

**CATE SCHOOL**  
**ACADEMIC COURSE**  
**REGISTRATION BOOKLET**

**For the School Year 2021-2022**



## Course Registration Deadlines 2021

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These are the scheduling tasks needed to complete the Master Schedule by Monday, July 26, 2021.

<u>Completion Date</u>	<u>Tasks</u>
December 8-11	Department Chairs meet with Lisa Holmes to discuss courses and changes to the 2021-22 course offerings.
January 26 (Tues)	Scheduling due dates presented and discussed at Department Chairs meeting.
February 2 (Tues)	Department chairs discuss any course changes to the 2021-22 program. Updates to the Registration Booklet and course list to be made this week.
February 19 (Fri)	Registration Booklet and timeline for the process registration process shared with students and advisors for review over spring break.
March 8-12	Advisors begin meetings with advisees to discuss 2021-22 course requests.
March 19 (Fri)	Advisors submit course requests in Veracross.
March 23 (Tues)	Advisors review course lists with advisees. Advisors email these presumably final changes to the scheduler by Friday, April 2.
April 20 (Tues)	Course Requests released to the Department Chairs by the scheduler. Department Chairs will use these requests, and their preliminary advanced and honors placements, to develop teaching assignments & sectioning.
May 7 (Fri)	Dept. Chairs release final teaching assignments & sectioning to the scheduler.
May 10 (Mon)	Due date for <b>New</b> families to submit course requests to Admissions.
May 21 (Fri)	Department Chairs submit the best possible returning student's advanced and honors placements for <b>upper school singleton courses</b> .
May 25 (Tues)	Scheduling starts Tuesday, May 25th! <b>Student enrollment changes in upper school singleton courses after this date are still possible but scheduling conflicts are more likely.</b>
June 11 (Fri)	Department chairs provide <b>final</b> placements for all returning students.
June 25 (Fri)	Department chairs provide <b>final</b> placements for all new students.
July 26 (Mon)	Master schedule complete: teachers, rooms and classes set; students <u>provisionally</u> enrolled in sections to identify scheduling conflicts. Many will subsequently be moved to other sections to improve sectioning and gender balance.

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## **PRINCIPLES, OBJECTIVES, STANDARDS AND GRADE-LEVEL THEMES**

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*The overarching objective of Cate School's academic program is to promote the greatest growth possible for each student and teacher.*

### **Educational Principles**

Each Cate student and teacher will develop:

**Curiosity** – a desire to discover the unknown and acquire the ability, imagination, and initiative to ask and pursue questions of real value

**Determination** – the ability to identify worthy risks; the methods and skills of the academic disciplines and one's own best learning practices; the grit, patience, and self-discipline to persist at hard work; the resilience to deal with both failure and success

**Communication** – the skills to collaborate productively with others, to present information clearly, and to be effective presenters, listeners, and respondents employing verbal, quantitative, and visual languages skillfully, using a range of media

**Knowledge** – essential knowledge and core competencies and standards of honorable scholarship

**Compassion** – recognition of the needs and interests of others; empathy and respect; the skills of collaboration, leadership, membership, and service

### **Curriculum Standards**

Cate's curriculum will consist of courses of study that:

- embody our educational principles and school-wide objectives
- are coordinated across disciplines and over four successive years
- achieve discipline-specific objectives
- are developmentally appropriate
- employ effective teaching practices

### **Grade-Level Themes**

9th grade is the year of **Orientation and Organization**

10th grade is the year of **Awareness and Responsibility**

11th grade is the year of **Connections and Purpose**

12th grade is the year of **Mastery, Self-Determination, and Leadership**

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## **KINDS OF COURSES**

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1. A **YEAR COURSE** runs for the entire year. Students who enroll in a year course in the fall are required to remain enrolled for the entire year.
2. A **TRIMESTER COURSE** runs for one trimester and may be offered in the fall, winter, or spring.

### **General Policies**

1. Students will take five full-credit courses each trimester and may take up to three half-credit courses in addition to the five course requirement.
2. Special circumstances may lead to exceptions being made to the above requirements, but these exceptions need the approval of the Director of Studies and the student's advisor.
3. Each course in the curriculum follows a prescribed course of study – texts, materials, methods, and objectives – approved by the department chair and the director of studies as being appropriate to the stated goals of the course. Students in a given course are not exempted from any element of its course of study.
4. Directed Studies may not be used to reach the five full-credit courses per trimester requirement.
5. The terms “lower” and “upper” school are used to designate course loads. “Lower school” refers to 9th and 10th grades, and “upper school” refers to 11th and 12th grades.
6. Letter grades and comments are used to communicate student achievement and areas of strength and growth at the end of each trimester. Final course grades that are based on the three trimester grades and exam grades are communicated in the final grade report in June and appear on the official school transcript.
7. A student's grade point average (GPA) is based on a four-point scale and is calculated by multiplying the course credit by the numeric equivalent of the final course grade earned. Cumulative student GPA's are calculated at the end of the sophomore, junior and senior years. Grades from the 9<sup>th</sup> grade year are not part of the GPA calculation.
8. Honors courses receive an additional 0.5 weight in the GPA calculation and Advanced courses receive an additional 1.0 weight in the GPA calculation.
9. Statement about the Advanced Placement Program: In 2012, Cate made the decision to replace our AP courses with a Cate distinctive advanced curriculum. We currently have 50 advanced and honors courses that emphasize a question framework that leads to independent inquiry and analysis not possible in a standard AP class. In some cases, our advanced courses will prepare students for a skills-based AP exam; however, we do not require an AP exam for any course or use an AP exam as a cumulative assessment, and we do not administer AP exams for our students unless they are enrolled in a corresponding Advanced Cate course.

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## ADVANCED COURSES

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Cate's Advanced Courses are designed to challenge our most accomplished and aspirational upper school students by giving them an opportunity for focused and in-depth student in a particular discipline and interdisciplinary topic. Students in Advanced courses must master essential knowledge typical in college-level courses and also develop and apply the higher order thinking skills that are essential elements of a college course. Advanced courses are designed to provide the greatest possible challenge for students who have shown sustained commitment and achievement in a particular discipline.

### CRITERIA for an ADVANCED COURSE at CATE

An Advanced Course:

- Is consistent with our school-wide principles, educational standards, and grade-level and department objectives.
- Offers a challenging, demanding, and intellectually rigorous experience in an academic discipline to students who have demonstrated the interest, skills, and attitudes necessary for advanced work.
- Requires the application of skills and content acquired and mastered in earlier course work in the discipline or interdisciplinary area.
- Expects higher order thinking, advanced skill development and mastery of essential knowledge in the discipline(s).
- Involves independent work and inquiry that requires students to ask and answer questions of interest to them and of real value and meaning in the academic discipline.
- Places emphasis on depth of inquiry and student initiative.
- Includes assessments that are open-ended and designed so that students are required to practice the discipline. (“do the discipline” **be** historians, scientists, artists, mathematicians, etc.).
- May be designed with a conventional metric (AP or National Examination, SAT II's) or National Standards in discipline as a guide, but not as a means of student assessment. That is, the course is not driven by the test nor is the test used as the end point for a backward design.
- Is consistent with the University of California criteria for an advanced course in the academic discipline.

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## GRADUATION REQUIREMENTS

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### ARTS

Foundation Arts in the ninth grade. For sophomores who have completed Foundation Arts, at least one half-credit year course in the tenth grade; for students entering in the tenth grade, one half-credit year course in visual art and one half-credit year course in performing arts. For all students, at least one half-credit year course in the upper school (grades 11, 12).

### ENGLISH

One course per year.

### HISTORY

A course in each of the first two years, and U. S. History in the upper school.

### HUMAN DEVELOPMENT

Freshman Seminar for freshmen, Sophomore Seminar for sophomores, and Vision to Practice for juniors.

### MATHEMATICS

One course per year through the junior year, with the final course determined by the initial Cate entry level. All students are expected to complete Algebra 2 and Trigonometry. Essentially, the requirement is three years of mathematics, including comparable high school level courses taken prior to Cate, although four years of math are recommended for most students.

### MODERN LANGUAGES

Three sequential years of the same language.

### SCIENCE

Graduation Requirement: Three years of laboratory science are required; Physics as a freshman, Chemistry as a sophomore and Biology as a junior, or as a senior with approval.

### COURSE CREDITS

The credits per trimester or year reflect the time commitment required for each course. Courses that meet in each letter block for a year or a trimester are considered “full credit” courses. Courses that meet in one, two or three letter blocks each week are partial credit courses. Students are required to take 5 full credit courses each trimester and may take up to three partial credit courses for a maximum of 6.5 credits/trimester. A course of study that exceeds 6.5 credits for any trimester requires advisor and Director of Studies approval.

The following course credit notations appear on student transcripts:

Full year course:	1.00
Trimester course:	.33
Full year, half credit course:	.50
Trimester, half-credit course:	.17

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## TYPICAL COURSES OF STUDY

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### GRADE 9

The freshman course of study is made up entirely of required courses.

Humanities (English/History)	Physics
Mathematics	Foundation Arts
Modern Languages	Freshman Seminar

### GRADE 10

With few exceptions, sophomores take the following courses:

English 10 or Honors English 10	Arts
Mathematics	Chemistry or Honors Chemistry
Modern Languages	Sophomore Seminar
Sophomore History	

### GRADE 11

Students entering the junior year should plan for both the junior and senior years. When choosing courses students should consider graduation requirements, appropriate workload, college plans and, above all, individual strengths and interests in planning for the two-year sequence. When there are questions about the appropriate course of study department chairs, college counselors, and the director of studies can serve as resources in addition to the individual advisors.

Requirements in the junior and senior years are:

1. U. S. History or Advanced U. S. History
2. Biology or Honors Biology
3. Completion of the art requirement
4. Practice in Vision as a junior

With few exceptions, juniors take the following courses:

1. English 11 or Advanced English 11
2. Mathematics
3. Modern Languages
4. Vision into Practice

### GRADE 12

Seniors must take English 12 in the fall and an English elective in the winter and spring. If they have not already done so, they must complete whatever requirements remain. Seniors may choose to pursue an independent Inquiry Project



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## A CULTURE OF INQUIRY

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Cate School is committed to the creation of a culture of inquiry. To that end, the entire school is engaged in a year-long conversation in response to an essential and authentic question and common read presented to the school in the spring.

Upon returning to school in the fall, advisory groups and academic classes have the opportunity to consider and reference the essential question and inquiry book. The Convocation program – a weekly series of speakers, performers, and special guests – is developed in order to enhance the conversation; other workshops and visitors will be invited during the course of the year to add breadth to the year’s inquiry.

### **SENIOR INQUIRY PROJECT (.33 credits/Spring Trimester)**

The program of inquiry offers a particular challenge to members of the senior class. Independent self-initiated challenge brings an authentic intellectual adventure and allows mastery of skills particular to a senior’s response to the organizing question. During the period of course registration, juniors may begin consideration of an Inquiry Project that will receive full credit as a spring trimester course in the senior year. In conjunction with the advisor, a junior may elect to take on an independently initiated Inquiry Project.

During the summer between the junior and senior year, the rising senior wishing to pursue an Inquiry Project must draft a proposal to be approved by the Inquiry Team, a group of faculty who oversees the progress of the individual projects; approval of a final proposal must be secured by the end of the fall trimester of the senior year. Students who undertake an Inquiry Project will choose a course load in the winter and spring trimesters that allows time for independent work. While students who undertake an Inquiry Project work independently, the Inquiry Team provides criteria for the assessment of their work and may also be used as a resource for their research.

In any senior class, distinctive abilities and interests abound; the response to the essential question might elicit a variety of Inquiry Projects. Those with a scientific turn of mind may consider cosmology, geology, biology, meteorology, or neurology while humanists might explore literature, memoir, psychology, political science, economics, history, theater, communications, or religion. Technology, geo politics, art history - all within the scope of the organizing question.

In the last weeks of May students present the publications, performances, exhibitions, or events that demonstrate the culmination of the year’s Inquiry. The celebration of the independent inquiry work of seniors allows the entire community to witness the particular response to the organizing question.

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## DIRECTED STUDIES

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The purpose of a Directed Studies course is to provide opportunity for independent scholarship that satisfies an interest that lies outside and beyond the established curriculum. Students can choose a topic in any subject area. The Request for Directed Studies form requires the applicant to design and propose a course in conjunction with a sponsoring teacher, who is willing to supervise and grade the study. Several permissions are required: sponsoring teacher, sponsoring department head, advisor, and the Director of Studies. For senior year courses, permission from the college counselor is also required.

### **Standard Directed Studies Course:**

- earns a half credit (.17) per term
- uses pass/fail grading
- requires a commitment of at least one 65-minute scheduled meeting each week
- may be a year-long or one trimester-long course
- may not apply toward your five full-credit courses per trimester requirement

Modifications to the Standard Directed Studies Course structure are possible with approval. Justification for any changes to the credits earned per term, grading method, or meeting schedule should be detailed on the Request for Directed Studies form.

### **DEADLINES – Please Read Carefully**

Directed Studies courses must be documented on the Request for Directed Studies form approved and submitted before the School's add/drop deadlines listed below. Directed Studies may not be dropped without penalty after the add/drop deadline. Seniors should be aware that Directed Studies (for any term) submitted after Friday, September 14, 2020 may not appear on the initial transcript submitted for college applications.

- Year Course Deadline: Friday, September 17, 2021
- Fall Term Deadline: Friday, September 17, 2021
- Winter Term Deadline: Monday, December 6, 2021
- Spring Term Deadline: Monday, April 12, 2021

Some departments encourage directed studies with these open-ended offerings. Submission of the Request for Directed Studies form along with the justifications for a non-standard Directed Studies will still be required:

**Directed Studies in Math**, full year, .33 credits/trimester: For students who have taken the other math electives offered, independent study is available through our directed studies program. Students can design their own program or follow collegiate online options. Separate tuition costs for the student may apply for these programs.

**History Research**, full year or individual term(s), .17 credits/trimester: The purpose of this course is to provide students the opportunity to learn about topics of their own choosing from any aspect of American, Asian, or European history they find interesting. The format for the course is student-conducted independent research, working with history and library faculty, and presentations to the class. Students must write a research proposal and obtain permission from the department and Director of Studies.

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## ARTS DEPARTMENT

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Graduation requirements: Foundation Arts in the ninth grade. For sophomores who have completed Foundation Arts, at least one half-credit year course in the tenth grade; for students entering in the tenth grade, one half-credit year course in visual art and one half-credit year course in performing arts. For all students, at least one half-credit year course in the upper school (grades 11, 12).

Students in good academic standing are permitted to request a half-credit arts course that will not be counted against their overall course load. Full-credit arts courses are treated in the same manner as all other full-credit courses.

Year courses offered by the Arts Department range from full-credit courses at the advanced level to intermediate and introductory courses that carry a half credit, fit readily into most students' courses of study, and allow students to benefit from continuous involvement in the arts. Trimester elective courses, half-credit in scope and a single trimester in length, offer briefer, focused study in a specialized art form. Students may take a single trimester elective or configure a sequence of three in order to create a year program.

