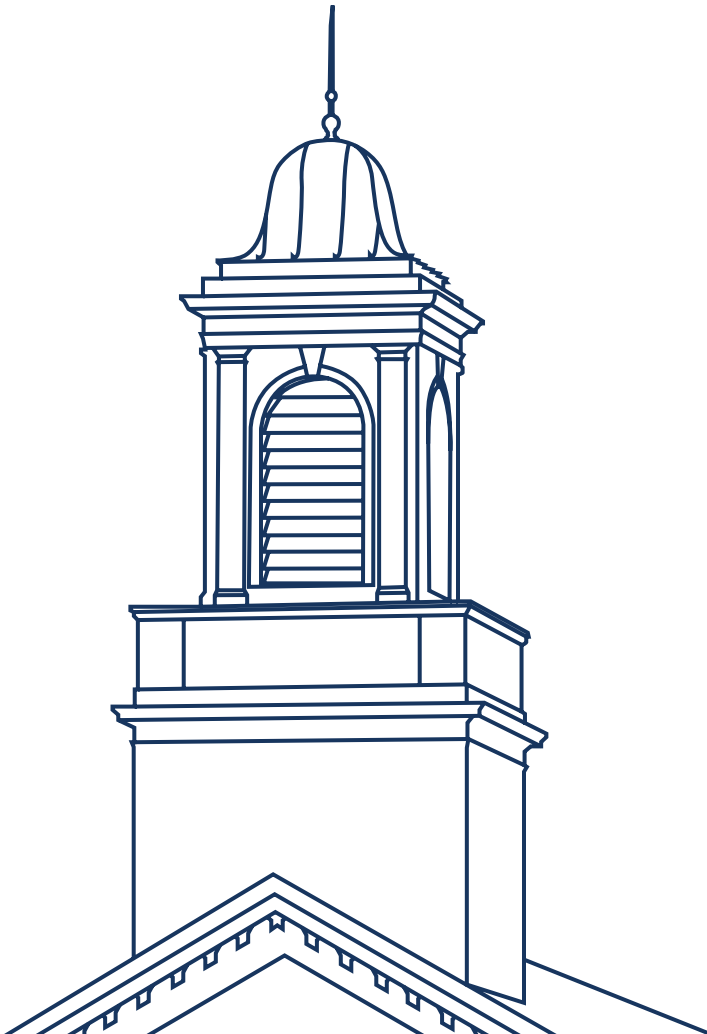


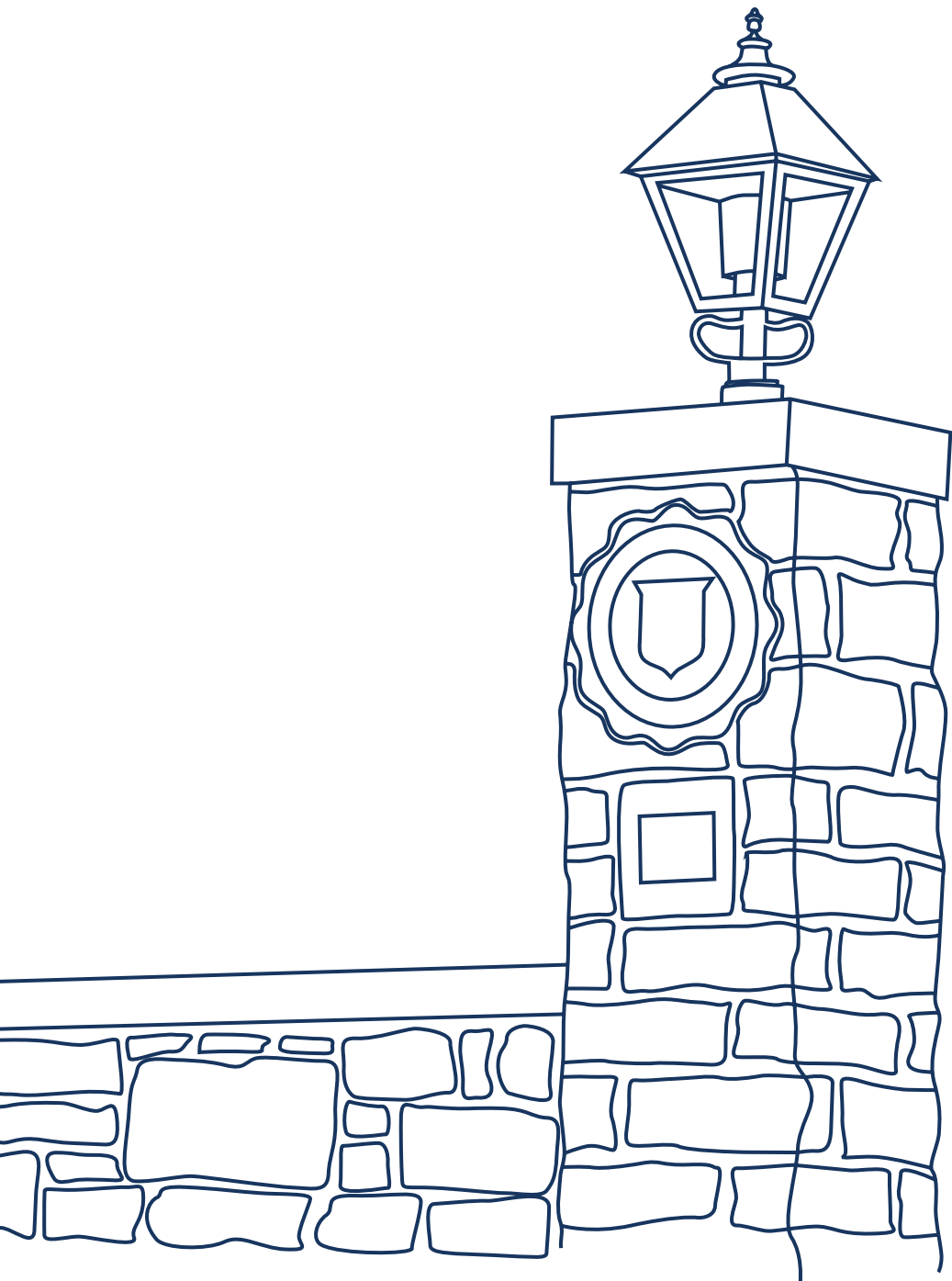


# BLAIR ACADEMY

— ADVANCED COURSE CATALOG —

2024-2025







**All advanced coursework at Blair is designed to advance the School's mission of best-positioning students to develop rich relationships with both their learning community and the ideas with which they engage. Our faculty members design and develop advanced courses based on their passions and areas of expertise, and, as with every aspect of the Blair experience, relationship-based learning and feedback are paramount.**

*– Assistant Head of School for Academics  
Nathan Molteni*



With the goals of giving students a greater sampling of college-level work and ownership of coursework with room to explore with their teachers, starting in fall 2024, Blair will offer advanced survey and advanced seminar courses focused on fostering deep understanding and meaning making. While advanced surveys are the equivalent of introductory college courses and advanced seminars do a deeper dive into specific areas of interest, Blair takes an evidence-based approach to developing course portfolio assessments, which measure student learning of key concepts and application to real-world problems and issues. This redesign of our program allows us to build a more comprehensive, engaging and distinguished program in place of Advanced Placement (AP) courses in the years ahead.

All advanced coursework at Blair underscores the importance of student agency, higher-order thinking, cultural responsiveness, student-centric experiences, reflection and metacognition. Assessed annually to ensure desired learning outcomes are achieved, Blair's advanced coursework epitomizes the School's commitment to educational excellence, utilizing methods that champion relationship-building, relevant learning and continual refinement.



# COMPUTER SCIENCE & TECHNOLOGY

*Samuel Adams IV, Chair*

*All courses in the department require students to own a laptop computer that runs in the English language.*

## **ADVANCED SEMINAR: DATA SCIENCE (FULL YEAR)**

*Transcript Name: AdvSem Data Science*

How can data be used to show us more about the world? How do we know which data we can trust? These questions are at the core of this course, in which students learn how to use fundamental statistical concepts and the Python programming language as they explore meaningful answers. In addition to the relevant mathematical and technical skills, students learn about various biases that can exist in data collection, analysis and aggregation, as well as their limitations. This course, which is cross-listed with the mathematics department, culminates with a project in which the students analyze multiple large data sets.

