credit each for Theatre and Music. Please note: participation in the Ninth Grade Musical is in addition to the required Ninth Grade Theatre course.*

MUS780 Introduction to Piano

minor elective | grades: 9, 10, 11, 12

This introductory course teaches students the fundamentals of piano playing. Students will learn to play chord progressions and melodies from popular songs while also developing the ability to read music on the grand staff (treble and bass clefs) and in the fake book style (chords and melody on one line). By the end of the course, students will be proficient in piano skills and able to play two-hand classical pieces as well as the chords and melodies of their favorite songs.

MUS345 History and Impact of Hip-Hop

minor elective | grades: 9, 10, 11, 12

In this course, students will explore the musical and social contributions of hip-hop culture. Students will review the musical characteristics of early and contemporary styles and study historical influences on the genre. In addition, the social impact of hip-hop will be explored, with discussions centered around social justice, cultural appropriation, and other topics highlighted in rap and hip-hop lyrics. Students may also be able to compose, create, and record essential elements found in the genre.

MUS330 Scoring and Sound Design

minor elective | grades: 9, 10, 11, 12

This course introduces students to film scoring and creating soundscapes for movies, games, and other multimedia. Prior music composition experience is not required; the course skills can be adapted for both beginners and experienced musicians. Through hands-on projects and creative experimentation, students will learn fundamental principles of sound design, composition, and audio editing for visual media. Students will examine the emotional impact of music in storytelling and explore software tools commonly used in the industry, such as digital audio workstations and virtual instruments, to develop original sound designs and music cues that enhance narratives and evoke emotional responses. This class can be taken either before, after, or concurrently with other music coursework (e.g., Music Theory, Composition, Digital Music); there is no preferred sequence.

MUS710 Music Theory

minor elective | grades: 9, 10, 11, 12

In this course, students develop fundamental music skills to become more expressive and literate musicians. Topics include major and minor scales, intervals, key signatures, basic harmonic progressions, and rhythmic patterns in simple and compound meters. Aural skills are refined through sight-singing with solfège syllables and scale degree numbers, rhythmic dictation, interval identification, and melodic dictation. The course utilizes an emergent curriculum that responds to student interests, offering individualized, hands-on opportunities for composition and analysis. This entry-level course provides a strong foundation for

music-making across disciplines, whether performing in an ensemble or creating music as a songwriter, composer, or digital music producer.

MUS610 Music Composition: Advanced

minor elective | grades: 9, 10, 11, 12 | prerequisite: Music Theory, or departmental approval required

This course develops students' skills in four-part writing and analysis, proper voice-leading technique, species counterpoint, and advanced harmonic progressions. A strong emphasis is placed on developing aural skills through rhythmic and melodic transcription, as well as interval and harmonic identification. Students will explore compositional techniques from a variety of musical styles, culminating in a final project in a style of the student's choosing, which they will submit for the spring Composer's Assembly.

MUS910 Digital Music Recording and Production I

minor elective | grades: 9, 10, 11, 12

This course is designed to inspire students to create new music and explore the evolving boundaries of sound. We will begin by surveying the history of sound synthesis, the art of noise, and the role of electronic technology in shaping sonic culture. Students will review the progression from analog to digital recording and learn about synthesizers, MIDI, beat-making, and software-based computer music. After providing a thorough background in electronic music, we will focus on working with Ableton Live. The course will cover the basic functionality of both hardware and software mixing consoles and explore the dichotomy between "button-pushers" and "real musicians," discussing how artists infuse soul and musicality into computer-generated music.

MUS912 Digital Music Recording and Production II: Advanced

minor elective | grades: 9, 10, 11, 12 | prerequisite: Digital Music Recording and Production I, or departmental approval required

This course is designed to help students create and produce original music. Building on the foundations established in Digital Music Recording and Production I, students will work on creative projects that demonstrate a range of advanced techniques. The course will explore artistic applications in Ableton Live and other digital audio workstations, as well as signal processing, live electronics, and recording, mixing, and mastering techniques. Students will engage in a collaborative studio environment, with a focus on exploration, discussion, and peer feedback. The course culminates in a final project, which students will submit for the spring Composer's Assembly.

MUS300 Songwriting

minor elective | grades: 9, 10, 11, 12

This class will explore the craft of songwriting through listening, analysis, and creative practice. Students will examine popular music, studying chord progressions, melodic and harmonic relationships, and song structure. We will explore the role of poetry in lyrics, including phrasing, rhyme schemes, and the incorporation of social and political themes. Students will also make connections between branding, social media, personal websites, release strategies, and live performance. No instrumental or choral experience is required, although students will have the opportunity to record their songs. The course will build on the art of singing while playing, with potential opportunities to develop keyboard and guitar skills as accompaniment. The course culminates in a final project in the student's chosen style, which will be submitted for the spring Composer's Assembly.

MUS420 Music Lab: Advanced

major elective | grades: 11, 12 | prerequisite: two (or more) yearlong courses in Music, departmental approval.

This advanced studio class is designed for students who have completed the existing sequence of study for their musical interests and seek to further explore and develop their artistic voice and style as musicians. There is an emphasis on creating through the practical application of skills acquired throughout their GFS music study. Students will develop a portfolio of work with the guidance and support of a Music Department faculty member. This course is intended for students who have demonstrated a commitment to their craft as musical creators and are looking to hone their skills and broaden their perspective in a collaborative, laboratory-style environment.

MUS415 Music Connections

minor elective | grades: 9, 10, 11, 12

This course examines how styles of music evolved in relation to global events. Semester 1 will explore the Renaissance, Baroque, and Classical eras, while Semester 2 will cover the Romantic, 20th-century, and Modern eras. Students will review how the defining characteristics of music from each era relate to the period's literature, visual art, fashion, and dance. In addition, students will study the influence that relationships between nations and developments in art, communication, and technology have on how and why composers create music. This project-based class requires no previous musical training.

MUS325 Musical Instrument Building I

minor elective | grades: 9, 10, 11, 12

In this hands-on class, students will explore the process of creating musical instruments by designing and crafting their own from household and recycled materials. Through experimentation with sound production, students will learn about the science behind each major instrument family, covering not only Western instruments but also those from various cultures worldwide. We may also compose short pieces for our handmade instruments. Potential projects include constructing a tin whistle, PVC slide trombone, PVC clarinet, bamboo pan flute, cigar box guitar, travel ukulele, electric kalimba, tambourine, rainstick, cajon, and Atari Punk synthesizer.

MUS326 Musical Instrument Building II

minor elective | grades: 10, 11, 12 | pre-requisite: Musical Instrument Building I or demonstration of prerequisite woodworking skills.

This course emphasizes hands-on skill development through both collaborative and independent projects. Students will design and create outdoor instrument installations for GFS playgrounds, including pipe drums, PVC percutubes, wooden plank xylophones, and tubular metal chimes. They will participate in every stage of the design and construction process, collaborating with EC and LS teachers to gather input and explore design ideas from other playgrounds. In addition to group projects, students will have the opportunity to pursue independent creative projects based on their own interests, such as building a bass guitar, wooden tongue drum, or Arduino organ, with guidance from the instructor. Through these experiences, students will deepen their understanding of instrument construction, from concept to completion, while contributing to the school community.

PERFORMING ENSEMBLES

MUS881 Jazz Lab

minor elective | grades: 9, 10, 11, 12 | co-requisite: private instrumental lessons

The Jazz Lab is open to all instrumentalists who wish to explore music from the jazz tradition and related styles. Students will engage in ensemble performance and develop foundational instrumental and theory skills specific to jazz. Ensembles are formed based on instrumentation, student ability, and scheduling. Students are required to take private lessons to build technique and proficiency, which will significantly enhance both individual skill and ensemble progress. Performance opportunities include GFS assemblies, concerts, and community events. A maximum of three pianists, three drummers, three guitarists, and two bassists will be accepted per section. If interest exceeds capacity, auditions will determine enrollment. There is no limit for wind players.

