



GERMANTOWN FRIENDS SCHOOL

**2023-24**

**UPPER SCHOOL**

**COURSE**

**CATALOG**

## 2023–24 UPPER SCHOOL

# Academic Leadership

## DEPARTMENT CHAIRS

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### CLASSICS

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### COMPUTER SCIENCE + DIGITAL MEDIA

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### DIRECTED INDEPENDENT STUDY

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### MATHEMATICS

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### MODERN LANGUAGES

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### MUSIC

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### PHYSICAL EDUCATION

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### SCIENCE

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### THEATRE

Jake Miller



## LEARNING EXPERIENCES

### *January Term*

Kasey Henderson

### *Junior Projects*

Andrew Westerhaus

### *Global Online Academy*

Matt Zipin, On-site Director



### DIRECTOR OF UPPER SCHOOL

Matthew Young

### DIRECTOR OF ACADEMIC PROGRAM

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### DIRECTOR OF ATHLETICS

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### ASSISTANT DIRECTOR OF UPPER SCHOOL FOR STUDENT LIFE

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### ADMINISTRATIVE ASSISTANT

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### 9TH GRADE DEAN

Rachel Bradburd

### 11TH GRADE DEAN

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### 10TH GRADE DEAN

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### 12TH GRADE DEAN

Rob Goodman

## CONTENTS

Course Selection Process	2
Graduation Requirements	3
Quick Reference Terms	4
Program Highlights and Notes	5
Departmental Approval Required	6
Thematic Strands Across the Curriculum	7
Four-Year Course Planning Grid	8
Departmental Course Offerings Grid	10
Course Offerings by Department	16
Athletics	19
Directed Independent Study	28
Junior/Senior Seminars	41
Additional Offerings	41
Required Programs	68
January Term	
Junior Projects	
Global Online Academy	69



# Course Selection Process

## NOTE TO STUDENTS AND PARENTS

The course selection process for the 2023-24 school year begins here. Within these pages, you will find your course and program options as well as detailed information about requirements and prerequisites. 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 exciting offerings, some returning and some brand new. We hope you enjoy planning your journey at GFS!

## CONSIDERING COLLEGE ADMISSIONS AS YOU PLAN

GFS course requirements allow students the flexibility to not only pursue their intellectual passions but also to experiment. As they plan, students should 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 also an important as well as rewarding part of your high school experience.

## FOUR-YEAR COURSE PLANNING GRID

The planning grid on page 10 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, for a variety of reasons, require departmental approval. That information is listed on the departmental pages in this course catalog and on the grid (beginning on page 6).

## COURSE SELECTION TIMELINE

- Beginning in late January, students seek course selection advice from parents, teachers, and advisors. On occasions 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 6th, 2023, and close on Friday, February 17th, 2023. 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 two 8-day rotations 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)**

- Comparative Cultures (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.

## OTHER GRADUATION REQUIREMENTS

**January Term:** Students complete January Terms in grades 9, 10, and 12. Please note that in 2021 May Term was held and satisfies the January Term Requirement for that year.

**Junior Project:** An independent, out-of-school project that takes place during the month of January of junior year.

## REQUIRED MINOR COURSEWORK

### ARTS MINORS REQUIREMENTS

Please note: Our expanded Arts Requirements became effective in the 2020-21 school year.

#### Class of 2024 and all subsequent classes

- 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)

### 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.



## 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.

### **Art, Music, Computer Science or Theatre Major**

A configuration of minor courses that can, with the permission of the relevant Department Head, form an art, music, computer science or theatre major course that counts as one of the major courses for graduation. 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.



## 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 off-campus 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.

### REGISTRATION NOTES

#### Minor Classes

Please rank your minor course selections as instructed at the time of course signup.

#### 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.

#### History Electives

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



## 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.

### ART

Students creating an Art Major  
Students electing Senior Studio (portfolio also required)

### CLASSICS

Students dropping a classical language

### COMPUTER SCIENCE

Students creating a Computer Science major

### MATHEMATICS

Please see the Mathematics course descriptions for departmental approval requirements  
Students moving into or out of an accelerated or advanced course  
Students dropping math in their senior year  
Students new to GFS must take a math assessment; course placement must have departmental approval

### MODERN LANGUAGES

Students taking Advanced classes or dropping a modern language

### MUSIC

Students creating a Music Major  
Admission to Choir and A Cappella is audition-based

### 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 Biology: Advanced, Physics: Advanced, Chemistry: Advanced, or Principles of Engineering: Advanced

### THEATRE

Students creating a Theatre Major  
Students electing Theatre Lab  
Students participating in a theatre production may elect to delay a season of athletics participation to the following year with department approval

### DIRECTED INDEPENDENT STUDY (DIS)

Students registering for a DIS Major must submit a formal proposal by early May 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 will need to register with the approval of the Upper School Division Director

### EXCEPTIONS/ALTERNATIVES TO REQUIREMENTS

Any request for alternatives to our standard program can be directed to the Upper School Division 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 Change and Global Inequality (GOA)  
Genocide and Human Rights  
History and Impact of Hip Hop  
Girls Who Code  
Literature of the Diaspora  
Prison and Criminal Justice System (GOA)  
Public Health and Modern Society  
Queer Culture  
Race and Society (GOA)  
Social Justice Lab  
Women's History

### **SCIENCE, ENGINEERING & PROGRAMMING**

Abnormal Psychology (GOA)  
Accelerated Statistics  
Application in Statistics  
Architecture (GOA)  
Bioethics (GOA)  
Computer Science Programming Capstone  
Cybersecurity (GOA)  
Developmental Psychology (GOA)  
Differential Calculus  
Game Theory (GOA)

Environmental Science  
Human Anatomy and Physiology  
Integral Calculus and Series  
Linear Algebra (GOA)  
Medical Problem Solving (GOA)  
Mobile Application Development  
Multivariable Calculus (GOA)  
Number Theory (GOA)  
Principles of Engineering  
Psychology: Introduction to Psychology (GOA)  
Robotics  
Social Psychology (GOA)  
Topics in Advanced Mathematics I & II

### **DIGITAL MAKING & DESIGN**

Digital Art  
Digital Design I and II  
Digital Music and Recording  
Digital Photography (GOA)  
Filmmaking  
Film Editing and Post-Production  
Machine Studio  
Mixed-Media Animation  
Web Design and Development

### **INTERDISCIPLINARY**

African American Studies  
Art History  
Bioethics (GOA)  
Digital Humanities  
History of Science  
Macroeconomics (GOA)  
Microeconomics (GOA)  
Positive Psychology (GOA)  
Queer Culture  
School Days; History and Philosophy of Education  
History and the Future of Language  
Media Studies  
Film Making

### **WRITING & MEDIA**

Poetry Workshop  
Short Story Workshop  
Sketch Comedy & Improvisation  
Peer Writing Advisors  
Introduction to Journalism  
Podcast Journalism

### **ENTREPRENEURSHIP**

Arts & Entrepreneurship (GOA)  
Applied Economics  
Investment (DIS)  
Business Problem Solving (GOA)  
Entrepreneurship in a Global Context (GOA)

# FOUR-YEAR COURSE PLANNING GRID

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



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
<b>English</b> 4 years	Major Seminar	Major Seminar
<b>History</b> 3 years	US History: Advanced, must be taken in Eleventh or Twelfth grade	
<b>Language</b> Through Level 3		
<b>Mathematics</b> 3 years		
<b>Science</b> 3 years		
<b>Jr/Sr Seminar</b>		
MINORS		
<b>Advisory</b>	Navigation	Life Issues (Coordinated with Health)
<b>Art</b> 1 year		
<b>Computer Science + Digital Media</b>		
<b>Theatre</b>		
<b>Health</b> 1 semester	N/A	Life Issues (Coordinated with Advisory)
<b>Music</b> 1 year		
<b>GOA, DIS &amp; Other</b>		
ATHLETICS & PHYSICAL EDUCATION		
	<b>FULL YEAR</b> • Three seasons, choice of Athletics or PE	<b>TWO SEASONS</b> • Choice of Athletics or PE
	<b>F</b>	<b>F</b>
	<b>W</b>	<b>W</b>
	<b>S</b>	<b>S</b>

# DEPARTMENTAL COURSE OFFERINGS GRID

COURSE TITLE	GRADE				TIMES PER CYCLE	INFORMATION
	9	10	11	12		
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
Digital Art		•	•	•	4	minor elective; prerequisite: Foundation
Photography I			•	•	3+	minor elective; prerequisite: Foundation
Photo II: The Journey Continues				•	3+	minor elective; prerequisite: Photo I
Art History: The Individual and Society		•	•	•	3	minor elective; prerequisite: Foundation
Senior Studio: Advanced				•	5	major elective; prerequisite: Foundation, departmental approval
Art Major		•	•	•		Art History + studio course or two studio courses, 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: Advanced		•	•	•	5	major elective; prerequisite: Latin III Republic to Empire
Latin V: Advanced			•	•	5	major elective; prerequisite: Latin IV, departmental approval
History and Future of Language		•	•	•	3	minor elective
COMPUTER SCIENCE + DIGITAL MEDIA						
Robotics	•	•	•	•	3	minor elective (one semester)
CS I: Introductory Programming (Python)	•	•	•	•	2	minor elective
Introductory Programming: 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			•	•	3	minor elective; prerequisite: CS II, or departmental approval
Computer Science Programming Capstone			•	•	3	minor elective; prerequisite: CS III or departmental approval

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

COURSE TITLE	GRADE				TIMES PER CYCLE	INFORMATION
	9	10	11	12		
Digital Design I	•	•	•	•	3	minor elective
Web Design & Development I	•	•	•	•	3	minor elective
Web Design & Development II		•	•	•	3	minor elective, pre-requisite Web Design & Development I or departmental approval
Mobile Application Development I	•	•	•	•	3	minor elective
Machine Studio			•	•	3	minor elective
Game Design I	•	•	•	•	3	minor elective
Electronics Design Workshop		•	•	•	3	minor elective, departmental approval, pre-requisite CSI or Robotics



## ENGLISH

Introduction to Literary Studies	•				5	
Literary History and Analysis		•			5	
American Literature - In Search of the American Dream: Advanced			•	•	5	requirement-fulfilling major seminar
Literature of Diaspora - Far From Home: Advanced			•	•	5	requirement-fulfilling major seminar
British Literature: Advanced			•	•	5	requirement-fulfilling major seminar
Modernist and Post-Modernist Literature: Advanced			•	•	5	requirement-fulfilling major seminar
Tragedy and Comedy (and Everything in Between): Advanced			•	•	5	requirement-fulfilling major seminar
Bodies and Selves in Literature: Advanced			•	•	5	requirement-fulfilling major seminar
Literary Studies in Genre: Advanced			•	•	5	requirement-fulfilling major seminar
The Romantic and Gothic Literary Traditions: Advanced			•	•	5	requirement-fulfilling major seminar
War and Peace in Literature: Advanced			•	•	5	requirement-fulfilling major seminar
Contemporary Literature: Advanced			•	•	5	requirement-fulfilling major seminar
Short Story Workshop		•	•	•	3	minor elective
Poetry Workshop		•	•	•	3	minor elective
Peer Writing Advisor Training and Practice		•	•	•	3	minor elective
Introduction to Journalism	•	•	•		2	minor elective
Podcast Journalism		•	•	•	3	minor elective



## HEALTH EDUCATION

Health Education 10		•			3	required minor
Life Issues				•	1	required minor (coordinated with Advisory)
Queer Culture: Past, Present and Future	•	•	•	•	3	minor elective
Public Health and Modern Society	•	•	•	•	3	minor elective



## HISTORY

Comparative Cultures	•				5	required major
African American History		•			5	required major
United States History: Advanced			•	•	5	required major

