

Upper School

Modern & Classical Languages

Course	Course Abbreviation	Course Length	Status	Course Code	GPA Weight	Grade Plan
Chinese: Advanced		2.00	Active	US - 403	1.00	US Academic
Prerequisite: Chinese Intermediate This course is a continuation of Chinese Intermediate. Students will work as individuals, in pairs, and groups to present, interpret, and negotiate meanings through active communication to enforce all four core areas of language proficiency. By the end of the course, students will be able to demonstrate the ability to use the language in unrehearsed situations.						
Chinese: Culture & Civilization		2.00	Active	US - 125	1.00	US Academic
Prerequisite: Chinese Advanced Through this course, students will interpret a broad range of written and oral texts. Students will develop their aural proficiency through exposure to a wide variety of oral texts, ranging from the formal language heard in news broadcasts to informal language found in movies, pop songs, and television dramas. They will also develop the speaking proficiency to be able to create a level-appropriate speech or report, produce a video, and narrate personal experiences and current events in a coherent fashion with comprehensible pronunciation and intonation. By the end of the course, students will have the basic fluency in the target language and be able to demonstrate level-appropriate skills in course work and communications.						
Chinese: Intermediate		2.00	Active	US - 402	1.00	US Academic
This is a one or two-year course designed to develop student’s awareness and appreciation of the elements of the Chinese culture and to teach the students to communicate adequately in many situations. Building on the base of Introductory Mandarin– pronunciation, vocabulary, idiomatic expressions, grammatical structures, and written characters– students will be also introduced to the important field of Chinese societal relationships, examining how individuals interact with family members, elders, and peers, and integrate this knowledge into their interpersonal communications. Students are required to participate in spontaneous two-way interactions, such as conversing face-to-face or exchanging written correspondence activities, in order to develop the capacity to respond in culturally appropriate ways to understand conversations among native Chinese speakers. By the end of the courses, students will be able to demonstrate the ability to use the language in unrehearsed situations.						
Chinese: Introduction		2.00	Active	US - 401	1.00	US Academic
This course introduces Mandarin Chinese as a second language for non-native speakers at the high school level. It provides students with the opportunity to develop communicative skills in both spoken and written Chinese at a basic level. Pinyin phonetic system will be introduced as a bridge to the Chinese language. The course approaches the language through theme-based dialogues with oral and written practice in grammar, vocabulary, pronunciation and language usage. Various interactive activities and projects are included throughout the course to make language learning meaningful and to motivate students to broaden their cultural understanding and appreciation of the Chinese culture. By the end of the course, students will be able to use language skills to demonstrate basic knowledge of oral and written structures.						
Chinese: Literature		2.00	Active	US - 404	1.00	US Academic
Prerequisite: Chinese Advanced or Culture and Civilization To qualify for this course, students need have a solid foundation in the Chinese language both in speaking and writing. Students will adjust to expression differences between the colloquial and literacy, between the classical and idiomatic, and between different social levels and educational backgrounds. Grammar is studied in context and readings that are relevant to cultural exploration. Upon completion of this course, students will build their linguistic proficiency through discussions of Chinese culture, not only elite culture, but also folk culture, to further their understanding of the Chinese language and life with different angles and viewpoints.						

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Course	Course Abbreviation	Course Length	Status	Course Code	GPA Weight	Grade Plan
French: Advanced		2.00	Active	US - 453	1.00	US Academic
<p>Prerequisite: French Intermediate</p> <p>To qualify for this course, students should have a solid background in both speaking and writing French in the present, past and future so that the course can move quickly through the grammar and vocabulary review. At this level, students gain a more complete understanding of French grammar, speak more fluently in French, and understand spoken and written French in many cultural settings. Students are exposed to a variety of readings: poetry, short novels and articles, and write critical short essays on these works. There will be regular oral presentations as well. Students continue to expand their communication skills with correspondents in French-speaking countries and work to understand the cultural nuances of communicating with French-speaking people. In addition, students study the history and culture of many Francophone countries and study some French history and literature. Upon completion of this course, students should have basic proficiency in French: be able to communicate in a variety of settings in French speaking countries.</p>						
French: Intermediate I		2.00	Active	405	1.00	US Academic
<p>Prerequisite: French Introduction</p> <p>This course teaches students the grammar and vocabulary to communicate adequately in many situations in French-speaking countries. Students are expected to understand and speak French in the class at all times. Students are expected to be comfortable writing in French at a basic level and will work to develop greater fluency in writing. Readings will include articles and newspapers—all chosen to help students understand the culture of Francophone countries. Cultural projects are done to further their exploration of these countries. There is an expanded emphasis on listening comprehension and correct pronunciation in this level. Upon completion of this intermediate course, students should be able to communicate in the present, past and future and understand most of the French spoken in a real context.</p>						
French: Intermediate II		2.00	Active	406	1.00	US Academic
<p>Prerequisite: French Intermediate I or recommendation</p> <p>This is the second year of Intermediate French where students will continue to explore the topics and grammar at the intermediate proficiency level. This course teaches students the grammar and vocabulary to communicate adequately in many situations in French-speaking countries. Students are expected to understand and speak French in the class at all times. Students are expected to be comfortable writing in French at a basic level and will work to develop greater fluency in writing. Readings will include articles and newspapers—all chosen to help students understand the culture of Francophone countries. Cultural projects are done to further their exploration of these countries. There is an expanded emphasis on listening comprehension and correct pronunciation in this level. Upon completion of this intermediate course, students should be able to understand most of the French spoken in a real context and speak well enough to be understood.</p>						
French: Introductory		2.00	Active	US - 451	1.00	US Academic
<p>This course introduces students to the fundamentals of French: speaking, listening, culture, reading, writing and grammar. The vocabulary studied will be relevant to communicating while in a Francophone country. Students study the culture of French speaking countries through cultural projects, interactive videos and through regular communication with correspondents in French-speaking countries. Upon completion of the course, students will be able to speak in a clear manner with a good pronunciation in the basic present, future and past.</p>						

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Course	Course Abbreviation	Course Length	Status	Course Code	GPA Weight	Grade Plan
French: Literature I		2.00	Active	US - 457	1.00	US Academic

Prerequisite: French Advanced

Students should have completed through the Advanced level to qualify for this course. Students read Francophone literature and have discussions in French about the works. They write essays and keep journals about their critical observations and work to develop their own style in their writing. Students make class presentations about relevant cultural and historical information, in addition to doing a year-long research inquiry based on the themes and works of literature in the course. This class will be discussion-based, although there is also a complete review of French grammar.

French: Literature II		2.00	Active		1.00	US Academic
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Prerequisite: French Advanced

Students should have completed through the Advanced level to qualify for this course. Students read Francophone literature and have discussions in French about the works. They write essays and keep journals about their critical observations and work to develop their own style in their writing. Students make class presentations about relevant cultural and historical information, in addition to doing a year-long research inquiry based on the themes and works of literature in the course. This class will be discussion-based, although there is also a complete review of French grammar.

Latin: Advanced I		2.00	Active	US - 434	1.00	US Academic
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The work in this course is organized around an advanced text that continues with and expands upon the syntax and vocabulary presented in Latin Intermediate. Through translating and supplementary materials, students will learn about the Roman army, civil war, travel, and the expanding world of Late Republican and Early Imperial Rome. Specific themes in Classical mythology will be examined and discussed as well. Emphasis is placed upon proficiency with the Latin inflectional endings and vocabulary and preparing students to read longer Latin passages independently and with confidence. During the second semester, students will investigate an assigned medium and design a piece of artwork depicting a dramatic moment from a favorite myth.

Latin: Advanced II		2.00	Active		1.00	US Academic
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The work in this course is organized around an advanced text that continues with and expands upon the syntax and vocabulary presented in Latin Intermediate. Through translating and supplementary materials, students will learn about the Roman army, civil war, travel, and the expanding world of Late Republican and Early Imperial Rome. Specific themes in Classical mythology will be examined and discussed as well. Emphasis is placed upon proficiency with the Latin inflectional endings and vocabulary and preparing students to read longer Latin passages independently and with confidence. During the second semester, students will investigate an assigned medium and design a piece of artwork depicting a dramatic moment from a favorite myth.

Latin: Foundations I		2.00	Active		1.00	US Academic
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This course is an introduction to the grammar and vocabulary of Classical Latin. Students will learn the basic syntax of Latin nouns, pronouns, adjectives, and verbs. The knowledge and experience they gain from this foundations course will help them to understand English grammar (the parts of speech and their usage) and

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Course	Course Abbreviation	Course Length	Status	Course Code	GPA Weight	Grade Plan
<p>to improve their English language skills, allowing them to become better speakers and more proficient writers. Students will consider Roman culture and daily life, the city of Pompeii (its art and architecture, destruction, preservation, and conservation), major periods in Roman history, and the Greek and Roman gods in the Classical Pantheon. Students can anticipate a trip to the Kelsey Museum to examine the ancient Roman collection there and designing a final project that depicts an aspect of Roman life.</p>						
Latin: Foundations II		2.00	Active		1.00	US Academic
<p>This course is an introduction to the grammar and vocabulary of Classical Latin. Students will learn the basic syntax of Latin nouns, pronouns, adjectives, and verbs. The knowledge and experience they gain from this foundations course will help them to understand English grammar (the parts of speech and their usage) and to improve their English language skills, allowing them to become better speakers and more proficient writers. Students will consider Roman culture and daily life, the city of Pompeii (its art and architecture, destruction, preservation, and conservation), major periods in Roman history, and the Greek and Roman gods in the Classical Pantheon. Students can anticipate a trip to the Kelsey Museum to examine the ancient Roman collection there and designing a final project that depicts an aspect of Roman life.</p>						
Spanish: Advanced I		2.00	Active	427	1.00	US Academic
<p>Prerequisites: Intermediate 2 and/or teacher recommendation This course offers the study of Spanish at a more complex and intensive level. Students work collaboratively as well as independently with strong accountability. This course integrates the four language skills: listening, speaking, reading and writing through the use of technology, thematic readings, conversation, recordings and presentations. The course is conducted entirely in Spanish and students are expected to participate in the target language.</p>						
Spanish: Advanced II		2.00	Active	428	1.00	US Academic
<p>Prerequisites: Completion of Spanish Advanced 1 and/or teacher recommendation This course offers the study of Spanish at a more complex and intensive level. Students work collaboratively as well as independently with strong accountability. This course integrates the four language skills: listening, speaking, reading and writing through the use of technology, thematic readings, conversation, recordings and presentations. The course is conducted entirely in Spanish and students are expected to participate in the target language.</p>						
Spanish: Advanced III		2.00	Active	429	1.00	US Academic
<p>Prerequisites: Advanced 2 and/or teacher recommendation This course offers the study of Spanish at a more complex and intensive level. Students work collaboratively as well as independently with strong</p>						