MUS880 Jazz Ensemble

minor elective | grades: 9, 10, 11, 12 | co-requisite: private instrumental lessons and departmental approval

Jazz Ensemble is an auditioned group open to all instrumentalists who wish to explore music from the jazz tradition and related styles. Students will delve into ensemble performance, with a focus on jazz history, theory, transcriptions, improvisation, and the study of influential musicians and recordings. Ensembles are formed based on instrumentation, student ability, and scheduling. Students are required to take private lessons to develop their technical skills, which will enhance both individual proficiency and the ensemble's collective progress. Performance opportunities include GFS assemblies, concerts, and community events. A maximum of two pianists, two drummers, two guitarists, and two bassists will be accepted per section. There is no limit for wind players.

MUS790 Chamber Ensembles

minor elective | grades: 9, 10, 11, 12 | co-requisite: private instrumental lessons and enrollment in a large ensemble (Orchestra, Choir, Chorus, or Jazz Ensembles), or Departmental Approval.

Chamber Ensembles are open to all instrumentalists who wish to explore music in a small ensemble setting (e.g., duets, trios, quartets). Students will develop skills in ensemble performance, with special emphasis on the unique communication and performance responsibilities required in an intimate chamber setting. Repertoire is drawn from a variety of genres, including classical, contemporary, pop, rock, medieval, and instrument-specific styles. Ensembles are formed based on instrumentation and students' abilities. Chamber groups may include traditional formations (e.g., two violins, viola, and cello) or more non-traditional arrangements (e.g. ukulele, guitar or traditional Chinese instrument ensemble) depending on students' interests. Students may also propose their own ensembles with assistance from the music department staff. Performance opportunities include community events, GFS functions, and a chamber music concert. Interested musicians should speak with a music department staff member for placement.

MUS800 Orchestra

minor elective | grades: 9, 10, 11, 12 | co-requisite: private instrumental lessons

The Orchestra is open to all instrumentalists who wish to perform in a large ensemble context. A maximum of two pianists will be accepted by audition, and pianists are often taught percussion techniques as well. The ensemble performs in evening concerts and assemblies, engaging with a wide range of repertoire, including classical, contemporary, Broadway, and pop music. In addition to mastering challenging repertoire, students focus on orchestral techniques such as intonation, sectional blend, and musical phrasing. Students are required to take private lessons on their instruments to develop technical facility. While most rehearsals occur during the academic day, occasional after-school and weekend commitments are required.

MUS940 World Percussion Ensemble

minor elective | grades: 9, 10, 11, 12

This course offers percussion techniques from Africa, the Middle East, Cuba, and Brazil, and is open to students of all levels, from beginner to advanced. Students will explore the process of building a percussion ensemble using traditional instrumental and vocal cues from each culture studied. Techniques and repertoire are taught through rote learning, transcriptions, traditional notation, graphic notation, and audio-visual examples. Instruments provided include Bata drums, Agbadza drums, doumbeks, djembes, and Gyili (African balafons). Students will develop an understanding of the collaborative nature of percussion ensembles and gain insight into their own creative expression through this genre. While most rehearsals occur during the academic day, occasional after-school and weekend commitments are required.

MUS730 Chorus

minor elective | grades: 9, 10, 11, 12

Chorus is a large, non-auditioned choral ensemble open to all Upper School students. In this ensemble, students work to develop vocal technique, aural skills, and sight-reading abilities. The repertoire includes both choral and choral-orchestral works, with performances culminating in concert exhibitions. While most rehearsals take place during the academic day, occasional after-school and weekend commitments may be required.

MUS750 Choir

minor elective | grades: 9, 10, 11, 12 | co-requisite: Chorus or A Cappella, departmental approval required

Choir is an auditioned choral ensemble open to all students entering the Upper School. Auditions take place in February of the preceding academic year. Students perform a diverse range of repertoire while developing vocal technique, sight-singing skills, and ensemble cohesion. Participation requires attendance at regular rehearsals and performances outside the academic day, including biweekly Sunday rehearsals. Singers must also attend Choir Camp, held during the last weekend of August. Additional fees for Choir Camp, attire, and materials may apply, with financial aid available.

MUS210 A Cappella

minor elective | grades: 10, 11, 12, departmental approval required

GFS A Cappella is a 20-voice auditioned close-harmony vocal ensemble. The group explores a wide range of musical genres, including rock, pop, hip-hop, R&B, jazz, and more. Members focus on tuning, blending, and singing vocalizations unique to the a cappella art form. Students are trained in using handheld mics, beatboxing, solo performance, and delivering high-energy performances. Those interested may also be coached in arranging music for the group. Emphasis is placed on team building, mutual trust, and leadership, with members encouraged to help shape the repertoire. In addition to the 2/8 rehearsal cycle, commitments include one weekly club-time rehearsal, monthly weekend rehearsals, multiple performances and invitationals, including the annual GFS A Cappella Fest, and a spring competition. The year concludes with four to five days of professional recording during the first week after graduation.

PHYSICAL EDUCATION

Physical Education in the Upper School is focused on fostering a culture of wellness through regular, meaningful physical activity for all members of our community. Our emphasis is on leading students to develop movement skills and to discover individual interests through their participation in class. Upon completion of a semester-long Fitness & Wellness course in the freshman year, students take on increased responsibility for choosing a PE activity plan that best meets their needs and interests.

REQUIREMENTS

- 9th grade: One semester PE Ninth Grade Fitness and Wellness; two seasons Athletics
- 10th grade: Three seasons: one season of Athletics; choice of PE or Athletics for other two seasons
- 11th grade: Three seasons, choice of PE or Athletics
- 12th grade: Two seasons, choice of PE or Athletics

GRADE 9

PE300 PE Ninth Grade Fitness and Wellness

required minor | grade: 9 | one semester

This interdisciplinary class provides a foundation for lifetime fitness and wellness and includes a thorough introduction to the use of our Fitness Center. The understanding and management of one's own fitness and health are at the core of the curriculum. Topics include nutrition, proper strength-training techniques, and the components of fitness.

GRADES 10, 11, 12

The Physical Education Department provides a rich menu of options in terms of for developing personal fitness and exploring fitness options. Students may choose to participate in physical education classes while they are playing a GFS sport but are not required to do so. Physical Education courses are offered by sport season: fall, winter, and spring.

Course offerings are organized as follows:

- GFS Fitness Club: Personal fitness activities that meet during or after school (see course descriptions for full information). Fitness Club meets four times per eight-day cycle.
- PE Electives: These courses generally occur during the school day and may vary by season. Courses meet for two or three single periods per 8-day cycle, or two extended periods per 8-day cycle to facilitate travel off-campus.

YEARLONG ELECTIVES

PE610 GFS Fitness Club

minor elective | grades: 10, 11, 12

Join the GFS Fitness Club and take control of your fitness journey! This elective physical education course allows you to customize your personal fitness plan or have our certified strength and conditioning coaches' program workouts specifically for you. The course focuses on movement activities in the fitness center, and can meet during the school day or after school. Fitness Club scheduling will be on our eight-day schedule. Students will be required to attend Fitness Club four times per eight-day cycle for 40-minute sessions. When possible, students will be scheduled into Fitness Club sessions during either "even" or "odd" days using both existing free periods during the day and 3:20 or 4:00 pm afterschool time slots.

PE670 Personal Fitness

minor elective | grades: 10, 11, 12

Need to finish your school day by 3:20 p.m.? This Personal Fitness course consists of workout sessions that will occur during the school day. It will meet 3 times per 8-day cycle to allow two workouts per week. No after-school workouts are required. All skill levels are welcome as you develop an individualized plan that works for you.

PE601 Vinyasa Yoga

minor elective | grades: 10, 11, 12

This all-level vinyasa (flow) yoga class offers poses designed to stretch and strengthen your body using your own breath as your guide so that you can find the balance that is most appropriate for you! A strong emphasis is placed on proper alignment, which helps you to stay centered and present while avoiding injury. Poses, especially more challenging ones, are taught slowly and thoughtfully. This class offers a nice opportunity to release physical and mental stress while cultivating inner peace and relaxation - no experience necessary! Class meets after school twice a week. Students must be available each Tuesday and Thursday from 3:30-4:30 p.m. to take this class.

PE675 Conditioning with Purpose

minor elective | grades: 10, 11, 12

Conditioning with Purpose is designed to help improve physical fitness and performance by combining a variety of cardiovascular exercises. The goal of this class is to increase fitness levels and endurance, as well as sport-specific conditioning using Heart Rate monitors to target specific zones with accuracy. This class will meet 3 out of the 8 day cycle.