### **Foundation Arts**

AFoundArts

*Full year - .33 credits/trimester*

All ninth-grade students take Foundation Arts. Through direct experience and the practice of different forms of art, Foundation Arts students develop an understanding of the purposes of art: description, expression, function, and aesthetic appeal. They build essential skills, and learn and employ the principles of design thinking, materials thinking, and creative thinking through project-based work. Foundation Arts students learn skills of awareness and critical judgment. They develop the ability to recognize strengths and areas for improvement in their own work, and to modify their ongoing work to capitalize on such feedback. The course is divided into six units (Studio Art, Digital Media, Music, Ceramics, Theater, and Art History) through which students work with all members of the arts department. Foundation Arts concludes with a seventh unit in which each student conceives and executes a piece of work in an area of personal artistic interest, employing the skills, concepts, and ways of artistic thinking developed over the course of the year.

### **Photography 1**

APhoto1

*Full year - .17 credits/trimester.*

This introductory course in still photography assumes little or no previous knowledge of the digital still DSLR camera. Over the course of the year students will work with photography as the means of capturing imagery. Through practical experience students will be introduced to photography as a medium for communicating information and ideas in effective visual forms. Topics include operation of the cameras; artistic compositions; computer operation; file compression and formatting; use of related software (i.e. Adobe Photoshop, Bridge, and Lightroom). Students will learn to operate their digital cameras and post-production software, print, and present their photographic work. At least one hour of homework per week is required of each student.

**Photography 2**

APhoto2

*Full year - .17 credits/trimester*

This course explores intermediate photographic and digital techniques and concepts. This course is an extension of the techniques learned in Introduction to Photography. Students will learn how to solve photographic problems through a series of guided and individualized assignments. Students will work on developing concepts, advance knowledge of post-production software, print and present their photographic works. Students will be introduced to alternative techniques, such as photographic transfers, photo encaustic and book making. At least one hour of homework per week is required of each student. A portfolio is submitted at the end of the year. Prerequisite: Photography 1 or permission of the department.

**Photography 3**

APhoto3

*Full year - .17 credits/trimester*

This course explores advanced photographic and digital techniques and concepts and is an extension of the techniques learned in Photography 2. Students will plan, shoot, develop and print bodies of work that are conceptually motivated and technically proficient. Topics in Advanced Photography include contemporary discourse, portraiture, non-traditional approaches to photography and photography as sculpture or installation art. At least one hour of homework per week is required of each student. A portfolio is submitted at the end of the year. Prerequisite: Photography 2 or permission of the department.

**Digital Filmmaking 1**

AFilm1

*Full year - .17 credits/trimester.*

This introductory course in digital filmmaking assumes little or no previous knowledge of the digital still or video cameras. Over the course of the year students will work with digital filmmaking as the means of capturing motion. Through practical experience students will be introduced to film as a medium for communicating information and ideas in an effective visual form. Topics include operation of the cameras; artistic compositions; computer operation; file compression and formatting; use of related software (i.e. Adobe Premiere), as well as how to operate audio and cinematic related devices. Students will learn to operate their digital video cameras and post-production software, as well as create and present original video content. At least one hour of homework per week is required of each student.

**Digital Filmmaking 2**

ADigiFilm2

*Full year - .17 credits/trimester*

Digital Filmmaking 2 students work as individuals and as collaborative teams. Using equipment and techniques ranging from the simplest and most direct (such as cell phone video) to ambitious and advanced – professional quality DSLR cameras – students will learn and apply a valuable and essential set of design and production skills. Projects extend from brief moving images (5-7 Second Videos) to silent films, music videos and completed short subjects. For larger group projects, students may take on roles from screenwriting and storyboarding to direction, camera work, lighting, performance, and post-production work. Prerequisite: Filmmaking 1 or permission of the department.

**Digital Filmmaking 3**

ADigiFilm3

*Full year - .17 credits/trimester*

Digital Filmmaking 3 students continue to work as individuals and as a collaborative team. This course builds upon the creative and technical skills students have developed and it will open up an opportunity for students to explore filmmaking further with the addition of a trimester dedicated to film studies. Students will continue to use equipment and techniques ranging from cell phone video to DSLR video capture. Projects extend from brief videos and completed short subjects, to non-narrative projects and installations. For larger group projects, students may take on roles from screenwriting and storyboarding to direction, camera work, lighting, performance, and post-production work. Prerequisite: Digital Filmmaking 2 or permission of the department.

**Digital Arts 1**

ADigArts1

*Full year - .17 credits/trimester*

Working primarily with Adobe Photoshop and Illustrator, students will be introduced to the basics of each program in order to develop a foundational skill set in the world of design. As students investigate and discover the many definitions and uses of “digital art”, they will have the chance to develop original artworks that serve a variety of purposes. Students will create composites and digital paintings through manipulating original photographs in Photoshop; they will create posters, branding, and product design developed from original illustrations created in Illustrator; and finally produce print media including books, flyers, and programs for school productions.

**Digital Arts 2**

ADigArts2

*Full year - .17 credits/trimester*

Building on what students learned in Digital Arts 1, students will continue to advance their digital art skills while working with Illustrator and Photoshop. As a second year student in Digital Art, students will be introduced to creating digital animations while working with Adobe Animate, motion graphics with After Effects, and they will gain entry level access to designing, engraving, and cutting with the Epilog Laser Cutter. At least one hour of homework per week will be required of each student. Prerequisite: Digital Arts 1 or permission of the department.

**Digital Arts 3**

ADigArts3

*Full year - .17 credits/trimester*

Students will build on their understanding of design concepts and practices while working with Adobe Photoshop, Illustrator, and 3D modeling programs developed in Digital Arts 1 and 2. Students will continue to work with the Form Plus 3D printers and Epilog Laser Cutter, and they will be introduced to alternative modes of digital output. At least one hour of homework per week will be required of each student. Prerequisite: Digital Arts 2 or permission of the department.

**Ceramics 1**

ACeramics1

*Full year - .17 credits/trimester*

Ceramics 1 students spend the majority of the year learning how to throw and trim clay on the pottery wheel. By the end of the year, students will be able to throw and trim bowls, platters, vases, jars with lids, pitchers, jugs, mugs, and ultimately, a teapot. The focus of Ceramics 1 is indeed the development of basic throwing skills; however, basic decorating practices are also utilized to enhance each piece. By the end of the year, students will begin to demonstrate through the glazing of their pieces a harmony in the relationship between a form and its colors and decoration.

**Ceramics 2**

ACeramics2

*Full year - .17 credits/trimester*

This course focuses on more sophisticated throwing and trimming techniques and offers opportunities for greater self-expression using clay as the medium. While the emphasis is on throwing and trimming, hand-building and slab construction are important aspects of the curriculum. By the end of the year, students will be able to create larger forms by throwing sectionals and using a variety of slab construction techniques. Greater focus is devoted to general aesthetic principles in Ceramics 2, and time is spent comparing classical western ideals with those of a strong Japanese influence within the world of ceramic art. By the end of the year, students will have used a variety of more advanced decorating techniques – including slip trailing, carving, incising, and fluting – to capture elements of these different perspectives on aesthetics in ceramics. Prerequisite: Ceramics 1 or permission of the department.

**Ceramics 3**

ACeramics3

*Full year - .17 credits/trimester*

This course provides an ambitious and intensive exploration of the expressive and functional aspects of stoneware and porcelain clays. A developmental sequence of assignments during the first trimester helps students gain the advanced technical skills for both sculpture and thrown ware. Later in the year, they design their own projects with an emphasis on in-depth exploration of form, design, decoration and glazing. Students are called upon to instruct beginning potters in the capacity as teaching assistants during the first term. Those who wish to participate in the Advanced Placement program of the College Board will develop a portfolio of work to be submitted in the spring. That body of work must conform to the curriculum mandated by the AP program. Prerequisite: Ceramics 2 or permission of the department.

**Studio Art 1**

AStudioArt1

*Full year - .17 credits/trimester*

Through a series of structured and open-ended assignments, students will develop creative and technical skills through work in a variety of media and forms of expression. Drawing, painting, printmaking, mixed media, bookbinding, and collage are among the many techniques students may use. Projects are increasingly ambitious, and students develop pieces of high quality. Students learn to manage and assess their own pieces and to critique each other's work constructively.

**Studio Art 2**

AStudioArt2

*Full year - .17 credits/trimester*

Studio 2 is recommended for students who want to continue developing their creative thinking and artistic skills in 2D media and beyond. Students work with the media introduced in Studio 1 plus new forms of art and materials. Students will be given more freedom and responsibility to work independently and develop projects that are in line with their own artistic passions and academic interests. Students will begin to develop portfolios at this level, which may be used as support material for college applications. Prerequisite: Studio 1 or permission of the department.

**Studio Art 3**

AStudioArt3

*Full year - .17 credits/trimester*

Studio Art 3 is designed for students who have progressed beyond the intermediate level in their Studio Art careers. The purpose of this course is to provide these student artists with the opportunity to stretch their technical and creative abilities through more individualized work. While students will be challenged by specific prompts, they are responsible for executing a response of their own design. Students will continue to define principles of art and design, further their critical and analytical skills, and learn from the challenges and processes being undertaken by their peers. Students who wish to prepare and submit a portfolio for college applications and/or awards programs will be prepared and supported in doing so. Prerequisite: Studio Art 2 or permission of the department.

**Advanced Art**

AAAdvArt

*Full year - .33 credits/trimester*

Advanced Art is designed for students who have progressed beyond the intermediate level in their studies in the arts. The purpose of this course is to provide Cate's most accomplished and engaged artists the opportunity to pursue individual, directed studies in an environment that allows them to see and learn from each other's work. Students who specialize in various disciplines will have the opportunity to develop their artwork alongside one another. Students will execute challenging individualized projects while coming together regularly to investigate advanced principles of the arts, to develop critical and analytical skills, and to learn from the challenges and processes being undertaken by their peers. Students who wish to prepare and submit a portfolio for college applications and/or awards programs will be prepared and supported in doing so. This course carries the advanced designation and weighting. Prerequisite: Level 2 Arts course and permission of the department.

**Advanced Performing Arts**

AAAdvPerfArt

*Full year - .33 credits/trimester*

Advanced Performing Arts is designed for students who have progressed beyond the intermediate level in their studies in the performing arts. The purpose of this course is to provide Cate's most accomplished and engaged artists the opportunity to pursue individual, directed studies in an environment that allows them to see and learn from each other's work. Students who specialize in various disciplines will have the opportunity to develop performing art pieces alongside one another. Students will execute challenging individualized projects and offer them in performance settings, while coming together regularly to investigate advanced principles of the performing arts, to develop critical and analytical skills, and to learn from the challenges and processes being undertaken by their peers. Students who wish to prepare and submit a portfolio for college applications and/or awards programs will be prepared and supported in doing so. This course carries the advanced designation and weighting. Prerequisite: Level 2 Arts course and permission of the department.

**Advanced Art History**

AAAdvArtHist

*Full year - .33 credits/trimester*

Visual art is the primary means through which men and women have given form to the most powerful and fascinating ideas and beliefs formed by individuals and their cultures. In art history, we explore amazing things – works of architecture, painting, and sculpture – every day, making our collaborative classroom a happy, exciting, and productive place. Through observation, analysis, and verbalization, we construct a framework of understanding the ever-changing arts and ideas in the Western world and in other regions (Asia, India, Africa, the Middle East, and Central America). Since the arts give physical form to the most compelling thoughts of a people in their time and place, we trace key steps in the history of science, growth, and change in several world religions, and the emergence of peoples and nations and the social and political systems they create based on the values they hold. Advanced coursework helps connect and clarify earlier studies in all subjects at Cate while challenging students to move beyond learning ideas from others to become able to raise their own great questions and construct compelling responses. We pay close attention to developing effective communication skills (notation, discussion, writing) because we value the ability to deliver ideas of interest and worth to others as much as we do pursuing our own personal thoughts and interests.

**Theater Performance 1**

ATheaterPerf1

*Full year - .17 credits/trimester*

This course is designed to familiarize students with the theater – its intent, structure, effectiveness, and value – through performance. Through the study of a wide variety of scenes, monologues and short plays, students in Theater Performance 1 will be able to: communicate effectively and work cooperatively with an ensemble; take creative risks; develop physical, vocal, and mental skills through active participation in warm up and acting exercises; analyze text to determine author's intent and historical/cultural context; and constructively evaluate and critique their own work as well as being able to deliver tactful and thoughtful criticism to others.

**Theater Performance 2**

ATheaterPerf2

*Full year - .17 credits/trimester*

This course is designed to familiarize students with the theater – its intent, structure, effectiveness, and value – through performance. Theater Performance 2 students will be called upon to demonstrate and model these skills in a mentorship role, building toward the ultimate goal of directing scenes and leading class exercises. Prerequisite: Theater Performance 1 or permission of the department.

**Technical Theater Production 1**

ATechTheat1

*Full year - .17 credits/trimester*

This course is designed to help students develop a practical knowledge of theater through production analysis, technical design and construction. Through hands on instruction, Technical Theater Production 1 students will learn: to manage and care for the theater space and equipment; implement basic sound, lighting and scenic designs for theater events; collaborate and communicate effectively; and effectively combine purpose with artistry.



**Technical Theater Production 2**

ATechTheat2

*Full year - .17 credits/trimester*

This course is designed to help students develop a practical knowledge of theater through production analysis, technical design and construction. Technical Theater Production 2 students will be called upon to demonstrate and model these skills in a mentorship role, building toward the ultimate goal of managing the crew to help create and implement their own designs. Prerequisite: Technical Theater Production 1 or permission of the department.

**Technical Theater Production 3**

ATechTheat3

*Full Year - .17 credits/trimester*

This course is designed to help Technical Theater Production 3 students develop a practical knowledge of theater through production analysis, technical design, and construction. Prerequisite: Technical Theater Production 2 or permission of the department.

**Chamber Choir: Camerata**

ACamerata

*Full year - .17 credits/trimester*

Camerata is an advanced singing group that explores a wide variety of genres and styles from 16th century madrigals to contemporary pop songs. Singers will be expected to: prepare choral repertoire for public performance; build and practice exemplary vocal and breathing technique, tone production, and diction; hone their sight reading and musicianship skills; expand their individual potential within a group context; and identify the historical context for the choral selections and explain their cultural relevance. Enrollment in this course is by audition.

**Chamber Choir: Contemporary A Cappella**

AAcappella

*Full year - .17 credits/trimester*

Last Call, the current name of the ensemble, is the most advanced pop singing group. The a cappella band focuses primarily on modern popular genres such as rock, folk, musical theater, and rhythm and blues. Singers will be expected to: reach a level of excellence in sight-reading, style, and tone, learn and memorize all presented music, create and maintain a community of companionship through voice, and perform on and off Cate campus regularly. Enrollment in this course is by audition. The maximum enrollment size is 9 students.