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Course	Course Abbreviation	Course Length	Status	Course Code	GPA Weight	Grade Plan
accountability. This course integrates the four language skills: listening, speaking, reading and writing through the use of technology, thematic readings, conversation, recordings and presentations. The course is conducted entirely in Spanish and students are expected to participate in the target language.						
Spanish: Hispanic Civilization and Culture		2.00	Active		1.00	US Academic
Prerequisite: Spanish Advanced 3 This course will focus on the study of history and culture of Spanish speaking countries. During this course, students will explore the Spanish language as it is spoken in different countries and in a wide variety of situations. Along with a study of civilization, students will discuss and examine social and cultural issues as seen in films, articles and other online sources. Students will make presentations related to the cultural topics of the films as well as write compositions to express their ideas. The course is conducted in Spanish, and students are expected to participate in the target language. Students will refine their written and oral expression through conversations and written assessments. Spanish grammar will be reviewed as the need arises.						
Spanish: Intermediate I		2.00	Active	407	1.00	US Academic
Prerequisites: Some limited exposure to the basics of Spanish but not beyond the Novice-Mid level. This course continues to study the fundamental skills of Spanish: speaking, listening, reading and writing. The vocabulary studied will be relevant to communicating while in a Spanish speaking country. Students study the culture of Spain and Latin American countries through cultural projects, interactive videos and thematic readings.						
Spanish: Intermediate II		2.00	Active	408	1.00	US Academic
Prerequisites: Intermediate 1 and/or teacher recommendation This course builds upon the foundations of introductory-level Spanish study. Students work collaboratively as well as independently with strong accountability. This course integrates the four language skills: listening, speaking, reading and writing through the use of technology, thematic readings, conversation, recordings and presentations. The course is conducted entirely in Spanish and students are expected to participate in the target language.						
Spanish: Introductory		2.00	Active	US - 464	1.00	US Academic
Prerequisites: No previous experience in Spanish This course is a true introduction to Spanish. This course introduces students to the fundamental skills of Spanish: speaking, listening, reading and writing. The vocabulary studied will be relevant to communicating while in a Spanish speaking country. Students study the culture of Spain and Latin American countries through cultural projects, interactive videos and thematic readings. Upon completion of the course, students will be able to use simple structures and tenses in order to speak in a clear manner well enough to be understood.						

Academic Research Program

Course	Course Abbreviation	Course Length	Status	Course Code	GPA Weight	Grade Plan
Academic Research Program - ARP -		2.00	Active	US - 9001	0.00	US Academic

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This year-long course prepares students for skill development in problem-solving, research and writing. The students learn to apply the Design Thinking process to real-world problems in order to create better solutions. The students will learn to identify underlying needs through empathy, harness and develop the ability to creatively brainstorm and generate ideas, critically think, collaborate for meaningful solutions, prototype, test and share their products. As they engage in these activities, they will become more mindful of the process, ultimately developing confidence in their ability to successfully navigate open-ended challenges. In concert with efforts in core academic disciplines, this course will begin to equip students with the skills necessary to complete meaningful independent research and study. Students will explore the differences between intrinsic and extrinsic motivations for learning and the benefits of each. Students are expected to work to the best of their ability and adhere to high academic standards of excellence, engagement and ethical behavior. These standards will be defined as they relate to each project through discussion and actions.

Academic Research Project - ARP - 11		1.00	Active	US - 9002	1.00	US Academic
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This semester-long course promotes dispositions of independent inquiry while developing the research and writing skills to complete an Academic Research Project prospectus. Students will initially engage in various activities to explore interests to decide on one topic that is sustainable, feasible, and fun. During the second half of the course, students will commit to deep exploration of one self-selected topic. By the conclusion of the course, all students will complete an Academic Research Project prospectus to be carried out during their senior year.

Academic Research Project - ARP - 12		2.00	Active	US - 9003	1.00	US Academic
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In this culminating phase of the Academic Research Program, students further explore their research topic. They will engage in sustained, independent study, writing annotations and literature reviews while speaking with experts, creating products, and sharing ideas with their peers. Students will present their work periodically to the Liggett community, refine their work in consultation with their ARP advisor and mentor, and ultimately present their findings and final product to experts, peers, and members of the community.

Academic Research Project - ARP - 12		1.00	Active		1.00	US Academic
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No description available.

Creative & Performing Arts

Course	Course Abbreviation	Course Length	Status	Course Code	GPA Weight	Grade Plan
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Art Studio		1.00	Active	US - 149	1.00	US Academic
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In this course, students complete a variety of visual problem-solving assignments focused primarily in the areas of drawing, painting, printmaking,

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Course	Course Abbreviation	Course Length	Status	Course Code	GPA Weight	Grade Plan
<p>mixed media, sculpture, and design. Exposure to and experimentation with a variety of methods, materials, and processes is essential in establishing a common art vocabulary and to lay the foundation for future growth as a visual artist. Essential to the course is an emphasis on the elements of art and principles of design. Art history and appreciation are also woven throughout the curriculum. As students continue their studies in the second and third semesters, their work is guided by unique syllabi that reflect increasing levels of complexity and higher expectations. They are expected to build upon the skills learned in previous semesters to raise their art-making to the next level and begin to develop a personal voice through their work. Students who are considering Art Studio Advanced or college-level art study are encouraged to use the projects completed in Art Studio as a vehicle for individual expression with an eye toward portfolio development.</p>						
Art Studio Advanced		2.00	Active	US - 105	1.00	US Academic
<p>Prerequisite: Three semesters of art, including at least one semester of art studio (two or more recommended). Students must also submit of a plan of work and a portfolio for review.</p> <p>This course is an invitational studio course open to students who exhibit strong interest and ability in the visual arts. To be recommended for this course, students must submit a portfolio of works in drawing and painting and demonstrate a thorough understanding of art history. Emphasis is placed on the creative exploration of ideas, processes and media experimentation. In addition, students must work with a disciplined approach to produce the necessary works for successful completion of this course. Students produce a portfolio which can be submitted to the Advanced Placement Program for grading as an AP Studio Art Examination. Students must declare an area of concentration (Drawing, 2D-Design or 3D-Design). The focused art student who elects Advanced Art Studio as a junior, and successfully completes all requirements of the course can repeat Advanced Art Studio and work on a second portfolio in a different area of concentration as a senior. As part of their assessment, students participate in an exhibition highlighting their work.</p>						
CAD: Design in Art and Architecture		1.00	Active	US - 128	1.00	US Academic
<p>Employing three dimensional imaging technologies, this course will explore the process of creating meaningful designs for buildings and theatre spaces. Students will complete all of the steps of design from floor plan to rendering and construction planning. Students may look beyond theatre to architecture and interior design for project work. This course is open to students of all computer and theatre skill levels.</p>						
Ceramics		1.00	Active	US - 103	1.00	US Academic
<p>Ceramics is an introductory course using clay as an expressive medium with emphasis on hand-building and wheel throwing techniques, application of glaze materials, the understanding of form, color, structural relationships and a variety of kiln firing techniques. The course will develop student awareness of problem solving, and chemical reactions, as well as enhance insight into tools, history and the mechanics of art. Students may take a second semester of Ceramics to continue their study. Second semester students will utilize the potter's wheel for furthering their wheel throwing techniques.</p>						
Ceramics II		1.00	Active	US - 110	1.00	US Academic
<p>Prerequisite: Ceramics I</p>						
Contemporary Music Workshop		1.00	Active		1.00	US Academic

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Course	Course Abbreviation	Course Length	Status	Course Code	GPA Weight	Grade Plan
<p>Calling all pop and rock musicians! This course is open to guitarists, drummers, ukulelists, bassists, keyboardists, vocalists, and singer-songwriters of any ability. Students will form small groups to create and rehearse rock, pop, and contemporary music repertoire. Students will explore elements of musical form, style, lyrics, and patterns as they relate to contemporary media. Vocalists and drummers should plan on learning a secondary instrument to balance instrumentation needs. Contemporary ensembles may be asked to perform at community events and concerts outside of class.</p>						
Design in Crafts Media		1.00	Active	US - 117	1.00	US Academic
<p>This course is concerned with two-dimensional visual art concepts using craft materials (glass, fabric, polymer clay). Emphasis is placed on studying elements of design: line, color, value, shape, form, space, and texture. Students explore, experiment, observe, and evaluate their work and others. This course is designed to help students make informed visual choices and have control over the use of art elements and principles. Principles of design include balance, unity, contrast, emphasis, pattern, movement and rhythm. The transfer of concepts, operations, and values is important to other disciplines; science and mathematics also deal with symbols and their meanings. Students may take a second semester to continue their individual study.</p>						
Digital Fundamentals: Yearbook		1.00	Active	US - 113	1.00	US Academic
<p>This semester course is designed to provide a foundation for use of core technology tools in graphic design. Using the Adobe Create Suite as a foundation. Students will explore key software tools (Photoshop, Illustrator, InDesign). In addition students will explore on line media tools that support the development of the school yearbook. Students will be involved in all aspects of the production of this publication while exploring the various technology-based tools integral to its creation. An emphasis is placed on photographic composition, scanning, graphic design fundamentals and use of current program such as Adobe Photoshop. A digital camera (compact or SLR) of 4.0 mega pixels or greater is strongly suggested. Staff members wishing to apply for an editor's position in their senior year should have at least one year prior experience in the class.</p>						
Digital Photography		1.00	Active	US - 100	1.00	US Academic
<p>Time will be spent learning and perfecting photographic techniques using digital media. Aesthetic qualities, and contextual considerations will be explored. Students will also employ digital cameras, and computer software (Photoshop) to explore the possibilities of electronic image manipulation. In addition to making photographs, students will study the history of photography. Digital images may be captured with a digital camera or other digital devices (iPhone/ iPad, etc.). A portfolio will be produced during the semester that can be presented to colleges for admissions consideration.</p>						
Directing for Stage and Screen		1.00	Active	US - 121	1.00	US Academic
<p>This course will investigate the process of directing and managing film and performance events. Students will develop a deeper appreciation for film literature as they analyze and prepare to direct selected scenes and materials for presentation in this class. Starting with storyboarding, and computer generated video, students will produce a 30-second commercial. Students will also study the historical development of directing and management through readings and assignments dealing with theatrical personalities. Students will complete a series of digital video based film projects.</p>						
Introduction to Film		1.00	Active	US - 145	1.00	US Academic
<p>All art forms tell a story, but perhaps no art form inundates our senses more than film. In less than three hours, films transport us back in time, whisk us across the sea and boldly take us into the future. In this one semester class, students will engage in an introduction to film studies. Through</p>						