NEW PE680 Strength Training with Purpose

minor elective | grades: 10, 11, 12

Strength Training with Purpose is designed for students seeking to build the training and knowledge necessary to implement a structured, goal-oriented performance training program. The curriculum is designed to align with students' performance goals and includes structured progressions and coaching in the Olympic lifts (clean, jerk, and snatch), foundational barbell exercises (front squat, back squat, bench press, overhead press, and Pendlay row), and opportunities to incorporate advanced plyometric exercises.

FALL ELECTIVES

PE700 Badminton/Net Games

minor elective | grades: 10, 11, 12

Take your game to a new level. Hone your skills and play, play, play. We will begin with badminton and may include other net games, e.g., volleyball or pickleball based on student interest. All skill levels are welcome.

PE717 Wissahickon Adventures

minor elective | grades: 10, 11, 12

Are you ready for an unforgettable journey of self-discovery and outdoor exploration in the breathtaking Wissahickon Valley? Join us for a unique outdoor education experience that combines rock climbing, individual and team challenges, hiking, history, biology, and geology. By the end of this immersive course, you'll have a new found understanding of yourself and a deeper connection to the natural wonders of the Wissahickon Valley.

NEW PE716 Stage Combat

minor elective | grades: 10, 11, 12 | fall trimester

Stage Combat is the illusion of violence for the purpose of onstage storytelling. This course will survey the basics of Stage Combat for theatrical performance. With an emphasis on safe technique and believability, students will overview multiple techniques and disciplines, which may include two-handed broadsword, quarter staff, and unarmed fighting. In addition to practical application, students will also investigate the purpose of staged violence, its role in communicating story, and the essential practices of non-violence both on stage and off. Students can expect this class to be physically engaging, thought-provoking, and intentionally focused. No prior experience is necessary, and all levels of ability are welcome. This course can be taken for PE or Theatre credit.

WINTER ELECTIVES

PE710 Archery

minor elective | grades: 10, 11, 12

Experience the Zen of this target shooting sport. All skill levels are welcome. The course is designed for students to use both compound and recurve bows. Our purpose is for students to learn the basics and beyond, emphasizing the care and use of equipment, range safety, stance and shooting techniques, using a sight, scoring and competition, and learning how to teach novice archers. We will be following the USA Archery curriculum, level 1 Instructor Curriculum. Students completing the course can earn a USA Archery Level 1 teaching certificate.

PE720 Winter Net Games

minor elective | grades: 10, 11, 12

Embrace the winter season by sharpening your skills in three of the world's most popular indoor net sports: Badminton, Pickleball, and Table Tennis. This course is designed for players of all skill levels, from complete beginners to those looking to refine their technique. Participants will rotate through focused instructional units for each sport, emphasizing fundamental skills, rules, scoring, and successful game strategies in both singles and doubles play. The course fosters fun, competitive play and provides an excellent, fast-paced indoor workout perfect for the colder months.

THT820 World Dance

minor elective | grades: 10, 11, 12 | winter trimester

This winter course is an opportunity to explore a number of cultural dance forms from Latin America and the African Diaspora. Accompanied by live musicians and led by guest artist teachers, students will feel the rhythms, learn the cultural significance, and experience the movement of several different global dance traditions. Students can expect this class to be vigorous but playful and a chance to move their body in a fun, low-stakes environment. This is not a performance-based class and no prior experience is needed. This course can be taken for Theatre or PE credit.

SPRING ELECTIVES

PE780 Wissahickon Hiking

minor elective | grades: 10, 11, 12

Take to the hills, rocks, and valleys. Observe the re awakening of the forest. Venture onto a variety of trails, and savor the seasons of Philadelphia. Bouldering and rock climbing are possibilities, depending on student interest. All skill levels are welcome.

PE770 Archery

minor elective | grades: 10, 11, 12

Experience the Zen of this target shooting sport. All skill levels are welcome. The course is designed for students to use both compound and recurve bows. Our purpose is for students to learn the basics and beyond, emphasizing the care and use of equipment, range safety, stance and shooting techniques, using a sight, scoring and competition, and learning how to teach novice archers. We will be following the USA Archery curriculum, level 1 Instructor Curriculum. Students completing the course can earn a USA Archery Level 1 teaching certificate.

THT810 Modern Dance

minor elective | grades: 10, 11, 12 | spring trimester

This course is an all-level modern dance class that includes explorations in technique, improvisation, and choreography. Students will engage methods and language common to a variety of modern dance styles and concepts. Most material will be learned through physical participation as students deepen their awareness of the body and explore the connection between the physical, cognitive, and emotional aspects of themselves. Should they choose, students will have the opportunity to perform as part of the annual Poley Festival of student-created work. Course material will be leveled based on the experience of those registered, therefore, previous dance experience is welcome, but not necessary. This course can be taken for PE or Theatre credit.

REQUEST FOR ALTERNATIVE PHYSICAL EDUCATION CREDIT

From ninth grade through twelfth grade, Germantown Friends School requires participation in athletics to foster community, camaraderie, and physical and mental well-being. Students who have an already established commitment to an outside-of-school athletic activity for off-season training or for a sport that GFS does not offer can apply for alternate credit through the alternate credit application. The request must be for an activity with a comparable time commitment and the family should provide details about the training or performance schedule including contact information for the coach or instructor. Students who are approved for alternate credit must complete assignments through Google Classroom to document their progress and train a minimum of six hours a week. Applying does not guarantee acceptance. Remember that alternate credit requests are due the prior academic year. Requests at the beginning or during the current season cannot be granted.

SCIENCE

The study of science provides students with powerful ways to understand the natural world. We seek to inspire students' curiosity, develop critical thinking and analytical skills, and provide a foundation for further exploration. Our curriculum emphasizes laboratory work, data analysis, problem-solving and clear communication. All major science courses are lab-based and meet for the equivalent of five periods each cycle. Students take Physics in 9th grade, Chemistry in 10th grade, and Biology in 11th grade. Advanced electives and the science research minors are available to students who complete introductory coursework.

GRADUATION REQUIREMENT NOTE

All students must take three years of major coursework in science. Typical sequence: Physics (9th Grade), Chemistry (10th Grade), Biology (11th Grade).

SCI310 Physics

major elective | grades: 9, 10

This introductory physics course primarily focuses on concepts and laws of classical physics, especially mechanics, including the topics of motion in one and two dimensions, Newton's Laws of Motion, work, energy, power, circular and rotational motion, and the relevant laws of conservation. Material is also drawn selectively from wave motion, sound, light, and color. The emphasis in this course is on conceptual comprehension of this material, but there will be quantitative work that complements the information being studied. Frequent laboratory experiments and reading material will reinforce problem-solving skills. Participation in the Physics Olympics is required.

SCI720 Chemistry

major elective | grades 10, 11

This introductory course covers basic chemistry vocabulary, nomenclature, stoichiometry, thermochemistry, gas laws, atomic theory, bonding, and types of reactions, and provides a solid foundation for more advanced work in chemistry and biochemistry. Weekly labs are included. We strongly recommend that students take chemistry before taking biology.

SCI710 Biology

required major | grades: 11, 12 | prerequisite: Chemistry or departmental approval

In this introductory biology course, students study a range of topics such as molecular biology, cell biology, and systems biology. Specific units include biological classification, function of biological molecules, cellular structure and function, cell division, DNA and protein synthesis, and cell respiration. Labs and projects give students hands-on experience with standard techniques and materials, as well as opportunities to develop research interests and design experimental protocols.

SCI810 Principles of Engineering: Advanced

major elective | grades: 11, 12 | prerequisite: Chemistry and Physics and departmental approval

The solutions to society's greatest problems lie between disciplines. On top of that, the techniques necessary for approaching our most vexing questions are changing and will continue to evolve in unpredictable ways. In Principles of Engineering, students will work independently and collaboratively to use the engineering design process and equity-informed variables to design solutions to a variety of challenges. In that process, each student will master a number of skills including fabrication, graphical analysis, data collection, time management, presentation, and critique. They will apply these skills to complete projects focused on different areas of Engineering, including Mechanical, Electrical, Civil, Chemical, and Biomedical.