**Studio Production 1**

AStudioProd1

*Full Year - .17 credits/trimester*

The fundamentals of songwriting and studio recording will be covered. This is for beginners. For songwriting, we will learn about writing chord changes, lyrics, form, beats, melodies and bass lines. In the studio, we will cover various Digital Audio Workstations (Logic, Pro Tools), loops, mid keyboards, recording techniques, and mixing songs.

**Studio Production 2**

AStudioProd2

*Full Year - .17 credits/trimester*

A deeper look into songwriting and studio recording. This is for second year producers. For songwriting, we will learn about writing more complex and pro-level chord changes, lyrics, form, beats, melodies and bass lines. In the studio, we will cover a more detailed look at Logic and Pro Tools, the SSL console, mic placement, working with live musicians, and more complex mixing strategies.

### **Studio Production 3**

AStudioProd3

*Full Year - .17 credits/trimester*

These third-year producers will become leaders in the recording studio. They will lead recording and songwriting sessions with performing artists. Trips to professional studios will be arranged. They will assist younger students in creating chord changes, lyrics, form, beats, melodies and bass lines. In the studio, they will become prolific at Logic and Pro Tools tips and tricks, learn detailed elements of the SSL console, work with live musicians regularly, record school concerts, and learn more pro-level mixing strategies from guest speakers. Internships in pro studios can be arranged.

### **Scheduled in the M (Performing Arts) Block**

#### **Chorale**

AChorale

*Full year - .17 credits/trimester*

This course is designed to foster an understanding of choral music and a love of singing. By participating in the ensemble, students will be expected to: prepare choral repertoire for public performance; develop musicianship skills, such as pitch and rhythmic accuracy, and sight-singing; develop vocal and breathing technique, tone production, and diction; expand their individual potential within a group context; and identify the historical context for the choral selections and explain their cultural relevance. No previous experience is required, and this course is open to all students.

#### **Modern Styles Ensemble**

AModStylesEnsem

*Full year - .17 credits/trimester*

This course will meet during the performing arts block and break into groups to play music from the modern era. Students will rotate through three trimester classes: songwriting/recording studio, rock band performance and music theory/soloing/performance techniques. Students will learn how to write their own pieces, record them in the studio, and perform for live audiences.

#### **Rock Band Ensemble**

ARockBandEnsem

*Full year - .17 credits/trimester*

This course will meet during the performing arts block and break into groups to play music more advanced rock music: rock, funk, electronic, and pop. Music theory, music history and songwriting concepts will be discussed. Students will learn how to write their own pieces, record them in the studio, and perform for live audiences.

#### **Orchestra**

AOrchestra

*Full year - .17 credits/trimester*

This is a performance-oriented course designed for string, woodwind, brass and percussion players who wish to play classical music with fellow musicians. Unique repertoire will be selected for each performance based on the abilities and skill levels of the group. Several performances are scheduled throughout the year and students' participation is required at all of them. In addition to regular rehearsals and performances, there may be occasional sectionals, master classes and musical quizzes scheduled.

**Chamber Ensemble**

AChamberEnsem

*Full year - .17 credits/trimester*

This is a performance-oriented course designed for more advanced string, woodwind, brass and percussion players. Students will be placed in 2-5 member ensembles. Unique repertoire will be selected for each performance based on the abilities and skill levels of the group. Several performances will be scheduled throughout the year and students' participation is required at all of them. In addition to regular rehearsals and performances, there may be occasional sectionals, master classes and musical quizzes scheduled.

**Jazz Ensemble**

AJazzEnsem

*Full year - .17 credits/trimester*

This is a performance-oriented course designed for musicians who wish to play jazz music. Students are introduced to the elements of improvisation including jazz harmony, soloing strategies and ensemble playing. Selected music will span the history of jazz, from Dixieland to Big Band and Bebop to Modern. There are two skill levels of jazz band and students will need to audition for the more advanced group. Performances are scheduled throughout the year at various Cate School events and students are required to perform at each show.

**Jazz Combo**

AJazzCombo

*Full year - .17 credits/trimester*

For students who want to focus on playing Jazz Standards and performing in public. This class will emphasize jazz soloing techniques, jazz chord progressions, walking bass lines and drum set grooves. Students will gig more often in concert around the area. Guest speakers will offer their perspectives on jazz soloing concepts. Enrollment in this course is by audition.

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**ENGLISH DEPARTMENT**

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Graduation Requirement: One course per year

**Humanities (English/History)**

IHumanities

*Full year - .66 credits/trimester*

Freshman Humanities serves as a gateway course to learning at Cate and to Cate's culture of inquiry. Multidisciplinary in nature and closely coordinated in execution, it follows the practices of the humanities by developing and exploring essential questions of human nature and the diversity of human experience in the historical eras of the past and in contemporary society today. Specifically, we engage with authentic, anchoring artifacts of literature, history, art, architecture, and religion drawn from the classical to early modern eras of Western civilization. With an emphasis on disciplined student inquiry, meaningful discussion and oral presentations, creative and analytical writing, and research, the course builds the skills and knowledge that are needed for success in the freshman year and beyond.

**English 10**

EEnglish10

*Full year - .33 credits/trimester*

In the 10th grade, students read challenging works in all major literary genres (poetry, short stories, essays, drama, memoirs, and novels); they also write extensively, study grammatical principles, learn new vocabulary, and contribute regularly to classroom debates and discussions. Our second-year course emphasizes the effective use of sensory detail and narrative structure in personal writing; students also continue to practice forming, developing, and supporting ideas in analytical writing. As readers, Cate sophomores are trained in more sophisticated forms of literary response; they learn to identify the elements and purposes of many types of creative expression and to shape their insights into clear, defensible statements. Finally, students continue to hone their listening and speaking skills in the classroom, expressing themselves clearly and responding carefully to the views of others.

**Honors English 10**

EHonEng10

*Full year - .33 credits/trimester*

Honors English 10 is an advanced section of English 10 for our most accomplished sophomores. The pace is faster and the expectations are higher; Honors students do more reading and writing than the sophomores in the regular sections, and their work is held to a higher standard. To a greater extent than other tenth-graders, they should be self-reliant, attentive to language, able to apply previously learned skills, quick to learn new tools and strategies, knowledgeable about certain literary concepts, and eager to share their opinions in the classroom. They also need to be genuinely interested in reading, discussing, and writing about literature. The selection process for the Honors course is competitive. In addition to reviewing each student's 9th-grade record in Humanities, the English Department takes into account the results of the annual Honors qualifying essay, the annual Humanities grammar test, and a comprehensive evaluation of effort, accomplishment and degree of interest.

**English 11**

EEnglish11

*Full year - .33 credits/trimester*

In the 11th grade, students read American fiction, nonfiction, drama, and poetry; they also write regularly in several forms and study the advanced principles of grammar. The junior-year writing curriculum introduces new skills in all modes while reinforcing the skills learned in prior years. Teachers focus on strategies for achieving dynamic description and narration in stories and personal essays; of equal importance are the methods of investigation, persuasion, and argumentation in analytical work. Students are increasingly responsible for the success of classroom conversation, and they are expected to exhibit open-minded and respectful partnership in the many discussions, workshops and presentations that comprise the junior year at Cate.

**Advanced English 11**

EAdvEng11

*Full year - .33 credits/trimester*

Advanced English 11 is a challenging course designed to prepare students for the reading and writing assignments they'll encounter in literature courses at the college level. The reading assignments are occasionally longer, the writing assignments are more frequent, and there is an increased emphasis on analytical skills: close scrutiny of language, demonstrating an awareness of rhetorical devices; facility of interpretation, including the secure use of abstract terms; and logical argumentation, including the use of quotation and secondary sources. Students are increasingly responsible for independent synthesis of all elements of a reader's experience into original and coherent ideas. The selection process for Advanced English 11 is competitive. In addition to reviewing each student's record in English 10, the department takes into account the results of the annual qualifying essay and a comprehensive assessment of effort, accomplishment and degree of interest.

**English 12**

E1English12

*Fall trimester - 33 credits/trimester*

English 12 offers students an opportunity to practice the reading and writing skills introduced during the preceding three years. The course begins with a writing unit focused on the college essay; the rest of the term is devoted to a unit on Modernism.

**Advanced English 12**

E1AdvEng12

*Fall trimester - .33 credits/trimester*

Advanced English 12 is an especially rigorous and challenging course. Command of the fundamentals of literary study is assumed, and students invited into the course are required to think and write independently and to take responsibility for the success of all workshops and discussions. As readers, they are expected to be capable of making nuanced inferences and of articulating sophisticated views supported by thoughtful analysis of the text. As writers, they are expected to be capable of independently crafting essays that demonstrate mastery of a wide range of creative and analytical skills. The selection process for 12 Advanced is competitive. In addition to reviewing each student's record in English 11, the department takes into account the results of the annual qualifying essay and a comprehensive assessment of effort, accomplishment, independence of scholarship and degree of interest.

After taking English 12 or Advanced English 12 in the fall, seniors take an English elective or an interdisciplinary English elective in the winter and spring. Registration of interest in specific Winter and Spring Elective courses occurs during the fall of the senior year.

**English 12: Winter Elective**

E2Eng12Elect

*Winter trimester - .33 credits/trimester*

**English 12: Spring Elective**

E3Eng12Elect

*Spring trimester - .33 credits/trimester*

English 12 Elective topics range from “Epic Tales from the Past” to “Latin American Short Stories,” from “Introduction to Film Studies” to “Southern Fiction.” Authors studied may include seminal past writers like Homer or Dickens as well as important contemporary voices such as Jesmyn Ward, Ken Liu, and Tommy Orange. Writing workshops may focus on poetry, fiction, drama, or argumentation.

**INTERDISCIPLINARY ELECTIVES: English and History**

Registration for the interdisciplinary electives offered by the English and History departments takes place during the prior spring. Seniors may take these interdisciplinary electives to fulfill the winter and spring English 12 graduation requirement or as a history credit if they are fulfilling the English requirement with another course. Juniors may take only take these courses as a history credit.

**English Elective: Comparative Religions**

E2CompReligions

*Winter trimester - .33 credits/trimester*

Comparative Religion is an interdisciplinary offering of the History and English departments that seeks to provide an overview of five of the world’s major religions – Judaism, Christianity, Islam, Hinduism, and Buddhism. By examining the origins, key tenets, and scriptures of each, students should come to recognize what distinguishes these traditions and what connects them, and to appreciate the variety of practices and beliefs that each of these religions encompasses. Also, by considering the mystical as well as the orthodox literature of each tradition, the expectation is that students will come to a deeper, more refined understanding of what religion is – as distinguished from science, say, or philosophy – and how the various questions of faith represent not just a viable, but necessary path for human, spiritual, and personal inquiry down through the centuries and up to the present day. To this end, we will of course be considering the impact of faith on current events, all by way of preparing students for the final unit of the trimester where they design and present their own inquiry projects exploring a religious tradition of their own choosing. This class is open to seniors for English credit and to both juniors and seniors for history credit.

## **INTERDISCIPLINARY ELECTIVES: English and Science**

### **American Wilderness 1: The Wilderness Ethos American Wilderness 2: Looking Inward**

America is a country forged from wilderness. This course is designed to deepen our understanding and appreciation of the natural world and to develop our sense of its role in defining both American culture and our own individual perspectives. Being in wilderness makes us think differently, to ask bigger questions. This course seeks to tackle those larger questions in order to deepen our understanding of both ourselves and our place in the cosmos. It is taught in a two-trimester sequence in order to provide a comprehensive and holistic exploration, employing both intellectual and experiential lines of inquiry. Students are asked to think deeply and seriously so that wilderness takes on a more profound meaning than simply as an aesthetic resource. Classroom work will include a variety of academic disciplines – English, environmental science, and philosophy – and there is a strong outdoor component to this course to ensure that students have the opportunity to experience the natural world in a manner less abstract than the classroom.

#### **English Elective: American Wilderness 1**

E2AmWild1

*Winter trimester - .33 credits/trimester*

American Wilderness 1: The Wilderness Ethos is the first trimester of a two-course sequence and must be followed by American Wilderness 2 in the spring trimester. Students will examine the role of wilderness in American culture – historically and currently – using the writings of authors such as Thoreau, Abbey, Stegner, Leopold, and McPhee to develop a personal understanding of the value of wilderness in their own lives. While developing their critical reading and writing skills, students will examine current environmental and political implications of our impact on the American wilderness and, through the use of a journal, work actively to articulate their own developing perceptions about the role of wilderness in American culture. In the winter trimester, there will be an overnight solo backpacking trip, and students will begin to learn the skills of whitewater kayaking in preparation for the river trips of the spring trimester.

#### **English Elective: American Wilderness 2**

E3AmWild2

*Spring trimester - .33 credits/trimester*

American Wilderness 2: Looking Inward is the second trimester of a two-course sequence and must be preceded by American Wilderness 1 in the winter trimester. The classroom component of this course shifts from analytical reading, critical writing, and argumentation in the winter term to personal introspection and creative writing with a study of the novel *The River Why*. Students will explore how the American wilderness has shaped various spiritual paradigms found in American society and use class discussions and journal writing to develop their own sense of their place in the natural world. In the spring trimester, students will continue to develop their kayaking skills locally and will spend a weekend on the Kern River applying their whitewater skills to moving water. Prior to Commencement, the course culminates in a week-long desert wilderness river trip in Utah. Prerequisite: American Wilderness 1: The Wilderness Ethos.

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## HISTORY DEPARTMENT

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Graduation Requirement: A course in each of the first two years and U.S. History in the upper school.

### **Humanities (English/History)**

IHumanities

*Full year - .66 credits/trimester*

Freshman Humanities serves as a gateway course to learning at Cate and to Cate's culture of inquiry. Multidisciplinary in nature and closely coordinated in execution, it follows the practices of the humanities by developing and exploring essential questions of human nature and the diversity of human experience in the historical eras of the past and in contemporary society today. Specifically, we engage with authentic, anchoring artifacts of literature, history, art, architecture, and religion drawn from the classical to early modern eras of Western civilization. With an emphasis on disciplined student inquiry, meaningful discussion and oral presentations, creative and analytical writing, and research, the course builds the skills and knowledge that are needed for success in the freshman year and beyond.

### **Modern World History**

HWorldHist

*Full year - .33 credits/trimester*

This course will explore imperialism, identity, and nationalism, primarily in the 19th and 20th centuries. A third of the year will be devoted to Europe, a third to China, and a third to sub-Saharan Africa. We will study transformation and tradition, inclusion and exclusion, and conflict and consensus. This course will emphasize skills, especially careful reading, focused essay writing, and oral presentation and research methods. The first trimester will focus on Europe, with units on the EU Today, Imperialism, World War I, Communism and Fascism and World War II, and The Cold War. The second trimester, will focus on China. The units include the Pillars of Traditional Chinese Society, Conflicts with the European Powers from the Celestial Empire to the Unequal Treaties, the fall of the Qing and the KMT Years, China under Mao, and finally China Today. We will spend a week preparing for the sophomore Model United Nations Day featuring Asian countries. In the third trimester, we will continue to explore imperialism, identity, and nationalism, but with the focus on sub-Saharan Africa. European imperialism, independence and the development of nation states, and Africa today will be specific areas of study. A research paper will be a primary focus during this trimester.