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Course	Course Abbreviation	Course Length	Status	Course Code	GPA Weight	Grade Plan
<p>Giannetti’s classic textbook, Understanding Movies, and through the viewing of several films, students will see how a series of film clips are arranged to deliver a comprehensive visual narrative. Students will be encouraged to look past the “story” of a film and discover the visual and musical art forms central to most narrative films. Essays, cinematic lab reports, quizzes, tests and a final exam will measure student achievement. Films may include The Godfather, Coppola; Citizen Kane, Welles; Rear Window, Hitchcock; and Crouching Tiger, Hidden Dragon, Lee.</p>						
Introduction to Theater Performance		1.00	Active	US - 140	1.00	US Academic
<p>This course is designed to develop performance skills in both public speaking and stage presentations. Students will explore the development of a message and carefully analyze existing speech and dramatic materials. Script and character analysis, along with the study of acting techniques, will be used to enhance each student’s talent and understanding of public performance. Students will develop speeches of demonstration and persuasion based on the study of theatre history, as well as performances from theatre and film.</p>						
Music Production		1.00	Active	US - 142	1.00	US Academic
<p>The Music Production elective is an experience designed to inspire students who desire to combine their interests of music and technology. Students will meaningfully create and respond to music using industry-standard programs and recording equipment. Students will finish this course with a portfolio of their own composed, mastered, and recorded audio works including a podcast, film score, remix, and original composition. This course is technology-based and limited to 9 students.</p>						
Musical Innovation & Leadership		1.00	Active		1.00	US Academic
<p>Students will realize their potential as young artists, creators, innovators, and leaders by using musical creation as a vehicle to draw from the abstract to create something tangible, constructively critique their peers, lead discussions, suggest and support ideas and reconcile opposing views through compromise. This process will not only help develop the student’s own voice, but will also help give them confidence to become active participants in group projects.</p>						
Orchestra Semester		1.00	Active		1.00	US Academic
<p>No description available.</p>						
Photography I		1.00	Active	US - 159	1.00	US Academic
<p>This course explores the fundamentals of black and white photography. Emphasis is placed on photography as a technical medium with attention given to design and compositional elements. Film development, printing techniques, and film camera operations are taught. The history of photography and its impact on the world will also be investigated. Students are required to have a 35mm SLR manual camera, with a working light meter. In the Spring semester, students who have taken Photo I, may take a second semester of Darkroom photography if there is room in the section. The class is combined with Photo I students. The second semester darkroom experience parallels the Digital Imaging course but using darkroom techniques.</p>						
Photography I		1.00	Active	US - 107	1.00	US Academic

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Course	Course Abbreviation	Course Length	Status	Course Code	GPA Weight	Grade Plan
<p>This course explores the fundamentals of black and white photography. Emphasis is placed on photography as a technical medium with attention given to design and compositional elements. Film development, printing techniques, and film camera operations are taught. The history of photography and its impact on the world will also be investigated. Students are required to have a 35mm SLR manual camera, with a working light meter. In the Spring semester, students who have taken Photo I, may take a second semester of Darkroom photography if there is room in the section. The class is combined with Photo I students. The second semester darkroom experience parallels the Digital Imaging course but using darkroom techniques.</p>						
Photography II		1.00	Active	US - 108	1.00	US Academic
<p>Prerequisite: Photography I This course is a Darkroom based extension of Photography I. In the Spring semester, students who have taken Photo I, may take a second semester of Darkroom photography (if there is room in the section. The class is combined with Photo I students.) The second semester darkroom experience parallels the Digital Imaging course but using darkroom techniques. Projects include collage, panoramas, self-portraiture, and special techniques including solarization, and alternative chemistry.</p>						
Piano Lab		1.00	Active	US - 162	1.00	US Academic
<p>This course is open to those students new to music who are interested in learning basic music theory and keyboard skills. Students will participate in group piano instruction in the electronic keyboard lab as part of the course of study. Students will be expected to demonstrate familiarity in the operation of a piano by learning and playing music on the keyboard. This course is limited to 8 students.</p>						
Public Speaking: Beyond the TED Talk		1.00	Active	US - 109	1.00	US Academic
<p>Early work in this course will establish the foundations for public speaking through the study of traditional techniques in speech presentation. These techniques will be advanced to extend into new media, pod cast, and technology based explorations. This course is technology based and limited to 9 students.</p>						
Upper School Advanced Band		2.00	Active	US IND - 231	1.00	US Academic
<p>By recommendation of instructor/audition US Band Advanced is open to students who seek additional opportunities on their instrument outside of class and wish to accelerate personal growth on their instrument. In addition to rehearsing with the US Band, advanced students will be directed to prepare auditions for state festival honor bands in the fall and will be required to prepare and perform a solo for rating at the MSBOA Solo & Ensemble Festival in the spring. US Band performs at community events and concerts outside of class.</p>						
Upper School Band		2.00	Active	US IND - 23	1.00	US Academic
<p>US Band is a comprehensive 9-12th grade experience designed to musically inspire and challenge students with previous experience playing woodwind, brass, or percussion instruments. Students will meaningfully create, perform, and respond to music from a variety of time periods and cultures while refining instrumental technique and skill. Students will perform as members of small groups and as members of the large ensemble.</p>						

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Course	Course Abbreviation	Course Length	Status	Course Code	GPA Weight	Grade Plan
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Piano, guitar, and bass guitar may be admitted by audition only. US Band performs at community events and concerts outside of class.

Upper School Choir		2.00	Active	US - 163	1.00	US Academic
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Choir is open to anyone with an interest in singing. This course is designed for students who are interested in pursuing music after high school and the beginning choir student who just loves to sing. Choir meets during the school day and presents approximately three to five performances per year. Music of all types, including classical, spirituals, jazz and popular music will be covered each term. Students have performance assessments at least once per quarter which include sight-singing in four parts (soprano, alto, tenor and bass).

Upper School Choir Advanced		2.00	Active	US - 164	1.00	US Academic
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By recommendation of instructor/audition

Advanced Chorale is open to students who have previously participated in Chorale and wish to further their experiences and responsibilities in a singing ensemble. In addition to the regular requirements of the Chorale, the student will be encouraged to prepare and audition for MSVMA Honors Choir. The student should also prepare and perform a solo at MSVMA solo and ensemble festival. Advanced Chorale students will assume added responsibilities which may include section leader, student conductor, accompanist, choreographer.

Upper School Choir Semester		1.00	Active		1.00	US Academic
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No description available.

Upper School Orchestra		2.00	Active	US IND - 31	1.00	US Academic
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By recommendation of instructor/audition, open to 9 & 10

The US Orchestra is open to those who can demonstrate ability on string instruments (violin, viola, cello, and bass). Music of all types, from duets and trios to small ensembles, and from a variety of styles (e.g., classical, popular, movie, world) will be studied and performed. All students are expected to participate in scheduled performances throughout the year. Students must be members of a performing ensemble to participate in MSBOA Events. Enrollment in private lessons is strongly encouraged.

Upper School Orchestra Advanced		2.00	Active	US IND - 321	1.00	US Academic
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By recommendation of instructor/audition, open to 11 & 12

US Advanced Orchestra is open to students who have previously participated in US Orchestra and wish to further their experiences and responsibilities in a string ensemble. In addition to the regular requirements, the student will be encouraged to prepare and perform a solo or ensemble at MSBOA solo and ensemble festival. Advanced Orchestra students will assume added responsibilities which may include section leader, student conductor, music librarian, advanced octet member, and extra concert preparation.

English

Course	Course Abbreviation	Course Length	Status	Course Code	GPA Weight	Grade Plan
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English *continued from previous page...*

Course	Course Abbreviation	Course Length	Status	Course Code	GPA Weight	Grade Plan
English: "Shakespeare: The Henriad"		1.00	Active	US - 244	1.00	US Academic
<p>The popular aphorism "to whom much is given much is expected" might well supply an overview of the four Shakespeare history plays that comprise the Henry Cycle – Richard II, Henry IV Part I, Henry IV Part 2, and Henry V. These plays offer the careful critic a study of a young prince maturing into a great leader, a man in conflict between two attractive worlds. One of those worlds involves throne rooms and battlefields, while the other involves taverns and inns. One of those worlds is populated by chiefs of state and royal advisors, while the other is peopled by rogues, pranksters and villains. This course invites you to consider questions of identity, duty, and maturation both in the life of Henry and in your own life as you act out the principal role of your own drama.</p>						
English: Arthurian Tradition		1.00	Active	US - 246	1.00	US Academic
<p>It is likely not too great a stretch to say that we would have no Harry Potter but for King Arthur. An historical King Arthur running around the English and Welsh countryside uniting various warlords around an ethic of chivalry strains credulity almost as much as Harry Potter catching the snitch. And as for a grail quest—well, scholars aren't even positive whether a grail was a chalice of some sort of platter. On a historical level, then, a King Arthur likely never existed. But what a powerful legend has sprung up around him! Magic swords, round tables, miraculous births, fierce dragons, epic clashes between good and evil—all are elemental to the Arthur story. The English might have given us Arthur and Guinevere, but the Welsh gave us Merlin. The Irish likely conspired with the Welsh to contribute elements of one of Arthur's best knights, Sir Gawain. And the French—fashionably late but not to be excluded—introduced Sir Lancelot to the party. So the Arthur legend as we now have it is something of an international collaboration between countries that collaborated about little else. The work of the class will be to chart the development of the legend through various texts and films and then examine how later authors either undermined or upheld that tradition. Our exploration of this legend will revolve around our readings and discussions of Sir Gawain and the Green Knight and Kazuo Ishiguro's <i>The Buried Giant</i>. We will also study major sections of Thomas Mallory's <i>Le Morte D'Arthur</i> and T.H. White's <i>The Once and Future King</i>. Shorter excerpts from Edmund Spenser's <i>The Faerie Queene</i>, Geoffrey Chaucer's <i>The Canterbury Tales</i>, and Geoffrey of Monmouth's <i>History of the Kings of Britain</i> will round out our reading list.</p>						
English: Classical Mythology		1.00	Active	US - 240	1.00	US Academic
<p>This course is an overview to Classical mythology. Myths, rooted in spiritual beliefs, were an integral component of culture in ancient Greece and Rome. They were created by communities and then retold through generations of oral tradition until they were written down and recorded as stories, songs, plays, and epic poems. Students will learn about the Greek and Roman gods and the classical myths concerning the origin of the world, creation of humans, power, compassion, unfulfilled love, hubris, costly mistakes, heroes, and monsters. They will also consider how elements of these stories relate to the modern world around them—in English vocabulary and literature, science, and art. Gaining insight on the challenges the characters in mythology faced, the choices they made, and the way they handled adversity will allow students opportunities to develop a better understanding of human beings and being human. Reading materials will be provided; they will include passages from assorted texts, maps, and translated selections from primary sources.</p>						
English: Core I		2.00	Active	US - 202	1.00	US Academic
<p>Students focus intensively on critical thinking skills to view writing as a tool for sophisticated thinking as well as a medium of scholarly exchange. Elements of this study will emphasize the fundamental concepts of rhetoric that form the basis of reasoned discourse. Students develop textual analysis skills to achieve greater understanding of structure and theme. This allows students to engage four essential questions concerning</p>						