SCI730 Advanced Chemistry

major elective | grades: 11, 12 | prerequisite: Chemistry and departmental approval required

This course covers much of the same material encountered in first-year college chemistry programs. Labs will occur on a nearly weekly basis and include experiments using pH, temperature, pressure, and other Vernier probes that employ computer-based data acquisition and analysis methodology. Topics covered include the structure of matter; solution stoichiometry; oxidation-reduction and double replacement reactions; the kinetic theory of gasses and gas laws; thermodynamics; chemical bonding; kinetics and equilibria; acids, bases, and aqueous equilibria; spontaneity, entropy, and free energy. Students will develop a deep understanding of the foundational concepts of chemistry, fluency in dealing with complex chemical problems, and the ability to form mental models of the molecular world.

SCI750 Advanced Biology

major elective | grade: 12 | prerequisite: Chemistry, Biology and departmental approval required

In this advanced course, students study exciting topics such as the origins of life, evolutionary theory, biotechnology, ecology, and global change biology. The labs feature advanced genetic engineering techniques and data analysis using AI, and help build field biology skills, while group projects focus on effective collaboration and communication. The overarching goal of the course is to help students understand how humans fit into biological systems and our role on this planet.

SCI770 Advanced Physics

major elective | grade: 12 | prerequisite: concurrent enrollment in or completion of Calculus or Integral Calculus; departmental approval required

This is a fast-paced course that will focus on a variety of topics, including mechanics, energy, momentum, electrostatics, and circuits. We will integrate current events, both scientific and social, into our daily explorations. Advanced Physics builds on material from the introductory physics course, but the introductory course is not a prerequisite. This course is math-intensive, and we will use calculus and trigonometry as tools to develop a rigorous understanding of the world around us. Computers will be used for simulation, data analysis, and the completion of labs. Experimental design will be an important aspect of the laboratory experience.

SCI735 Organic Chemistry: Advanced

major elective | grades: 11, 12 | prerequisite: Chemistry

This course introduces students to the fundamental principles that govern the structure, properties, and reactions of organic compounds. As an essential branch of chemistry, Organic Chemistry explores the realm of carbon-containing compounds, delving into the intricacies of molecular structures, functional groups, and reaction mechanisms. Throughout the course, students will engage in hands-on laboratory experiments to apply theoretical concepts and gain valuable insights into the synthesis and analysis of organic molecules. From

understanding the foundations of bonding and stereochemistry to exploring the diversity of organic compounds found in nature, this class aims to cultivate a deep appreciation for the molecular intricacies that shape the everyday world.

SCI740 Environmental Science

major elective | grades: 10, 11, 12 | prerequisite: Chemistry or concurrent enrollment in Chemistry

Students will look at a wide range of topics covering five major themes: ecology, human population, energy and climate, resource use and reform, and applied sustainability. Concepts in each theme will be explored by considering global and local environmental issues with special consideration of current events as they arise. The coursework will make use of laboratory and field experiments, which use local resources such as the GFS Cary Arboretum and the Schuylkill River, as well as a simulation of the UN Framework Convention on Climate Change. This course is designed for students who would like to pursue a science course that is not a second-year course in chemistry, biology, or physics.

SCI805 Human Anatomy & Physiology: Advanced

major elective | grades: 12 | prerequisite: Chemistry and Biology

Human Anatomy & Physiology is an immersive exploration of the structure and function of the human body. Students will learn about the intricacies of the integumentary, skeletal, muscular, nervous, endocrine, cardiovascular, lymphatic/immune, respiratory, digestive, urinary, and reproductive systems. The course also delves into cellular biology, exploring the fundamental units of life and their roles within the body. Through lectures, interactive activities, and hands-on laboratory experiences, participants will gain a comprehensive understanding of how these systems work harmoniously to sustain life.

SCI600 Science Research I

minor elective | grades 10, 11, 12

Science Research is designed to provide students with hands-on experience in conducting scientific research within a laboratory setting. Students will develop their critical thinking, problem-solving, and data analysis skills through guided research project(s). Emphasis will be placed on the scientific method, experimental design, data collection and analysis, and effective communication of research findings.

SCI602 Science Research II

minor elective | grades: 11, 12 | prerequisite: Science Research or departmental approval

Science Research II is an advanced course designed for students who have completed Science Research I and are ready to take on independent, extended research in a specific area of interest. This student-driven, teacher-facilitated course allows participants to explore complex scientific questions, develop their own experimental designs, and conduct in-depth investigations under the guidance of a senior investigator or external mentor. The curriculum emphasizes advanced research techniques, fostering a high degree of autonomy and critical thinking.

THEATRE

Theatre at GFS is centered around creating in many forms: acting & directing,technical theatre & design,writing/devising, film, and dance/movement. In addition to an active schedule of annual stage productions, students may elect to pursue coursework that supports the exploration of their passion, the development of their craft, and the expression of their voice as storytellers.With a focus on creative process, performance, and critical response, we are committed to the cultivation of the individual artist and their imagination - and to the communal practice of collaboration.

GRADUATION REQUIREMENT NOTE

All students must complete one semester of Ninth Grade Theatre to graduate.

INTERDISCIPLINARY ARTS MAJOR

The Interdisciplinary Arts Major creates innovative opportunities for students in the GFS arts departments to explore and experiment at the intersections of theatre, music, and art. At course sign-up, students in grades 10-12 wishing to create an Interdisciplinary Arts Major should select their two minors and also select ARTSMAJOR880 Interdisciplinary Arts Major. Departmental approval is required.

A NOTE ON AFTERSCHOOL MAIN STAGE PRODUCTIONS

Students participating in a theatre production may elect to delay a season of athletics participation to the following year with department approval.

THEATRE COURSES

THT725 Ninth Grade Theatre

required minor | grade: 9 | one semester

This introductory class investigates the art of theatre and explores performance as a vehicle for

self-expression; it aims to bring to life each student's personal sensibility as a storyteller, story-maker, and story-seeker. With storytelling as our cornerstone, we begin by studying story structure as we craft personal narratives to be performed in class. We will also study the art of making theatre as we read a contemporary play, and explore acting, directing, and theatrical design and technical theatre.

THT840 Ninth Grade Musical

minor elective | grade: 9 | yearlong

In this course, students engage in the process of producing a musical play. Students will have the option of performing or being a part of the stage crew. Performers can be involved as dancing and singing members of the ensemble or in featured solo roles. Stage Crew works on building the set and preparing lights, sound, and other technical aspects of the production. Performances occur in early May and will require evening and/or weekend rehearsals. No previous singing, acting, or technical experience is necessary. A year-long course, this class offers a one semester credit each for Theatre and Music. Please note: participation in the Ninth Grade Musical is in addition to the required Ninth Grade Theatre course.

THT735 Theatre Lab: Advanced

major elective | grade: 12 | prerequisite: two (or more) yearlong courses in Theatre and involvement in at least one co-curricular Mainstage Production; departmental approval required

This advanced lab class is designed for students to explore and develop their own artistic voice and style as theatre-makers - with an emphasis on the practical application of skills acquired over the course of their GFS Theatre career. An exploration of personal vision, artistic passion, and creative aesthetic in the fall semester is followed by a period of idea generation and project proposal and development. Students then spend the bulk of the spring investigating and producing an independent (or collaborative) project with the guidance and support of GFS Theatre Faculty. This course is intended for students who have demonstrated a commitment to theatre-making as performers, writers, directors, and/or designers and who wish to hone their skills and personal point-of-view in a collaborative, advanced, laboratory-style environment.

THT250 Text & Performance

minor elective | grade: 10, 11, 12

This course is an exploration of the journey from page to stage. How does a character actually get from the written page to the physical and shared space of the theatrical stage? What gives form to story? This class is about the study of dramatic composition and how the actor translates what is on the page into an honest, physically and vocally strong performance. The class explores how different interpretations and a deep understanding of dramaturgical context affect both direction and performance. Students can expect to do the work of observation, memorization, character study, scene & script analysis — all in service of exploring and stretching their own capacity as performers and theatre-makers. Coursework will culminate in a performance at this spring's Poley Festival of student work. This course is offered every other year.