### **United States History**

HUSHistory

*Full year - .33 credits/trimester*

This course teaches skills in reading and interpreting history, through primary and secondary sources, in writing on historical topics and in preparing a research paper. Students will study the origins of the American political system, the development of the American economy and American culture, and the various crises that have beset the country in the 18th, 19th, and 20th centuries. An important goal of this course is to develop interest in America's past by showing its contemporary relevance. Credit earned in this course is required for graduation.



## **Advanced United States History**

HAdvUSHist

*Full year - .33 credits/trimester*

The Advanced section also provides a survey of American History with particular emphasis on the use of primary sources, in depth exploration of topics, and historical scholarship. The course is designed for students who have demonstrated the personal interest, initiative, and the high-level skills necessary for success in this more intensive, faster paced course. Enrollment in the advanced class is limited, and placement is determined by the department, with priority given to students with an A- in Sophomore World History.

## **ADVANCED HISTORY ELECTIVES**

The advanced history seminars are intensive reading and writing courses designed for seniors who have demonstrated sustained interest and success in history in their time at Cate and are credited and weighted as an advanced course. While the themes and content of the course change each trimester, the objective of in depth analysis of specific historical questions is central in each trimester. Classes are conducted in the model of a college seminar and students must be committed to ownership and leadership of discussions. In the course of the trimesters, students will be expected to read historical scholarship, conduct independent research, and substantive historical analysis. Prerequisites: Permission of department, writing sample, and a minimum of an A- in US History or a B+ in AP US History. Open to seniors only.

### **Advanced History: The Supreme Court and Civil Liberties**

H1AdvSupreCt *Fall trimester - .33 credits/trimester*

OR

H2AdvSupreCt. *Winter trimester - .33 credits/trimester*

This course will focus primarily on the role the Court has played in expanding civil liberties, civil rights, and social justice from the middle of the twentieth century until the most recent rulings. The Supreme Court ruling in *Brown v. the Board of Education of Topeka, Kansas (1954)* initiated a shift in the Constitutional interpretation of individual rights and privileges as outlined in the Fourteenth Amendment and later expanded notions of privacy.

The reach of the Court under Chief Justice Earl Warren (1953-1969) and Warren Burger(1969-1986) moved the judicial branch into areas of influence previously considered the domain of the legislative branch and initiated a revolution in legal thinking in areas of race, family, gender, and privacy as well as issues related to the First Amendment. Beginning in the 1970's an area of legal thinking to counter the revolution took hold in law schools and became the ideological foundation of a conservative movement that helped Republican presidents remake that Supreme Court beginning with Ronald Reagan. Revolution and Counter-Revolution is the lens through which we will examine the Supreme Court in this trimester elective. The tension between these two forces remains a central political drama and understanding the roots of the conflict will allow us to better participate in the current discussions of the Supreme Court and the debates at the heart of our political system today.

**Advanced History: Politics in Contemporary America**H1AdvPolitics/Amer *Fall Trimester - .33 credits/trimester*

OR

H3AdvPolitics/Amer *Spring Trimester - .33 credits/trimester*

Students will explore the general concepts used to interpret U.S. government and politics, as well as examine specific case studies to analyze various political theories and the daily operation of the U.S. government that shape public policy. Taking a problem-based approach in conjunction with deliberations, policy case-studies, and a research paper, students will pursue their study of contemporary American politics as active learners as they analyze the issues involved in each case, evaluate the various efforts made to date to address the problem, and explore new potential solutions. Students will read, watch, and listen to different media sources in order to find reliable information to create an intellectual and well-informed perspective about contemporary political topics. Participants are required to explore new perspectives and learn to respect multiple viewpoints on issues while developing their own well-reasoned opinions. Furthermore, the course helps students hone their skills in research, academic writing, and oral communication. Finally, the course gives students the tools to contribute to society as informed and engaged participants.

Topics of exploration include: the United States Constitution; the legislative, executive, and judicial branches of the federal government; the relationship between the federal, state, and local levels of government; civil rights and civil liberties; healthcare; discrimination; political ideologies and parties; interest groups; and domestic and foreign policy; various aspects of a political campaign, including campaign organization, vote targeting, political parties, social media, fundraising, polling, media interactions, and more.

**Advanced History: Comparative Revolutions**

H1AdvCompRev

*Fall trimester-.33 credits/trimester*

What is a revolution? Why do revolutions happen? How do revolutions change societies? This class is a theoretical and historical examination of revolutions, including origins, causes, and results. We will start the class by examining various theories about revolutions and examining two classic examples, The French and Russian Revolutions. We will then use the theories we have studied to examine more modern examples, including the Chinese, Nicaraguan, Iranian, South African, and East European revolutions. Do these fit the model of a class revolution? A major component of this class will be each student exploring and presenting another revolution outside the ones we discuss in class using the theories of revolution we have studied and developed. The emphasis here will be on recent upheavals, including ones still in process. Throughout the course we will use a variety of sources, including classic political science essays and primary sources, but also art and film, to understand the nature of revolution. In the second half of the course especially the emphasis will be on developing sophisticated research and presentation skills.

**Advanced History: Anthropological Perspectives**

H1AdvAnthro *Fall trimester - .33/trimester*

OR

H2AdvAnthro *Winter trimester - .33/trimester*

This trimester elective aims to deepen students' curiosity about the cultural complexity of the world as well as to equip students with the anthropological perspectives and skills to better understand and navigate these complexities in their own lives, both locally and globally. Students will begin by exploring concepts such as: culture and micro-culture; ethnocentrism and cultural relativism; and self and social identity. In addition to interpreting global case studies in light of these concepts, students will be challenged to assess themselves in cultural terms. Students will also devote specific attention to questions of race, ethnicity, and culture (e.g., "What's the difference?" "Why does it matter?") as well as explore cross-cutting cultural variables, including language / communication, religion, class, gender / sexuality, and kinship and marriage. Finally, students will be introduced to two research methods drawn from the field of anthropology: participant-observation and ethnography. The trimester will culminate with an ethnographic research project, based on ethnographic research conducted here at Cate or in the local Carpinteria or Santa Barbara community.

**Advanced History: 20th Century African American Experience H2AdvAfrAmerExp**

*Winter Trimester - .33 credits/trimester*

In this course we will detail the plight of African Americans since the first slaves arrived in 1619, including a major focus on the 20th century African American experience through a historical lens. We will explore the traditions and culture that African Americans created to sustain their lives away from their places of origin, including the Black Press, the Black Church, the ideals of the New Negro, Black Art and Literature, and Black Fraternities and Sororities. The reading list includes Isabel Wilkerson's Pulitzer Prize-winning *The Warmth of Other Suns: The Epic Story of America's Great Migration*, and her portrayal of three southern migrants who traveled to various corners of the country. History tells us that between 1915 and 1970 nearly 6 million African Americans left the South for more northern and western cities and the better lives they were sure awaited them there. During our studies we will gain a sense about the complex emotions and struggles (physical, financial, familial, and social) that resulted so that we can better understand the impetus for such a migration and the impact it had on, as Wilkerson states, "our cities, our country, and ourselves."

**Advanced History: Gender Matters**

H3AdvGenderMat

*Spring trimester - .33 credits/trimester*

We begin with the question: How did we get here? We will examine key historic events and seminal theoretical texts and, from these, infer the essential, and in many cases shifting, assumptions, concepts, questions, and critiques that are foundational to Gender Studies. We will identify how, throughout the history of Gender Studies, the 'we' itself has been redefined, ultimately becoming more inclusive of the diverse experiences of not only women, including non-Western women, but also of men and LGBTQ+ communities. We then will turn our inquiry to the question: How and why is gender perceived and experienced today? We will rely heavily on contemporary, literary 'artifacts.' These literary artifacts, both fiction and nonfiction, will allow us to explore gendered perspectives and experiences in today's world and also to identify how gender shapes (and is shaped by) factors such as politics, class, race/ethnicity, nationality, religion, age and education, as well as assumptions about biology and sexuality. Students will be asked to weigh: Why does gender matter? In exploring all three of these overarching, essential questions, students will be asked to demonstrate senior-level writing skills via a variety of literary, narrative, and analytical forms. This class is open to seniors..

**Advanced History: Modern Middle East**

H3AdvModMidE

*Spring trimester - .33 credits/trimester*

This trimester elective directly builds on the key concepts of the first two trimesters by applying them to a focused study of the Middle East. Specifically, students begin the trimester by examining the rich history and dynamic culture of the region. From the dissolution of the Ottoman Empire to the rise of Arab nationalism, the Arab-Israeli conflict, the role of Iran and beyond, students come to understand the deep historic roots of the many political, economic, social, and security issues that face the modern Middle East today. Simultaneously, by looking at key cultural issues such as Islam, fundamentalism, tradition, and modernity, students develop a cultural relative appreciation for the forces driving the peoples and societies of the Middle East. Finally, by combining the lens of history and culture, the students are then empowered to more critically assess the political interplay between nations of the Middle East, and between the United States and the region.

## **HISTORY ELECTIVES**

### **History Elective: Radical Californians and America**

H3RadCalif

*Spring trimester - .33 credits/trimester*

This co-taught course will blend literature and history to examine people who had notable influence on California and beyond. California's unique challenges around land and water, issues facing immigrant populations, and the intersection of physical beauty with the primal forces of nature have given rise to important figures who have influenced the human experience in profound ways. From Cesar Chavez and Bobby Seale to Karen Bass and Kamala Harris, we will explore the people, events, social movements, and economic innovators whose legacies have rippled out from California.

### **HISTORY RESEARCH**

H(1, 2 or 3)HistResrch

*Trimester Course. - .17 credits/trimester*

The purpose of this course is to provide students the opportunity to learn about topics of their own choosing from any aspect of American, Asian, or European history they find interesting. The format for the course is student-conducted independent research, working with history and library faculty, and presentations to the class. Students must write a research proposal and obtain permission from the department and Director of Studies.

## **ELECTIVES IN ECONOMICS**

### **Microeconomics**

H1EconMicro

*Fall trimester - .33 credits/trimester*

This course introduces the basic microeconomic analysis of the decision-making process of consumers, firms, and governments in the marketplace. Students will examine the functions of the four different market structures. Discussions will focus on economic issues such as the trade-off between equity and efficiency, sustainable resource use, and poverty and income inequality. Group presentations, current affairs, and guest speakers will supplement the background provided by the textbook.

### **Macroeconomics**

H2EconMacro

*Winter trimester - .33 credits/trimester*

This course provides an analytical framework for the understanding of the economy from a broad perspective. Students will analyze the function and purpose of the components of Gross Domestic Product, the causes and cost of inflation and unemployment, and the differences between long-term trends and short-term fluctuations within the economy. A strong emphasis will be placed on using an interactive learning approach through active listening, guest speakers, and team building projects and discussions. Prerequisite: Microeconomics

## **INTERDISCIPLINARY ELECTIVES: History and English**

Registration for the interdisciplinary electives offered by the History and English departments takes place during the prior spring. Seniors may take these interdisciplinary electives to fulfill the winter and spring English 12 graduation requirement or as a history credit if they are fulfilling the English requirement with another course. Juniors may take only take these courses as a history credit.

### **History Elective: Comparative Religions**

H2CompReligions

*Winter trimester - .33 credits/trimester*

Comparative Religion is an interdisciplinary offering of the History and English departments that seeks to provide an overview of five of the world's major religions – Judaism, Christianity, Islam, Hinduism, and Buddhism. By examining the origins, key tenets, and scriptures of each, students should come to recognize what distinguishes these traditions and what connects them, and to appreciate the variety of practices and beliefs that each of these religions encompasses. Also, by considering the mystical as well as the orthodox literature of each tradition, the expectation is that students will come to a deeper, more refined understanding of what religion is – as distinguished from science, say, or philosophy – and how the various questions of faith represent not just a viable, but necessary path for human, spiritual, and personal inquiry down through the centuries and up to the present day. To this end, we will of course be considering the impact of faith on current events, all by way of preparing students for the final unit of the trimester where they design and present their own inquiry projects exploring a religious tradition of their own choosing. This class is open to seniors for English credit and to both juniors and seniors for history credit.

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## HUMAN DEVELOPMENT DEPARTMENT

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Graduation Requirement: Freshman Seminar (9<sup>th</sup> grade) and Sophomore Seminar (10<sup>th</sup> grade) and Vision into Practice (11th grade)

### **Freshman Seminar**

DFreshSem

*Full year - .17 credits/trimester*

Meeting two periods weekly and required of all freshmen, this course is designed to build a foundation in Well-Being and Service-Leadership around Orientation and Organization at Cate. In the fall, topics include time management, school expectations, extracurricular programming, personal values and independent living. The course focuses on self-awareness, responsibility and self-advocacy, including boundary training that addresses hazing, harassment, and bullying. Discussions include issues in human relationships, personal growth, and good decision-making. In the winter and spring, the course aims to disseminate clear and accurate information about sexuality, reproduction, birth control, health, communicable diseases and drug education, and to encourage respect for others regardless of gender, race, ethnicity, sexual orientation, or other differences. The approach is designed to promote positive communication skills, values clarification and effective decision-making skills. An overnight hike to Bee Camp and Freshman Public Day are highlights of the freshman outdoor and service-leadership curriculum.

### **Sophomore Seminar**

DSophSem

*Full year - .08 credits/trimester*

Meeting one time each week and required of all sophomores. In the fall, this course deepens the foundational SEL skills of Human Development through Service-Leadership while emphasizing Cate's- Servons motto through Service-Leadership in the Outdoors and Service-Leadership through Social Justice. A Sophomore Service-leadership retreat will be the capstone of the fall experience. The second half of the year is dedicated to Well-Being. Topics of study include the Developing Teen Brain, the Power of Social Dynamics; Healthy Relationships and Consent, Self-Advocacy, Setting Clear Boundaries; Sexual & Identity Health, Identity Development; Wellness, Stress, and Relaxation Techniques; Integrity in Interpersonal Relationships; Drug Education, awareness and prevention of abuse.

### **Vision into Practice**

D12VisionPract

*Fall trimester - .08 credits/trimester or Winter trimester - .08 credits/trimester*

In choosing to serve something greater than our own interests, we aspire to build a better community. This, of course, is what Mr. Cate intended when he chose Servons as his school's motto. We serve every day in simple ways, often without thinking about it. But what if we do think about it? What if we exercise our intellectual capacities in the development of a skill set designed to inspire shared vision, foster collaboration, and build trust? The most effective leadership is rooted in behaviors, not traits, in deliberate practice, not personality. Through a mix of academic inquiry and live practice, this seminar-style course is designed to help you develop "authentic leadership" – the ability to serve and lead according to the principles that matter most to you.