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Course	Course Abbreviation	Course Length	Status	Course Code	GPA Weight	Grade Plan
independence, identity, conformity, and rebellion. In addition to opening units on personal narratives and short stories, texts will cover a range of genres, with core texts likely including <i>The Catcher in Rye</i> , <i>The Merchant of Venice</i> , and King’s “Letter from a Birmingham Jail.”						
English: Core II		2.00	Active	US - 210	1.00	US Academic
This course explores American narratives as represented in important folktales, autobiographies, slave narratives, short stories, essays, plays, poems, and novels. The course follows a chronological structure that fits well with ARP 10/American History, which students take at the same time. Essential topics include colonization, industrialization, migration, slavery, urbanization, immigration, individualism vs. collectivism, family, love, and The American Dream. As students investigate key developments and movements in American literature from the Puritans to the present, they build on their close reading, writing, and analytical skills from Core I.						
English: Creative Writing I		1.00	Active	US - 273	1.00	US Academic
This course invites students to explore and practice several genres of creative writing and is designed to serve both accomplished students—looking for the time and motivation to focus exclusively on their writing—and novices wishing to improve their level of comfort with the rudiments of creative written expression. Students will be writing many short pieces and are expected to share the majority of them with the class. At its core, the course is about observing the world, brainstorming/sharing ideas, and revising one’s written work to develop voice and style. In addition to reading one book on the craft of writing, students will work with many shorter texts to serve as models and prompts for their own pieces.						
English: Entropy and Human Condition		1.00	Active	US - 225	1.00	US Academic
This course takes a literary look at the human struggle to deal with disorder and chaos. The desire to organize, stabilize, and expand social, familial, and personal systems of meaning is central to the human experience, yet the human condition prevents us from ever truly succeeding in such endeavors. Whether via the biblical Fall of Man, the First Noble Truth of Buddhism, or the Second Law of Thermodynamics, we are required to face the inevitable disintegration of our goals and accomplishments. Much of human history and culture is an attempt to escape this reality, but some great works of literature posit both the impossibility of doing so and the consequences of attempting to. The central issue of the class is to explore various responses (denial, acceptance, etc.) to entropy and to evaluate their relative strengths and weaknesses. Are some responses more conducive to happiness, wisdom, and/or finding meaning and satisfaction in the midst of suffering? Central texts for the class include <i>King Lear</i> , <i>Heart of Darkness</i> , <i>Waiting for Godot</i> , and <i>A Thousand Acres</i> , as well as selected poems and short stories.						
English: Epic Remix: The Iliad and Song of Achilles		1.00	Active		1.00	US Academic
The Iliad, sometimes referred to as The Song of Ilium, is among the oldest surviving works of Western literature and a central text in the literary canon. It arguably may be the most adapted, alluded to, and reworked of the stories of antiquity. We shall examine the themes driving the Greek and Trojan heroes—courage and glory, duty and kinship, virtue and honor, pride, conflict, folly, love and friendship, loss, fate and mortality—to gain an understanding of these characters’ flawed and realistic motivations and behaviors as they clash during the final year of the Trojan War. Our studies will be paired with the contemporary text, <i>The Song of Achilles</i> , a fictional adaptation of The Iliad. This will lend a new perspective on the events leading to and following the classic epic. To assist with understanding the literature, there will be a brief overview of the Greek gods and						

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English *continued from previous page...*

Course	Course Abbreviation	Course Length	Status	Course Code	GPA Weight	Grade Plan
Mediterranean geography at the beginning of the course.						
English: Ethical Theory: Readings and Application		1.00	Active		1.00	US Academic
<p>"Ethical Theory: Readings and Application" provides students the chance to wrestle with the question "What is good, and who defines it?" Readings offered will provide a survey of the major ethical theories recognized in philosophy today -- Kantianism, utilitarianism, virtue ethics, social contract, and feminist care ethics -- through both primary and secondary sources. Students will use their understanding of ethical theory to consider and take positions on a variety of ethical dilemmas in business, social work, health care, art, and current events, culminating in polished papers and verbal presentations of each of their views. This class is designed primarily for participants of Liggett's Ethics Bowl team and is recommended to be capped at 12-14.</p>						
English: Missing Pieces of the Canon		1.00	Active	US - 239	1.00	US Academic
<p>Some literary works are very entertaining, while some are intellectually important, but some works fit into both categories, perhaps making them truly "great." The purpose of this class is to study some of the great texts not currently represented in Liggett English classes. Given this criterion, the texts are not chosen due to a shared theme, topic, era, or geographical area—they are simply "great" works that enrich one's cultural and intellectual currency.</p> <p>The structure of the class will be straightforward: reading assignments as daily homework, class discussion the following day, occasional informal written responses, with formal analytical essays as summative evaluations. In addition to focusing on the meaning of each text in its own right, one central question will be whether each text legitimately belongs in "the canon" and why/why not. Part of this determination will be based on how each text balances accessibility with profundity – whether or not the text addresses human concerns that are universal or limited to a specific time/situation. Students will progress in developing their own opinions on what factors a work of literature should possess to be truly "great."</p> <p>Pending future changes in other parts of the Liggett English curriculum, the potential texts include Oedipus the King, Macbeth, The Adventures of Huckleberry Finn, Slaughterhouse 5, and The Things They Carried.</p>						
English: Non-Fiction Literature		1.00	Active	US - 268	1.00	US Academic
<p>Unlike fiction, whose consumers willingly suspend their disbelief and agree to be manipulated, nonfiction and documentaries appear to be void of bias or prejudice. In fact, casual readers of nonfiction and viewers of documentaries frequently believe they are experiencing a story without spin. Despite this prevailing, popular view, documentaries are rife with bias. This course will challenge you to identify the slant that informs the story and critically judge whether the story should be accepted, challenged, or rejected. Formulating your own rubric for evaluating a story's content will be a major focus of this class.</p>						
English: Non-fiction Writing		1.00	Active		1.00	US Academic
<p>Journalism is writing with a <i>purpose</i>. It can inform, expose, investigate, condemn, or simply delight, but it always has one goal: to discover and share the truth. This course will introduce students to the reporter's toolbox: gathering information, developing sources, finding an "angle," and writing for a mass audience. Students will split their time between analyzing professional journalism and conducting their own original reporting. We will follow developing news stories, study pieces by great reporters of the past, and bring several current masters of the craft into the classroom. At the same time, each student will go through the entire process, from conception to publication, of reporting two original pieces--one breaking news story and</p>						

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Course	Course Abbreviation	Course Length	Status	Course Code	GPA Weight	Grade Plan
one human interest story. REQUIRED TEXTS 2020 <i>AP Stylebook</i> (do NOT get a copy from a previous year) Half of the class will need print or digital editions of the <i>New York Times</i> and the <i>Detroit News</i> Half of the class will need print or digital editions of the <i>Wall Street Journal</i> and the <i>Detroit Free Press</i>						
English: Poetry		1.00	Active	US - 253	1.00	US Academic
This course focuses on the insights and pleasures that poetry provides. We will study early, modern, and contemporary masters to highlight crucial moments and forms in English verse; we will also take daring detours that will allow us to make illuminating connections. Our focus will be on developing as close readers and critical thinkers who delight in the power and beauty of language. We will consider what seeing the world from poets' perspectives might mean for our lives and what doing so might contribute to today's world.						
English: Politics and Minority Art I		1.00	Active		1.00	US Academic
Examining the art of minority populations raises the questions of universality and exceptionalism – does minority art illuminate universal human experience or is it uniquely relevant to minority points of view? What responsibilities do minority artists have to their audience(s), and are those responsibilities different than those of majority artists? What are the definitions and differences between “selling out” and remaining true to one’s identity? This class will study a sampling of works from various writers to explore these questions through the lens of African-American experiences. While history and politics are significant aspects of this endeavor, the primary focus is literary. In the course of exploring the nature and goal of literature, students will engage sensitive issues, consider viewpoints perhaps different from their own, and question their own assumptions about art and social issues – all in a responsible and rigorous way. Central texts include: Richard Wright’s <i>Black Boy</i> and Toni Morrison’s <i>The Bluest Eye</i> .						
English: Politics and Minority Art II		1.00	Active		1.00	US Academic
This course will focus on the same issues as PMA I but examine different texts. Students who take the first course will experience a deeper exploration of similar topics, but the first course is not a prerequisite; the previous offering is relevant but not required or necessary. Texts include Zora Neale Hurston’s <i>Their Eyes Were Watching God</i> , Octavia Butler’s <i>Kindred</i> , and James Weldon Johnson’s <i>Autobiography of an Ex-Colored Man</i> .						
English: Science Fiction and Popular Imagination		1.00	Active	US - 224	1.00	US Academic
This course analyzes classic and contemporary science fiction (SF). We will investigate what writers such as Mary Shelley, H. G. Wells, Isaac Asimov, Ray Bradbury, Philip K. Dick, Ursula K. Le Guin, William Gibson, and Octavia Butler, among others, have contributed to the science fiction tradition. We will attend closely to how these writers address technological and other historical changes. Central themes include the ethics of scientific research, colonization (on Earth and elsewhere), cybernetics, artificial intelligence, definitions of the human, and virtual and apocalyptic realities.						
English: The American City in Literature		1.00	Active	US - 245	1.00	US Academic
This course explores how writers of various backgrounds have portrayed the American city. Essential questions include, what are the advantages						