NEW THT123 Scriptwriting Workshop: Screenplays, Pilots, and Plays

minor elective | grades: 10, 11, 12

In Scriptwriting Workshop, we will study the art of writing text that is to be performed. We will study world-building, narrative arcs, story structure, character development, and writing dialogue. Students will study a range of scripts, plays, movies, and pilots, surveying the vast array of structures. Through writing prompts, we will hone various aspects of the form, with a major focus on dialogue. Students can expect to write both a TV pilot or short screenplay and a one-act play. This course is designed for students who enjoy writing and are eager to explore a new form. This course is offered every other year.

DANCE & MOVEMENT COURSES

NEW THT716 Stage Combat

minor elective | grades: 10, 11, 12 | fall trimester

Stage Combat is the illusion of violence for the purpose of onstage storytelling. This course will survey the basics of Stage Combat for theatrical performance. With an emphasis on safe technique and believability, students will overview multiple techniques and disciplines, which may include two-handed broadsword, quarter staff, and unarmed fighting. In addition to practical application, students will also investigate the purpose of staged violence, its role in communicating story, and the essential practices of non-violence both on stage and off. Students can expect this class to be physically engaging, thought-provoking, and intentionally focused. No prior experience is necessary, and all levels of ability are welcome. This course can be taken for Theatre or PE credit.

THT820 World Dance

minor elective | grades: 10, 11, 12 | winter trimester

This winter course is an opportunity to explore a number of cultural dance forms from Latin America and the African Diaspora. Accompanied by live musicians and led by guest artist teachers, students will feel the rhythms, learn the cultural significance, and experience the movement of several different global dance traditions. Students can expect this class to be vigorous but playful and a chance to move their body in a fun, low-stakes environment. This is not a performance-based class and no prior experience is needed. This course can be taken for Theatre or PE credit.

THT810 Modern Dance

minor elective | grades: 10, 11, 12 | spring trimester

This spring course is an all-level modern dance class that includes explorations in technique, improvisation, and choreography. Students will engage methods and language common to a variety of modern dance styles and concepts. Most material will be learned through physical participation as students deepen their awareness of the body and explore the connection between the physical, cognitive, and emotional aspects of themselves. Should they choose, students will have the opportunity to perform as part of the annual Poley Festival of student-created work. Course material will be leveled, based on the experience of those registered; therefore, previous dance experience is welcome, but not necessary. This course can be taken for Theatre or PE credit.

TECHNICAL THEATRE COURSES

NEW THT794 Scenic Painting & Design

minor elective | grades: 9, 10, 11, 12

This course introduces students to the art and craft of creating theatrical environments through paint, texture, and visual storytelling. Students will explore foundational techniques in scenic painting—including color mixing, layout, faux finishes, and large-scale composition. Through hands-on projects and collaborative exercises, participants will translate design concepts into full-scale scenic treatments, gaining practical skills and seeing their work come to life on the GFS stage. No prior experience required. Students are expected to support at least one GFS Theatre production.

THT300 Theatre Management

minor elective | grades: 10, 11, 12

In this course, students will take a deeper dive into the roles of technical direction, as well as production and stage management. A leadership-building class, students will be expected to help problem-solve real-world issues related to theatrical production. The focus of this class will be on leadership and management: scheduling, troubleshooting, space & equipment maintenance, and of course managing a production. Students enrolled in this course are expected to support at least one major production as a member of the Stage Management team each semester; this will include call times outside of the regular school day.

THT791 Costume & Fashion: Designing & Making

minor elective | grades: 10, 11, 12

This course exists at the intersection of fine art, fashion, and theatrical storytelling. Design is an essential part of the theatrical form; costumes create the world of the play and have a powerful effect on how an audience experiences the story being told. Similarly, fashion is a compelling form of self expression that we all use to showcase our personality, emotions, and values, and visually tell our own unique stories. In this class, students will learn both conceptual and technical skills related to fashion design and costuming. There will also be an emphasis on exploring each student's individual artistic expression through the creation of garments. Students will support GFS Theatre productions as part of their work in this course.

FILMMAKING COURSES

THT780 Filmmaking I: An Introduction

minor elective | grades: 10, 11, 12 | yearlong

This entry-level course provides students with a foundation in cinema studies and filmmaking. Students begin the course by examining the history and technology of film while discovering their cinematic voices through the creation of short movies. Students will gain an appreciation of the technical, theatrical, and narrative elements of cinema through assignments that introduce concepts related to cinematography, production design, genres, and editing. Once essential terminologies are defined and students have a greater appreciation for the production process, professional filmmaking equipment is introduced to the mix as students are trained to use and maintain the necessary hardware and software to create films. By the end of this course, students will have a firm grasp of pre- and post-production filmmaking techniques. They will also have a portfolio of films that demonstrate their burgeoning skills and unique point of view as a storyteller. The course will also include assignments related to film criticism and screenings to create dynamic cinephiles out of every student. Students enrolled in Filmmaking I will be required to attend a one-day, weekend Film Boot Camp during the fall semester.

THT785 Filmmaking II: Cinematic Storytelling & Technique

minor elective | grades: 11, 12 | yearlong | prerequisite: Filmmaking I

In this intermediate course, students will learn the creative power of cinematography and post-production. Building on foundational skills, students will begin with a deep dive into aspects of cinematography, storyboarding, mise-en-scene, and lighting. Students will fundamentally learn that the process of telling stories one frame at a time is as much a science as it is an art; one must strike a delicate balance of technical know-how with creative ingenuity. This course will also rely on collaborative, hands-on, and theoretical approaches to understanding sound and film editing. Students will expand their experience with non-linear editing software that will provide them an outlet to apply methods and theories that heighten and propel narrative and visual storytelling. Each component of the course will establish a fundamental understanding of the philosophy and craft of editing, narrative, and cinematography that allows students the creative skill to imbue their projects with greater substance and meaning. Students enrolled in Filmmaking II will be required to attend a one-day, weekend Film Boot Camp during the fall semester.

THT783 Filmmaking III : The Picture Is the Thing: Advanced

minor elective | grade: 12 | yearlong | prerequisite: Filmmaking II

The goal of this yearlong course is to complete one feature-length film by year's end. Requirements will consist of a series of short films. Collectively, students will determine the genre of the feature film; narrative, documentary, or experimental, and complete the film. The final feature-length will be between 20 and 70 minutes long. During the course of the year, we will commit to making two to three short films and simultaneously complete work on the long term feature-length film. We will focus on lighting, sound, set design, etc. as well as story construction, budgeting, casting, etc. From time to time we will have subject-area guest lecturers visit with the class. Participants will also be required to attend the Philly Youth Film Festival. Additional assignments will include watching and discussing multiple films with an eye towards approach and execution.

REQUIRED PROGRAMS

JANUARY TERM (J-TERM)

January Term enables our community to live the mission and values of our school and explore new passions, interests and interdisciplinary ways of learning about the world. Through a schedule dedicated to course offerings outside of the regular curriculum, January Term provides teachers and students a space for experimentation, investigation and reflection. Students sign up for their January term courses during the fall of each school year.

GRADUATION REQUIREMENT NOTE

Students must satisfactorily complete January Term in ninth, tenth, and twelfth grades.

JUNIOR PROJECTS

The faculty believes that independent study outside the bounds of any particular classroom is an important part of any student's education. The experience of creating a project, organizing it and sustaining it to completion is invaluable in helping students take responsibility for what they learn and how they learn it. By completing their Junior Projects before senior year, students will be able to incorporate the experience of their project into their work in 12th grade. Colleges often ask for assessments of the student's ability to do independent work.

GRADUATION REQUIREMENT NOTE

In eleventh grade, students must satisfactorily complete a month-long independent project during the month of January.

JUNIOR PROJECT PROCESS

In early May, each member of this year's 10th grade class will be assigned a liaison from the Junior Project Committee. Students should arrange to meet with their liaison twice before the end of the school year. Liaisons help students decide on a project by discussing opportunities that are available to them through members of the school community and programs outside school.

JUNIOR PROJECT COMMITTEE

This committee, composed of faculty and staff, the eleventh grade advisors and the Upper School Division Director, oversees the students as they plan and complete their proposals. The committee works hard to give every student the support they need to select a project and complete a successful proposal by December.