**Seminar Teaching Assistant**

Dtafreshsem

*Full year - .17/trimester*

The Human Development department approach is modeled on both social and neurological development, beginning with Freshman Seminar then culminating with our senior Teaching Assistants who give back to the school in the freshman seminar classes and on campus. TA's are asked to model the wellbeing and service-leadership behaviors – self-discipline, persistence, awareness, responsibility, and kindness, create a positive class environment by engaging enthusiastically with the students and the material, and connect with students outside of class – in order to best meet student needs and develop communication to better practice. Senior Teaching assistants will facilitate classes and connect with their seminars. The program begins with a two-day training retreat in the fall. Application process required.



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## MATHEMATICS DEPARTMENT

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Graduation Requirement: One course per year through the junior year, with the final course determined by the initial Cate placement level. All students are expected to complete Algebra 2 and Trigonometry. Essentially, the requirement is three years of mathematics, including comparable high school level courses taken prior to Cate, although four years of math are recommended for most students.

Students taking advanced courses in Calculus or Statistics may wish to take the Advanced Placement examinations. Trimester grades of C or better are required to advance to the next level class in the core sequence through Algebra 2 and Trigonometry.

Placement: The following standards are intended to ensure proper placement in challenging courses and to help students make good choices so that they can be successful and have the most positive experience.

- A student's placement into courses beyond Algebra 2 and Trigonometry require consent of the department and depends on the student's demonstrated level of proficiency in their Algebra 2 and Trigonometry course.
- Students who are initially placed in the Honors strand are expected to earn grades of A- or better to continue in the Honors strand. Students who are not initially placed in Honors may be approved for an Honors placement based on demonstrated readiness as determined by the department. [See here for Math Honors Placement Guidelines.](#)
- Students who complete Algebra 2 by the end of their sophomore year may have access to Advanced courses in their senior year. Placement into an Advanced course requires at least a B in the prerequisite course, at least a B on the final exam of that course, or a passing mark on a standard readiness test.
- Students may complete summer work to advance to a course beyond what comes next in their sequence. [See here for Guidelines for Summer Work to Advance in Math.](#)
- For hard copies of these documents, email [annalee\\_salcedo@cate.org](mailto:annalee_salcedo@cate.org).

### **Algebra 1**

MMath10Alg1

*Full year - .33 credits/trimester*

Algebra 1 introduces the basic concepts of algebra, including types of numbers and their properties, variables, operations with expressions, exponents, radicals, polynomials, solving linear and quadratic equations, solving single variable inequalities and linear inequalities, working with rational expressions, and graphing linear functions. This course introduces functions both algebraically and graphically. Emphasis is placed on developing skills needed for future work in math, problem-solving techniques, logic, and applications to real-world situations. Technology is used in the classroom to help students make and exploit connections among various representations of functions. This course is intended for students new to Cate who have not had a full year of Algebra 1 or need more review.

**PBL 1: Foundations of Algebra and Geometry**

MMath20PBL1

*Full year - .33 credits/trimester*

Problem Based Learning 1: Foundations of Algebra and Geometry is a problem-solving course in which students take on the responsibility of investigative learning and get to experience the excitement of authentic discovery. We review basic geometry (surface area, volume) and the fundamentals of algebra, pushing students to discover how and why certain well-known processes work the way they do. We also study essential algebraic functions (lines, absolute value, quadratics) in depth, emphasizing the role these patterns play in mathematical modeling and as problem-solving tools. Students are expected to be at the very center of a cooperative process, discussing, writing about, and presenting well-reasoned explanations. The course uses a variety of materials, primarily problems from the Math 1 text written by the math department at Phillips Exeter Academy and Desmos graphing technology. The course is intended as a transition to Geometry or Algebra 2 and Trigonometry for students who would benefit from a stronger algebraic foundation. For students who excel and find the curriculum rewarding, the class can also serve as an entry point to our Honors Problem Based Learning strand. Prerequisite: Algebra 1 or equivalent.

**Geometry**

MMath20Geom

*Full year - .33 credits/trimester*

Geometry introduces and stresses the basic topics and concepts of plane and solid geometry, coordinate geometry, including angles, triangles, lines, circles, polygons, area, similarity, congruence, right angle trigonometry. Emphasis is placed on developing problem-solving skills, logical understanding of theorems and proofs, the deductive reasoning process, and relating the material to realistic applications. Algebra skills are reviewed and descriptive statistics are reviewed throughout the year to provide depth and connections. Prerequisite: Algebra 1 or PBL 1: Foundations of Algebra and Geometry.

**PBL 2H: Honors Geometry and Algebra 2**

MHonMathPBL2H

*Full year - .33 credits/trimester*

Problem Based Learning 2: Honors Geometry and Algebra 2 is a problem-solving course that provides students with a more rigorous, integrated, and in-depth exposure to geometry in two and three dimensions. Students are expected to have a background in Euclidean geometry which included a study of triangle congruence, similar polygons, the Pythagorean theorem, as well as perimeter, area, and volume. Major topics in PBL 2H build on this foundation in traditional geometry to include the study and application of linear functions (in four forms), coordinate geometry, vectors, parametric equations, quadratic functions, circles, and right triangle trigonometry. There is an emphasis on optimization and transformations. We use a variety of materials, including iPad technology, graphing software like Desmos, and problems from “Math 2” written by the math department at Phillips Exeter Academy, which focuses on pattern-building through the integration of algebra and geometry. In this course, students take on the responsibility of thinking critically, creatively, and collaboratively to solve meaningful problems on their own, learning content and making connections through the problem-solving context. PBL 2H may serve as a transition into Algebra 2 and Trigonometry or, for those who excel and find the curriculum rewarding, it can also serve as an entry point to our Honors Problem Based Learning strand. Prerequisite: PBL 1 or Geometry or the equivalent and consent of the department.

## **Algebra 2 and Trigonometry**

MMath30Alg2

*Full year - .33 credits/trimester*

Algebra 2 and Trigonometry builds a strong foundation of algebraic skills and understanding by reviewing and extending the topics from previous courses. Students work extensively with the “toolkit functions”. Linear, absolute value, quadratic, cubic, roots, rational, exponential, logarithmic, and trig functions are spiraled throughout the course, ensuring that students are able to connect their graphs, tables, and equations. As a result of this course, students develop lasting proficiency with graphing tools such as Desmos or the TI-84 calculator for use in future courses. Students learn to create new functions from their toolkit functions through transformations and explore how these new functions model real life situations. In all cases, the relationship between multiple representations (graphical, symbolic, numeric, and applied) is heavily emphasized. The mechanics of manipulating symbolic notation is traditionally the most challenging part of an Algebra 2 course, and we continually practice these cumulative skills throughout the year, connecting the symbolic representation of these functions to their more accessible graphical representations at every opportunity. The result is stronger algebraic, graphical, and problem-solving skills, all of which are essential to future studies in mathematics. Prerequisite: Geometry or the equivalent. Credit earned in this course is required for graduation.

## **PBL 3H: Honors Algebra 2, Trigonometry and Pre-Calculus** MHonMathPBL3H

*Full year - .33 credits/trimester*

Problem Based Learning 3: Honors Algebra 2, Trigonometry and Pre-Calculus is a problem-based learning course that expands on the algebra and geometry content in PBL 2H to include nonlinear motion and nonlinear functions. Students investigate circular motion by using trigonometric functions, model various scenarios using exponential functions, straighten nonlinear data using logarithms, and describe geometric transformations using matrices. In preparation for the study of calculus, students are introduced to instantaneous rates of change through the exploration of slopes on nonlinear graphs. We use a variety of materials, including iPad technology and problems that focus on pattern-building through the integration of precalculus and trigonometry from the “Math 3” text written by members of the Math Department at Phillips Exeter Academy. As is the case in all our PBL courses, in this class students take on the responsibility of thinking critically, creatively, and collaboratively to solve meaningful problems on their own, learning content and making connections through the problem-solving context. Prerequisite: PBL 2H: Honors Geometry and Algebra 2 and consent of department.

## **Pre-Calculus: Functions**

MMath40IFunc

*Full year - .33 credits/trimester*

Pre-Calculus: Functions builds on the foundation laid in Algebra 2 and Trigonometry. Students delve more deeply into transformations, inverse functions, and composition of functions while continuing to strengthen their graphical reasoning and symbolic manipulation skills. Writing equations, solving or evaluating them, and interpreting results are emphasized as students work with problems in context. Students write equations to model physical situations (tides, population growth, projectile motion, etc) and to set up and solve optimization problems, and they continue to use graphing tools such as Desmos or the TI-84 as a tool in problem solving. This course provides a thorough study of functions as a preparation for calculus. Entering students should have a strong background in Algebra, usually meaning B or better in Algebra 2 and Trigonometry. Prerequisite: Algebra 2 and Trigonometry.

**PBL 4H: Advanced Problem Based Calculus**

MAdvMathPBV

*Full year - .33 credits/trimester*

Problem Based Learning 4: Advanced Problem Based Calculus begins with a foray into complex numbers, polar coordinates, recursion, functional notation, slope, velocity, asymptotes, the fundamental constant  $e$  and applications of the preceding before officially delving into differential and integral calculus. Through a carefully crafted sequence of problems, students become fluent in the conceptual and notational language of differential equations. Students also discover, explore, and apply the Fundamental Theorem of Calculus, which connects differential (rate problems) and integral (accumulation problems) calculus. Throughout the curriculum, students encounter problems in context (physics, economics, environmental studies) to emphasize the application power of calculus. They also continue to work with multiple representations of functions (graphical, numerical, symbolic) and are empowered to make strategic decisions about what tools they want to employ when solving problems. Students in PBL 4H may choose to take the AB Advanced Placement examination in the spring. Prerequisite: PBL 3H: Honors Algebra 2, Trigonometry and Pre-Calculus and consent of department.

**Probability, Statistics, and Calculus**

MMath45PSC

*Full year - .33 credits/trimester*

Probability, Statistics, and Calculus is an introductory statistics elective taught through real world data and applications designed for seniors who do not choose to pursue one of the advanced options. In the fall and winter trimesters, the course provides an introduction to the discrete math topics of probability and statistics, including the analysis of data, the conducting of surveys, sampling, experiments, and inference. In the spring the major themes of calculus (the limit, derivative, and integral) are introduced in a conceptual approach using applications, with extensive use of graphing tools such as Desmos or the TI-84. Prerequisite: Algebra 2 and Trigonometry

**Advanced Calculus 1 AB**

MAdvMath50

*Full year - .33 credits/trimester*

Advanced Calculus 1 AB is a college-level mathematics course designed as an introduction to a variety of topics relating to integral and differential calculus including functions, graphs, limits, the conception and application of derivatives, the interpretation and application of integrals, and the fundamental theorem of calculus. The course outline focuses on the tools of calculus for problem solving. Students will be prepared to take the Advanced Placement Calculus AB examination in the spring if they choose to take it. Entering students should have a strong background in function, usually meaning B or better in Pre-Calculus. Prerequisite: Pre-Calculus: Functions and consent of department.

**Advanced Calculus 2 BC**

MAdvMath51H

*Full year - .33 credits/trimester*

Advanced Calculus 2 BC seeks to challenge our most advanced student by providing a rigorous course in college calculus with relevant applications and elegant connections. Emphasis is on problem-solving skills, preparation for college math, and using proof to understand why methods work. The course continues with the PBL approach as students learn calculus through problem solving and includes a high level of theory, proof of methods, practical applications, and connections between Algebra, Geometry, Functions, and Trigonometry. Students who wish to take the Calculus BC Advanced Placement exam would be well-prepared to do so. Topics include limits, derivatives, integrals, series, parametric functions, polar curves, and vectors. Students are encouraged to discover ideas and connections through challenging problems, labs, and inquiry activities. Prerequisite: PBL 4H: Advanced PBL Calculus or Advanced Calculus 1 AB and consent of the department.

**Advanced Statistics**

MAdvMath55

*Full year - .33 credits/trimester*

Advanced Statistics is equivalent to a college level, one-semester, introductory course in statistics. The purpose of Advanced Statistics is to introduce students to the major concepts and tools for collecting, analyzing, and drawing conclusions from data. Students are exposed to four broad conceptual themes: exploring data (observing patterns and departures from patterns), planning a study (deciding what and how to measure), anticipating patterns in advance (producing models using probability and simulation), and statistical inference (confirming models). Students will be prepared to take the Advanced Placement Statistics examination in the spring. Prerequisite: PreCalculus: Functions and consent of department.

**Advanced Statistics, Multivariable Calculus, and Linear Algebra**

MAdvMath61H

*Full year - .33 credits/trimester*

Advanced Statistics, Multivariable Calculus, and Linear (Math 61H) is intended for students who have completed Calculus BC and have a strong interest in higher mathematics. Two trimesters of this course comprise an equivalent to a college level, one-semester, introductory course in statistics. The purpose of the Advanced Statistics section of this course is to introduce students to the major concepts and tools for collecting, analyzing, and drawing conclusions from data. Students are exposed to four broad conceptual themes: exploring data (observing patterns and departures from patterns), planning a study (deciding what and how to measure), anticipating patterns in advance (producing models using probability and simulation), and statistical inference (confirming models). One trimester of this course is designed to expose our most advanced students to areas of higher collegiate mathematics beyond Calculus and Statistics. We specifically introduce Linear Algebra and Multivariable Calculus through a series of questions and problems, emphasizing graphs, visuals, and technology. In the Linear Algebra portion, we connect matrices and vectors through applications in economics and science. The Multivariable unit includes gradient, partial derivatives, double and triple integrals with applications to Physics. We use Mathematica software to provide 3-D visuals and expose students to powerful computing tools used in college mathematics. Emphasis will also be placed on proof, a required component of theoretical mathematics. Prerequisite: Advanced Calculus 2 BC and consent of the department.

## **INTERDISCIPLINARY ELECTIVES: Math and Science**

### **Introduction to Computational Thinking**

MCompSci

*Full year - .17 credits/trimester*

This full-year course will equip students with the necessary skills to begin writing computer programs and provide an overview of the ways computational tools and approaches can be used to solve problems in many fields. No prior experience with computer programming is required. Working in a hands-on, self-paced format, students will learn the core computer programming concepts of variables, loops, functions, conditionals, and recursion. The course will also showcase scenarios in which each of these concepts can be applied to problem scenarios from other disciplines and contexts, including mathematics, science, humanities and the arts. This class meets twice each week and carries no homework load. Open to sophomores, juniors, and seniors. Prerequisites: None

### **Advanced Computer Science**

MAdvMath56CS

*Full year - .33 credits/trimester*

This advanced course in computational thinking will provide students with the programming skills to ask and answer a broader class of questions than can be addressed by conventional means. Problem-solving lies at the heart of this course, so no prior background in programming is necessary. Students will learn the core concepts of variables, loops, functions, recursion, and conditional execution. Smaller projects draw from physics and mathematics, but the first trimester concludes in a weeks-long video game development project. In the second term, students build on the skills of the first trimester as they extend into string manipulation, object oriented design, arrays, and array lists. The second term will culminate with an in-depth exploration of searching and sorting algorithms. In the spring trimester, we will delve more deeply into data structures, algorithms, and other more advanced topics. Object-oriented design and the concepts of encapsulation and inheritance are fleshed out more completely. Students are given considerable leeway to pursue specific interests, based on current events happening in the world and/or students' interests. Open to juniors and seniors. Prerequisite: Algebra 2/equivalent or Introduction to Computational Thinking and permission of the department.