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

COURSE TITLE	GRADE				TIMES PER CYCLE	INFORMATION
	9	10	11	12		
<b>HISTORY ELECTIVES</b>			•	•	5	major elective
<b>One Year Elective:</b> Capitalism & Its Discontents: Advanced  <b>Fall Semester Electives:</b> <ul style="list-style-type: none"> <li>• School Days: History and Philosophy of Education: Advanced</li> <li>• History of Science: The Origins of Modern Science: Advanced</li> <li>• Europe: World War II and Beyond: Advanced</li> </ul> <b>Spring Semester Electives:</b> <ul style="list-style-type: none"> <li>• History of Science: Biology from Darwin to DNA: Advanced</li> <li>• Genocide and Human Rights: Advanced</li> <li>• Women's History: Advanced</li> </ul>						
<b>JUNIOR-SENIOR SEMINARS</b>						
Media Studies			•	•	5	major elective
<b>ADDITIONAL OFFERINGS</b>						
Social Justice Lab	•	•	•	•	2	minor elective
<b>MATHEMATICS</b>						
Please see Mathematics section for course sequencing options, prerequisites, and departmental approval requirements.						
<b>MODERN LANGUAGES</b>						
French I	•	•	•		5+	major elective
French II	•	•	•	•	5+	major elective; prerequisite: French I
French III		•	•	•	5	major elective; prerequisite: French II
French IV: Advanced			•	•	5	major elective; prerequisite: French III
French V: Advanced			•	•	5	major elective; prerequisite: French IV
Mandarin I	•	•	•		5	major elective
Mandarin II	•	•	•	•	5	major elective; prerequisite: Mandarin I
Mandarin III	•	•	•	•	5	major elective; prerequisite: Mandarin II
Mandarin IV and V: Advanced	•	•	•	•	5	major elective; prerequisite: Mandarin III or IV
Spanish I	•	•	•		5+	major elective
Spanish II	•	•	•	•	5+	major elective; prerequisite: Spanish I
Spanish III		•	•	•	5	major elective; prerequisite: Spanish II
Spanish IV: Advanced		•	•	•	5	major elective; prerequisite: Spanish III
Spanish V: Advanced			•	•	5	major elective; prerequisite: Spanish IV
<b>MUSIC</b>						
<b>FALL</b>						
Music Connections: Renaissance, Baroque and Classical Periods	•	•	•	•	2	minor elective (one semester)

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

COURSE TITLE	GRADE				TIMES PER CYCLE	INFORMATION
	9	10	11	12		
Musical Instrument Building: Winds and Strings	•	•	•	•	3	minor elective (one semester)
Critical Listening in Music	•	•	•	•	2	minor elective (one semester)
History and Impact of Hip-Hop	•	•	•	•	2	minor elective (one semester)
Songwriting	•	•	•	•	2	minor elective (one semester)
<b>SPRING</b>						
Ninth Grade Musical	•				2+	minor elective (one semester)
Songwriting	•	•	•	•	2	minor elective (one semester)
Critical Listening in Music	•	•	•	•	2	minor elective (one semester)
Musical Instrument Building: Drums and Electric Instruments	•	•	•	•	2	minor elective (one semester)
Music Connections: Romantic, 20th Century, and Modern Periods	•	•	•	•	2	minor elective (one semester)
History and Impact of Hip-Hop	•	•	•	•	2	minor elective (one semester)
<b>YEARLONG</b>						
Conducting	•	•	•	•	2	minor elective
Jazz Ensembles	•	•	•	•	3	minor elective; co-requisite: private lessons
Chamber Ensembles	•	•	•	•	2	minor elective; co-requisite: private lessons
Orchestra	•	•	•	•	3+	minor elective; co-requisite: private lessons
World Percussion Ensemble	•	•	•	•	3	minor elective
Chorus	•	•	•	•	2	minor elective
Choir	•	•	•	•	3+	major elective (Sunday rehearsals), departmental approval, co-requisite Chorus or A Cappella
A Cappella		•	•	•	2+	minor elective
Musical Theatre		•	•	•	3	minor elective (can be taken for Music or Theatre credit)
Sight Singing & Ear Training	•	•	•	•	2	minor elective
Music Theory I	•	•	•	•	4	minor elective
Music Theory II: Advanced		•	•	•	4	minor elective; prerequisite: Music Theory I or departmental approval
Music Composition I			•	•	4	minor elective
Music Composition II: Advanced			•	•	5	major elective; prerequisite: Music Composition I or departmental approval
Digital Music Recording & Production	•	•	•	•	2	minor elective
 <b>PHYSICAL EDUCATION</b>						
Please see PE section for more information about requirements and electives.						
PE 9 Fitness and Wellness	•				3	required minor (one semester)
<b>YEARLONG</b>						
GFS Fitness Club - After School		•	•	•	2/wk	minor elective
Personal Fitness		•	•	•	3	minor elective

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

COURSE TITLE	GRADE				TIMES PER CYCLE	INFORMATION
	9	10	11	12		
Vinyasa Yoga		•	•	•	1-2	minor elective; Thursdays, 3:30–4:30 p.m.
PE Classics		•	•	•	2	minor electives
<b>FALL</b>						
Badminton/Net Games		•	•	•	2	minor elective
Wissahickon Hiking		•	•	•	2+	minor elective
Movement for Theatre		•	•	•	2	minor elective (one semester); can be taken for Theatre or PE credit
<b>WINTER</b>						
Archery		•	•	•	2+	minor elective
Volleyball/Table Tennis		•	•	•	2	minor elective
World Dance		•	•	•	2+	minor elective; can be taken for Theatre or PE credit
<b>SPRING</b>						
Ultimate Frisbee/Disc Golf		•	•	•	2+	minor elective
Archery		•	•	•	2	minor elective
Modern Dance		•	•	•	2	minor elective (one semester); can be taken for Theatre or PE credit
<b>SCIENCE</b>						
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
Human Anatomy and Physiology		•	•	•	3	minor elective
<b>THEATRE</b>						
<b>THEATRE COURSES</b>						
Ninth Grade Theatre	•				3	required minor (one semester)
Ninth Grade Musical	•				2+	minor elective (one semester), can be taken for Music or Theater credit
Acting and Directing Techniques		•	•	•	3	minor elective
Acting for the Screen			•	•	2	minor elective (one semester)

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



COURSE TITLE	GRADE				TIMES PER CYCLE	INFORMATION
	9	10	11	12		
Sketch Comedy & Improvisation		•	•	•	3	minor elective
Musical Theatre		•	•	•	3	minor elective (can be taken for Theatre or Music credit)
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
Theatre Major*			•	•	5	major elective, departmental approval
<b>DANCE &amp; MOVEMENT COURSES</b>						
Movement for Theatre		•	•	•	2	minor elective; can be taken for Theatre or PE credit (one semester)
World Dance		•	•	•	2	minor elective; can be taken for Theatre or PE credit (one semester)
Modern Dance		•	•	•	2	minor elective; can be taken for Theatre or PE credit (one semester)
<b>TECHNICAL THEATRE COURSES</b>						
Technical Theatre I	•	•	•	•	2	minor elective
Technical Theatre II		•	•	•	2	minor elective; prerequisite: Technical Theatre I
Technical Theatre III			•	•	2	minor elective; prerequisite: Technical Theatre I & II
Scenic & Costume Design		•	•	•	3	minor elective
<b>FILMMAKING COURSES</b>						
Filmmaking I		•	•	•	3	minor elective (yearlong)
Filmmaking IIA			•	•	3	minor elective; (one semester) prerequisite: Intro to Filmmaking I
Filmmaking IIB			•	•	3	minor elective; (one semester) prerequisite: Intro to Filmmaking I
Filmmaking III				•	3	minor elective; prerequisite: Filmmaking I <i>and</i> Filmmaking IIA or IIB
 <b>DIRECTED INDEPENDENT STUDY</b>						
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)
 <b>GLOBAL ONLINE ACADEMY (GOA)</b>						
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 provides depth and breadth - students are introduced to appropriate skills and concepts that gradually build in complexity. Through the exploration of various materials and media, students investigate formal and conceptual issues with increasing independence. We are concerned not only with the making of art but also with the development of critical thinking, visual literacy, and art history awareness. Using a problem-solving format, criteria are first presented and examined, and then students develop individual solutions to answer assigned problems creatively. Each assignment culminates in a group critique in which students use appropriate visual arts language to inform their critical thinking. Students learn to recognize effective visual communication and to appreciate the uniqueness and diversity of effective responses.

- 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.

## » ART MAJOR

An Art Major is comprised of two art minors taken simultaneously. These two courses make up an Art Major. At course sign-up, students in grades 10-12 wishing to create an Art Major should select their two minors and also select ART790 Art Major.

## » ART GRADUATION REQUIREMENT

As of the class of 2024, and for all subsequent classes, 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, and figure/ground. Each unit of study is tailored to build technical skill and theoretical understanding, as well as to develop critical thinking and problem-solving skills regardless of prior experience. Through critiques, students learn to use a visual vocabulary to analyze the effectiveness 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 layout and design, using elements of realistic and abstract form. Assignments emphasize creative

problem solving and varying conceptual exercises, the solutions to which may be used for school publications. Multiple techniques and media will be used including collage, drawing, painting, and digital media. Skill development will underlay all of our studies. Enrollment is limited to 12 students per section.

## **ART840** Drawing & Painting

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

The year will begin with drawing. We will define drawing in many ways, from the observed and structural to the expressive and conceptual. A variety of media will be introduced throughout the course. Painting will follow as a natural outgrowth, with a focus on color, value, and materials. There will be continual emphasis on the traditional subjects of figure, landscape, and still life, as well as on the first steps the young artist takes in finding their own subjects and style. Enrollment is limited to 12 students per section.

## **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 table saw, band saw, miter saw, routing table, and power tools. Students will first learn about joinery focusing on the mortise and tenon followed by designing and creating a scale drawing. Students will undertake a major furniture project determined by their interests and skills. Enrollment is limited to 10 students.

## **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, 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 own 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. Enrollment is limited to 12 students per section.

## **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. Because space is limited, students electing this course should specify a 2nd/3rd art course choice when they sign up. Enrollment is limited to 12 students per section.

*\*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. Enrollment is limited to 12 students per section.

## **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. Enrollment is limited to 12 students per section.

## **ART731** Art History: The Individual and Society

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

In Art History we will use the structure of themed inquiry to look at western and non-western art across history. Artworks will be studied through the lens of “The Individual and Society,” allowing students to explore the role of art in the making, changing and maintaining the elements of society and how this impacts the human experience across various cultures and periods of history. The themes that will be examined under this lens will be: Patronage and Commerce in Art, Sacred Spaces, Art as Resistance, Genre in Art and the Role of the Audience in Art.

The major goal of this course is to give students a grounding in looking at art and making sense of what they see. As they learn the skills of observation, analysis, and interpretation, students examine the stylistic, iconographic and technical development of architecture, painting, sculpture, and craft art.

Themes will be on a two-year rotation, allowing students to take the course twice. Art History: Nature, Spirit and Religion will be offered in 2024-25.

## **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 aesthetic skills, and the development of original, personal vision. Both classical and contemporary approaches to visual arts will receive attention with particular emphasis on personal expression through the synthesis of formal considerations. 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 for college admissions. Regular homework and some reading and critical writing are required. Enrollment is limited to 12 students per section and will be determined by a portfolio evaluation plus one directed assignment.

# 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
	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 trip to Greece in 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, 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 increasing 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.



## **CLA510** Latin IV: Advanced

major elective | grades: 10, 11, 12 | prerequisite: Latin III – Republic to Empire

In this course, we will focus on Vergil's Aeneid as a literary, historical, and philosophical text, and will discuss such topics as the nature of epic and the use of symbolism in poetry. While continuing to refine their skills in translation, use of meter, and knowledge of literary devices, students will also consider the Aeneid's place in the broader, inter-cultural literary tradition, both as inheritor of the earlier epics and as influencer on later works. Students will also produce a film for Classics Day.

## **CLA610** Latin V: Advanced

major elective | grade: 11, 12 | prerequisite: Latin IV, departmental approval required

Students will read, discuss, and write on a variety of Roman authors and topics, chosen in consultation between the students and the teacher. Readings chosen will allow for continuing exploration of issues vital to both the Roman and contemporary worlds and will be explored with a lens that focuses upon social contexts, historical and cultural background, and literary interpretation. On Classics Day, Latin V students stage a Roman triumph, having first read about triumphs in ancient prose and poetry. Other projects will be developed in consultations between teacher and students.

## **CLA800** History and Future of Language

minor elective | grades: 10, 11, 12

In this course, students will examine the evolution of spoken and written language, the story of the English language, the current state of languages around the world, and future linguistic possibilities on the global stage. Students will study the science, sounds and psychology of language, the relationships between languages around the world, how languages change over time, and language current events, while considering concepts of universality, globalization, and identity.

# COMPUTER SCIENCE + DIGITAL MEDIA

The Computer Science and Digital Media Department provides coursework rich in opportunities for building fundamental skills and exploring programming, robotics, electronics, and digital design. Our programming language of choice is the widely-used Python, a favorite for introductory courses in high schools and colleges due to its gentle learning curve. Additional levels of programming offer our student programmers a substantial forum for learning the skills and techniques necessary for sophisticated large-scale projects. Digital Media coursework at GFS, combining technology and design, provides students with the opportunity to develop design skills and explore the creative potential of technology, using the suite of offerings associated with the Adobe Creative Cloud. The department revises its courses every year to account for student interest and the dynamics of this rapidly changing field. All Computer Science + Digital Media classes are pass/fail.