GUIDELINES

- All projects must be student-initiated and student-designed.
- All projects must have definite start and end dates. Students are expected to undertake their projects five days a week for four weeks.
- Proposals must clearly state goals for the project and plans for final presentations, which include both oral and written reports.
- Each student must arrange to have an advisor, who is a member of the GFS faculty, and an on-site supervisor.
- Proposals must be specific, may require a bibliography and always require a letter from the on-site supervisor confirming details of the project.
- Students must report to their GFS advisors once a week during the duration of the project.
- Expensive projects are discouraged. Students are required to earn at least half the money necessary to cover the cost of any project.

GLOBAL ONLINE ACADEMY

GFS is a founding member of Global Online Academy (GOA), a consortium of outstanding independent schools offering an innovative selection of online courses. Sophomores, juniors, and seniors can supplement their education by taking an online course in a variety of interdisciplinary subjects offered by experienced teachers around the world.

Students in tenth through twelfth grades may elect, as part of their academic schedule, a semester or year-long course in GOA. Students must be responsible for collaborating with their classmates across time zones as they complete class assignments. GOA online courses may be taken as an elective major or as an overload. Students considering registering for a GOA course should consult GFS' Site Director for GOA and their grade dean. Students enrolled in GOA courses will have check-ins once per cycle with the Site Director to assist and oversee student progress. GOA registration will take place through the GOA Site director. Sophomores will need to register with the approval of the Upper School Division Director. Once enrolled in a course, students will receive an email from Global Online Academy about their course and what the next steps are.

The subsidized cost for GOA courses is $130 for a semester-long course and $230 for a year-long course. The Business Office will bill families this amount. Should a student withdraw from a course after the drop deadline, all associated late-drop fees will be billed to the family. The cost of a summer course is $800.

KEY DATES

- Semester 1; August 26 2026 - December 11 2026
- Semester 2; January 13 2027-April 30 2027
- Yearlong; August 26 2026 - April 30 2027

GOA266 Abnormal Psychology

This course provides students with a general introduction to the field of abnormal psychology from a western perspective while exploring the cultural assumptions within the field. Students examine the biopsychosocial aspects of what we consider abnormal while developing an understanding of the stigma often associated with psychological disorders. Through book study, videos, article reviews, and discussions, students consider how our increasingly global world influences mental health in diverse settings. In learning about the different areas of western abnormal psychology, students study the symptoms, diagnoses, and responses to several specific disorders such as anxiety, depression, eating disorders, or schizophrenia. Students develop an understanding of how challenging it can be to define "normal" as they begin to empathize with those struggling with mental distress. Throughout the course, students are encouraged to attend to their own mental well-being. The course culminates in an independent project where students showcase their learning with the goal of making an impact in their local communities.

GOA330 Applying Philosophy to Global Issues

This is an applied philosophy course that connects pressing contemporary issues with broad-range philosophical ideas and controversies, drawn from multiple traditions and many centuries. Students use ideas from influential philosophers to examine how thinkers have applied reason successfully, and unsuccessfully, to many social and political issues across the world. In addition to introducing students to the work of philosophers as diverse as Socrates, Confucius, and Immanuel Kant, this course also aims to be richly interdisciplinary, incorporating models and methods from diverse fields including history, journalism, literary criticism, and media studies. Students learn to develop their own philosophy and then apply it to the ideological debates that surround efforts to improve their local and global communities.

GOA200 AP® Art History

Note: Although GFS does not offer AP classes, an exception has been made in order to offer an art history course.

Uncover the Story of Humanity Through Art: From ancient cave paintings to contemporary genre-spanning installations, art reveals how people across time and cultures have seen themselves and their world. Through this course, you'll take a global journey through 250 works spanning different eras, regions, and styles, while preparing for the AP® Exam and meeting all College Board requirements. You'll examine how artists' use of materials, response to audiences, and cross-cultural influences shape artistic expression. You'll also trace continuity and change across traditions and media, interpret works in their broader cultural context, and consider diverse perspectives on what art means—all while sharpening your skills in art historical thinking, including visual and contextual analysis, comparison, attribution, interpretation, and argumentation.

GOA360 Arts Entrepreneurship

Create Your Future in the Arts: Ready to turn your creativity and passion for the arts into a thriving career? This course will help you develop real-world strategies for building a personal brand, networking, and launching a career in fields like design, music, and filmmaking. You'll learn directly from industry insiders, analyze successful (and not-sosuccessful) artistic ventures, and gain practical skills to kickstart your own arts business.

GOA258 Architecture

In this course, students build an understanding of and apply skills in various aspects of architectural design. While gaining key insights into the roles of architectural analysis, materials, 3D design, and spatial awareness, students develop proficiency in architectural visual communication. We begin by learning the basic elements of architectural design to help analyze and understand architectural solutions. Through digital and physical media, students develop an understanding of the impact building materials have on design. At each stage of the course, students interact with peers from around the globe, learning and sharing how changes in materials, technology, and construction techniques lead to the evolution of contemporary architectural style and visual culture. The course culminates with a final project in which each aspiring architect will have the opportunity to work towards a personal presentation for the GOA Catalyst Conference. Students will, through a variety of outcomes, present an architectural intervention that they have proposed as a solution to an identified need, one emanating from or focused within their own community. Throughout the course, students will refer to the design process and will use techniques to track, reflect, and evidence their understanding of architecture.

GOA369 Biochemistry: Medicine, Drugs & Addiction

Unlock Medicine and Drug Design: Discover the fascinating science behind medicine and drug interactions, exploring how drugs impact the human body at the molecular level. You'll dive into the chemistry and biology behind drug design, effectiveness, and safety; learn how drugs interact with molecules, such as receptors and enzymes, to create therapeutic effects; and tackle complex topics like tolerance, addiction, and withdrawal. You'll also investigate the processes of drug testing, legalization, and regulation, gaining a well-rounded view of the pharmaceutical world. A must for aspiring healthcare professionals, pharmacists, or biochemists, this course will give you a deep understanding of drug mechanisms and development. You'll walk away with insights into the science of healing and the effects of drugs on the body, setting you up for future studies and a career in

healthcare and the sciences. Prerequisite: Students enrolling in this course should have taken or should be concurrently enrolled in Chemistry

GOA267 Bioethics

Ethics is the study of what one should do as an individual and as a member of society. Bioethics refers to the subset of this field that focuses on medicine, public health, and the life sciences. In this course, students explore contemporary, pressing issues in bioethics, including the "right to die," policies around vaccination and organ transplantation, competence to consent to care, human experimentation and animal research, and genetic technologies. Through reading, writing, research, and discussion, students will explore the fundamental concepts and questions in bioethics, deepen their understanding of biological concepts, strengthen their critical-reasoning skills, and learn to engage in respectful dialogue with people whose views may differ from their own. The course culminates with a student-driven exploration into a particular bioethical issue, recognizing the unique role that bioethics plays within the field of ethics.

GOA210 Capitalism: Past, Present & Future

Understand the Economic System That Shapes Our World: Is capitalism the source of society's problems or one of the grandest achievements in human history? In this thought provoking course, you'll examine perspectives from both sides, exploring capitalism's components and impact on social, political, and economic systems worldwide. Through engaging case studies and historical examples, you'll dive into how capitalism has evolved and influenced societies.

GOA212 Climate Action & Sustainability

Build a Just and Sustainable Future: Explore the critical issues of climate change and its wide-reaching impacts on communities and ecosystems. In this course, you'll examine essential topics like climate justice, agriculture, wildfires, renewable energy, sea level rise, and invasive species—all through the lenses of equity and sustainability. Engage in hands-on projects to understand the causes and effects of climate change, dive into public policy and equity debates, and analyze how these issues shape the experiences of diverse populations around the world. Your journey will finish with a student-led project, creating an action plan for change in your community.

GOA321 Cybersecurity

Cyber criminals leverage technology and human behavior to attack our online security. This course explores the fundamentals of and vulnerabilities in the design of computers, networks, and the internet. Course content includes the basics of computer components, connectivity, virtualization, and hardening. Students will learn about network design, Domain Name Services, and TCP/IP. They will understand switching, routing and access control for internet devices, and how denial of service, spoofing and flood attacks work. Basic programming introduced in the course will inform hashing strategies, while an introduction to ciphers and cryptography will show how shared-key encryption works for HTTPS and TLS traffic. Students will also explore the fundamentals of data forensics and incident response protocols. The course includes analysis of current threats and best practice modeling for cyber defense, including password complexity, security, management, breach analysis, and hash cracking. Computational thinking and programming skills developed in this course will help students solve a variety of cybersecurity issues. There is no computer science prerequisite for this course, though students with some background will certainly find avenues to flex their knowledge.