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**MODERN LANGUAGES DEPARTMENT**

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Graduation Requirement: Three sequential years of the same language.

**CHINESE****Chinese 1**

LChinese1

*Full year - .33 credits/trimester*

This level 1 course provides an in-depth introduction to Chinese. The classes emphasize the acquisition of the basic knowledge and skills required for effective communication, including grammatical principles, use of radicals, accent, intonation, and pronunciation. Reading and listening comprehension are also stressed, as are character writing skills. Students speak Chinese from the first day of class.

**Chinese 2**

LChinese2

*Full year - .33 credits/trimester*

This level 2 course continues to develop the basic language skills introduced in Level 1, with focus on interpersonal communication and authentic language used in real-life contexts. Students start writing complex sentences with focus on word order within the sentence structure. Prerequisite: Chinese 1.

**Chinese 3**

LChinese3

*Full year - .33 credits/trimester*

This is an intermediate course in which students are able to refine and apply the skills acquired in the first two years. Students are required to make numerous oral presentations, read increasingly sophisticated works, and begin to write more fully developed essays. Prerequisite: Chinese 2.

**Chinese 4**

LChinese4

*Full year - .33 credits/trimester*

Students in Chinese 4: Language and Culture will further develop intermediate skills in speaking, listening, reading and writing Chinese, as well as engage in cultural enrichment exercises. Exposure to adapted authentic text will complement the interpretive skill of spoken and written Chinese. Students will refine their abilities to speak clearly about a variety of fundamental communicative topics and social situations. Particular emphasis will be devoted to internalizing more complex grammatical constructions. Class activities will include research projects and presentations on current events and culture in China. Prerequisite: Chinese 3 or permission of the department.

**Advanced Chinese: The Chinese Idiom**

L1AdvChIdiom

*Fall trimester - .33 credits/trimester*

This course is designed to immerse students in classical Chinese idioms and popular folktales. For thousands of years, idioms have played an essential role in Chinese culture and literature. They were widely used in Classical Chinese literature and are still common in contemporary Chinese writing and spoken language. The students will learn how idioms are used to communicate and express ideas, and how idioms relate to language development and cultural fluency. Prerequisites: Chinese 4 or heritage learners and permission of department.

**Advanced Chinese: Chinese Cinema**

L2AdvChCine

*Winter trimester - .33 credits/trimester*

Students in this course will view and analyze films that use the Chinese language that are rich in cultural, historical, and artistic significance. In addition to enhancing their knowledge of the complexity and richness of Chinese cultures, students will continue to develop their language fluency and critical thinking skills. Students will also gain confidence in their comprehension as they sharpen their sensitivities to regional dialects from different regions. Prerequisites: Chinese 4 or heritage learners and permission of department.

**Advanced Chinese: Literature**

L3AdvChLit

*Spring trimester - .33 credits/trimester*

This course is intended to give students a basic understanding of traditional Chinese literature. Students in this course will read, analyze, and discuss several short literary masterpieces from classic and contemporary Chinese artists. In addition, students will learn how to critically appreciate literature that is expressed as song lyrics. Students will learn how to sing pieces as well. Works to be covered include: poems from Tang and Song dynasty, contemporary novels, the Analects, among others. Prerequisites: Chinese 4 or heritage learners and permission of department.

**FRENCH****French 1**

LFrench1

*Full year - .33 credits/trimester*

Level 1 courses provide an in-depth introduction to French. The classes emphasize the acquisition of the basic knowledge and skills required for effective communication, including grammatical principles, accent, intonation, and pronunciation. Reading and listening comprehension are also stressed, as are writing skills. Students speak French from the first day of class. Placement is determined by the department.

**French 2**

LFrench2

*Full year - .33 credits/trimester*

This course continues to develop the basic language skills introduced in Level 1, with considerable focus on grammar and vocabulary. Besides continued refinement of speaking and listening skills, these courses emphasize the development of concise, well-organized compositions. Students also begin to read literature in preparation for the third-year courses. Prerequisite: French 1.

**French 3**

LFrench3

*Full year - .33 credits/trimester*

This is an intermediate course in which students are able to refine and apply the skills acquired in the first two years. Students are required to make numerous oral presentations, read increasingly sophisticated works, and begin to write more fully developed essays. Prerequisite: French 2.



**Honors French 3**

LHonFrench3

*Full year - .33 credits/trimester*

This is an intermediate course in which students develop, refine, and apply the skills acquired in the first two years. Students are required to make numerous oral presentations, read increasingly sophisticated works, and begin to write more fully developed essays. Students demonstrate higher order thinking and complexity in oral presentations and written work. Honors placement in French is determined by the department.

**French 4**

LFrench4

*Full year - .33 credits /trimester*

French 4: French Film is designed to interest and challenge capable students who wish to develop greater proficiency in the French language through analysis and discussion of francophone films. Foundational elements of grammar are reviewed, refined and practiced as students examine francophone cultures through film. Students in this course study film shorts and feature length films spanning various time periods to move to an advanced level of language and communicative competence. Prerequisites: French 3 or permission of the department. Prerequisite: French 3.

**Advanced French: Language Studies**

LAdvFrLang

*Full year - .33 credits/trimester*

Students in this class will develop strong language proficiency through the study of literature, art, current events, and cinema. Students will also enrich their cultural competence of the Francophone world through a variety of media (podcasts, videos, TV5 Monde recordings, documentaries, etc.), which are used throughout the course to heighten sensitivity to and comprehension of the myriad perspectives and linguistic characteristics of French across the globe. This course will focus on integrating written and aural language skills, as well as acquiring and analyzing information from authentic sources. Students completing this course in good standing will be adequately prepared for college-level courses. Prerequisites: French 3, Honors French 3, French 4 and/or permission of the department.

**Advanced French: Literature Studies**

LAdvFrLit

*Full year - .33 credits/trimester*

This course is designed for students who are proficient in French and have completed French 4 or above with distinction. The class is conducted entirely in French. Students will approach francophone literature determining the role of justice and its application in the texts studied. We will discuss content, style, philosophy, gender, race, class, and culture. Students will explore the historical and cultural contexts of the works explored which will include novels, plays, poems, short stories and film. This course requires students to think critically, examine closely, and question actively. We will consider various perspectives, analyze the different “voices” present, and use various media to support original theories and answer questions formulated by students. Prerequisites: French 4, Advanced French Language or equivalent and permission of the department.

## **JAPANESE**

### **Japanese 1**

LJapanese1

*Full year - .33 credits/trimester*

Level 1 courses provide an in-depth introduction to Japanese. The classes emphasize the acquisition of the basic knowledge and skills required for effective communication, including grammatical principles, accent, intonation, and pronunciation. Reading and listening comprehension are also stressed, as are writing skills. Students will learn the two syllabic writing systems, hiragana and katakana, and begin studying kanji. Students in this beginning level learn to tell about themselves and their environment, as well as ask about others'. Although this is a class for those with little or no Japanese language learning background, students speak Japanese from the first day of class. Placement is determined by the department.

### **Japanese 2**

LJapanese2

*Full year - .33 credits/trimester*

This course continues to develop the basic language skills introduced in Level 1, with considerable focus on grammar and vocabulary. Students at this level develop language skills relating to daily tasks and interactions with others. In addition to continued refinement of speaking and listening skills, this course emphasizes the development of concise, well-organized compositions. Prerequisite: Japanese 1.

### **Japanese 3**

LJapanese3

*Full year - .33 credits/trimester*

This is an intermediate course in which students are able to refine and apply the skills acquired in the first two years. In this intermediate level, students begin to learn advanced conjugations and apply them in authentic contexts. The setting for all communicative activities is Japan. Students are required to make numerous oral presentations, read increasingly sophisticated works including literary excerpts, and begin to write more fully developed essays. Prerequisite: Japanese 2.

### **Japanese 4**

LJapanese4

*Full year - .33 credits/trimester*

Students in Japanese 4: The Japanese Soul will develop advanced language skills and cultural sensitivities through close examination of the Japanese soul. From the immigration experience during the early Meiji Era through internment and the atomic bombings of World War II, students will delve into the Japanese value system and its impact on behavior, perspective, and language elements (keigo, kotobazukai, etc.). Students will also explore origins, contexts and applications of these values as they connect the teachings of 16th century tea master Sen no Rikyu to 20th century poet and philosopher Kenji Miyazawa, haiku verse and modern environmental policy. Prerequisite: Japanese 3 or permission of the department.

## **SPANISH**

### **Spanish 1**

LSpanish1

*Full year - .33 credits/trimester*

Level 1 courses provide an in-depth introduction to Spanish. The classes emphasize the acquisition of the basic knowledge and skills required for effective communication, including grammatical principles, accent, intonation, and pronunciation. Reading and listening comprehension are also stressed, as are writing skills. Students speak Spanish from the first day of class.

### **Spanish 2**

LSpanish2

*Full year - .33 credits/trimester*

This course continues to develop the basic language skills introduced in Level 1, with considerable focus on grammar and vocabulary. Besides continued refinement of speaking and listening skills, students will begin to read literature in preparation for the third-year courses. Prerequisite: Spanish 1.

### **Honors Spanish 2**

LHonSpan2

*Full year - .33 credits/trimester*

This course continues to develop the basic language skills introduced in Level 1, with considerable focus on grammar and vocabulary. Besides continued refinement of speaking and listening skills, these courses emphasize the development of concise, well-organized compositions. Spanish students also begin to read literature in preparation for the third-year courses. Honors placement in Spanish is determined by the department.

### **Spanish 3**

LSpanish3

*Full year - .33 credits/trimester*

Spanish 3 is an intermediate course in which students further deepen their understanding of Spanish by applying and refining skills acquired during the first two levels. Students will be engaged in numerous oral presentations, read increasingly sophisticated works, and begin to produce more fully developed essays. The course is conducted almost entirely in Spanish. Prerequisite: Spanish 2.

### **Honors Spanish 3**

LHonSpan3

*Full year - .33 credits/trimester*

This is an intermediate course in which students develop, refine, and apply the skills acquired in the first two years. Students are required to make numerous oral presentations, read increasingly sophisticated works, and begin to write more fully developed essays. Honors placement in Spanish is determined by the department.

## **Spanish 4**

LSpanish4

*Full year - .33 credits/trimester*

Spanish 4: History and Culture is for students who have successfully completed Spanish 3 and who wish to continue their study of Spanish. The course develops the four skills (reading, writing, speaking, and listening), with particular emphasis on oral communication and cultural competency, promotes student-centered and contextual learning as well as critical thinking skills, and develops reading as a basis for general discussions rather than for close literary analysis. The cultural component consists of a general study of the Spanish-speaking world. Short readings, music, and videos are part of this component, as are projects on art history, geography, and other historical, economic, and cultural topics. Students will be expected to achieve a general understanding of the issues that the Spanish-speaking world faces in the actual world. Prerequisite: Spanish 3, Honors Spanish 3, or permission of the department.

## **Advanced Spanish: Language Studies**

LAdvSpLang

*Full year - .33 credits/trimester*

Through the study of literature, history, art and current events, students will develop strong command of the Spanish language and expand their cultural understanding. A variety of media and materials (such as articles from newspaper and magazines, literature pieces, literary and cultural blogs, videos, documentaries, online news and podcasts, among others) will serve students as a platform for exploration of the Hispanic language and culture. This course will focus on student development of proficiency in integrating language skills, synthesizing written and aural material, acquiring and analyzing information from authentic sources in Spanish, being able to comprehend different dialects and accents of the Spanish-speaking world, and communicating confidently. Prerequisites: Honors Spanish 3 and permission of the department.

## **Advanced Spanish: Literature Studies**

LAdvSpLit

*Full year - .33 credits/trimester*

This course is designed for students who are proficient in the Spanish language and have completed Spanish 3 Honors or above with distinction. Students will embark on a literary adventure by reading Spanish works from the 14th to the 21st Century. In addition to examining and discussing content and stylistic elements, students will explore the historical background of plays, short stories, novels and poetry. This course requires students to engage in deep analytical thinking and writing while deepening their knowledge of the cultural values, traditions, achievements, and history of the Spanish-speaking world. Prerequisites: Spanish 4, Advanced Spanish Language, or equivalent and permission of the department.

## **Post-Advanced Spanish: Magical Realism**

L1PosAdvSpMagic

*Fall trimester - .33 credits/trimester*

This course explores Magical Realism and The Fantastic depicted in Hispanic narrative, film, and art. Dating to the early twentieth century, the magical realism genre weaves magical elements into otherwise realistic human situations. Students will examine works from representative authors and artists, such as Cortázar, Dalí, García Márquez, Kahlo, Allende, Borges, Bioy Casares, and Esquivel. Students also view films such as *El laberinto del fauno*, *Como agua para chocolate* and *Volver*. Prerequisites: Advanced Spanish Language or Advanced Spanish Literature; Spanish 4 and heritage learners with permission of department.

**Post-Advanced Spanish: *One Hundred Years of Solitude***

L2PosAdvSpYrSol

*Winter trimester - .33 credits/trimester*

Students in this intensive course will in-depth study Gabriel García Márquez's outstanding literary work *One Hundred Years of Solitude*. Independent research, documentaries, interviews, and supplementary readings will provide students with the historical and socio-cultural background necessary to understand the culture and context in which the novel was written. Prerequisites: Advanced Spanish Language or Advanced Spanish Literature; Spanish 4 and heritage learners with permission of department.

**Post-Advanced Spanish: Hispanic Film**

L3PosAdvSpFilm

*Spring trimester - .33 credits/trimester*

Students in this intensive course will analyze films from a variety of Spanish-speaking countries that are rich in cultural, historical, and artistic significance. In addition to enhancing their knowledge of the complexity and richness of Hispanic cultures, students will continue to hone critical interpretation, analysis and comparison skills. They will continue to develop sophistication and confidence in their speaking and writing as they sharpen their sensitivities to the spectrum of accents, customs, and linguistic nuance Hispanic cultures. Prerequisites: Advanced Spanish Language or Advanced Spanish Literature; Spanish 4 and heritage learners with permission of department.