## » COMPUTER SCIENCE MAJOR

A Computer Science Major is comprised of two eligible minors taken simultaneously. At course sign-up, students wishing to create a Computer Science Major should select CS990 Computer Science Major.

### CS111 Robotics

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

This fun one-semester, no-homework minor elective uses robots to introduce students to the intersection of computer programming and mechanical/electronic devices. Students will assemble robots and then learn to program them to perform tasks, ranging from simple (moving forward, turning on a light, etc.) to complex (finding and retrieving an object, playing soccer, etc.). Most units culminate in an exciting challenge: teams of students try to get their robot to accomplish a task (e.g., robot bowling, relay races, tug of war) more effectively than the other teams. No previous experience in robotics or programming is necessary. Students signing up for Robotics may request their preferred semester, first or second. Enrollment is limited to 12 students per section.

### CS130 Computer Science I: Introductory Programming with Python

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

This full-year minor elective seeks to introduce students to computer programming. We will focus on learning Python, a programming language used at many colleges and high schools as their introductory language. The learning curve for Python is gentle, so students learn the basics quickly and produce simple programs easily. Students will progress to more advanced projects, such as interactive games, card games, and casino simulations.

No previous experience is necessary.

## **CS131** Introductory Programming: Girls Who Code

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

This Girls Who Code section of Introductory Programming (see previous course description) will also include meetings with women in the field to discuss their work in technology.

No previous experience is necessary.

*A Note on Introductory Programming: Girls Who Code – To encourage girls to study technology, we offer this “girls only” section of Introductory Programming. This section reflects our desire to address the gender gap in technology and engineering. Girls are welcome to take either Introductory Programming offering.*

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

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

This full-year elective course builds on the skills developed in CS I. The course continues to use Python to examine more advanced topics in programming and introduces students to R, a data science program used for statistical analysis. The class will explore data collection, visualization, and analysis using R and topics such as graphics, user interface, abstraction, recursion, hash tables, and object-oriented programming using Python. This class also serves as a brief introduction to the concept of machine learning and algorithms. Students will spend a mixture of their time learning concepts and working on their own programs, either in collaboration or independently.

## **CS150** Computer Science III: Algorithms & Computer Organization

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

This course is split into two units. The first unit consists of exploring algorithms and data structures with Java, an object-oriented programming language. This will introduce students to the language that is featured on the AP exam (GFS does not require or discourage students from taking AP exams). The second unit introduces students to computer

organization, or how a computer works. They will learn about digital logic and explore how transistors interact by modeling them with Arduino boards. Students will be briefly introduced to low-level languages such as C and Assembly.

## **CS155** Computer Science Programming Capstone

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 programming. It builds on the concepts and skills covered in the CS-II and III programming classes. 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 skills and knowledge and to produce an appropriate programmatic outcome. Based on student interest, students in the course will drive the content of the class.

## **CS171** Digital Design I

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

This introductory survey course is open to students eager to explore and develop their creative and technical design skills. While following industry-level digital design methodologies and practices, students gain experience with Adobe Creative Cloud tools including Illustrator, Photoshop, and InDesign. Students apply their knowledge and skills to create a variety of hands-on projects in vector illustration, digital compositing and online graphics, and print media design. Supporting topics include creative direction, typography, design principles and techniques, and human-centered design. Throughout the course, class readings and discussions introduce a historical overview as well as emerging trends, and students share their original work and critically reflect on their classmates' work as well as real-world examples. Students apply their skills in several design projects, as well as a final project to create an original design on a topic of the student's choice. Projects may include work on student publications such as *Earthquake*, *Polyphony*, and *Anno*.

## **CS160** Web Design & Development I

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

This course covers the basics of designing web-sites, as well as web development using the HTML and CSS authoring languages. Students learn about the creative design of web-sites, including the strengths, constraints, and limitations of this medium of communication. Students code their own web pages from scratch, using the latest web standards and tools, such as HTML5, CSS3, coding software, wireframing, and browser tools and plug-ins for web developers. Students complete several assignments and projects to master the course objectives, including a final project to create an original design for a microsite on a topic of the student's choice. To support their work, students complete readings from the course texts and selected articles; they share their original work and critically reflect on real-world examples.

## **CS170** Web Design & Development II

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

This course builds upon the principles and skills acquired during the Web Design & Development course. Students learn more advanced CSS3 coding techniques to create web pages employing the latest trends and standards in web design, including CSS animations and Javascript plugins for increased interactivity. Students learn how to better control the layout and responsiveness of their web pages using advanced CSS layout and grids, and responsive web design. Projects are completed using code editing software and developer tools, and 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 popular web publishing software such as EditorX, Wordpress, or another content management software. Throughout the course, students share their original work and critically reflect on their classmates' work as well as real-world examples. Readings, guest speakers, and hands-on projects expose students to opportunities available in creative technology fields.

## **CS180** Mobile Application Development I

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

Mobile Application Development (M.A.D.) I is an entry-level course in the Computer Science and Digital Media Department. This elective course presents students with key concepts and terminology involved in mobile technologies. Students of all coding experience levels are welcome, as this class is responsively designed around student interest and familiarity with technology. Topics covered in this course include user experience design, interface design, business analysis, technical documentation, and project management. This project-based course will operate like a start-up and allow students to work in teams to create a mobile application that solves a problem for a specific group.

## **CS200** Machine Studio

minor elective | grades: 11, 12

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. Enrollment is limited to 12 students.

## **CS300** Game Design I

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

This course will introduce students to the Game Development Process. Students will explore the process of planning, producing, and testing video games. Students will begin the year by creating demo versions of popular games, such as Asteroids and Mario. Following the completion of the demos, students will follow the game development process to create a game of their own. Students will gain exposure to the field of game design, by meeting a professional game designer. Design explorations will be undertaken using Game Maker Studio 2 and Unity. Using this software, students will create 2D and 3D games while gaining a greater understanding of C#.

## **CS190** Electronics Design Workshop

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

An exploratory course in creative technology and tinkering. This course will explore different modes of design involving electronics and software. Students will work on a series of labs structured around paper circuitry, interaction design, interface design, and computational design. Students will engage with various tools like Arduino, Makey Makey, and Bare Conductive paint to explore ways in which the digital world interfaces with analog materials. The course will culminate with an installation in conjunction with Science Night followed by an independent or group project of each student's choosing.

# 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 GFS teacher 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)

### **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 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 Arabic, Japanese, Philosophy, Creative Writing, and Animation.

### 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 by early May, 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 regularly with an advisor (a member of the faculty or another adult) and with the Director of Independent Study.

### 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 October 1. For more details, email 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. Three levels are offered.

### **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.

### **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.

### **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.

### **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 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.

## » NOTE OF PROGRAM CHANGE

The English Department has redesigned the upper school program, with changes effective for the 2023-2024 school year. The department has decided to restructure the program in order to allow juniors and seniors to choose English seminars in areas of interest. Essentially English will no longer run. Instead, drawing on the tradition of innovative electives established through the Essentially English program, English Seminars will allow for continuity of study across the school year and offer students an opportunity to choose classes in their area of interest.

## » CHANGES TO PROGRAM

**Freshman and Sophomores** will both have full-year classes that follow curricula designed to foster their growth and sophistication as readers and writers.

**Juniors and Seniors** will now choose from an array of full-year major seminars that will fulfill their English requirement.



## ENG320 Introduction to Literary Studies

required major | grade: 9

Through meaningful conversation and written discourse, students in 9th grade English explore a diverse body of texts and emerge with deeper understandings of themselves and the world around them. Students continue their development as close readers, essayists, poets, and storytellers. Drawing upon a diverse body of texts, students are challenged to apply literary terminology and the conventions of analytical writing to their own work. The department emphasizes the art of creating cogent, engaging arguments in essays. As students read shared texts (novels, poems, personal essays, and plays, including one by Shakespeare), they write frequent passage analyses and argumentative essays. Critical writing work culminates in a five-page analytical paper in the fourth quarter, employing MLA citation style. In addition to analytical writing, students write stories, poems, and dramatic scenes of their own. As the year progresses, they revise and reconsider their creative writing and develop a portfolio of their work. Recent curricular texts include: *Annie John* by Jamaica Kincaid, *When the Emperor Was Divine* by Julia Otsuka, *Klara and the Sun* by Kazuo Ishiguro, and *Twelfth Night* by William Shakespeare. In our encounter with poetry, we study significant, poetic styles, and literary and cultural contexts for poetry from across traditions; we offer ways that we as readers might care about or be moved or delighted by the details of expressive language. The coursework is supplemented by a series of more formal lectures related to topics covered in the course, as well as regular vocabulary and grammar lessons, which are addressed during longer class periods.

## ENG420 Literary History and Analysis: Drama, Poetry, and the Novel

required major | grade: 10

As students move into the second year of Upper School English, they consider the historical trajectory of literature in three genres of writing: drama, poetry, and prose fiction. Sophocles sets the stage, literally and figuratively, for our study of drama. Students read *Oedipus Rex* and *Antigone* and consider the Aristotelian definition of tragedy while learning vocabulary related to Greek drama. We trace the development of theater through Shakespeare and move into 20th-century drama. Possible texts include *A Raisin in the Sun*, *Sweat*, and *The Laramie Project*. In the second half of the year, students read novels and poetry from the 19th and 20th centuries. In addition to close reading responses, students learn to cite secondary sources and incorporate literary criticism into their responses to texts. Possible novels include *Frankenstein*, *The Great Gatsby*, and *Never Let Me Go*. Our work in tenth grade English culminates in a longer synthesis essay designed to prepare students for longer research papers in eleventh and twelfth grade elective courses.

## JUNIOR-SENIOR ENGLISH SEMINARS

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.

### ENG522 Literature of Diaspora - Far From Home: Advanced

requirement-fulfilling major seminar | grade: 11 or 12

If you are forced to leave your home, is it possible to ever truly return? If you do return, is home ever really the same as you left it? What does it mean to return home if you have changed and the home you’ve left behind has changed as well? 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. Faced with this complexity, we can turn to authors of the past and present to help us untangle our modern condition of identities in flux. The world as we know it has been shaped by the legacies of colonialism, slavery, and globalization, and literature is one of the few resources we have that can encompass the scope and scale of human history. Possible topics include: American and British immigrant writers, literature of diaspora, authors in exile. Possible authors: James Baldwin, Jhumpa Lahiri, Teju Cole, Ocean Vuong, Zadie Smith, Jamaica Kincaid, Min Jin Lee, Helen Oyeyemi, and James Joyce.

### ENG521 British Literature: Advanced

requirement-fulfilling major seminar | grade: 11 or 12

This course is a survey of writing, characters, ideas, and voices from the medieval period through the twentieth and twenty-first centuries. We will read widely from Chaucer to Shakespeare, Milton, Austen, and many others. What did reading and writing mean in the early modern world? Are they different today? We study England in relation to the globe, and we ask who gets included and excluded from “great books.” What do people, places, and situations on the periphery teach us about the problems we currently face? Does seeing things their way help us view our own world differently? These works will be examined in their formal dimensions as well as in their social, political, and religious contexts. Students will develop skills of literary interpretation and critical writing, examine diverse linguistic and social histories, and explore the many varieties of identity and authorship. Possible authors: Geoffrey Chaucer, William Shakespeare, Alexander Pope, Jane Austen, Virginia Woolf, and Zadie Smith, 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.

### **ENG524 Tragedy and Comedy (and Everything in Between): Advanced**

requirement-fulfilling major seminar | grade: 11 or 12

It has often been said that tragedies end in death and comedies end in marriage. Proceeding in a loosely chronological way, but affording generous time to modern treatments, our course will examine both genres of writing in depth. Special attention will be paid to tragicomedy, which has been characterized as the quintessential form of modern drama even though its origins extend back to the beginnings of art. This hybrid form provides the necessary perspective from which to discuss a variety of works, including some of the most contemporary and experimental. Its study requires an exploration of other fundamental dramatic forms such as romance, pastoral, satire, grotesque - and of course, tragedy and comedy. Possible authors: Euripides, William Shakespeare, Molière, Federico Garcia Lorca, Lady Gregory, and more.