GOA361 Data Visualization

Through today's fog of overwhelming data, visualizations provide meaning. This course trains students to collect, organize, interpret, and communicate massive amounts of information. Students will begin wrangling data into spreadsheets, learning the basic ways professionals translate information into comprehensible formats. They will explore charts, distinguishing between effective and misleading visualizations. Employing principles from information graphics, graphic design, visual art, and cognitive science, students will then create their own stunning and informative visualizations using Datawrapper, Tableau Public and/or Python. From spreadsheets to

graphics, students in this course will practice the crucial skills of using data to decide, inform, and convince. There is no computer science, math or statistics prerequisite for this course, though students with backgrounds in those areas will certainly find avenues to flex their knowledge in this course.

GOA350 Developmental Psychology

Over a few short years, most human beings grow from infants who are not even able to hold up their heads to become walking, talking, thinking people who are able to communicate using language, to understand complexities, to solve problems, and to engage in moral reasoning. This course is an introduction to the fascinating study of human growth and development focusing on the significant changes that occur physically, emotionally, cognitively and socially from birth through adolescence. Students consider the big questions of heredity versus environment, stability versus change, and continuity versus discrete stages of change as they investigate language acquisition, sensorimotor development, thinking and learning, and personality and emotions. Through readings, observations, case studies, and application activities, students examine development from the perspectives of major theorists in the field from both Western and non-Western traditions.

GOA214 Digital Photography

Tell Stories Through the Lens: Are you ready to see the world through a new lens? In this digital photography course, you'll learn to capture moments, places, and people in a way that tells a story only you can tell. From exploring your neighborhood to capturing diverse cultural perspectives, you'll create powerful images that showcase your creativity and refine your unique style. Along the way, you'll study the building blocks of photography, including composition and the exposure triangle, while experimenting with editing tools to bring your vision to life. You will examine the work of great photographers and experiment with techniques to turn ordinary scenes into extraordinary stories.

GOA285 Game Theory

In this course, we explore a branch of mathematics known as game theory, which uses mathematical models to inform decision making. There are many applications to everyday dilemmas and conflicts, many of which we can treat as mathematical games. We consider significant global events from fields like diplomacy, political science, anthropology, philosophy, economics, and popular culture. We examine models of world conflicts and scheduling of professional athletic contests. Specific topics include two-person zero-sum games, two person non-zero-sum games, sequential games, multiplayer games, linear optimization, and voting theory.

GOA315 International Relations

Are China and the U.S. on a collision course for war? Can the Israelis and Palestinians find a two-state solution in the holy land? Will North Korea launch a nuclear weapon? Can India and Pakistan share the subcontinent in peace? These questions dominate global headlines and our daily news feeds. In this course, you will go beyond the soundbites and menacing headlines to explore the context, causes, and consequences of the most pressing global issues of our time. Through case studies, you will explore the dynamics of international relations and the complex interplay of war and peace, conflict and cooperation, and security and human rights. Working with classmates from around the world, you will also identify and model ways to prevent, mediate, and resolve some of the most pressing global conflicts.

GOA366 Introduction to Blockchain & Cryptocurrency

Much attention has been brought to the cryptocurrency space by the meteoric rise in the valuation of Bitcoin and other cryptocurrencies. More recently, meme tokens have also grabbed the spotlight. When thinking about cryptocurrency, there is much more to consider than just market capitalization or coins named after canines. Introduction to Blockchain & Cryptocurrency is an entry level course for anyone excited by the space. This course explores how we arrived at the place we are now, and what the current and possible applications of crypto are. We'll explore how markets in crypto operate, where they've received practical application, and where the space may head in the future through the lenses of creators, consumers, and governments. In addition, we will take a deeper look at blockchain, the underlying technology that powers cryptocurrencies, and its

many, far-reaching implications for the future of government, business, the arts and more.

Each lens represents a different way to view the complex and interrelated causes and outcomes of the changing crypto landscape. Using a variety of technologies and activities, students work individually and with peers to evaluate each lens. Students then analyze and explore how these technologies may shape and disrupt the future not only of the crypto space, but of many current and future industries.

GOA216 Introduction to Branding & Marketing

Build Brands That Stand Out: Ever wonder what gives your favorite brands their unique edge? In today's digitized world, we're constantly bombarded by ads and content, making it harder for brands to capture and keep our attention. This course reveals what it takes to build an effective brand that authentically connects with consumers and leaves a lasting impact. You'll explore the core elements of branding—from visual identity and advertising strategy to content marketing and the nuances of the customer journey. You'll also explore how addressing ethical, social, and environmental issues can influence a brand's success.

GOA316 Introduction to Legal Thinking

Inspired by GOA's popular Medical Problem Solving series, this course uses a case-based approach to give students a practical look into the professional lives of lawyers and legal thinking. By studying and debating a series of real legal cases, students will sharpen their ability to think like lawyers who research, write and speak persuasively. The course will focus on problems that lawyers encounter in daily practice, and on the rules of professional conduct case law. In addition to practicing writing legal briefs, advising fictional clients and preparing opening and closing statements for trial, students will approach such questions as the law and equity, the concept of justice, jurisprudence and legal ethics.

GOA263 Introduction to Psychology

Understand the Human Mind: What does it mean to think like a psychologist? In this course, you'll explore three main perspectives—behavioral, cognitive, and sociocultural—to develop a well-rounded understanding of the human mind and behavior. You'll also examine how psychologists put what they know into practice through research methods, ethics, and real-world applications. Engage in hands-on projects, like analyzing adolescent psychology and creating a case study on depression. The course wraps up with a dive into positive psychology, giving you tools to understand how to live mentally healthy and fulfilling lives.

GOA281 Linear Algebra

In this course students learn about the algebra of vector spaces and matrices by looking at how images of objects in the plane and space are transformed in computer graphics. We do some paper-and-pencil calculations early in the course, but the computer software package Geogebra (free) will be used to do most calculations after the opening weeks. No prior experience with this software or linear algebra is necessary. Following the introduction to core concepts and skills, students analyze social networks using linear algebraic techniques. Students will learn how to model social networks using matrices as well as discover things about the network with linear algebra as your tool. We will consider applications like Facebook and Google. Prerequisite: Geometry and Algebra 2 or the equivalents.

GOA264 Medical Problem Solving I

In this course, students collaboratively solve medical mystery cases, similar to the approach used in many medical schools. Students enhance their critical thinking skills as they examine data, draw conclusions, diagnose, and identify appropriate treatment for patients. Students use problem-solving techniques in order to understand and appreciate relevant medical/biological facts as they confront the principles and practices of medicine. Students explore anatomy and physiology pertaining to medical scenarios and gain an understanding of the disease process, demographics of disease, and pharmacology. Additional learning experiences include studying current issues in health and medicine, interviewing a patient, and creating a new mystery case.

GOA269 Medical Problem Solving II

Medical Problem Solving II is an extension of the problem-based approach in Medical Problem Solving I. While collaborative examination of medical case studies remain at the center of the course, MPS II approaches medical cases through the perspectives of global medicine, medical ethics, and social justice. The course examines cases not only from around the world but also in students' local communities. Additionally, the course addresses the challenges patients face because of a lack of access to health care, often a result of systemic discrimination and inequity along with more general variability of health care resources in different parts of the world. All students in MPS II participate in the Catalyst Conference, a GOA-wide conference near the end of the semester where students from many GOA courses create and publish presentations on course-specific topics. For their projects, students use all of the lenses from the earlier parts of the course to choose and research a local topic of high interest. Further, their topics enable identifying a local medical problem, using local sources, and generating ideas for promoting change. Prerequisite: Medical Problem Solving I.

GOA363 Global Health

Help Solve the World's Health Challenges: What makes people sick? Why do health disparities persist both locally and globally? In this course, you'll explore the social and political factors that influence health and the biggest challenges in global health today. Using an interdisciplinary approach, you'll engage in analytical reading and writing, research, and collaborative projects. You'll examine case studies, present your findings, and gain a deeper understanding of the biology of diseases, the social determinants of health, and the roles of public and private organizations. Additionally, you'll learn how global health statistics shape our understanding of health inequities and critically analyze how the distribution of healthcare resources and access impact health equity worldwide.