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## SCIENCE DEPARTMENT

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*“Science is built up with facts, as a house is with stones. But a collection of facts is no more a science than a heap of stones is a house.”*

--Henri Poincaré (1854-1912)

Graduation Requirement: Three years of laboratory science are required; Physics as a freshman, Chemistry as a sophomore and Biology as a junior, or as a senior with approval. Juniors who qualify and place in either Advanced Chemistry or Advanced Physics may either take Honors Biology in their senior year or request to complete a preapproved (in-person, lab-based, equivalent) course during the summer. Eligible students must take Advanced Biology and math courses in the senior year. Note that coursework completed over the summer does not appear on the Cate transcript, does not affect the Cate GPA, and does not fulfill the graduation requirement.

Cate's science curriculum is predicated on the belief that every student, whether an aspiring poet, historian, doctor, or engineer, can do science and should graduate a scientifically literate citizen. They should understand the nature of science, have the attitude and skills necessary to engage in scientific inquiry, know core ideas in physics, chemistry, biology, and be able to connect concepts that cut across these disciplines. Each student is expected to nurture their curiosity, appreciate the beauty and wonder of science, possess sufficient knowledge to communicate and engage in informed public discussion of science, be careful consumers of relevant scientific and technological information, and be able to pursue higher levels of science. Cate's Physics First program is intentionally designed to build coherence through each discipline, strengthen science and engineering practices at each grade level, and develop a foundation of scientific literacy upon which to base advanced study in the sciences. With a coordinated curriculum, effective instruction, and capable, compassionate, and determined students, the Science Department seeks to achieve these goals by placing great emphasis on inquiry to ensure that each Cate graduate is an informed, critically thinking, and scientifically literate citizen.

### **YEAR LONG COURSES**

#### **Physics**

*Full year - .33 credits/trimester*

Physics introduces all Cate ninth-grade students to scientific inquiry and problem-solving. After framing science as a "way of knowing," students explore fundamental mechanics topics of kinematics, projectile motion, statics, dynamics, momentum, and energy along with wave phenomena of light and sound. Students focus on exercising scientific practices: asking scientific questions and defining problems, planning and carrying out investigations, developing and using models, analyzing and interpreting data, using mathematics and computational thinking, arguing from evidence, and communicating in both verbal and written forms. Students are expected to extract the majority of their learning from these experiences and from each other with teachers serving as guides and coaches. With these scientific and metacognitive tools, Cate ninth-grade students leave the course with a firm conceptual understanding of physics and the nature of science in preparation for Chemistry and Biology at Cate. Instructional methods follow a guided-inquiry approach where students are expected to do science -- collaboratively explore phenomena, seek answers and solutions, find patterns, and develop and use models to predict the future. Required for all ninth-grade students at Cate.

#### **SPhysics**

**Honors Physics: Electricity and Magnetism**

SHonPhysEM

*Full year - .33 credits/trimester*

Honors Physics: E&M is a rigorous algebra-based, introductory physics course that is well suited either as a follow up to the 9th-grade Physics course in mechanics or as a first experience with physics for students with other scientific backgrounds. This class is laboratory-based; students develop their scientific inquiry skills and their understandings through collaborative hands-on investigation and argumentation. Topics of focus include electricity, magnetism, fields and potential, fluid dynamics, thermodynamics, electric circuits, optics, and modern physics. Open to juniors and seniors who have demonstrated high achievement and interest in science coursework. Students in advanced and honors classes are expected to operate with a high degree of independence and collaborate effectively with classmates. Prerequisites: One year of lab-based science and departmental permission. Classic mechanics coursework useful but not required. Prerequisites Integrated Algebra 2 and Trigonometry (Math 30), or higher.

**Chemistry**

SChemistry

*Full year - .33 credits/trimester*

This introductory lab-based course is designed to foster inquiry and an exploration of the macroscopic and molecular-level characteristics of matter and how it changes. Students refine their ability to develop and answer scientific questions, develop and use models, plan and conduct investigations, analyze and interpret data, use mathematics and computational thinking, formulate scientific explanations, engage in argument from evidence, and communicate scientific ideas. Through lab investigation and analysis of real-world data, students construct an understanding of the structure and arrangement of atoms, ions or molecules and the forces between them. Topics explore include atomic theory, chemical bonding, intermolecular forces, the mole concept, gases and pressure, stoichiometry, thermochemistry, and kinetics. Open to sophomores.

**Honors Chemistry**

SHonChem

*Full year - .33 credits/trimester*

This rigorous introductory lab-based course is designed to foster inquiry and an exploration of the macroscopic and molecular-level characteristics of matter and how it changes. Motivated and strong independent learners will refine their ability to develop and answer scientific questions, develop and use models, plan and conduct investigations, analyze and interpret data, use mathematics and computational thinking, formulate scientific explanations, engage in argument from evidence, and communicate scientific ideas. Through lab investigation and analysis of real-world data, students construct an understanding of the structure and arrangement of atoms, ions or molecules and the forces between them. Topics explored include atomic theory, chemical bonding, intermolecular forces, the mole concept, gases and pressure, stoichiometry, thermochemistry, and kinetics. This course moves at a faster pace than Chemistry and goes into greater depth in the exploration of modern atomic theory, thermochemistry, and electrochemistry, and quantitative applications of the discipline. Students are expected to operate with a high degree of independence and collaborate effectively with their classmates. Open to sophomores placed in an Algebra 2 and Trigonometry course (Math 30 or Math 31H), or higher. Prerequisites: High achievement in Physics and departmental permission. Co-Requisite: Integrated Algebra 2 and Trigonometry (Math 30), or higher

**Biology**

SBiology

*Full year - .33 credits/trimester*

This introductory biology course continues the student's development of scientific inquiry practices, furthers their mastery of science's crosscutting concepts, and builds understanding of life science's core ideas. The course explores five core areas of life science: 1) Structure and Function, 2) Inheritance and Variation of Traits, 3) Matter and Energy in Organisms and Ecosystems, 4) Interdependent Relationships in Ecosystems, and 5) Natural Selection and Evolution. Students engage in inquiry through the scientific practices, by generating questions, developing and using models, planning and carrying out investigations, analyzing and interpreting data, using mathematics and computational thinking, constructing explanations, engaging in argument from evidence, and obtaining, evaluating, and communicating information. Open to juniors and seniors. Prerequisite: Chemistry. Credit earned in this course is required for graduation.

**Honors Biology**

SHonBiology

*Full year - .33 credits/trimester*

This challenging and demanding first-year biology course is designed to foster scientific thinking at a high level and addresses the core topics of ecology, cell biology, genetics, and evolution while placing a particular emphasis on biological systems at the molecular level. Motivated and strong independent learners will observe natural phenomenon, analyze patterns, and create models to describe biological systems from the cellular to population level. In laboratory investigations students follow an inquiry process that helps them develop their scientific skills from experimental design to interpreting data to evidence-based argumentation. Students are expected to operate with a high degree of independence and collaborate effectively with their classmates. Open to juniors and seniors who have demonstrated high achievement and interest in science coursework. Prerequisite: High achievement in Chemistry and departmental permission.

**Advanced Chemistry**

SAdvChem

*Full year - .33 credits/trimester*

This second-year, lab-based course is equivalent to a first-year college course. Using a guided-inquiry method, students explore nuclear chemistry, atomic and molecular structure, thermochemistry, states of matter, kinetics, equilibrium, oxidation and reduction, and thermodynamics in-depth. Students refine their ability to develop and answer scientific questions, develop and use models, plan and conduct investigations, analyze and interpret data, use mathematics and computational thinking, formulate scientific explanations, engage in argument from evidence, and communicate scientific ideas. The course has an extensive laboratory component, with many of the labs requiring students to lead the design of the investigation and methodology. Due to the rigor and pace of this course, there is an extended laboratory commitment one period each week. Students are expected to operate with a high degree of independence and collaborate effectively with their classmates. Open to juniors and seniors who have completed three years of laboratory-based high school science (physics, chemistry, and biology) and demonstrated high achievement and interest in science coursework. Note: Juniors who qualify and place in either Advanced Chemistry or Advanced Physics may either take Honors Biology in their senior year or request to complete a preapproved (in-person, lab-based, equivalent) course during the summer. Eligible students must take advanced biology and math courses in the senior year. Prerequisites: High achievement in Physics, Chemistry, and departmental permission. Co-Requisite: Pre-Calculus: Integrated Functions (Math 40), or higher.



## **TRIMESTER ELECTIVES IN ADVANCED PHYSICS**

Three terms of Advanced Physics are recommended, two terms are required. Placement is at the discretion of the Science Department.

### **Advanced Physics: Mechanics 1**

S1AdvPhyMech1

*Fall trimester - .33 credits/trimester*

This course is modeled after introductory, calculus-based physics courses at the college level and requires a two-term (Fall and Winter) commitment. The course explores kinematics, dynamics, projectile motion, energy, momentum, rotation, gravitation, and oscillation with special attention to the calculus basis for these topics. Class time is devoted primarily to physical experiments both as learning activities and as a form of assessment. Experiments are supplemented with both mathematical and computational modeling. Students are expected to operate with a high degree of independence and collaborate constantly with their classmates. The successful student, with some additional practice outside of course time, will be positioned to perform well on the AP Physics C: Mechanics Exam in May. Note: Juniors who qualify and place in either Advanced Chemistry or Advanced Physics may either take Honors Biology in their senior year or request to complete a preapproved (in-person, lab-based, equivalent) course during the summer. Eligible students must take advanced biology and math courses in the senior year. Prerequisite: Physics and Calculus (Math 50 / PBL 4 or equivalent) or departmental permission.

### **Advanced Physics: Mechanics 2**

S2AdvPhyMech2

*Winter trimester - .33 credits/trimester*

This course is the 2nd half of Advanced Physics: Mechanics and is modeled after introductory, calculus-based physics courses at the college level and requires a two-term (Fall and Winter) commitment. The course explores kinematics, dynamics, projectile motion, energy, momentum, rotation, gravitation, and oscillation with special attention to the calculus basis for these topics. Class time is devoted primarily to physical experiments both as learning activities and as a form of assessment. Experiments are supplemented with both mathematical and computational modeling. Students are expected to operate with a high degree of independence and collaborate constantly with their classmates. The successful student, with some additional practice outside of course time, will be positioned to perform well on the AP Physics C: Mechanics Exam in May. Prerequisite: Advanced Physics: Mechanics 1.

### **Advanced Physics: Modern Physics**

S3AdvPhyMod

*Spring trimester - .33 credits/trimester*

This course, following Advanced Physics with Calculus: Mechanics 1 and 2, builds on the foundational models established in those terms to explore two revolutionary developments of the 20th century - Relativity and Quantum Mechanics. Additional topics are also explored based on student interest and may include modern topics in Gravity, Astrophysics, and Time. Prerequisite: Advanced Physics: Mechanics 1 & 2 or department permission.

## **TRIMESTER ELECTIVES IN ADVANCED BIOLOGY**

Three terms of Advanced Biology are recommended, two terms are required. Placement is at the discretion of the Science Department.

### **Advanced Biology: Molecular and Cellular Biology**

S1AdvBioMolCell

*Fall trimester - .33 credits/trimester*

Molecular and Cellular Biology is a rigorous second year, college-level biology course with a significant emphasis on biochemistry and thermodynamics. Students begin with an in-depth study of energy transformations in biological processes, explore the structure and function of proteins, and end with investigations into specific biochemical pathways involved in cell functioning and communication. During the course, students will be introduced to modern methods and experimental techniques used in research, have opportunities to design and implement independent inquiries, and learn how to perform statistical analyses of their results. Students will begin to read primary scientific literature, compose annotated bibliographies, and communicate their findings in the form of scientific papers or presentations. Due to the rigor and pace of this course, there is an additional required time commitment both in the classroom and outside. Students are expected to embrace challenges, operate with a high degree of independence, and demonstrate a collaborative mindset. Limited space available; students will be required to prioritize course requests during registration. Open to juniors and seniors who have completed three years of laboratory-based high school science (physics, chemistry, and biology), earned excellent grades in chemistry (A or A- in Honors Chem or A in Chemistry recommended), and demonstrated high achievement and interest in science coursework.

### **Advanced Biology: Climate and Biology**

S1AdvBioClimBio

*Fall trimester - .33 credits/trimester*

In Climate and Biology students explore the evidence scientists use to create the models for understanding past, current, and future climate. The course advances student's understanding of system science, with a college-level exploration of climate, including radiative forcing, feedbacks, and the carbon cycle. The course also introduces students to planetary level atmospheric physics in order to evaluate the basis for models of planetary climate. In addition, this course examines biological changes in response to climate as well as emerging conservation and policy responses. This is a rigorous second year, college-level laboratory biology course, with a focus on the scientific practices and crosscutting concepts. Limited space available; students will be required to prioritize course requests during registration. Open to juniors and seniors who have completed three years of laboratory-based high school science (physics, chemistry, and biology) and demonstrated high achievement and interest in science coursework. Prerequisite: High achievement in Chemistry and Biology and departmental permission. Co-Requisite: Integrated Algebra 2 and Trigonometry (Math 30), or higher.

**Advanced Biology: Human Transmission Genetics**

S1AdvBioTransGe

*Fall trimester - .33 credits/trimester*

Human Transmission Genetics is a rigorous second year, college-level biology course that examines the details by which genetic information is transferred from one generation of humans to the next and how that information is transformed into the physical expression of traits. Advanced studies will include the ability to distinguish more subtle patterns of inheritance, such as sex-linked traits, incomplete and codominance, multiple alleles and linked genes, as well as types and effects of different gene and chromosomal mutations. Through an evolutionary lens, the course will conclude with an examination of complex multifactorial traits and the interaction between human genes and the environment. Students will discuss and debate the ethical issues raised by their studies in stem cells, reproductive technology, and eugenics. Due to the rigor and pace of this course, there is an additional required time commitment. Limited space available; students will be required to prioritize course requests during registration. Open to juniors and seniors who have completed three years of laboratory-based high school science (physics, chemistry, and biology) and demonstrated high achievement and interest in science coursework. Prerequisite: High achievement in Chemistry and Biology and departmental permission. Co-Requisite: Integrated Algebra 2 and Trigonometry (Math 30), or higher.

**Advanced Biology: Molecular Genetics**

S2AdvBioMolGene

*Winter trimester - .33 credits/trimester*

Molecular Genetics is a rigorous second year, college-level biology course of study that examines the biochemistry of the gene and the applications of current biotechnology. Students will begin with evolution and the foundations of the molecular structure of DNA, and the mechanics of DNA replication, protein synthesis, and gene expression. Subsequently, the more complex topics of gene regulation, non-coding DNA, RNA interference, and epigenetics will be explored. Students will become proficient with current biotechnological skills and techniques involving DNA extraction, gel electrophoresis, the polymerase chain reaction, DNA sequencing, and genetic engineering. Throughout the course, students will consider and discuss the ethical dilemmas associated with the development of these revolutionary ideas and techniques. Due to the rigor and pace of this course, there is an additional required time commitment. Limited space available; students will be required to prioritize course requests during registration. Open to juniors and seniors who have completed three years of laboratory-based high school science (physics, chemistry, and biology) and demonstrated high achievement and interest in science coursework. Seniors who have completed Advanced Biology: Human Transmission Genetics will be given preference. Prerequisite: High achievement in Chemistry and Biology and departmental permission. Co-Requisite: Integrated Algebra 2 and Trigonometry (Math 30), or higher.