### **ENG526 Bodies and Selves in Literature: Advanced**

requirement-fulfilling major seminar | grade: 11 or 12

Why is the body used as a metaphor for, well, everything? Have you ever stopped to think about what the idea of the body might be doing in phrases like

“body politic,” “body of work,” or “body of knowledge”? This course will explore how language shapes our understanding of the body and how the language of the body in turn shapes our understanding of the world. Starting with classical sources like Plato and Ovid, then investigating relevant topics through the broad span of literary history up to the present day, we’ll read texts that allow us to approach the body as both subject and metaphor. As we read the historical literature we will find that although our bodies are the same as they’ve ever been, the way we think about how we inhabit our bodies changes dramatically based on prevailing literary, religious, political, and scientific/technological frameworks. Possible topics: the construction of the body in medicine and science; conceptions of monstrosity, beauty, disability, adornment, and modification; desire, gender, and sexuality; theories of race, class, and the political self. Possible authors: Toni Morrison, Jonathan Swift, John Milton, Franz Kafka, John Donne, William Shakespeare, Octavia Butler, Jean Rhys, Gabriel García Márquez, James Weldon Johnson, and H.G. Wells.

### **ENG525 Literary Studies in Genre: Advanced**

requirement-fulfilling major seminar | grade: 11 or 12

Authors engage popular forms to enter into a tradition or an ongoing conversation. When one writes a sci-fi novel, one does so to take up questions that preoccupy that particular genre. Don’t believe it when people tell you genre fiction isn’t prestigious or worth your time—writers need to be extremely well-read and masters of their craft in order to produce something exciting and compelling within such exacting constraints, self-consciously engaging tropes and conventions to tell their stories. This class will be divided into units that explore various literary genres. When we read hardboiled detective fiction, we must ask: how can we be sure about what we know about the world and each other? When we read science fiction about the future, what are we learning about the present and our hopes for it? How do zombie stories represent the struggle of the individual against the majority? Studying genre fiction allows us to consider important literary ideas like archetypes, recurring and powerful narrative tropes, and deeply held cultural beliefs about race, class, gender, and sexuality. Possible authors: Margaret Atwood, Agatha Christie, Ursula K. LeGuin, and Nnedi Okarafor.

## **ENG527** The Romantic and Gothic Literary Traditions: Advanced

requirement-fulfilling major seminar | grade: 11 or 12

Romantic poetry represents one of the most wonderful movements in literary art. Keats, Coleridge, Byron, and Shelley are among the names of poets whose verse continues to ring and resonate across time. Composing texts before and after the French and American Revolutions, their lines offer formal and philosophical treasures to those who take the time to study them closely. An outgrowth of literary romanticism, the symbolic language of Gothic literature haunts us to this day. Its tropes are familiar and uniquely appealing: the decrepit old mansion, the dreary, rain-swept landscape, the faded tapestry draped on the wall, the creaky staircase, and the suit of armor rattling in the corner. Romantic and Gothic writers were highly attuned to the music of language, the breadth of the human imagination, and the appeal of unrequited longing for unity in form and content. In the poetry, drama, and novels we will read, writers subvert and upend the conventional and invite us to embrace the uncanny, the weird, the supernatural, and the sublime. Possible authors: Emily Bronte, Charlotte Bronte, Toni Morrison, Henry James, Nathaniel Hawthorne, Edgar Allen Poe, T. L. Beddoes, Angela Carter, Carmen Maria Machado, Isabel Allende.

## **ENG529** War and Peace in Literature: Advanced

requirement-fulfilling major seminar | grade: 11 or 12

Since ancient times, poetry, fiction, and drama have been used as a means of bearing witness to, philosophically contemplating, and at times protesting against war as a cultural and historical practice. This course will investigate the experience of war from ancient Greece to contemporary times. More importantly, in keeping with the Quaker principles that guide our school and community, we will pay particular attention to works of art and literature that express pacifism and the desire to eliminate war as a means of dealing with political disagreement. In the first half of the year, we will study an array of documents and texts that precede the twentieth century. In the second semester, we will investigate the experience of war and discourses of anti-war resistance in the 20th century and the early decades of the 21st century. Possible authors: Homer, William Shakespeare, Virginia Woolf, Bao Ninh, J.M.

Coetzee, Walt Whitman, Emily Dickinson, Herman Melville, Siegfried Sassoon, Wilfred Owen, Seamus Heaney, Viet Thanh Nguyen, Dana Spiotta, Kurt Vonnegut, Joseph Heller, Ford Maddox Ford, Adjei-Brenyah, and more.

## **ENG528** Contemporary Literature: Advanced

requirement-fulfilling major seminar | grade: 11 or 12

How are contemporary writers grappling with technological change, migration, the climate crisis, and sexual and gender identity? What are the aesthetic and formal concerns of contemporary writers? In Contemporary Literature we will explore poems, plays, novels, and essays from around the world written in the last 20 years that grapple with these questions and more. We will write creative and analytical pieces that are in dialogue with the literature we read, and will experiment with style and form. Along the way, students will gain greater familiarity with today's literary "scene" and explore the newest of new work. At the same time, we will explore some of the less familiar sources of literary art, including online poetry publications, literary journals and magazines, and, whenever possible, attend live readings on local and international platforms. Possible authors: Maggie Nelson, Robert Jones Jr., Carmen Maria Machado, Tommy Orange, Viet Than Nguyen, and Aimee Nezhukumatathil.

## **MINOR ELECTIVES**

### **ENG710** Short Story Workshop

minor elective | grades: 10, 11, 12

Students will be introduced to advanced elements of storytelling and have the opportunity to explore and apply the principles of fiction writing. Various readings will expose them to the many possibilities open to the fiction writer. Students will workshop their pieces, learning the art of giving constructive feedback to their peers - and receiving it. Students must be comfortable sharing their work and open to hearing feedback and integrating the input of others 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 submit to literary competitions such as the 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.

## 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.

## ENG431 Introduction to Journalism

minor elective | grades: 9, 10, 11

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

## ENG445 Podcast Journalism

minor elective | grades: 10, 11, 12

When the true-crime, investigative journalism podcast *Serial* first hit the airwaves in 2014, it set off a frenzy of new programming that still shows no sign of waning. In this yearlong course, we will explore the exploding genre of podcasts and their rise as the fastest-growing form of journalism. During the first semester, we will listen to and study a wide variety of podcasts in various formats - from interview-based and talk-show style to documentaries and investigative journalism - on a wide range of topics. (If you can imagine it, a podcast probably already exists.) We will analyze and compare podcast structures to print journalism, drawing parallels and identifying notable differences. The second semester will be devoted to creating and launching your own podcast (either on your own or with a classmate), from incubating an idea to planning and scripting episodes to all of the technical aspects: recording, editing, and laying down music. No prior podcasting experience necessary; just bring your enthusiasm, creativity, and a sense of humor.



# HEALTH EDUCATION

The health 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 stand alone, but is integrated into every aspect of our lives and is greatly impacted by our identity. 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 developmentally appropriate and cover a range of health topics, including sexuality, mental health, mindfulness, safety, alcohol and drug use, nutrition, and healthy eating. Health education is interdisciplinary by its very nature - we continually collaborate with the DEI, science and physical education departments.

## » 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.

### **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 mental and emotional health, drugs, and sexuality. We begin with a mindfulness-based stress reduction program, where together we explore and practice different forms of meditative practices to cultivate our ability to pay attention to the present moment with the hope of allowing us to make more thoughtful decisions. 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. Another main focus of the mental health unit is how to recognize when someone needs help and how to seek help for yourself or others. Sleep, addiction, depression, anxiety, and disordered eating are also addressed. We then 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, media, societal norms,

and direct and indirect pressure. Sexuality is presented in a holistic manner, and the topics include sexual identity, gender and society, reproductive health, 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 once a cycle all year. The course focuses on a list of topics that the students help generate, including personal finance, mental health, and mood disorders, happiness, stress, basic car maintenance, resume writing and business communications, personal safety, healthy romantic relationships, maintaining a strong relationship with parents and family, buying and preparing food, physical intimacy, sexual consent, bystander intervention,

contraception, sexually transmitted infections, sexual identity, social media, and alcohol and drug use. 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.

### **HEA500** Queer Culture: Past, Present, and Future

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

In Queer Culture: Past, Present, and Future, students will examine the scope of queer culture from early societies to the present day with an eye towards our ever-expanding future. Students will begin by delving into queer theory, its origins, where it stands at current, and where it is headed. We will then survey ancient LGBT cultures, settling into a more in-depth exploration of the Americas with *A Queer History of the United States* by Michael Bronski. The study of history will segue into a look at queer art & culture, queer surrealism, and finally queer futurity. Guest teachers will join us over the course of the year to share about areas of expertise as they relate to queer culture. Over the course of the year, students will engage in several creative research projects.

### **HEA520** Public Health and Modern Society

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

In Public Health, students will examine the scope of public health and how it works in our society, from conceptual theories to real-life applications. Students will begin by becoming acquainted with the history of modern-day public health and epidemiology. Once that foundation has been built, we will examine public health in today's world; paying specific mind to disparities and differences that exist in groups based on race, sexual orientation, gender identity, age, sex, ability, etc. A group of diverse guest lecturers, who are experts in their field will join us over the course of the year. These lectures will coincide with heritage, awareness, and appreciation months, but will also be flexible to include developing situations happening in the world. Over the course of the year, students will formulate a research question based on a sector of public health they are interested in. This will culminate with a research proposal presentation for faculty and staff, as well as public health professionals.

# 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, 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 Comparative Cultures 9, African American History 10, and United States History: Advanced 11 or 12, which is a Pennsylvania State requirement.

### **HIS310** Comparative Cultures

required major | grade: 9

Students take an interdisciplinary approach to this study of culture and society, developing important skills in critical thought, research, writing, and collaboration. By examining how different peoples address a variety of social challenges, students gain a better understanding of their own cultures and societies. The course also fosters cultural competence with its careful look at the context and history of people around the world. Topics covered may include value systems, governance, social relationships and hierarchies, economic systems, cultural expression, and intercultural dynamics. In past years, case studies have included Nigeria, Mexico, China, Turkey, and Ghana. The course's rigorous writing curriculum helps students grow as analytical thinkers, requiring them to organize large quantities of course material in crafting arguments that are clearly expressed and supported with trustworthy evidence. One quarter-long unit guides students through a step-by-step research process that starts with formulating a question on a topic of their choice and ends with writing a sound research paper.

### **HIS500** African American History

required major | grade: 10

This course will take a comprehensive approach to studying the African American experience in the United States, including contemporary issues, through explorations of identity formation, African and African Diasporic history, and the contributions of Black people to the growth and development of the country. Central to the course will be understanding the ways that race and racism, both institutional and individual, influence our larger history as well as our interpersonal relationships and experiences. Historical readings and original documents will emphasize African American voices and agency. Along the way, students will continue to hone departmental skills including critical reading of primary and secondary sources, in-depth analysis of historical concepts, identifying and evaluating historical sources, and communicating ideas in writing and presentations. Complicating and deconstructing the traditional narrative of the nation's past, we aim for students to see the centrality of African American history to American history, understand the complicated ways that we come to



know and live race in the U.S., and, in the words of the National Museum of African American History and Culture, “dream a world anew.”

### **HIS610** United States History: Advanced

required major | grades: 11, 12

United States History is a survey course that examines the development of the United States as a cultural, political, and economic entity from its 17th-century European and African antecedents to the recent past. Heavy emphasis is placed on primary sources through numerous documents and images collated by the faculty. Students are also given recent books by historians, which change from year to year, together with selected scholarly articles. Students are required to express their understanding through a combination of intensive classwork, papers, tests, debates, presentations, and simulations.

## **HISTORY ELECTIVES**

major elective | grades: 11, 12

Students electing to pursue these electives may select either a yearlong course or two semester-long courses. For the latter option, students must select both a fall and a spring course to create a yearlong history major that allows them to delve into two different areas of interest for one semester each.

### **YEARLONG SEMESTER ELECTIVES (BOTH SEMESTERS)**

### **HIS420** Capitalism & Its Discontents: Advanced

This course will explore the historical development of global capitalism, from its roots in the early modern period to the present. Where did it come from? How did it come to dominate our world? Along the way, we will engage deeply with relevant theoretical texts and critical currents, interrogating the ideological underpinnings of capitalism and looking at its social, cultural, and environmental impacts in the U.S. and around the world. How does capitalism work? How does it shape our lives and our world? What are the alternatives? Students will design and undertake extensive independent research on a topic of their choosing.

### **FALL SEMESTER-LONG ELECTIVES**

### **HIS421** School Days: History and Philosophy of Education: Advanced

*“All education is experimental, whether we call it that or not.” —John Dewey, philosopher*

What are schools for? Are public schools vehicles for equal opportunity, or are they tools of state indoctrination? How are schools products of the society we live in, and how is our society a product of our schools? Do we need school at all?! This course on the history and philosophy of education explores the range of answers Americans have given to these sorts of questions over the past centuries, while examining how and why schools have been a constant source and site of conflict over pressing questions of race, war, gender, sexuality, and religious belief. Topics will include: the history of public schools; the African American struggle for educational equality from HBCUs to Freedom Summer; the evolution of women’s colleges; the origins of “progressive education”; the centrality of educational activism to the Asian American, Chicano, and Disability Rights Movements of the 1960s and 1970s; and alternative education such as charters, homeschooling, and of course, Quaker schools. Expect a trip to the school archive.