GOA279 Multivariable Calculus I: Vector & Differential Calculus

This course is a prerequisite for Multivariable Calculus II: Integral Calculus.

Explore the Math of Higher Dimensions: Embark on an exciting journey into multivariable calculus through vector and differential calculus, setting the groundwork for advanced study in three-dimensional space. You'll begin with parametric equations, polar coordinates, and space curves to explore movement and paths in higher dimensions. Then you'll progress into three-dimensional coordinate systems, mastering vectors, dot and cross products, and equations of lines and planes in space. Dive deeper into vector functions, derivatives, integrals, arc length, and curvature to quantify the behavior of curves in space. Then you will be ready to analyze functions of several variables, using tools like limits, continuity, partial derivatives, and the gradient vector, and you'll apply these skills to optimization problems, including constrained optimization with Lagrange multipliers.

Prerequisite: A solid foundation in single-variable calculus,including integration techniques such as trigonometricsubstitution, integration by parts, and partial fractions. Completion of the AP® Calculus BC curriculum with a score of 4 or 5 on the AP® Exam would be considered adequate preparation.

GOA280 Multivariable Calculus II: Integral Calculus

Master Integrals, Theorems, and Beyond: In this advanced course, you'll dive deeper into multivariable calculus with a focus on integral calculus in multiple dimensions. Start with double integrals over rectangles and irregular regions, leveraging polar coordinates for applications like surface area, then advance to triple integrals in cylindrical and spherical coordinates. You'll also apply the change of variables technique to simplify complex integrations across various coordinate systems and explore vector fields, line integrals, Green's Theorem, curl, divergence, and parametric surface calculus. The course ends with surface integrals, leading to Stokes' Theorem and the Divergence Theorem— powerful tools in mathematics and physics.

Prerequisite: Successful completion of Multivariable Calculus I: Vector & Differential Calculus, and the

equivalent of a university year of single-variable calculus with integration techniques, including trigonometric substitution, integration by parts, and partial fractions. Completion of the AP® Calculus BC curriculum with a score of 4 or 5 on the AP® Exam would be considered adequate preparation.

GOA290 Neuropsychology

Neuropsychology is the exploration of the neurological basis of behavior. Within this course, students will learn about basic brain anatomy and function as well as cognitive and behavioral disorders from a neurobiological perspective. They will do an in depth analysis of neural communication with an emphasis on how environmental factors such as smartphones affect nervous system function, their own behaviors, and the behaviors of those around them. Students will also have the opportunity to choose topics in neuropsychology to explore independently including Alzheimer's disease, Addiction, Neuroplasticity, and CTE and share their understanding with their peers in a variety of formats. The course concludes with a study of both contemporary and historic neuropsychological case studies and their applications to everyday life.

GOA298 Number Theory

Once thought of as the purest but least applicable part of mathematics, number theory is now by far the most commonly applied: every one of the millions of secure internet transmissions occurring each second is encrypted using ideas from number theory. This course covers the fundamentals of this classical, elegant, yet supremely relevant subject. It provides a foundation for further study of number theory, but even more, it develops the skills of mathematical reasoning and proof in a concrete and intuitive way and is necessary preparation for any future course in upper-level college mathematics or theoretical computer science. We progressively develop the tools needed to understand the RSA algorithm, the most common encryption scheme used worldwide. Along the way we invent some encryption schemes of our own and discover how to play games using number theory. We also get a taste of the history of the subject, which involves the most famous mathematicians from antiquity to the present day, and we see parts of the story of Fermat's Last Theorem, a 350-year-old statement that was fully proven only twenty years ago. While most calculations will be simple enough to do by hand, we will sometimes use the computer to see how the fundamental ideas can be applied to the huge numbers needed for modern applications. Prerequisite: A strong background in precalculus and above, as well as a desire to do rigorous mathematics and proofs.

GOA322 Perspectives on Gender & Culture

Explore Identity Across Cultures and Time: How does gender shape the world around us? This dynamic course uses the concept of gender to explore a wide range of current topics, from feminism and LGBTQ+ studies to popular culture and politics. You'll investigate how gender intersects with other social identifiers like class, race, sexual orientation, culture, and ethnicity. Through engaging readings, thoughtful writing, and lively discussions, you'll analyze gender issues and reflect on how they have shaped both your experiences and those of your global peers.

Note: This course is a retitled version of the course that was called Gender & Society through the 2025-2026 school year. Students who have already taken Gender & Society should consider choosing a different course.

GOA305 Positive Psychology

What is a meaningful, happy, and fulfilling life? The focus of psychology has long been the study of human suffering, diagnosis, and pathology, but in recent years, however, positive psychologists have explored what's missing from the mental health equation, taking up research on topics such as love, creativity, humor, and mindfulness. In this course, we will dive into what positive psychology research tells us about the formula for a meaningful life, the ingredients of fulfilling relationships, and changes that occur in the brain when inspired by music, visual art, physical activity, and more. We will also seek out and lean on knowledge from positive psychology research and experts, such as Martin Seligman's well being theory, Mihaly Csikszentmihalyi's idea of flow, and Angela Lee Duckworth's concept of grit. In exploring such theories and concepts, students will imagine and create real-world measurements using themselves and willing peers and family members as

research subjects. As part of the learning studio format of the course, students will also imagine, research, design, and create projects that they will share with a larger community. Throughout the development of these projects, students will collaborate with each other and seek ways to make their work experiential and hands-on. Students will leave the class with not only some answers to the question of what makes life meaningful, happy, and fulfilling, but also the inspiration to continue responding to this question for many years to come.

GOA310 Prisons and Criminal Justice Systems

How do societies balance individual freedoms with security? How do definitions of "crime" and "punishment" shift across jurisdictions and time periods? How do recent protests and discussions about racial biases and systemic racism inform our understanding of criminal law and its applications? Although the United States has been frequently cited as having the highest "mass incarceration" rate, other countries in the world have also been criticized for injustices in their criminal justice systems. In this course, students become familiar with the legal rules and institutions that determine who goes to prison and for how long. Along the way, students gain a concrete, practical understanding of legal systems while grappling with mass incarceration as a legal, ethical, and practical issue. To understand current views on crime and criminal punishments and to examine proposed systemic reforms, we immerse ourselves in the different forms of rhetoric and media that brought the U.S. and other nations to our present. We read and analyze jury arguments, courtroom motions, news op-eds, judicial decisions, recent cases, and other forms of public persuasion that shape the outcomes of criminal defendants. The final project requires students to advocate for a major reform to a criminal justice system in a city, state, or country. Having developed research skills, students apply them to build an effective argument that includes a real-world solution.

GOA317 Race, Culture & Community

Explore the Dynamics of Social Construct: What is race? Is it something we're born with, or is it an idea created by society? Is it an identity we perform? A privilege for some? And how do the ways people understand race vary around the world? In this course, you'll dive into these essential questions, examining race as a social construct that has a profund imapct on societies and cultures. Through thought-provoking readings, films and guest speakers from fields like history, sociolog , anthropology, and literature, you'll research, reflect on, and discuss the intricate dynamics of race and society across different times and places.

GOA367 Social Psychology

Are you thinking and acting freely of your own accord or is what you think, feel, and do a result of influences by the people around you? Social psychology is the scientific study of how and why the actual, imagined, or implied presence of others influences our thoughts, feelings, and behavior. The principles of social psychology help explain everything from why we stop at stop signs when there is no one around to why we buy certain products, why in some situations we help others and in some we don't, and what leads to more dramatic (and catastrophic) events such as mass suicides or extreme prejudice and discrimination. As we take up these topics and questions, students will build and engage in a community of inquiry, aimed primarily at learning how to analyze human behavior through the lens of a social psychologist. Social Psychology invites students to explore, plan, investigate, experiment, and apply concepts of prejudice, persuasion, conformity, altruism, relationships and groups, and the self that bring the "social" to psychology. The course culminates in a public exhibition of a student-designed investigation of a social psychological topic of their choice. This course uses a competency-based learning approach in which students build GOA core competencies that transcend the discipline and learn how to think like a social psychologist. Much of the course is self-paced; throughout the semester, students are assessed primarily in relation to outcomes tied to the competencies.

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