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Course	Course Abbreviation	Course Length	Status	Course Code	GPA Weight	Grade Plan
and disadvantages of city life? How does the city shape identity, and how do people shape cities? To quote Joyce Carol Oates, "If the City is a text, how shall we read it?" On the flip side, how does the city "read" (or judge or define) its people? Topics include the ways that industrialization, immigration, racial segregation, anti-urbanism, finance, globalization, cyberspace, gentrification, and several social movements have influenced city life. Moreover, we will analyze how writers create cities as characters, investigate the usefulness of terms such as "urban crisis" and "urban renaissance," evaluate our assumptions about urban life, and consider the place of the city in our own lives and futures.						
English: The Bible as Literature		1.00	Active	US - 235	1.00	US Academic
Perhaps no other document in history has been more influential in world history, literature, and culture than the Bible. The Supreme Court noted in <i>Abington School District v. Schempp</i> (1963) that such an influence warrants academic study of the Bible in high schools. In this course, students will be introduced to the narrative arc of the Bible, the variety of genres within the Bible, and different lenses through which to interpret the stories, metaphors, and poetry they'll encounter. They will also practice recognizing and interpreting the biblical allusions that appear in contemporary literature, music, and pop culture.						
English: The Craft of Writing		1.00	Active	US - 215	1.00	US Academic
This course offers students an opportunity to develop their writing habits and skills to help them prepare for the writing demands of advanced work in English, ARP, and Liggett's other academic courses. Emphasizing student choice and voice, Craft of Writing allows students to select the topics of their compositions; in addition, it illuminates how purpose, genre, and audience intertwine when creating "good" writing. In sum, this course "demystifies," as Gerald Graff puts it, "the moves of academic writing"; helps students understand writing as a process; offers extensive practice with and feedback on essential writing skills; and argues that writing in both academic and non-academic contexts provides a means to profound discovery and transformation.						
English: The Detective Story		1.00	Active	US - 228	1.00	US Academic
Edgar Allan Poe is one of the most underrated innovators of the story form. He perfects the tale of terror, but he single-handedly invents the detective story. Our course, therefore, begins with Poe. We then chart how the detective form evolved in contemporary novels and films. Ron Hansen and Mitch Cullen are also on the reading list. We'll conclude by returning to an earlier sub-genre of detective fiction by studying <i>The Maltese Falcon</i> . Throughout, our conversations will ask us to consider the often ambiguous morality that governs both the criminal and the detectives who chase them.						
English: The World on Stage: A Literary History of Theatre		1.00	Active		1.00	US Academic
Public performance is our most communal form of art. On stage, we tell stories to each other, work out our problems, voice our rage, or just make each other laugh. The history of theatre is intertwined with the history of human civilization, and through reading plays, we can re-enter the debates of the past—and gain perspective on eternal questions. This course will hit some high points of the last three thousand years of drama, moving from ancient Greece to contemporary America, with stops in Africa, Asia, and Europe in between. We will also explore not only the text of each play, but also its historical background, using a combination of primary and secondary sources. History students will write essays that examine						

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English *continued from previous page...*

Course	Course Abbreviation	Course Length	Status	Course Code	GPA Weight	Grade Plan
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the play in its historical and cultural context. English students will write essays that analyze the language and themes of the plays.

History & Social Studies

Course	Course Abbreviation	Course Length	Status	Course Code	GPA Weight	Grade Plan
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American Government: The Constitution and the Bill of Rights		1.00	Active		1.00	US Academic
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This course is intended to provide students with an intensive study of the American judicial system, its structures, functions, processes, and especially the role the Supreme Court of the United States plays in government. Through the use of landmark decisions, 21st century court cases, and a consideration of how justices interpret Constitutional law, students will interact in an intense matter with our founding document, The Constitution and its first ten amendments. Specifically, this course will focus on the history of the federal court system, the process of how the Supreme Court reviews cases, and they will display their knowledge by actively engaging in simulations where the students will serve as the judges and the advocates, preparing oral arguments and asking questions to better demonstrate how the Constitution is still alive in our system today.

Civics		1.00	Active		1.00	US Academic
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This course will offer a survey and introduction into the topics of government and civic engagement, especially in relation to the United States of America. We will study the institutional and political developments that influence our modern system, especially representative democracy and the role of issues that shape public policy. Students will engage with the Constitution to better understand the foundation, structure, and functions of our governmental system in the hopes of developing a civic identity.

The first quarter will contain a study of the basic institutions and functions of government. For example, the Constitution and the Bill of Rights, federalism, the three branches, separation of powers, checks and balances, and civil rights and liberties. In the second quarter, students will put this knowledge to work by participating in a six week long simulation that will ask them to respond to an issue using the functions and structures of government to come up with a solution as a class.

Environmental History		1.00	Active	US -3 304	1.00	US Academic
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So much effort in studying history is spent on human to human interaction. Human interaction with the environment is often contextualized in terms of technological progress and overcoming physical challenges, but our historical actions have had, and will have, long lasting effects on our living space. The purpose of the course is to have students understand that our quality of life and existence are predicated upon the state of the environment. The course will emphasize place as students will look at least one example from Michigan and the Great Lakes in depth. Students will also have the opportunity for multi-discipline study based on the need for more specific understanding in the biological or chemical fields.

History of Mathematics		1.00	Active	US - 715	1.00	US Academic
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Prerequisite: Algebra II/Trigonometry

This is a course on the evolution of mathematical ideas. It will survey the early history of mathematics, from the ancient world into the 18th century. As amateur historians, students will read original sources in the history of mathematics; as such, part of their learning will be derived from the master mathematicians themselves, as opposed to secondary sources. Problems will be investigated through both mathematical and historical lenses. Students will be diving into the history of mathematics and will also be challenged by the mathematical content of some of the greatest

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History & Social Studies *continued from previous page...*

Course	Course Abbreviation	Course Length	Status	Course Code	GPA Weight	Grade Plan
mathematical achievements of our ancestors.						
History: Conflicts in Modern Africa		1.00	Active	US - 361	1.00	US Academic
<p>We face conflict every day. This conflict is often minor and we are able to move beyond it. However, in some circumstances, conflict may be extraordinarily challenging and harmful. Some people struggle to manage these challenges; others persist and overcome them. Why can some people endure great difficulty better than others? Why can some people bounce back from setbacks more easily than others? Through an analysis of three historical events from Africa’s modern history, students of this course will develop an understanding of key dispositions for life: resilience, empathy, and responsibility. These dispositions will be observable in the history of Apartheid in South Africa, the Rwandan Genocide, and child soldiers in Sierra Leone. The course will also seek to develop these dispositions within individual students. Through a combination of personal memoirs, historical research, and creative application of understanding, students will develop an awareness of historical figures’ dispositions as well as their own.</p>						
History: Women's History		1.00	Active	US - 332	1.00	US Academic
<p>History books are often filled with the adventures, accomplishments, and exploits of remarkable men; those same pages are less filled with examples of remarkable women, but not for a lack of existence. This course examines the notable, but lesser known women in history. Students will read, engage in discussion, research historical figures and topics, apply their understanding, and ultimately wrestle with paramount questions. Questions addressed include: what makes a person worthy of notoriety? Why is truth omitted or altered? How does censorship affect its audience? How do changing perceptions of gender affect women’s role in society?</p>						
History: 19th Century Europe		1.00	Active	US - 329	1.00	US Academic
<p>Ultimately, this is a course about POWER: How it is acquired and lost; how it is used and abused; and how it changes over time. Learners will study power through the lens of nineteenth century Europe. This time, usually measured from the French Revolution in 1789 to the start of World War I in 1914, is one of explosive political, economic, scientific, cultural, and social change throughout Europe. Throughout this course we will study many of the ideas and institutions of this time period, such as industrialization, nationalism, and socialism, which still affect how power is utilized in our world today. A significant portion of this course is spent in a class-wide simulation of the century, where learners are assigned to govern a European state as it traverses the time period. Learners in this class should be prepared to perform sustained, academic research into their assigned state, be active participants in the simulation (both through writing and in person), and engage proactively with their peers. Learners will also engage deeply with primary sources and write a series of analytical and research essays on major themes of the period.</p>						
History: African-American History: c. 1400-1914		1.00	Active		1.00	US Academic
<p>A dedicated course on African-American History may make it seem as though it is a separate topic from the rest of North America’s history when, in fact, understanding the history of African-Americans is fundamental to understanding the history of the continent. The course will be taught chronologically from the impact of Africans on trade in the Atlantic Littoral, up to the start of the First World War. Sources have an emphasis on black authors and black voices. We focus on nine history and social studies skills, as well as examining Detroit’s place in African-American History.</p>						
History: America in Depression and War		1.00	Active		1.00	US Academic

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Course	Course Abbreviation	Course Length	Status	Course Code	GPA Weight	Grade Plan
<p>This course examines the impact of the two defining events of the early twentieth century: the Great Depression and World War II. We will investigate the ways in which depression and war redefined American politics and society. Our course texts are both collections of oral histories from the era, allowing the voices of those who experienced these changes to guide our understanding. By focusing on the experiences of ordinary people, we will gain a more intimate understanding of the transformations in politics, labor relations, and the roles of marginalized groups, such as women and African Americans. At the end of the semester, students will apply the skills they learned in the course to conduct an oral history interview of their own on a topic of their choice, contributing to a library of oral histories that future Liggett students can use for research.</p>						
History: Anthropology		1.00	Active		1.00	US Academic
<p>This course examines what it means to be human and the methods humans use to reach these conclusions. In order to explore possible answers to this issue, this course will be broken down into four main areas of study: (1) Primatology, the study of primates for what they can tell us about human development and characteristics; (2) Paleoanthropology, the physical and cultural development of man’s earliest ancestors; (3) Archaeology, the study of the remains of human existence and the methods it employs; and, (4) Cultural Anthropology, the study of modern cultural diversity found among the societies of men and women in the world and reasons for that variety. To find the answers to these questions, a holistic, inquiry-based approach will be taken. Learners will demonstrate their knowledge and understanding of the above four themes through discussions, hands-on activities, traditional assessments and essays, and projects that employ a variety of methods and strategies with which to engage the learner in higher order thinking.</p>						
History: Classical Mythology		1.00	Active	US - 336	1.00	US Academic
<p>This course is an overview to Classical Mythology. Myths, rooted in spiritual beliefs, were an integral component of culture in ancient Greece and Rome. They were created by communities and then retold through generations of oral tradition until they were written down and recorded as stories, songs, plays, and epic poems. Students will learn about the Greek and Roman gods and the classical myths concerning the origin of the world, creation of humans, power, compassion, unfulfilled love, hubris, costly mistakes, heroes, and monsters. They will also consider how elements of these stories relate to the modern world around them - in English vocabulary and literature, science and art. Gaining insight on the challenges the characters in mythology faced, the choices they made, and the way they handled adversity will allow students opportunities to develop a better understanding of human beings and being human. Readings will include an assigned text and translated selections from primary sources.</p>						
History: Current Events		1.00	Active		1.00	US Academic
<p>If those who fail to learn from history are doomed to repeat it (Churchill, Santayana), what connections can we make between the past and the present? In this course, students will have the opportunity to study current events that interest them and the underlying historical causes behind them. By drawing comparisons between the “then” and the “now” students will have the opportunity to hone their research skills in order to better understand the interconnectedness of human events while improving their media literacy.</p>						
History: Material Culture of the Ford Model T		1.00	Active		1.00	US Academic
<p>The Industrial Revolution fundamentally changed American society and culture throughout the nineteenth and twentieth centuries. One of the driving forces of that revolution was the development of an economical automobile available for the masses; with this innovation American society became - almost instantly - more interconnected, contributing to the development of a truly national mass culture and society. In this course, we will study the political,</p>						