### **HIS474** History of Science: The Origins of Modern Science: Advanced

In this course, students will study the historical development of science in the modern world, focusing on developments in astronomy, mathematics, physics, and chemistry from the 16th century to the present. We will take a comparative approach, investigating how societies around the world developed an understanding of nature and were able to apply this knowledge to control and configure their environment. Specific topics include: astronomy and astrology in ancient Egypt and China, Islamic science, alchemy and chemistry, Galileo’s trial and the Catholic Church, and the Scientific Revolution, among others. Students will also explore the interaction between scientific research and the political process, business decisions, religious beliefs, societal norms, and their day-to-day lives.

### **HIS433 Europe: World War II and Beyond: Advanced**

In this course, we will explore the political and social developments in Europe before, during, and after the Second World War. We will study how the lingering effects of the First World War led to continued conflict, and how ideological and geopolitical differences split Europe between the United States and the Soviet Union after the war ended. We will also look at the rise of liberal democracy in the West, the formation of the European Union, the fall of Communism, and the current rise of right-wing nationalism.

#### **SPRING SEMESTER-LONG ELECTIVES**

### **HIS473 History of Science: Biology from Darwin to DNA: Advanced**

This course will explore the historical development of the biological sciences over the past two centuries. Topics to be studied include: Darwin and evolutionary theories of the origin of species, including religious objections and social applications; materialist theories of heredity and development; eugenics and the application of scientific theories of genetics to human social issues; and the rise of molecular genetics, the biotechnology industry, and cloning and gene editing. Students will learn about how current scientific issues affect the political process, business decisions, societal norms, and their day-to-day lives.

### **HIS482 Genocide and Human Rights: Advanced**

This course will work to understand the historical roots, immediate causes, implementation, and the aftermath of acts of state-sponsored violence and genocide. The term genocide emerged near the end of WW II and was further defined by the United Nations Genocide Convention as “acts committed with intent to destroy, in whole or in part, a national, ethnic, racial or religious group.” Case studies may include the Holocaust, Rwanda, Cambodia, Armenia, an examination of indigenous peoples in the Americas, and the Rohingya among others. Studying both primary sources and historians’ interpretations of the events, we will work to comprehend genocide as both a personal human

experience and also as a brutal form of government policy. Our study will require considering the plight of victims, their various forms of agency through acts of resistance, perpetrators, and the complicit nature of bystanders. Due to the inherent nature of genocides, content covered in this course will be difficult and oftentimes disturbing, but necessary to foster empathy and deeper understanding of the atrocities. As citizens of the world the greater understanding we have of past genocides, the better equipped we are to identify, prevent, and respond to future genocides and mass atrocities.

### **HIS435 Women’s History: Advanced**

Throughout U.S. history, people who identify as or were socialized as women have resisted patriarchal structures in diverse and complex ways. This course will examine both oppressive structures and acts of resistance as we explore the unique experiences of American women from diverse racial, religious, and cultural backgrounds who have engaged in civic discourse and involved themselves in the public affairs of their communities. We will consider the different paths and strategies women activists have pursued as they challenged legal discrimination and established norms around gender, sexuality, and race. From politically active women in the pre-Revolutionary period, to activists of the 1960s and ‘70s, to women currently running for elected office, we will examine the changing social contexts and expectations that have constrained women and the ways women have responded to, rebuked, and transformed them.

# JUNIOR/SENIOR SEMINARS

## **SEM420** Media Studies

major elective | grades: 11, 12

The study of media can tell us a lot about the world in which we live. Paying particular attention to race, gender, and class, we will look at advertisements, political propaganda, news reports, social media, and examples of high culture, low culture, and the subcultures in between, students will examine the textured ways humans communicate. Students will learn to decode and alter the terabytes of information and media that surround them. The objective of this course is to “unflatten” students’ perspectives about media as it exists today, in the past, throughout the world, and into the future. With so many forms of media vying for our attention, how do we learn to sort through and process the constant barrage of

information that’s out there? How do we navigate today’s complex political climate and know what sources of media we can trust? In the first semester, students will explore the paradigm shifts from oral to visual to digital formats. Topics will include stereotypes and media bias, how to critically assess news and branding, and how to tell the stories/raise the voices of underrepresented populations and communities. During the second semester, students will study media from a global perspective, with the course culminating in student research projects. Media Studies is open to students interested in stretching their analytical capabilities and expanding their verbal and visual communication skills.

# ADDITIONAL OFFERINGS

## **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.

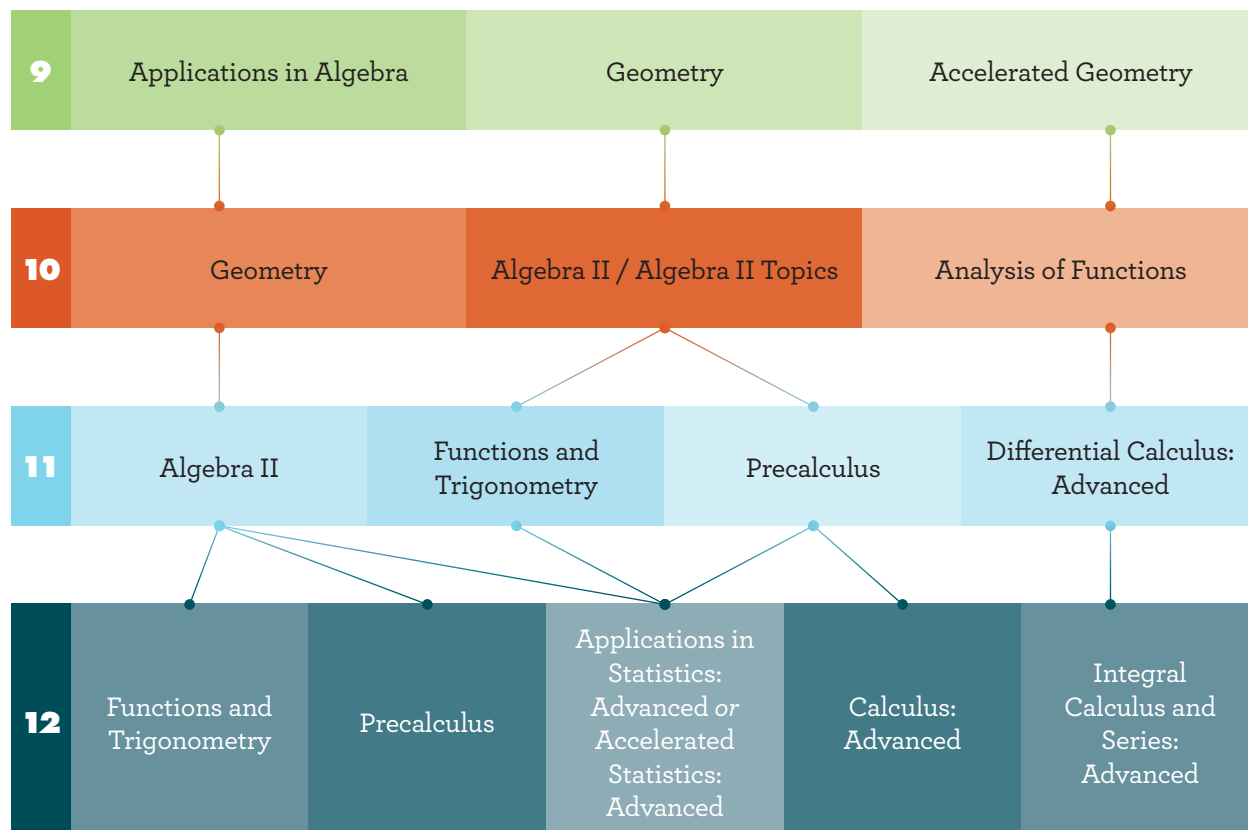
## » GRADUATION REQUIREMENT NOTE

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 2023-24

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.



### **MTH310** Applications in Algebra

can fulfill required major for grade 9

The Applications in Algebra course gives students an opportunity to further explore the connections between Algebra I topics and the real world. Students build foundational comprehension of algebra concepts and skills as they examine how mathematics can be used to analyze and model the world around them. Particular emphasis will be placed on constructing methods for exploring what algebra can teach us about topics in social justice, the sciences, and economics.

### **MTH420** Geometry

can fulfill the required major for grades 9 or 10 | 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.

## **MTH525** Algebra II Topics

major elective | grade: 10 | prerequisite: Geometry; departmental approval required

This course is structured to solidify connections between Algebra I and Algebra II topics, incorporating review of foundational algebra content as needed. The course covers many of the same topics as Algebra II, moving at a deliberate pace to ensure comprehension of essential skills and concepts. Problem solving and sound mathematical approaches are emphasized throughout the course, providing students with a solid base to take Functions and Trigonometry the following year. Students use the TI-Nspire, online graphing calculators, and web resources as they explore these topics.

## **MTH520** Algebra II

can fulfill the required major for grades 10 or 11 | 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. Students will also use the TI-Nspire, online

graphing calculators, and web resources as they explore these topics.

## **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 classroom discourse and to persevere through complex, abstract topics.

## **MTH610** Functions and Trigonometry

can fulfill the required major for grades 11 or 12 | prerequisite: Algebra II or Algebra II Topics

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.

## **MTH620** Precalculus

can fulfill the required major for grades 11 or 12 | 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: 12 | prerequisite: Algebra II or Analysis of Functions; 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 | grade: 12 | prerequisite: 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. The minor offered by GFS in 22-23 is Explorations in Non-Rectangular Planes. 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 Multivariable Calculus and Linear Algebra. Students have studied advanced topics in mathematics courses offered by GFS faculty, the Global Online Academy, or another online course. 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 a short book *Le Nouvel Houdini*, 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 through the continued study of the textbook *Bien Dit!*, 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.

## **MOD510** French IV: Advanced

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

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.

## **MOD610** French V: Advanced

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

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, Duras, 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, 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.

## **MOD830** Mandarin IV and V: Advanced

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

Students will systematically work towards mastery of the speaking and writing of Mandarin. In Mandarin IV/V students will work to solidify their sense of grammar and expand the complexity and scope of their conversational fluency. Students will systematically work towards mastery of the speaking and writing of Mandarin. Authentic readings in an array of genres will help students develop their skills and cultural awareness and understanding. Students will be asked to complete presentations

and give oral reports. Assessments will be based on oral and written mastery, with an emphasis on spontaneous production.

### **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.

### **MOD740** Spanish IV: Advanced

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

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 International Baccalaureate coursebook will guide students through a variety of contemporary topics. The curriculum will include units on identity, war and propaganda, and folklore. Additional readings may include short stories, Spanish theater, a Latin American novel, poetry, essays, and periodical literature. Authors may include Jorge Luis Borges, Julio Cortázar, 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.

### **MOD750** Spanish V: Advanced

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

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, women's voice in 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.

## » FULFILLING THE MUSIC REQUIREMENT

Two semesters taken in grades 9–12.

## » MUSIC MAJOR

The Music Major is comprised of two or more minor classes taken simultaneously to fulfill a major course requirement. Students may create a Music Major by combining an academic music course (e.g., Music Theory or Digital Music) with a performance music course (e.g., Orchestra or Choir). The number of course meeting times must be the equivalent of five or more classes. At course sign-up, students in grades 9–12 wishing to create a Music Major should select their two or more minors and also select MUS690. Departmental approval required.

## FALL OFFERINGS

### MUS412 Music Connections: Renaissance, Baroque and Classical Periods

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

This course explores how styles of music changed relative to what was happening in the world during the Renaissance, Baroque, and Classical 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.

### MUS322 Musical Instrument Building: Winds and Strings

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

This hands-on class will focus on how musical instruments are made. Students will experiment with sound production by designing and creating musical instruments from household and recycled materials. We will learn about the science of how instruments work in each of the major instrument families, not only in Western music but also in music from other cultures around the world. We may also compose short pieces for our homemade instruments. Projects may include constructing some of the following instruments: tin whistle, PVC slide trombone, PVC clarinet, bamboo pan flute, cigar box guitar, and travel ukulele. This project-based class requires no previous musical training.