**Advanced Biology: Marine Ecology of the Pacific**

S2AdvBioMarEco

*Winter trimester - .33 credits/trimester*

Marine Ecology is a rigorous second year, college-level biology course, with additional field and lab requirements, that examines a wide variety of Pacific Ocean ecosystems, neritic and pelagic. Focusing on Pacific coastal ecosystems, students will study the physical and chemical features of the marine environment, biodiversity of marine ecosystems, and the sustainability of ecosystems of The Pacific. With an emphasis on ecological relationships, students will consider human impacts throughout the course. The course explores various ecological research methodologies and students will engage in the inquiry process both in the classroom and in the field on frequent trips to nearby intertidal communities and the Carpinteria Salt Marsh. Due to the rigor and pace of this course, there is an additional required time commitment which may include fieldwork. Students are expected to embrace challenge, operate with a high degree of independence and a collaborative mindset. Limited space available; students will be required to prioritize course requests during registration. Open to juniors and seniors who have completed three years of laboratory-based high school science (physics, chemistry, and biology) and demonstrated high achievement and interest in science coursework. Seniors who have completed a previous Advanced Biology course will be given preference. Prerequisite: High achievement in Chemistry and Biology and departmental permission. Co-Requisite: Integrated Algebra 2 and Trigonometry (Math 30), or higher.

**Advanced Biology: Human Population, Toxicology and Health** S2AdvBioHumTox*Winter trimester - .33 credits/trimester*

Human Population, Toxicology, and Health is a rigorous second year, college-level biology course, with additional lab requirements. In this course students analyze the science behind the prevailing models of human population dynamics, pollution and toxicology, and human developmental biology. Emphasis will be placed on how pollution effects human health and ecosystems. The course explores current understanding of the molecular mechanisms that regulate animal development (embryology), the science behind evaluating toxic risk to human health and the environment (environmental toxicology), and the evidence for the system of human population change (human demography). In addition, students further their scientific practices through self-designed field-studies and controlled experiments. Due to the rigor and pace of this course, there is an additional required time commitment. Limited space available; students will be required to prioritize course requests during registration. Open to juniors and seniors who have completed three years of laboratory-based high school science (physics, chemistry, and biology) and demonstrated high achievement and interest in science coursework. Seniors who have completed a previous Advanced Biology course will be given preference. Prerequisite: High achievement in Chemistry and Biology and departmental permission. Co-Requisite: Integrated Algebra 2 and Trigonometry (Math 30), or higher.

**Advanced Biology: Marine Biology of the Pacific**

S3AdvBioMarBio

*Spring trimester - .33 credits/trimester*

Marine Biology is a rigorous second year, college-level biology course, with additional field and lab requirements, that examines species of The Pacific. Focusing on marine organisms and their adaptations to life in the sea, students will investigate the physiology, behavior and biodiversity of species found in the Pacific Ocean. Students will use computational methods to investigate evolutionary relationships between species and construct phylogenetic trees using molecular and morphological evidence. While not required, students who undergo scuba certification may have opportunities for enrichment activities. Due to the rigor and pace of this course, there is an additional required time commitment which may include fieldwork, frequent dissections and independent research. Students are expected to embrace challenge, operate with a high degree of independence and a collaborative mindset. Limited space available; students will be required to prioritize course requests during registration. Open to juniors and seniors who have completed three years of laboratory-based high school science (physics, chemistry, and biology) and demonstrated high achievement and interest in science coursework. Seniors who have completed a previous Advanced Biology course will be given preference. Prerequisite: High achievement in Chemistry and Biology and departmental permission. Co-Requisite: Integrated Algebra 2 and Trigonometry (Math 30), or higher.

**Advanced Biology: Science and Engineering**

S3AdvBioSciEng

*Spring trimester - .33 credits/trimester*

In this course, students will explore advanced biology concepts while building skills through the engineering design process. While advancing their knowledge of biology, students will engage in a series of maker challenges such as becoming biomedical engineers who design, create, and test a medical device that measures a patient's pulse using a microcontroller, or use physical computing and engineering to model dynamic systems such as homeostasis in living organisms, or becoming environmental engineers to design and build a means to test the life cycle and productivity of thermophilic microorganisms in compost. The course will culminate in a team maker challenge, where students will choose concepts, skills, and tools from the course to design and construct a project to solve a real-world problem of their choosing. Prerequisite: High achievement in Chemistry and Biology and departmental permission. Co-Requisite: Integrated Algebra 2 and Trigonometry (Math 30), or higher.

**Advanced Biology: Microbiology and Antibiotic Discovery will not be offered in the 2021–22 school year**

S3AdvBioMicro

*Spring trimester - .33 credits/trimester*

A chance to save the world! Using authentic scientific research as a driver, this course uses Yale's Small World Initiative addressing a worldwide health threat, the diminishing supply of effective antibiotics. Students will engage in hands-on field and laboratory microbiology research in order to contribute to the hunt to discover new antibiotics from soil bacteria in the Santa Barbara area--with the potential to discover a brand new type of antibiotic. This course will foster the development of critical thinking skills including hypothesis testing, experimental design, data analysis, and science communication. The research course will also apply a variety of advanced biology concepts including ecology, evolution, biochemistry, cell biology, genetics, and organismal biology and will provide the venue for the investigation of biological and chemical soil diversity. This is a rigorous second year, college-level biology course, with additional lab requirements. Limited space available; students will be required to prioritize course requests during registration. Open to juniors and seniors who have completed three years of laboratory-based high school science (physics, chemistry, and biology) and demonstrated high achievement science, strong lab skills, high-level scientific practices, and a keen interest in hunting for microbes and, potentially, contributing to the scientific endeavor. Seniors who have completed a previous Advanced Biology course will be given preference. Prerequisite: High achievement in Chemistry and Biology and departmental permission. Co-Requisite: Integrated Algebra 2 and Trigonometry (Math 30), or higher.

**TRIMESTER ELECTIVES IN MARINE SCIENCE**

**Marine Science: Physical Oceanography**

S1Oceanog

*Fall trimester - .33 credits/trimester*

The world ocean is the defining feature of our planet and makes it habitable. This senior elective examines the major physical and chemical properties of the ocean and the essential understandings needed to understand this dynamic system. Students will explore the physical properties of our one big, largely unexplored, ocean that shape many of the Earth's features. Beginning with early explorers and their understanding of our planet and the important concepts in earth structure and plate tectonics, students will investigate the influence of weather, climate, and atmospheric circulation, in addition to the ocean floor, structure, and circulation, on Earth. Students will make use of big data, satellite images, and other graphical imagery, in addition to laboratory experimentation, to understand and analyze the interaction of the hydrosphere with the atmosphere, lithosphere, and ultimately the biosphere, to deeply understand, analyze, and solve problems associated with the ocean. Open to seniors. Prerequisites: Chemistry and Biology.

**Marine Science: California Coast**

S2CalCoast

*Winter trimester - .33 credits/trimester*

This senior elective explores the scientific story of the Southern California coast: the story of its beaches, islands, waves, faults, and other natural phenomena. Through the topics of surf, sand, and stone, this course examines the coastal boundary of unrelenting geological and oceanographic processes that have shaped California's coast and created its unique surf spots, beaches, islands, and coastal ecology. Ideally an outdoor science course, students will explore Cate's coastal classroom. The big ideas of the course will make the most sense when learning is transferred from the classroom to the beaches, the bluffs, the islands, the mountains, and the salt marsh. The course values the adventure and fun of scientifically investigating intriguing and beautiful places on our coast. If sand grains are caught between our toes and falling from the binding our books with saltwater-stained pages, then we will know that we are doing it right! Open to seniors. Prerequisites: Chemistry and Biology.

**Marine Science: Biological Oceanography**

S3BioOcean

*Spring trimester - .33 credits/trimester*

The world ocean supports the human population and a great diversity of life that are inextricably linked. This senior elective examines the marine environment as a vast interconnected living space with diverse and unique ecosystems distributed horizontally by latitude as well as vertically through the water column – from the pelagic surface to the abyssal depths. The course begins by looking at the ocean's past and comparing it to its present state. Big topics include ocean acidification, sea level rise, climate change, overfishing, dead zones, and pollution (biological, synthetic, and noise). Through the lens of stewardship and Servons, the course will look to the future and changing course by asking compelling questions and offering solutions: How do we sustainably farm, cleanup, and renew life in the sea? What would a New Deal for the ocean look like and how do we proceed? Taking advantage of Cate's coastal classroom, students will investigate near-shore communities (kelp forests, tide pools, etc) while focusing on global solutions and ways to promote a more ocean-literate society. Open to seniors. Prerequisites: Chemistry and Biology.

**TRIMESTER ELECTIVES IN ANATOMY AND PHYSIOLOGY****Anatomy and Physiology: Sports Medicine 1**

S1SpMed1

*Fall trimester - .33 credits/trimester*

This course will serve as a basic introduction to the fields of human anatomy and physiology. Exploration into body systems and their interactive nature will lead to a greater understanding of the overall function of the human organism. Laboratory study will include experiential learning opportunities in the fields of athletic training, exercise physiology, physical therapy, emergency management and orthopedic medicine. Through a variety of hands-on activities and laboratory inquiries, students will be exposed to the basic skills and concepts relating to the prevention, recognition, and management of athletic injury, as well as the collaborative health care approach utilized by sports medicine professionals. Students will increase their knowledge and awareness of human anatomy and physiology, pathology, and histology in addition to basic first aid and emergency management procedures (American Red Cross CPR/AED and First Aid Certification). Opportunities for specialized practical experience with the Athletic Trainer and Cate School team physicians will also be available. Open to juniors and seniors. Prerequisite: Chemistry. Co-requisite: Biology.

## **Anatomy and Physiology: Sports Medicine 2**

S2SpMed2

*Winter trimester - .33 credits/trimester*

Anatomy and Physiology: Sports Medicine 2 will allow students the opportunity to increase the depth of their knowledge and understanding of several body systems. Students will embark on research and laboratory study relating primarily to the cardiac and nervous systems. This course will also provide independent enrichment through a series of self-directed inquiry-based projects which may include scientific research, journal reviews, oral presentations, and debate. Laboratory study will include units in nutrition, neuroscience, psychology, and general fitness. Opportunities for specialized practical experience with the Athletic Trainer and Cate School team physicians will also be available. Prerequisite: Anatomy and Physiology: Sports Medicine 1

## **INTERDISCIPLINARY ELECTIVES: Science and Math**

### **Introduction to Computational Thinking**

MCompSci

*Full year - .17 credits/trimester*

This full-year course will equip students with the necessary skills to begin writing computer programs and provide an overview of the ways computational tools and approaches can be used to solve problems in many fields. No prior experience with computer programming is required. Working in a hands-on, self-paced format, students will learn the core computer programming concepts of variables, loops, functions, conditionals, and recursion. The course will also showcase scenarios in which each of these concepts can be applied to problem scenarios from other disciplines and contexts, including mathematics, science, humanities and the arts. This class meets twice each week and carries no homework load. Open to sophomores, juniors, and seniors. Prerequisites: None

### **Advanced Computer Science**

MAdvMath56CS

*Full year - .33 credits/trimester*

This advanced course in computational thinking will provide students with the programming skills to ask and answer a broader class of questions than can be addressed by conventional means. Problem-solving lies at the heart of this course, so no prior background in programming is necessary. Students will learn the core concepts of variables, loops, functions, recursion, and conditional execution. Smaller projects draw from physics and mathematics, but the first trimester concludes in a weeks-long video game development project. In the second term, students build on the skills of the first trimester as they extend into string manipulation, object oriented design, arrays, and array lists. The second term will culminate with an in-depth exploration of searching and sorting algorithms. In the spring trimester, we will delve more deeply into data structures, algorithms, and other more advanced topics. Object-oriented design and the concepts of encapsulation and inheritance are fleshed out more completely. Students are given considerable leeway to pursue specific interests, based on current events happening in the world and/or students' interests. Open to juniors and seniors. Prerequisite: Algebra 2/equivalent or Introduction to Computational Thinking and permission of the department.



## **INTERDISCIPLINARY ELECTIVES: Science and English**

### **American Wilderness 1: The Wilderness Ethos**

### **American Wilderness 2: Looking Inward**

America is a country forged from wilderness. This course is designed to deepen our understanding and appreciation of the natural world and to develop our sense of its role in defining both American culture and our own individual perspectives. Being in wilderness makes us think differently, to ask bigger questions. This course seeks to tackle those larger questions in order to deepen our understanding of both ourselves and our place in the cosmos. It is taught in a two-trimester sequence in order to provide a comprehensive and holistic exploration, employing both intellectual and experiential lines of inquiry. Students are asked to think deeply and seriously so that wilderness takes on a more profound meaning than simply as an aesthetic resource. Classroom work will include a variety of academic disciplines – English, environmental science, and philosophy – and there is a strong outdoor component to this course to ensure that students have the opportunity to experience the natural world in a manner less abstract than the classroom.

#### **English Elective: American Wilderness 1**

E2AmWild1

*Winter trimester - .33 credits/trimester*

American Wilderness 1: The Wilderness Ethos is the first trimester of a two-course sequence and must be followed by American Wilderness 2 in the spring trimester. Students will examine the role of wilderness in American culture – historically and currently – using the writings of authors such as Thoreau, Abbey, Stegner, Leopold, and McPhee to develop a personal understanding of the value of wilderness in their own lives. While developing their critical reading and writing skills, students will examine current environmental and political implications of our impact on the American wilderness and, through the use of a journal, work actively to articulate their own developing perceptions about the role of wilderness in American culture. In the winter trimester, there will be an overnight solo backpacking trip, and students will begin to learn the skills of whitewater kayaking in preparation for the river trips of the spring trimester.

#### **English Elective: American Wilderness 2**

E3AmWild2

*Spring trimester - .33 credits/trimester*

American Wilderness 2: Looking Inward is the second trimester of a two-course sequence and must be preceded by American Wilderness 1 in the winter trimester. The classroom component of this course shifts from analytical reading, critical writing, and argumentation in the winter term to personal introspection and creative writing with a study of the novel *The River Why*. Students will explore how the American wilderness has shaped various spiritual paradigms found in American society and use class discussions and journal writing to develop their own sense of their place in the natural world. In the spring trimester, students will continue to develop their kayaking skills locally and will spend a weekend on the Kern River applying their whitewater skills to moving water. Prior to Commencement, the course culminates in a week-long desert wilderness river trip in Utah.

Prerequisite: American Wilderness 1: The Wilderness Ethos.