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Course	Course Abbreviation	Course Length	Status	Course Code	GPA Weight	Grade Plan
<p>cultural, and economic phenomena of the early twentieth century in the United States through material culture, that is, the study of the role that physical objects play in the constructs and rituals of society. Our object of focus will be one of the most iconic symbols of the era: the Ford Model T. Students will learn about early twentieth century American society, particularly the role that industrialization and the automobile played in the creation of that society, through hands-on study, repair, and restoration of a 1922 Ford Model T touring car. This work, which will emphasize critical thinking and problem solving, will be supplemented by academic study of scholarly and primary sources from the era, and consultation with both historical and engineering experts.</p>						
History: Origins of Civilization		1.00	Active		1.00	US Academic
<p>Civilization has been our way of life for thousands of years now, and as a result we don't much think about how or why we transitioned to it from the hunter-gatherer lifestyle. The 18th century philosopher Jean-Jacques Rousseau noted that, "man was born free and everywhere he is in chains," arguing that our agreement to live in civilization sacrifices at least a portion of that natural-born freedom. Other philosophers, like Thomas Hobbes, disagreed, choosing to believe that our species is better off in civilization than before when life was "solitary, poor, nasty, brutish, and short." Transitioning from hunting and gathering to agriculture was no simple change; it revolutionized our way of life. What is the nature of humankind? Are humans inherently good or bad? Why did humans give up the hunting and gathering lifestyle? Why were rules and laws created? Why did our species enter into a social contract in which we give up certain rights and freedoms? This course will seek to infer answers to these questions and more.</p>						
History: Race and Inequality		1.00	Active		1.00	US Academic
<p>During our current time both nationwide and worldwide, awareness of race, diversity, equity and inclusion are not only being explored to a vast degree, but also being tested in a way that is unparalleled in recent years. Despite the fact that there has been significant improvements in the quality of life for people of color since the Jim Crow and Civil Rights Era, recent instances of police brutality, gentrification, increasing gaps in wages and spikes in poverty and unemployment has proven that we still have far to go in creating an autonomous and equitable society from a holistic perspective. Furthermore, secondary education has an opportunity to explore these topics and give students a broader outlook on the world at large from a sociological viewpoint especially due to the fact that many students remain confined within their comfort zones since it is sometimes challenging for students to seek out and explore different perspectives and experiences. As a result, this course is designed to give students the depth of both content and skills that will prepare them for social interactions such as exchange, competition, conflict, cooperation and accommodation. People in various communities such as school, work and even home environments are often seen unable to come to a middle ground and discuss topics such as race, politics, gender in a respectful and safe manner. Consequently, this course aims to equip students with skills to have tough conversations about racial, ethical and political topics respectfully among their peers, teachers and family members. Students will investigate the correlation between mathematics and inequality especially regarding the wealth gap, mass incarceration, unfair housing practices and poverty.</p>						
History: Russian/Soviet-U.S. Relations in Popular Culture		1.00	Active	US - 335	1.00	US Academic
<p>"I guess what I'm trying to say, is that if I can change, and you can change, everybody can change!" In the film, Rocky IV, Rocky Balboa's address to the Soviet crowd after he defeated Russian boxer Ivan Drago in sparks an important question: was it the United States that changed Russia, or the other way around? This course explores the history of Russian/Soviet-U.S. relations in the past 100 years by tracing the ways in which each country has portrayed the other in films and works of popular culture. In doing so, students will critically examine the ways in which our understanding of contemporary Russian-U.S. relations has been shaped by stereotypes we see on screen.</p>						

Upper School *continued from previous page...*

History & Social Studies *continued from previous page...*

Course	Course Abbreviation	Course Length	Status	Course Code	GPA Weight	Grade Plan
History: The Sixties		1.00	Active	US - 313	1.00	US Academic
<p>The 1960s are often seen as a decade of stark change. This course will take a “big picture” look at the decade in order to evaluate the progress that took place in American life during the turbulent age from Kennedy to Nixon. We will focus on the complex interconnectedness between the Civil Rights Movement, student radicalism, identity politics, popular culture, and the Vietnam War. We will study both the political and economic developments, along with the importance of media in shaping the culture through the music, film, and literature of the period. At the end of the course, students will be asked to make an assessment on the following question: “Were the 1960’s a decade of substantial progress in the United States?”</p>						
History: The World on Stage: A Literary History of Theatre		1.00	Active		1.00	US Academic
<p>Public performance is our most communal form of art. On stage, we tell stories to each other, work out our problems, voice our rage, or just make each other laugh. The history of theatre is intertwined with the history of human civilization, and through reading plays, we can re-enter the debates of the past—and gain perspective on eternal questions. This course will hit some high points of the last three thousand years of drama, moving from ancient Greece to contemporary America, with stops in Africa, Asia, and Europe in between. We will also explore not only the text of each play, but also its historical background, using a combination of primary and secondary sources. History students will write essays that examine the play in its historical and cultural context. English students will write essays that analyze the language and themes of the plays.</p>						
United States Government and Politics		1.00	Active	US - 334	1.00	US Academic
<p>This course is intended to provide students with an intensive study of American Government, its structures, functions, processes, political systems and parties, as well as the political beliefs and behaviors of the American people. Students will study both general and specific concepts to develop their analytical writing and critical thinking skills through substantive discussions, class simulations, and an in-depth analysis of how current events change our understanding of the Constitution on a daily basis.</p>						
United States History		2.00	Active	US - 306	1.00	US Academic
<p>In this course, students consider the nature of the American experiment and exceptionalism by exploring the forces, themes and conflicts of United States history from the geographic and demographic origins of North America to the Cold War of the twentieth century. The course will establish a focus on place, specifically the local Detroit metropolitan area, as a significant mold for the raw material of people’s lives and conditions. While utilizing a chronological framework, the human story – the interaction of individuals of all national origins, at all levels of society – will be studied. This examination includes close reading of source materials, artifact analysis, debates, point-of-view exercises, topical projects and essay writing. Students practice research skills throughout the course, and develop and defend a thesis in the second semester as part of a formal research paper.</p>						
World History		2.00	Active	US - 303	1.00	US Academic
<p>This course will look at the “big picture” in world history, studying it from a global perspective. We will study the development of complex societies in Afro-Eurasia, the Americas, and Oceania and their changes over time. We will study their political and economic developments, and we will examine</p>						

Upper School *continued from previous page...*

History & Social Studies *continued from previous page...*

Course	Course Abbreviation	Course Length	Status	Course Code	GPA Weight	Grade Plan
the social and cultural values that shaped these societies in order to develop a deeper understanding and appreciation of the differences and similarities that inform all human societies.						

Mathematics

Course	Course Abbreviation	Course Length	Status	Course Code	GPA Weight	Grade Plan
Advanced Math Seminar: Combinatorics		1.00	Active	US - 756	1.00	US Academic

No description available.

Advanced Math Seminar: Logic & Proof		1.00	Active	US - 755	1.00	US Academic
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No description available.

Algebra I		2.00	Active	US - 701	1.00	US Academic
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This course is designed for students who have had minimal exposure to the topics of algebra. Emphasis is placed on the extension of basic algebraic concepts, and students are encouraged to apply their understanding to problems and systems that can be modeled mathematically. Topics of study include operations with polynomials, linear equations and inequalities, systems of equations and inequalities, polynomial expressions and equations, radical expressions and equations, properties of exponents, graphs, and functions. A TI-83 or 84 graphing calculator is required.

Algebra II/Trig		2.00	Active	US - 705	1.00	US Academic
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Prerequisite: Algebra I and Geometry, or departmental recommendation.

In this course, more advanced topics in algebra are introduced and examined, and the topics of trigonometry are studied comprehensively. Major emphasis is given to the extension of number concepts to include complex numbers and the extension of function concepts to include polynomial, exponential, logarithmic and trigonometric functions. Students will explore these concepts from algebraic, numeric, and graphic perspectives. A TI-83 or 84 graphing calculator is required. This course can be taken concurrently with geometry with departmental approval.

Algebra II/Trig Honors		2.00	Active	US - 780	1.00	US Academic
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Prerequisite: Algebra I and Geometry, and departmental recommendation

This course is the first honors course in the five-year accelerated program which begins with advanced algebra in the eighth grade and culminates in the study of Calculus Honors in the senior year. The more advanced topics of algebra are studied in depth and a thorough treatment of trigonometry is included. There is a strong emphasis placed on the study of functions, which is enhanced through the use of the required TI-83 or 84 graphing calculator. Application of skills to non-routine problems is stressed, and students are introduced to matrices and combinatorics.

Calculus		2.00	Active	US - 710	1.00	US Academic
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Prerequisite: Precalculus

This course is designed to provide a solid foundation in both differential and integral calculus. Topics of study include limits and continuity,

Upper School *continued from previous page...*

Mathematics *continued from previous page...*

Course	Course Abbreviation	Course Length	Status	Course Code	GPA Weight	Grade Plan
derivatives, techniques of differentiation, application of the derivative, integration, techniques of integration, and applications of integration to area and volume. Topics from algebra and trigonometry are reviewed where necessary. A TI-83 or 84 graphing calculator is required.						
Calculus Honors		2.00	Active	US - 712	1.00	US Academic
Prerequisite: Precalculus Honors, or departmental recommendation This course follows closely the syllabus for Calculus AB as prescribed by the Advanced Placement College Board program. Topics of study include limits and continuity, differentiation, integration, and the techniques and applications thereof. Additional topics such as partial fractions and L'Hospital's Rule will also be introduced, and topics from precalculus--inequalities, functions, trigonometry, and logarithms--will be reviewed as necessary. The course stresses the importance of critical thinking, and all problems will be approached from analytical, graphical, and numerical perspectives. A graphing calculator is required, and a TI-84 will be used for classroom demonstrations.						
Geometry		2.00	Active	US - 703	1.00	US Academic
Prerequisite: Algebra I This required course introduces students to a deductive system built on the rules of logic. Understanding of concepts is enhanced through analytic problem solving, including coordinate geometry. Throughout the course, emphasis is placed on the connection between geometry and algebra. Characteristics and the interrelationships of geometric figures such as points, lines, planes, segments, angles, polygons, circles and solids are explored. Topics of study include parallel and perpendicular lines, congruence, similarity, basic trigonometry, area and volume. Concepts are further explored through activities such as geometric constructions using a compass and straight-edge, finding examples of geometric shapes in the world, and utilizing geometric concepts to solve problems. Students are required to have a ruler, protractor, compass, and a graphing calculator (TI-84).						
Mathematics: Economics and Financial Analysis		1.00	Active		1.00	US Academic
Prerequisite: Completion or concurrent enrollment in Algebra II/Trig This course dives into the mathematics behind major financial concepts. Students will develop an understanding of the fundamentals of economics including supply, demand, opportunity costs, and comparative advantage. Students will be introduced to financial markets and learn to calculate the present/future values of cash flow, compound interest, incentives and taxes of trade, along with other more complex financial instruments depending on student interest (derivatives, mortgages, foreign currency markets, etc.) Through the study of financial topics, students will also learn how to master spreadsheets, using them to not only perform complex calculations but facilitate deep analysis of data.						
Mathematics: History of Math		1.00	Active		1.00	US Academic
No description available.						
Mathematics: Statistics		1.00	Active		1.00	US Academic
Prerequisite: Completion or concurrent enrollment in Algebra II/Trig This course focuses on key statistical concepts and methods including distributions, bias, variance, correlation, sampling, data errors, and central tendency. Students will gain an understanding around the collection, organization, and analysis of data. Upon course completion, students will be able to draw conclusions from data and have the tools to ask appropriate questions when presented with statistical information in various forms.						