## **MUS310** Critical Listening in Music

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

This class will challenge students to listen deeply, carefully, and thoughtfully through the lens of recorded and live music. Genres such as classical, ambient/electronic, jazz, and world music will be vehicles to examine the relationship between listening and mindfulness. In addition, we will learn about dissonance in music and art, the difference between thematic and experiential content, and how understanding basic music theory concepts influences our perception of music. Students can expect a hefty amount of listening and discussion, along with creative writing assignments meant to reflect on, and put to words, our listening skills.

## **MUS345** History and Impact of Hip-Hop

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

In this course, students will explore hip-hop culture's musical and social contributions. Students will review the musical characteristics of early and contemporary styles, study historical influences on the genre, and consider hip-hop's connections to jazz, gospel, and reggae. 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.

## **MUS300** Songwriting

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

This class will explore the craft of songwriting by listening and analyzing popular music, examining chord progressions, and studying melodic and chordal relationships. We will look at the role that poetry plays in lyrics, phrasing, and rhyme schemes, and dissect song structure and social and political themes. We will create connections between branding and social media, personal websites, release strategies, and live performance. No instrumental or choral experience is needed, although students will have the opportunity to record their songs. We will build on the art of singing while playing, and potentially pursue keyboarding and guitar skills as an accompaniment. Students have the option of sharing their final projects to the GFS Digital Music SoundCloud page.

## **SPRING OFFERINGS**

### **THT840** Ninth Grade Musical

minor elective | grade: 9 | one semester

In this course, students will rehearse and produce a full-book musical. They will engage in the process of taking a show from script and score to stage and performance. Students will have the choice of auditioning for a lead role or participating as an ensemble member. Once the show has been cast, the course will move to the rehearsal process, including the study of scene work and choral, solo, and dance pieces. Performances occur in early May and will require evening rehearsals. No previous singing or acting experience is necessary. This course may be taken for Music or Theatre credit.

### **MUS300** Songwriting

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

This class will explore the craft of songwriting by listening and analyzing popular music, examining chord progressions, and studying melodic and chordal relationships. We will look at the role that poetry plays in lyrics, phrasing, and rhyme schemes, and dissect song structure and social and political themes. We will create connections between branding and social media, personal websites, release strategies, and live performance. No instrumental or choral experience is needed, although students will have the opportunity to record their songs. We will build the art of singing while playing, and potentially pursue keyboarding and guitar skills as an accompaniment. Students have the option of sharing their final projects to the GFS Digital Music SoundCloud page.

### **MUS310** Critical Listening in Music

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

This class will challenge students to listen more deeply, carefully, and thoughtfully through the lens of recorded and live music. While learning about some of the more creative/artistic music genres (classical, ambient/electronic, jazz, and world music to name a few), students will also examine the relationship between listening and mindfulness. We will learn about dissonance in music and art, about the difference between thematic and experiential content, and about some basic music theory ideas and how they pertain to



our perception of music. Students can expect a hefty amount of listening and discussion, along with creative writing assignments meant to reflect on, and put to words, our listening skills.

### **MUS324 Musical Instrument Building: Drums and Electric Instruments**

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

This hands-on class will focus on how musical instruments are made. Students will experiment with sound production by designing and creating musical instruments from household and recycled materials. We will learn about the science of how instruments work in each of the major instrument families, not only in Western music but also in music from other cultures around the world. We may also compose short pieces for our homemade instruments. Projects may include constructing some of the following instruments: electric kalimba, tambourine, rainstick, cajon, and Atari Punk synthesizer. This project-based class requires no previous musical training. This class can be taken together with, or in addition to, MUS320.

### **MUS414 Music Connections: Romantic, 20th Century, and Modern Periods**

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

This course explores how styles of music changed relative to what was happening in the world during 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. Students can take this course independent of, or in addition to, MUS410.

### **MUS345 History and Impact of Hip-Hop**

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

In this course, students will explore hip-hop culture's musical and social contributions. Students will review the musical characteristics of early and contemporary styles, study historical influences on the genre, and consider hip-hop's connections to jazz, gospel, and reggae. 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.

## **YEARLONG COURSES**

### **MUS360 Conducting**

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

Students will learn to demonstrate musical ideas clearly and efficiently through fundamental conducting gestures. Topics of study will include posture, baton technique, expressive and independent use of both hands, beat patterns, cueing, and control of tempo, dynamics, and phrase shaping. We will also review musical terminology, instrument transposition, and score reading. Students will need to purchase a baton (of their choice) for use in the class.

### **MUS880 Jazz Ensembles**

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

The jazz ensembles are open to all instrumentalists who wish to explore music from the jazz tradition and related styles. Students will explore facets of performing as an ensemble, with special attention given to jazz history, theory, transcriptions, improvisation, and the study of seminal musicians and recordings. Ensembles are arranged with regard to instrumentation, student ability, and scheduling. Students in the ensembles are required to take private lessons to gain facility and adequate technique. These skills will significantly enhance the individual's proficiency and the ensemble's collective progress. Performance opportunities include GFS assemblies, concerts, and community events. A maximum of three piano players will be accepted per section. If interest exceeds three per section, an audition will determine enrollment.

## **MUS790** Chamber Ensembles

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

The Chamber Ensembles are open to all instrumentalists who wish to explore music in a small ensemble setting (e.g., duets, trios, quartets). Students explore facets of performing as an ensemble, with special attention given to the unique communication and performance responsibilities required in an intimate chamber setting. Repertoire is drawn from a wide range of genres, including classical, contemporary, pop, rock, medieval, and instrument-specific styles. Ensembles are arranged with reference to instrumentation and students' abilities; all instruments and levels of playing are placed in appropriate groups. Chamber ensembles may include traditional instrumentation (e.g. two violins, viola & cello) or more non-traditional formations (e.g. ukulele or guitar ensemble), depending on the students' interest. Students may also propose their own groups with the assistance of Music Department staff. Performances 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 (except guitar) who wish to perform within a large ensemble context. A maximum of two pianists will be accepted by audition. Pianists are often taught percussion techniques as well. The ensemble performs repertoire from a wide variety of genres, including classical, contemporary, Broadway, and pop music; these works are featured in many assemblies and evening concerts. In addition to learning challenging repertoire, students focus on orchestral playing techniques that include accurate intonation, dynamic range, sectional blend, and musical phrasing. Students are required to take private lessons on their instrument to develop their technical facility. Although 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

Study in percussion techniques from Africa, the Middle East, Cuba, and Brazil is available to any interested student. This course accommodates students of all levels, from beginner to advanced. Students will learn about the process of building a percussion ensemble based on the traditional instrumental and vocal cues used within the various cultures studied. Techniques and repertoire are taught by rote and through transcriptions, traditional notation, graph notation, and audio and visual examples. Instruments are provided and include Bata drums, Agbadza drums, doumbeks, djembes, and Gyili (African balafons). Students will develop an understanding of and appreciation for the collaborative nature of a percussion ensemble, and gain insight into their own creative forces via this genre. Although 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 choral ensemble and is open to any student who wishes to participate in a singing group. Students in this ensemble work to establish and develop vocal technique, aural skills, and sight-reading abilities. Singers focus on both choral and choral-orchestral works in this ensemble, culminating with concert exhibitions. Chorus is a non-auditioned ensemble that is open to all students in the Upper School. Although most rehearsals occur during the academic day, occasional after-school and weekend commitments are required.

## **MUS750** Choir

major elective | grades: 9, 10, 11, 12 | Co-Requisite: Chorus or A Cappella, departmental approval required

Choir is an auditioned choral ensemble. Auditions begin in February of the preceding academic year and are open to all students entering the Upper School. Students perform a diverse range of repertoire and develop their vocal technique, sight-singing skills, and sense of ensemble. Singers are expected to attend regular rehearsals and performances outside of the academic day, including biweekly Sunday rehearsals.

Singers are also required to attend Choir Camp, which is held during the last weekend of August. Additional fees for Choir Camp, attire, and materials are required for this class; financial aid is available.

## **MUS210** A Cappella

minor elective | grades: 10, 11, 12

GFS A Cappella is a 20-voice auditioned close-harmony vocal ensemble. The group explores a wide range of musical genres such as rock, pop, hip hop, R&B, jazz, and more. Members learn to tune and blend in small numbers, while singing in vocalizations unique to the a cappella art form. Students are taught how to use handheld mics, beatbox, solo, and give high energy performances. Those who are interested can be coached in arranging music for the group. A large focus is put on team building and mutual trust. Members are encouraged to step into leadership and to help shape repertoire. Outside of the 2/8 rehearsal cycle, commitments include one weekly club-time rehearsal, monthly weekend rehearsals, multiple performances and invitations including the annual GFS A Cappella Fest, and a spring competition. The year culminates with four to five days of professional recording the first week after graduation.

## **THT830** Musical Theatre

minor elective | grades: 10, 11, 12

This course develops the ‘triple threat’: someone who can act, dance, and sing. We will study past and present Broadway musicals through the complementary but distinct lenses of libretto, score, and choreography. Students can expect to learn through participation as we study the vocal, acting, and movement techniques common in this genre of theatre. Coursework will also include dramaturgical

studies of particular periods in history as they relate to the creative team and director’s vision, performance, and writing style. The course will culminate with an in-class showcase of student work and can be taken for either Music or Theatre credit.

## **MUS350** Sight Singing & Ear Training

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

This course develops the skills necessary to read and sing melodies at sight and notate aural material. Classwork includes the study of solfège, rhythm and meter, key signatures, scales, pitch and interval identification, dictation and error detection, conducting patterns, and the application of sight-reading to musical scores. Basic piano skills may be incorporated into our study as a tool for understanding pitch relationships. This course develops fundamental aural and sight-singing skills, building confidence that will prepare students for more advanced musical performance.

## **MUS710** Music Theory I

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

Students in this course study fundamental skills in music to become increasingly expressive and literate musicians. Course content includes major and minor scales, intervals, key signatures, basic harmonic progressions, and rhythmic figures in simple and compound meters. Aural skills are developed through sight singing with solfège syllables, rhythmic dictation, interval identification, and melodic dictation. Four-part writing and analysis will be studied toward the end of the second semester.

## **MUS720** Music Theory II: Advanced

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

This course continues work in four-part writing and analysis through proper voice-leading technique and advanced harmonic progressions. Strong emphasis is placed on the development of aural skills through rhythmic and melodic dictation, as well as intervallic and harmonic identification. Students explore various compositional techniques, culminating in a performance of original works during a spring assembly.



## **MUS610** Music Composition I

minor elective | grades: 11, 12

This course focuses primarily on 19th-, 20th- and 21st-century Western music, developing students' understanding of advanced chromatic techniques through both analysis and composition. The material covered includes variation technique, orchestration, form, and model composition. Throughout the year, students will learn a number of techniques to grapple with different repertoires. Our study of a wide diversity of musical styles will serve as an incentive for student compositions in those styles, and throughout the year students will compile a portfolio of their original compositions. The course will culminate with the performance of an original piece in a style of the student's own choosing during a spring assembly.

## **MUS620** Music Composition II: Advanced

major elective | grades: 11, 12 | Music Composition I, departmental approval required

This course is a continuation of Music Composition I: Advanced and focuses on 20th- and 21st-century Western music, developing students' understanding of advanced musical techniques through analysis and original composition. The material covered will depend largely on student interest and personal compositional goals, but some possible topics might include choral music, canonic and fugal writing, orchestration, scoring for film, video games, and theatre. Throughout the year, students will learn a number of analytical and compositional models to understand different repertoires. Our study of a wide diversity of musical styles will serve as an incentive for student compositions in those styles, and students will compile a portfolio of their original compositional work so that they can track their progress. The course will culminate with the performance of an original composition during a spring assembly.

## **MUS910** Digital Music Recording and Production

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

This course is designed to inspire students to create new music and push the boundaries of what music is, has been, and can be in their lives. We will first survey the history of sound synthesis, the art of noise, and the role electronic technology has played in sonic culture. We 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 on electronic music, we will work primarily with Ableton Live. The class will cover the basic functionality of both hardware and software mixing consoles, and discuss the dichotomy between 'button-pushers' and 'real musicians' and how artists bring soul and true musicality to computer music.

# 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 has two workouts weekly.
- 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 - After School

minor elective | grades: 10, 11, 12

Join the GFS Fitness Club and customize your personal fitness plan. This program consists of movement activities and classes that generally occur after school. Students commit to a minimum of 2 workout periods per week, choosing the days and times that are most convenient.

### **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.

### **PE401** PE Classics

minor elective | grades: 10, 11, 12

This course is designed to have students play the “classics” of Physical Education such as, capture the flag variations, dodging games, kickball, and more! Students will participate in moderate to vigorous physical activity levels and use heart rate monitors while playing the “classics”. Students will have the opportunity to work with the teacher to choose games and sports that are of interest to the students within the class.