Upper School *continued from previous page...*

Mathematics *continued from previous page...*

Course	Course Abbreviation	Course Length	Status	Course Code	GPA Weight	Grade Plan
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Students interested in careers in mathematics and science-based fields are highly encouraged to take this course.

Multivariable Calculus		2.00	Active	US - 750	1.00	US Academic
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Prerequisite: Calculus Honors, or departmental recommendation

This course allows students to continue their study of calculus at an accelerated level. Having learned how to evaluate limits, derivatives, and integrals of single-variable functions, students will now study those same concepts in the context of vectors and multivariable functions. Students will also learn the many facets of sequences and series, as well as build upon their understanding of differential equations. A graphing calculator is required, and a TI-84 will be used for classroom demonstrations.

Precalculus		2.00	Active	US - 707	1.00	US Academic
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Prerequisite: Algebra II/ Trigonometry, or departmental recommendation

The major concepts introduced in Algebra II/Trigonometry--properties of real and complex numbers; polynomial, logarithmic and trigonometric functions--are examined in greater depth. Conic sections, probability, and sequences and series are covered on a cursory level, and emphasis is placed on the connection of mathematical ideas to real-world situations. Students explore the concept of a limit and are introduced to the calculus operation of differentiation. A TI-83 or 84 graphing calculator is required.

Precalculus		1.00	Active		1.00	US Academic
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No description available.

Precalculus Honors		2.00	Active	US - 708	1.00	US Academic
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Prerequisite: Algebra II/Trigonometry Honors, or departmental recommendation

This course includes an in-depth examination of coordinate geometry as well as polynomial, exponential, logarithmic and trigonometric functions. Conic sections, vectors, and polar coordinates are introduced and explored. In the second semester, sequences and series are studied as an introduction to the concept of limits, and students will complete the year with a brief look at differential calculus. Throughout the year, graphic solutions to non-routine problems will be explored through the use of the TI-83 or 84 graphing calculator.

Textbook: No textbook is required for this course; all supplementary materials will be provided by the instructor.

The Risk of Personal Finance		1.00	Active	US - 714	1.00	US Academic
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Prerequisite: Algebra II/Trigonometry

This course introduces students to the different types of mathematics that they will run into as a member of our society. The course starts with income tax information and learning about the IRS. It then moves to different retirement funds, what they are, and how to use them. The course will expose students to the different types of loans including but not limited to mortgages, car loans, lines of credit, credit cards, and student loans. The course will wrap up talking about lottery and casino odds. After this course, students will have a better understanding of the finances they will face in adulthood.

Scheduled Study

Upper School *continued from previous page...*

Course	Course Abbreviation	Course Length	Status	Course Code	GPA Weight	Grade Plan
Study Hall		1.00	Active	US SH - 100	1.00	

No description available.

Science

Course	Course Abbreviation	Course Length	Status	Course Code	GPA Weight	Grade Plan
Advanced Biology: Anatomy and Physiology		1.00	Active	US - 942	1.00	US Academic

Prerequisite: Biology

This elective course in anatomy and physiology examines the structure and function of the human body and mechanisms for maintaining homeostasis within it. Students will explore body systems, such as the cardiovascular, respiratory, nervous, digestive, muscular, skeletal and reproductive. Collaborative and individual in-depth research projects emphasize the integration of systems as they relate to health issues. Extensive laboratory exercises provide first- hand experience with the structures and processes.

Advanced Biology: Genetics		1.00	Active	US - 933	1.00	US Academic
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Prerequisite: Biology

The key ideas and modern applications of genetics will be addressed in this elective class. Lab investigations and active reading of journal articles provide students with the scientific basis for understanding issues relating to genetic engineering - including gene manipulation, gene cloning, recombinant DNA technology, gene therapy and genetic modification. Through collaborative and individual in-depth research projects, students may explore topics such as human development, cloning, stem cell research, DNA fingerprinting, genetic basis of disease, agricultural crop breeding, reproductive technologies, and the conservation of genetic diversity in nature.

Advanced Biology: Immunology		1.00	Active		1.00	US Academic
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Immunology is the study of the immune system: a combination of biological structures and processes that protect our bodies from disease. This lab-based elective course examines the molecular and cellular interactions and principles of the immune system. Topics include innate immunity, adaptive immunity, antibody structure, viruses, vaccinations, allergic reactions, autoimmune diseases, and cancer immunology.

Advanced Biology: Neuroscience I		1.00	Active	US - 934	1.00	US Academic
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Neuroscience is an interdisciplinary field in which scientists share a common interest in studying the anatomy, physiology, and function of the nervous system and how it regulates behavior. This course will provide an introduction to the scientific study of how the brain relates to behavior. Students will begin by studying basic neurophysiology and neuroanatomy, and will explore how brain structure and function are involved in sensorimotor functions, motivation and emotion, cognition, and neurological disorders.

Advanced Biology: Neuroscience II		1.00	Active	US - 943	1.00	US Academic
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Prerequisite: Neuroscience I

Neuroscience is an interdisciplinary field in which scientists share a common interest in studying the anatomy, physiology, and function of the nervous system and how it regulates behavior, the physiological and neuropsychological correlates of behavior. These include, but are not limited to, neural systems regulating motivation, emotion, learning, and the neuropsychological bases of cognitive processes. Physiological and psychological

Upper School *continued from previous page...*

Science *continued from previous page...*

Course	Course Abbreviation	Course Length	Status	Course Code	GPA Weight	Grade Plan
<p>responses to brain injury are also examined. A large portion of the class will be devoted to studying and identifying various neurological disorders. This course will also include in-depth examinations of current research techniques. Students will be exposed to the same materials and methods that a practicing neuropsychologist would use to assess cognitive function in patients. Course Text: The Man Who Mistook His Wife for a Hat by Oliver Sacks.</p>						
Advanced Chemistry I: Solutions and Equilibrium		1.00	Active	US - 937	1.00	US Academic
<p>Prerequisites: Chemistry Honors and recommendation of department chair Students will begin with an investigation of physical equilibrium concepts as well as advanced topics in solution chemistry including boiling point elevation, freezing point depression, distillation, colligative properties, and colloids. Students will then calculate rate constants and rate laws, look at how the rate constant can be changed through different methods, and how elementary steps of a reaction lead to an overall rate law. The semester will end with an introduction to the equilibrium constants K_c and K_p, Le Chatlier's principle, and the factors that influence the equilibrium point of a reaction.</p>						
Advanced Chemistry II: Energy and Oxidation Reduction Reactions		1.00	Active	US - 944	1.00	US Academic
<p>Prerequisites: Solutions and Equilibrium and recommendation of department chair Students will investigate acid base equilibria, as well as percent ionization, buffer solutions and titrations. They will study how equilibrium affects the behavior of acids and bases in solution, and will be able to tell the difference between K_a and K_b and understand how this value affects the pH of a solution. The final portion of the equilibrium section will focus on molar solubility of compounds and how that can be affected by either pH or the formation of complex ions. Students will then discuss the three Laws of Thermodynamics, as well as how Gibbs Energy relates to the formation of different compounds. We will construct calorimeters and begin the understanding of how energy is transferred between objects as well as how energy is transferred between a reaction and objects surrounding the object; finally looking at how Gibbs Energy affects the equilibrium of a reaction. During the electrochemistry portion of the class, students will look at how reduction/oxidation reactions can be harnessed as electrical power. The students will investigate concentration cells as well as different types of batteries, including dry cell, lead storage, and fuel cells. The semester will conclude with an introduction to polymer chemistry.</p>						
Advanced Physics: Calculus-Based Mechanics		1.00	Active	US - 938	1.00	US Academic
<p>Prerequisites: Physics Honors or Classical Mechanics, Calculus (can be taken concurrently) and recommendation from department chair. Calculus Based Mechanics more fully develops the concepts covered in Classical Mechanics and the first semester of Physics Honors. The pace is fast, and the use of calculus is integral. Through collaborative lab and problem-solving, and computational coding, students explore the mechanics concepts of one and two-dimensional motion, Newton's Laws of motion, Mechanical Energy, Momentum, Rotational Motion, Rotational Kinematics, Simple Harmonic Motion and Gravitation. The course content will promote growth of science skills in modeling, collaborating, investigating, coding, technical reporting, and engineering solutions.</p>						
Advanced Physics: Electrical Engineering & Computer Science		1.00	Active		1.00	US Academic

Upper School *continued from previous page...*

Science *continued from previous page...*

Course	Course Abbreviation	Course Length	Status	Course Code	GPA Weight	Grade Plan
<p>Prerequisites: Concurrent enrollment in Precalculus or higher and at least one semester of physics with physics teacher recommendation.</p> <p>Electrical engineering and computer science is a broad category of computing and hardware applications all based on applications of the physics of electricity and magnetism. The topics of study will include the electromagnetic fields, circuits, semiconductors, hardware design and control, programming, and application development. The course content will promote growth of science skills in investigation, solution design, collaboration, metacognition and communication. Students will build an understanding and an appreciation of how physics shapes the world of electrical engineering and computer science. The course will be heavily focused on project-based learning, with students designing projects and assessments to find a meaningful pathway for exploring the topics.</p>						
Biochemistry		1.00	Active		1.00	US Academic
<p>At the center of biology, chemistry, physics, and medicine is biochemistry. Biochemistry reveals the driving forces that make us unique biological organisms and helps us make sense of the biological phenomena that we take for granted. This course introduces students to the organization of human biology at the macromolecule level. A variety of molecular interactions will be studied including enzyme kinetics, nucleic acid structure, protein structure and function, metabolic pathways, cellular respiration, thermodynamics, and biological transport in membranes. Labs include protein purification, DNA isolation, assaying enzyme kinetics, protein BLAST analysis, and more.</p>						
Biology		2.00	Active	US - 960	1.00	US Academic
<p>Students enrolled in this course will study cell biology, biochemistry, genetics, evolutionary theory, and anatomy. Although focusing on human life, students will be introduced to other organisms that share our planet. The structure of the course is organized by biological systems to provide students with the opportunity to make connections between micro and macro-biology. Additionally, students are introduced to upper level science lab techniques and refined research and scientific writing skills. The course is taught using the active learning model which focuses on individual responsibility and collaboration to maximize engagement.</p>						
Botany		1.00	Active		1.00	US Academic
<p>Botany is the one of the oldest studied sciences. As a class we will identify different plant species, make technical drawings in the Audubon style, create different types of pottery for optimum growth, and examine plant health and use. Documentation of the process will be essential to the course. Questions like "What type of ceramic pottery is best for growing poppies?" will be just one of the many questions we will answer in class. The poppy is beautiful to draw and dissect as well as having medicinal uses and cooking applications.</p>						
Chemistry		2.00	Active	US - 915	1.00	US Academic
<p>This course is designed for students to investigate the concepts of chemistry through skills-based learning. Learning will be tracked in the five core science skills: I can investigate, I can solve, I can collaborate, I can communicate and I can reflect. Students will practice these 5 skills through the study of chemistry. Topics covered include: matter, scientific measurement, particle motion, describing substances, internal structure of particles, chemical reactions, counting particles, stoichiometry, the nucleus, and beyond the nucleus. Laboratory investigations, simulations, and projects entailing research, creativity, and applications will enhance understanding of the above topics.</p>						
Chemistry Honors		2.00	Active	US - 919	1.00	US AP/Honor
<p>Prerequisite: Biology, concurrent Honors Algebra II/Trig and departmental recommendation</p> <p>This course is offered primarily to sophomores who have taken Biology and who are seriously considering pursuing a science-related major in college.</p>						

Upper School *continued from previous page...*

Science *continued from previous page...*

Course	Course Abbreviation	Course Length	Status	Course Code	GPA Weight	Grade Plan
<p>Topics covered include: the kinetic theory of gases, chemical formulas and stoichiometry, energy, the Periodic Table, quantum theory, molecular structure and bonding, solutions, double displacement and oxidation-reduction reactions, and an introduction to chemical thermodynamics. Laboratory investigations and projects entailing research, creativity, and applications will enhance understanding of the above topics. This course is strongly recommended for students who are planning to take Physics Honors and/or chemistry electives.</p>						
Chemistry Honors		2.00	Active		1.00	US Academic
<p>Prerequisite: Biology, concurrent Honors Algebra II/Trig and departmental recommendation This course is offered primarily to sophomores who have taken Biology and who are seriously considering pursuing a science-related major in college. Topics covered include: the kinetic theory of gases, chemical formulas and stoichiometry, energy, the Periodic Table, quantum theory, molecular structure and bonding, solutions, double displacement and oxidation-reduction reactions, and an introduction to chemical thermodynamics. Laboratory investigations and projects entailing research, creativity, and applications will enhance understanding of the above topics. This course is strongly recommended for students who are planning to take Physics Honors and/or chemistry electives.</p>						
Environmental Science		1.00	Active	US - 932	1.00	US Academic
<p>The focus of this course is to understand the science behind current environmental issues and apply that understanding to the development of viable, attainable solutions. During the first quarter, students will explore the dynamics of healthy ecological systems. Following an exploration of foundational ecology, students will explore how human interactions with the environment have altered and shaped the world around us. Students will have the opportunity to conduct field research at the Ford Estate, build an ecocolumn, explore ocean acidification's impacts on coral and plant life in lab, and test solar, wind and geothermal energy systems. Topics include: global climate change, principles of sustainability, renewable energy, sustainable food systems, and sustainable cities.</p>						
Forensic Science and Biotechnology I		1.00	Active	US - 939	1.00	US Academic
<p>Forensic Science is the application of scientific principles and techniques to matters of criminal justice especially as relating to the collection, examination, and analysis of physical evidence. The course content will promote growth of science skills in modeling, collaborating, technical reporting, and investigating. The course will focus on crime scene analysis, evidentiary collection & analysis, collaboration in groups, and technical reporting. The topics used to develop these skills will be the forensic science history/introduction, crime scene processing, evidence collection, fiber/hair analysis, fingerprints, firearm analysis, and poisons/drugs. Students will build an understanding and an appreciation of each topic through case studies introduced throughout the semester. Students will explore positive and negative effects of the CSI Effect and how technology has come to affect individuals and the society we live in. The final exam will be composed of a mock crime scene consisting of evidence learned throughout the course. This is a very lab-demanding course and it will be difficult for schedules that permit the student to miss multiple days.</p>						
Forensic Science and Biotechnology II		1.00	Active	US - 940	1.00	US Academic
<p>This course is a continuation of Forensic Science & Biotechnology I with a deeper look into the analysis of biological evidence. The course content will promote growth of science skills in modeling, collaborating, technical reporting, and investigating. Students come into this course with knowledge of crime scene analysis and evidence collection. This semester focuses solely on the biological evidence analysis portion of forensics. Topics include blood basics, blood spatter, genetic fingerprinting, death investigation, and criminal psychology if time allows. Students will apply science skills through open-ended labs, graph/data interpretation, group collaboration, and technical report writing. Students will summarize each unit with a</p>						

Upper School *continued from previous page...*

Science *continued from previous page...*

Course	Course Abbreviation	Course Length	Status	Course Code	GPA Weight	Grade Plan
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forensic lab report to share their findings. This is a very lab-demanding course and it will be difficult for schedules that permit the student to miss multiple days.

Introduction to Sports Medicine		1.00	Active		1.00	US Academic
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Introduction to Sports Medicine provides students with an opportunity to build on their introductory knowledge of the Human Anatomy acquired in their ninth grade Biology course, enhance their core scientific skills, and to explore the wide variety of opportunities in the sports medicine professions. The course content itself will also help promote growth of skills used when commonly exploring or treating the human body and how the numerous systems of the human body work together to create movement and to repair itself. The topics used to develop these skills will be a brief introduction to the history of sports medicine, a deeper understanding of anatomy and medical terminology, what a sports medicine program entails, and necessary injury treatment and prevention and emergency protocols such as CPR, first aid and the use of an AED. Students will deepen their understanding of the human body through procedures such as preventive exercises, specific evaluative procedures, treatment techniques, and specific taping and wrapping procedures. Nutrition and its role in sports will also be examined. Students will also have the opportunity to research the different careers in sports medicine and the preparation needed to follow a specific route they may be interested in.

Physics Honors		2.00	Active		1.00	US Academic
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Prerequisite: Chemistry Honors, Pre-calculus Honors and recommendation of department chair

This course offers a study of fundamental physical concepts such as mechanics, kinematics, oscillatory motion, electricity and magnetism, and modern physics in greater depth than that presented in the regular physics courses. It is intended for students who are very able in mathematics, and who have demonstrated outstanding ability in science courses at Liggett. The course content will promote growth of science skills in modeling, collaborating, investigating, coding, technical reporting, and engineering solutions. Collaborative laboratory work, mathematical problem solving, engineering projects, and computational coding are the main methods of exploring the topics. This course fulfills the physics graduation requirement.

Physics Honors		2.00	Active	US - 929	1.00	US AP/Honor
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Prerequisite: Chemistry Honors, Pre-calculus Honors and recommendation of department chair

This course offers a study of fundamental physical concepts such as mechanics, kinematics, oscillatory motion, electricity and magnetism, and modern physics in greater depth than that presented in the regular physics courses. It is intended for students who are very able in mathematics, and who have demonstrated outstanding ability in science courses at Liggett. The course content will promote growth of science skills in modeling, collaborating, investigating, coding, technical reporting, and engineering solutions. Collaborative laboratory work, mathematical problem solving, engineering projects, and computational coding are the main methods of exploring the topics. This course fulfills the physics graduation requirement.

Physics: Classical Mechanics		1.00	Active	US - 901	1.00	US Academic
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Prerequisite: Chemistry and recommendation of department chair

This physics course introduces the fundamental concepts of forces and motion, including the study of one and two-dimensional motion, Newton's Laws, momentum, mechanical energy, and oscillation. The course content will promote growth of science skills in modeling, collaborating,

Upper School *continued from previous page...*

Science *continued from previous page...*

Course	Course Abbreviation	Course Length	Status	Course Code	GPA Weight	Grade Plan
investigating, coding, technical reporting, and engineering solutions. Experiments, discussions and projects in this class will cover topics such as static structures, projectile motion, force vectors, collisions and rollercoasters. Students will computationally code physics in Python to further understanding of mathematical models and develop useful technical skills. Students should have a working knowledge of algebra, specifically rearranging equations to solve for an unknown variable, solving systems of two unknowns and two equations, geometry and right triangle trigonometry. This course fulfills the physics graduation requirement.						
Physics: Light, Optics & Astronomy		1.00	Active		1.00	US Academic
Light has been the sole source of information from the cosmos for humans until the recent addition of gravitational wave measurement. Light, in all bands of the electromagnetic spectrum, continues to be the most important source of data from outside our planet. We will explore the nature of light, how it can be used in optics, and how light and gravitation are used in astrophysics to understand our Universe. The course content will promote growth of science skills in investigation, solution design, collaboration, metacognition and communication. Students will build an understanding and an appreciation of how physics shapes the cosmos, how. The course will have an element of project-based learning, with students designing projects and assessments to create a meaningful personalized pathway for exploring our topics.						
Physics: Mechanical Engineering		1.00	Active	US - 928	1.00	US Academic
Prerequisite: Chemistry and recommendation of department chair During this semester long, project-based course, students will explore the engineering design process and practice applicable steps through several mini-projects. Emphasis will be on forward planning and ideation, including researching problems, brainstorming solutions, and using the design thinking process to address challenges. This is an elective course open to juniors and seniors intended to support students as they use basic physics concepts to develop an engineers mindset. Students should have a passion for project based learning and a desire to use their hands to create. As much of a student's grade will be based on project results a competitive spirit is a must. Students will be assessed daily as part of a brief reflection exercise at the close of each class meeting. They will also be assessed on the success of their projects relative to the parameters decided by the group. Lastly they will be assessed on a "connections" paper that will come at the end of each unit. This course fulfills the physics graduation requirement.						