## FALL ELECTIVES

### **PE700** Badminton/Net Games

minor elective | grades: 10, 11, 12

Back by popular demand! 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.

### **PE780** Wissahickon Hiking

minor elective | grades: 10, 11, 12

Take to the hills, rocks, and valleys. Observe the reawakening 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.

### **TH800** Movement for Theatre

minor elective | grades: 10, 11, 12

This course trains the actor in methods and techniques for opening and conditioning the physical body, one of the actor’s primary instruments for artistic expression. Students increase awareness, range, and freedom of movement while exploring the fundamental importance of space, weight, and time as theatrical principles. The course assumes a collaborative approach to theater-making in the study of ensemble-based techniques. Students can also expect to focus on flexibility, strength training, breathwork, coordination and balance, creative and improvisational movement. This is not a performance-based class and no prior experience is needed. This course can be taken for Theatre or PE 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 will earn a USA Archery Level 1 teaching certificate.

### PE720 Volleyball/Table Tennis

minor elective | grades: 10, 11, 12

Are you an outside hitter, defensive blocker, or libero? Not sure? Delve into volleyball on the tactical level while you further hone your skills. In this class, we will up your game in two of the most popular recreational activities: volleyball and table tennis. Get ready to play, play, play!

### TH820 World Dance

minor elective | grades: 10, 11, 12

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

### PE760 Ultimate Frisbee/Disc Golf

minor elective | grades: 10, 11, 12

Time to play! Get comfortable learning to throw and catch the disc playing Ultimate Frisbee and implement your skills into gameplay. Then try your hand at Disc Golf. We will travel to the Disc Golf course in Fairmount Park to play after learning how to throw disc “drivers” and “putters.” 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 will earn a USA Archery Level 1 teaching certificate.

### TH810 Modern Dance

minor elective | grades: 10, 11, 12

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 science courses are lab-based and meet for the equivalent of five periods each cycle. Students must satisfactorily complete one course in physical science and one course in biological science. Typically, students take Physics in 9th grade, Chemistry in 10th grade, and Biology in 11th grade. Advanced Physics, Advanced Chemistry, Advanced Biology, Principles of Engineering, and Environmental Science are available to students who complete introductory coursework. The Science Department also offers one minor elective, Human Anatomy, and Physiology, to 10th, 11th, and 12th graders.

## » GRADUATION REQUIREMENT NOTE

All students must take three years of major coursework in science. Recommended 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 chemical vocabulary, nomenclature, stoichiometry, thermochemistry, gas laws, atomic theory, molecular geometry, equilibrium, and acid-base chemistry, 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

This is an introductory biology course. Students study a range of topics in evolutionary biology, cell biology, systems biology, and molecular biology. Specific units include evolution and biodiversity, ecology, cellular structure and function, cell cycle, biochemistry, DNA and genetics, protein synthesis, cell respiration, photosynthesis, and systems biology. Labs and several projects give students hands-on experience with biological materials and concepts. It is strongly recommended that students take chemistry before they take biology.

## **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; the kinetic theory of gasses and gas laws; thermodynamics; quantum theory and periodicity; chemical bonding; the chemistry of solids, liquids, and solutions; kinetics and equilibria; acids, bases, and aqueous equilibria; spontaneity, entropy, and free energy; oxidation-reduction reactions and electrochemistry; nuclear chemistry; and a brief overview of organic chemistry. 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

This course focuses on a variety of topics including, but not limited to, the origin of life, cancer biology, population genetics, gene regulation, genetic engineering, evolutionary theory, and phylogenetics. Laboratory activities are a part of each unit. During the spring semester, students will learn how to apply molecular data to analyze evolutionary patterns, and they will work collaboratively to build a data set that can be used to answer a specific evolutionary question.

## **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, electrostatics, circuits, and magnetism. 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.

## **SCI740** Environmental Science

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

## **SCI800** Human Anatomy & Physiology

minor elective | grades: 10,11,12

Students will study basic principles of human form and function at the system level, including the integumentary, skeletal, muscular, nervous, endocrine, cardiovascular, lymphatic/immune, respiratory, digestive, urinary, and reproductive systems. Laboratory activities will be included as part of each unit. In addition, students will engage in independent research.



# 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.

## » THEATRE GRADUATION REQUIREMENT

As of the class of 2024, and for all subsequent classes, students must complete one semester of Ninth Grade Theatre.

## » THEATRE MAJOR

A theatre major is comprised of two year-long minors (or the equivalent) taken simultaneously. At course sign-up, students in eleventh and twelfth grades wishing to create a theatre major should select their two or three minors and also select THT990 Theatre Major. Departmental approval 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. The course includes a survey of the ritualistic and performative storytelling methods that have developed throughout time and how they have evolved into the forms of theatre we currently practice. Students will engage with the storytelling of personal narratives, dramatic theory, writing, and physical theatre exercises, as well as explore elements of design and technical theatre. In the spring, students also have the opportunity to participate in the Ninth Grade Musical, a long-standing GFS production onstage, backstage, and

beyond. Please note: Ninth Grade Musical must be chosen as an additional elective.

### **THT840** Ninth Grade Musical

minor elective | grade: 9 | one semester

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. May be taken for Music or Theatre credit. Please note: participation in the Ninth Grade Musical is in addition to the required Ninth Grade Theatre course.

## **THT730** Acting & Directing Techniques

minor elective | grade: 10, 11, 12

This is a lab class first and foremost, an Acting & Directors' Lab - a place where we learn by doing, experimenting, observing and evaluating. We will engage a variety of exercises based on readings of both theoretical and practical texts and explore several specific acting and directing techniques. We will consider the complimentary, but unique roles of director and actor in the theatre-making process. And you will be encouraged to tap into your own emotional, physical, and creative resources while at the same time, learning to collaborate successfully with others. The second semester will build on the awareness and skills you encounter in the first; with an emphasis on script scoring and rehearsal techniques. While many exercises will be completed in class, others will require out of class preparation and rehearsal. The course will culminate in performances at this spring's Poley Festival of student work.

## **THT733** Acting for the Screen

minor elective | grades: 11, 12 | spring semester only

Acting for the camera is very different from acting on the stage! Students in this spring semester class are introduced to the craft of screen acting and the principle that on screen, less is more. Students collaborate with Intermediate and Advanced Filmmaking classes to gain experience working on a student-led set. We will study and discuss great performances from tv and film - and then try our hand at performing in front of the camera ourselves: first as we film our own self-tapes and then in front of a camera helmed by a student director and their crew. Join us and get ready to hear 'lights, camera, action' for your on-screen debut! This course can be taken supplementary to study in Theatre & Film, or independently, as an experiment in performance.

## **THT200** Sketch Comedy & Improvisation

minor elective | grades: 10, 11, 12

In this comedy intensive, students will study long and short-form improvisation techniques. Using methods developed by Upright Citizens Brigade, Keith Johnstone, Viola Spolin, and Del Close, students will focus on character and plot development as they explore the famous 'Harold' long-form improv game. Students will then use improv to generate written material, individually and together as a group in a "writer's room," as they work to hone their sketch writing skills. There will be a balance of live performance and digital content creation, culminating in a Saturday Night Live inspired final show. Students can expect to showcase their work as part of the spring Poley Festival.

## **THT830** Musical Theatre

minor elective | grades: 10, 11, 12

Acting, singing, dancing: this course is what they call a 'triple threat.' We will study Broadway musicals, both past, and present, through the complementary but distinct lenses of libretto, score, and choreography. Students can expect to learn through participation as we study the vocal, acting, and movement techniques common in this genre of theatre. Coursework will also include dramaturgical studies of particular periods in history as they relate to the creative team and director's vision, performance, and writing styles of a given show. The course will culminate with a showcase of student work and can be taken for either Music or Theatre credit.

### **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 year 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, laboratory-style environment.

## **DANCE & MOVEMENT COURSES**

### **THT800 Movement for Theatre**

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

This fall course trains the actor in methods and techniques for opening and conditioning the physical body, one of the actor's primary instruments for artistic expression. Students increase awareness, range, and freedom of movement while exploring the fundamental importance of space, weight, and time as theatrical principles. The course assumes a collaborative approach to theater-making in the study of ensemble-based techniques. Students can also expect to focus on flexibility, strength training, breathwork, coordination, and balance, as well as creative and improvisational movement. This is not a performance-based class and no prior experience is needed. This course can be taken for Theatre or PE credit.

### **THT820 World Dance**

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

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 | one semester

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

### **THT700** Technical Theatre I

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

In Technical Theatre, students have an opportunity to work on all aspects of bringing a show to opening night and running that show once it gets there. Students work on set construction, stage painting, lighting, design, and all of the other aspects that go into bringing a show to life. Each trimester will focus on the technical needs of the specific production in the season. Students are expected to participate as a member of a production team for at least one main-stage show, which will include call times outside of the regular school day.

### **THT765** Technical Theatre II

minor elective | grades: 10, 11, 12 | prerequisite: Technical Theatre I

If the first level of Technical Theatre is about skill acquisition and development, this course is about the direct application of those skills in the context of theatrical production. In this hands-on course, students will do the work of bringing a concept to life through the 'magic' of theatre. The study will include lighting, sound, and set construction with a focus on how to interpret design and working drawings. In addition to class time, students are expected to be involved in at least one GFS Theatre production throughout the performance season.

### **THT770** Technical Theatre III

minor elective | grades: 11, 12 | prerequisites: Technical Theatre I & II

In this course, students will take a deeper dive into the roles of technical direction and production management. Building on the skills developed in Tech 1 & Tech 2, students will be expected to help problem-solve real-world issues related to theatrical production. The focus of this final level of Technical Theatre will be on leadership and management: scheduling, troubleshooting, space & equipment maintenance, and lighting and A/V set-up. Students enrolled in this course are expected to support at least one major production each semester and regular school assembly events.

### **THT791** Scenic and Costume Design

minor elective | grades: 10, 11, 12

This course exists at the intersection of fine art and theatrical storytelling. Design is an essential part of the theatrical form; sets and costumes create the world of the play and have a powerful effect on how an audience experiences the story being told. In this class, students will learn both conceptual and practical skills related to theatrical set design, scenic painting, and costuming. Students will support GFS Theatre productions as part of their work in the 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 micro-films and exercises shot and edited with their smartphones. 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.

## **THT781** Filmmaking IIA : Editing, Sound, & Post-Production

minor elective | grades: 11, 12 | one semester | prerequisite: Intro to Filmmaking

In this intermediate course, students will learn the creative power of post-production. This course will rely on collaborative, hands-on, and theoretical approaches to understanding sound and film editing. Students will learn a non-linear editing software that will provide them an outlet to apply the methods and theories behind film editing. Additionally, students will learn how to implement all the core aspects of sound editing that help to heighten and propel narrative and visual storytelling. Each component of the course will establish a fundamental understanding of the philosophy and craft of editing that allows students the creative skill to imbue their projects with more substance and meaning. This is a fall, one-semester course that can be taken in conjunction with Filmmaking IIB or independently.

## **THT782** Filmmaking IIB : Lighting & Cinematography

minor elective | grades: 11, 12 | one semester | prerequisite: Filmmaking 1

This hands-on, one-semester course is intended for students interested in building upon their filmmaking skills and learning how to produce desired images on the screen. Assignments will allow students to dive deeper into aspects of cinematography, storyboarding, mise-en-scene, and lighting. In a fundamental sense, all students will learn about three-point lighting and other aesthetic and technical 'tricks of the trade'. Once students become comfortable with the basic components of lighting, more advanced assignments will encourage them to explore their creative instincts behind the camera. Much of the course will focus on the wide-ranging skills of cinematography; the process of telling stories one frame at a time is as much a science as it is an art. It is within this class, students will learn how to strike that delicate balance of technical know-how with creative ingenuity. This is a spring, one-semester course that can be taken in conjunction with Filmmaking IIA or independently.

## **THT783** Filmmaking III : The Picture Is the Thing: Advanced

minor elective | grade: 12 | prerequisite: Filmmaking I and Filmmaking IIA OR IIB | yearlong

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 \$100 for a semester-long course and \$200 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 \$750.

## ➤ KEY DATES

- Summer 1: June 15 – August 2nd 2023
- Summer 2: July 6 – August 23rd 2023
- Semester 1: December 15th 2023
- Semester 2: January 10th – April 26th 2024
- Yearlong: Both Semesters

## 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.

## **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.

## **GOA360** Arts Entrepreneurship

In this course, aspiring visual artists, designers, filmmakers, musicians, and other creatives will learn how to find success in the dynamic fields of their choosing. Students will learn about arts careers and organizations by attending virtual events and interviewing art practitioners, entrepreneurs, and administrators. Beyond exploring trajectories for improving their crafts, students will build skills in networking and personal branding while examining case studies of a variety of artistic ventures - some highly successful and some with teachable flaws. Using real-world examples of professional and emerging creatives and arts organizations, students will gain a better understanding of the passion and dedication it takes to have a successful creative career.

## **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.



## **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.

## **GOA319** Climate Change and Global Inequality

Nowhere is the face of global inequality more obvious than in climate change, where stories of climate-driven tragedies and the populations hit hardest by these disasters surface in every news cycle. In this course, students will interrogate the causes and effects of climate change, and the public policy debates surrounding it. In case studies, we will research global, regional, and local policies and practices along with the choices of decision makers and what they mean to the populations they serve. Who benefits, who suffers, and how might we change this equation? We will collaborate in workshops with classmates to deepen our collective understanding of the complex issues surrounding climate change. Throughout the semester, we will meet with professionals working in the field of climate change, and will also build and curate a library of resources and share findings in varied media, engaging as both consumers and activists to increase knowledge and advocate for sustainable norms. Finally, students will have the opportunity to reach a global audience by participating in GOA's Catalyst Conference in the spring, as they present their individual projects to spark change in local communities through well-informed activism.

## **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.

## **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.

## **GOA254** Digital Photography

In an era where everyone has become a photographer obsessed with documenting most aspects of life, we swim in a sea of images posted on Instagram, Facebook, Snapchat, Pinterest, and other digital media. To that end, why is learning how to use a digital camera important and what does taking a powerful and persuasive photo with a 35mm digital single lens reflex (DSLR) camera require? Digital Photography explores this question in a variety of ways, beginning with the technical aspects of using and taking advantage of a powerful camera and then moving to a host of creative questions and opportunities. Technical topics such as aperture, shutter, white balance, and resolution get ample coverage in the first half of the course, yet each is pursued with the goal of enabling students to leverage the possibilities that come with manual image capture. Once confident about technical basics, students apply their skills when pursuing creative questions such as how to understand and use light, how to consider composition, and how to take compelling portraits. Throughout the course, students tackle projects that enable sharing their local and diverse settings, ideally creating global perspectives through doing so. Additionally, students interact with each other often through critique sessions and collaborative exploration of the work of many noteworthy professional photographers whose images serve to inspire and suggest the diverse ways that photography tells visual stories. Prerequisite: Students must have daily access to a DSLR camera.

## **GOA333** Entrepreneurship in a Global Context

How does an entrepreneur think? What skills must entrepreneurs possess to remain competitive and relevant? What are some of the strategies that entrepreneurs apply to solve problems? In this experiential course, students develop an understanding of entrepreneurship in today's global market; employ innovation, design, and creative solutions for building a viable business model; and learn to develop, refine, and pitch a new startup. Units of study include Business Model Canvas, Customer Development vs. Design Thinking, Value Proposition, Customer Segments, Iterations & Pivots, Brand Strategy & Channels, and Funding Sources. Students use the Business Model Canvas as a roadmap to building

and developing their own team startup, a process that requires hypothesis testing, customer research conducted in hometown markets, product design, product iterations, and entrepreneur interviews. An online startup pitch by the student team to an entrepreneurial advisory committee is the culminating assessment. Additional student work includes research, journaling, interviews, peer collaboration, and a case study involving real-world consulting work for a current business.

## **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.

## **GOA362** Gender & Society

This course uses the concept of gender to examine a range of topics and disciplines that include feminism, gay and lesbian studies, women's studies, popular culture, and politics. Throughout the course, students examine the intersection of gender with other social identifiers: class, race, sexual orientation, culture, and ethnicity. Students read about, write about, and discuss gender issues as they simultaneously reflect on the ways that gender has manifested in and influenced their lives.

## **GOA364** How to Argue Well

This course, which teaches critical thinking skills through argument mapping, offers students the opportunity to make a significant intellectual leap and improve not only their performance in school but also their ability to engage in productive arguments. When your teachers push you to "be more specific" or ask, "Where is your evidence?" or say you need more "analysis," they are highlighting your need to improve your critical thinking skills. Research has

measured argument mapping as being a more effective learning tool than a semester at college when it comes to developing these skills, and it is this skill set that best predicts one's performance in school and one's performance on standardized tests, as well. Further, bad arguments are what give arguments a bad name. We live in a world of polarized communications where name-calling, emotion, and blurred lines between fact and fiction result in arguments based on extreme opinions that eclipse reason. The problem is not that we are arguing; the problem is that we do not know how to engage in arguments using logic and reasoning. These skills – the bedrock of critical thinking – give people the ability to argue thoughtfully and effectively. Good arguments are illuminating, generative, and compelling. This course will teach students how to master and deploy critical thinking skills to think independently; improve academic performance across disciplines; create, assess, and engage thoughtfully in arguments; and successfully forge community in the process.

### **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.

### **GOA365** Introduction to Artificial Intelligence

Aspects of artificial intelligence permeate our lives and the algorithms power your favorite apps. How much do you really know about how AI works or how it is changing the world around us? This course will explore the history of research into artificial general intelligence and the subsequent focus on the subfields of narrow AI: Neural networks, Machine

Learning and Expert Systems, Deep Learning, Natural Language Processing, and Machine Vision and Facial Recognition. Students will learn how AI training datasets cause bias and focus on the ethics and principles of responsible AI: fairness, transparency and explainability, human-centeredness, and privacy and security.

### **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.

### **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

What does it mean to think like a psychologist? In Introduction to Psychology, students explore three central psychological perspectives - the behavioral, the cognitive, and the sociocultural - in order to develop a multi-faceted understanding of what thinking like a psychologist encompasses. The additional question of “How do psychologists put what they know into practice?” informs study of the research methods in psychology, the ethics surrounding them, and the application of those methods to practice. During the first five units of the course, students gather essential information that they apply during a group project on the unique characteristics of adolescent psychology. Students similarly envision a case study on depression, which enables application of understanding from the first five units. The course concludes with a unit on positive psychology, which features current positive psychology research on living mentally healthy lives. Throughout the course, students collaborate on a variety of activities and assessments, which often enable learning about each other’s unique perspectives while building their research and critical thinking skills in service of understanding the complex field of psychology.

### **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.

### **GOA291** Macroeconomics

Macroeconomics is the study of economic units as a whole rather than of their individual components. The aggregate unit is usually a national economy and that will be our focus in this course. Students will learn to better understand how to measure national economic activity with concepts like gross domestic product, unemployment and inflation and the strengths and weaknesses of these statistics. Students will then study theoretical methods of influencing national economic activity with monetary and fiscal policy and will learn about some of the controversy surrounding these policy tools. The advantages and disadvantages of international trade and of methods of setting exchange rates will also be introduced. The course will include an individual student investigation of a national economy other than their home country. Students will identify their economic findings and present resolutions in their final report.

### **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.

## **GOA288** Microeconomics

In this course, students learn about how consumers and producers interact to form a market and then how and why the government may intervene in that market. Students deepen their understanding of basic microeconomic theory through class discussion and debate, problem solving, and written reflection. Students visit a local production site and write a report using the market principles they have learned. Economic ways of thinking about the world will help them better understand their roles as consumers and workers, and someday, as voters and producers.

## **GOA278** Multivariable Calculus

In this course, students learn to differentiate and integrate functions of several variables. We extend the Fundamental Theorem of Calculus to multiple dimensions and the course will culminate in Green's, Stokes' and Gauss' Theorems. The course opens with a unit on vectors, which introduces students to this critical component of advanced calculus. We then move on to study partial derivatives,

double and triple integrals, and vector calculus in both two and three dimensions. Students are expected to develop fluency with vector and matrix operations. Understanding parametric curves as a trajectory described by a position vector is an essential concept, and this allows us to break free from one-dimensional calculus and investigate paths, velocities, and other applications of science that exist in three-dimensional space. We study derivatives in multiple dimensions and use the ideas of the gradient and partial derivatives to explore optimization problems with multiple variables as well as consider constrained optimization problems using Lagrangians. After our study of differentials in multiple dimensions, we move to integral calculus. We use line and surface integrals to calculate physical quantities especially relevant to mechanics, electricity and magnetism, such as work and flux. We will employ volume integrals for calculations of mass and moments of inertia and conclude with the major theorems (Green's, Stokes', Gauss') of the course, applying each to some physical applications that commonly appear in calculus-based physics. Prerequisite: The equivalent of a college year of single-variable calculus, including integration techniques, such as 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** Personal Finance

In this course, students learn financial responsibility and social consciousness. We will examine a wide array of topics including personal budgeting, credit cards and credit scores, career and earning potential, insurance, real estate, financial investment, retirement savings, charitable giving, taxes, and other items related to personal finance. Students will apply their understanding of these topics by simulating real life financial circumstances and weighing the costs and benefits of their decisions. Throughout the course, students will have the opportunity to learn from individuals with varying perspectives and expertise in numerous fields. By reflecting on their roles in the broader economy as both producers and consumers, students will begin to consider how they can positively impact the world around them through their financial decisions.

## **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 & Society

What is race? Is it something we’re born with? Is it an idea that society imposes on us? An identity we perform? A beneficial privilege? Does our own culture’s conception of race mirror those found in other parts of the world? These are just a few of the questions that students in this course will explore together as they approach the concept of race as a social construct that shapes and is shaped by societies and cultures in very real ways. Throughout the course, students will learn about the changing relationship between race and society across time and across cultures. Engaging with readings, films, and speakers from a variety of academic fields (history, sociology, anthropology, literature) students will explore, research, reflect on and discuss the complex set of relationships governing race and society.

## **GOA340** Religion & Society

Religion is one of the most salient forces in contemporary society but is also one of the most misunderstood. What exactly is religion? How does religious identity inform the ways humans understand themselves and the world around them? How can increased levels of religious literacy help us become more effective civic agents in the world today? Students in this course will conduct several deep dives into specific case studies in order to understand how religious identity intersects with various systems of power, including race, gender, class, sexual orientation, and ethnicity. By engaging with material from a variety of academic fields (history, sociology, anthropology, psychology), students will grapple with the complex ways in which society and religious identity relate to one another.

## **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.



## GOA372 Introduction to Organic Chemistry

The purpose of the course is to teach organic chemistry content and to prepare students for organic chemistry at the collegiate level. This course dives into mechanisms and reaction types that make up all living things on this planet, carbon chemistry.

From a content perspective, this course introduces the magnificent world of complex molecules, their properties, reactions, and applications. Understanding the properties, and appreciating the incredible organic world we live in, is the key to understanding how to address some of the most challenging problems that we face today and in the future. This course also helps students build their problem-solving and pattern-recognition skills so that when students take organic chemistry at the collegiate level they will be prepared to “speak” the language. At the collegiate level, introductory organic chemistry is oftentimes a challenging course for many students entering pre-health programs of study or science majors getting their pre-reqs taken care of. Organic Chemistry I focuses on the “language of organic chemistry.” Students learn to predict electron movement for organic reactions. They focus on molecular structure (i.e. bond angles, shapes, polarity, and resonance), basic nomenclature, and prediction of electron movement. This course is the first in a two-part series.

Organic Chemistry I is offered in Semester 1 and Organic Chemistry II is offered in Semester 2. While it is possible to take only this first course, we recommend signing up for both semester courses.

## GOA373 Introduction to Organic Chemistry II

**prerequisite:** Introduction to Organic Chemistry I

In this course, students continue to explore the incredible world of carbon chemistry. Students add to their language skills as well as learn about additional functional groups and classes of organic molecules. They build on our understanding of reaction types and how to predict what can be made from certain precursors. The purpose of Introduction Organic Chemistry II is to foster an appreciation for the incredible organic world we live in. Students develop an understanding of how we can use this knowledge of the structure of molecules to address some of the most challenging problems that we face today and in the future. Some example questions that students may explore: What are some things that need to be considered when creating materials that can cause lasting issues for the health of aquatic and human life upon disposal? How can we manufacture new materials that can have applications to improve and extend life through medical technologies? How can we create better, more sustainable, energy sources that lead us away from our fossil fuel dependency? What characteristics will new synthetic materials need so that they don’t need to be replaced as often (to create less waste etc.)? Students continue to hone their understanding of nomenclature, work with reaction types with a focus on polymerization and material science, and receive an introduction to spectroscopy. Introduction to Organic Chemistry II focuses on the important building and structures of organic molecules. Students learn to appreciate the interconnection and complexity of the organic world.



## NOTES





## NOTES





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