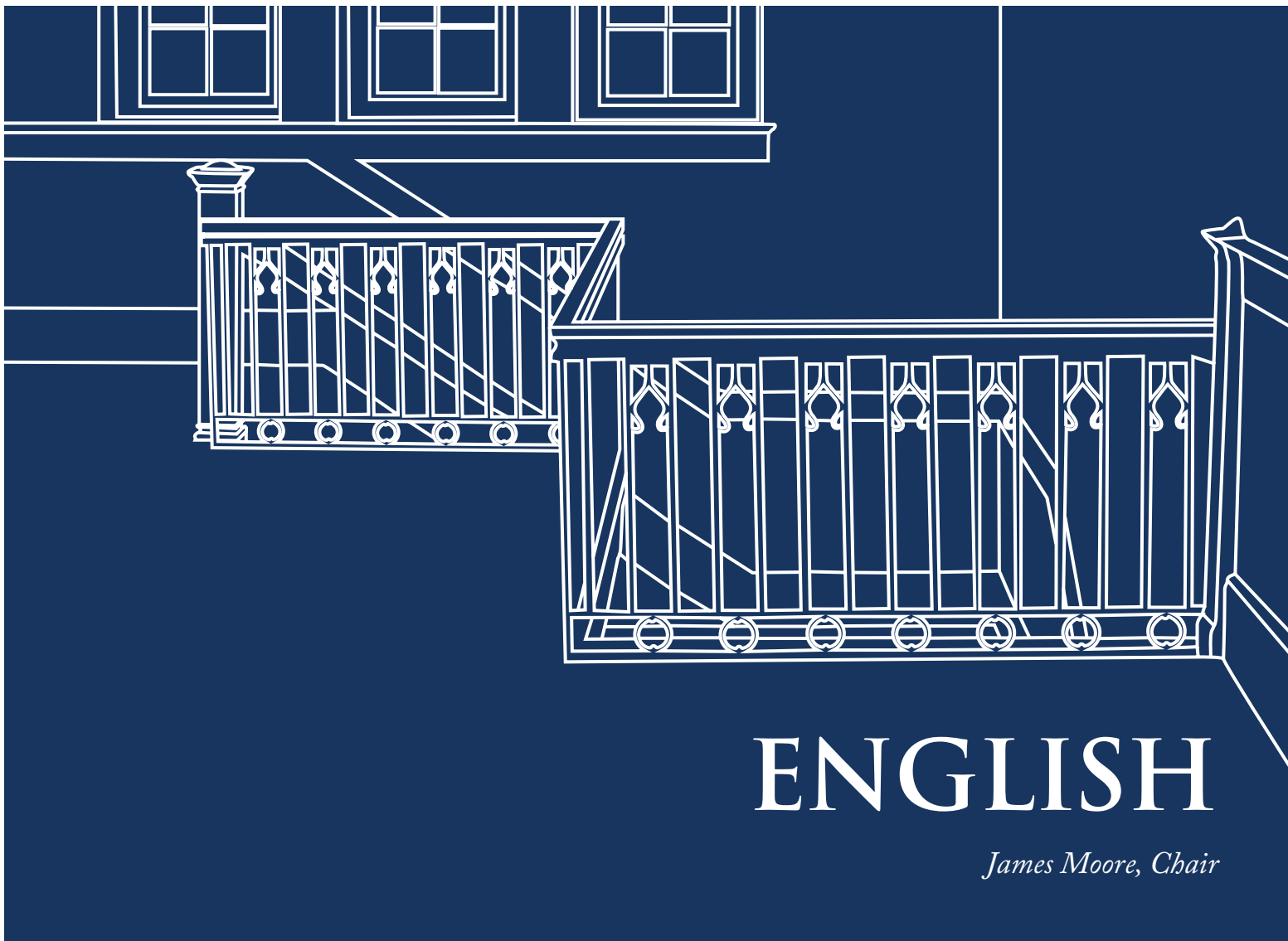
*Prerequisites: Completion of Algebra 2 Honors & an introductory-level programming course, with teacher approval. **Three units.***

## **ADVANCED SURVEY: COMPUTER SCIENCE (FULL YEAR)**

*Transcript Name: AdvSur Computer Science*

This advanced course explores concepts foundational to all computer coding. Using the Java programming language, students explore ideas in computer programming, transitioning from concepts to practical application. After students develop a strong understanding of object-oriented programming, they move on to more specific coding projects and applications. In addition to gaining experience in traditional coding exercises, students apply what they learn to a year-long project to develop an instruction set for a robotics platform. This capstone provides students with opportunities to think creatively about how to apply code to real-world systems.

*Prerequisite: Completion of Introduction to Programming or equivalent course; departmental approval required. **Three units.***



# ENGLISH

*James Moore, Chair*

## **ADVANCED SEMINAR: LITERARY WRITING CAPSTONE (FULL YEAR)**

*Transcript Name: AdvSem ALW Capstone*

This two-semester course is for students who have completed Foundations of Literary Writing and submitted an acceptable proposal to pursue the opportunity to develop a significant piece of literary writing. Supported by Blair faculty who guide the process, emphasizing the importance of preparation, structure and time, students develop a plan with their instructor, receive and incorporate regular feedback from peers in workshops, and seek the advice and counsel of external and internal experts. Whether students spend their time on literary or arts analysis and theory, fiction, narrative nonfiction, drama, or poetry, their final product includes a significant piece of writing and reflections on the course experience, as well as a presentation shared with the class, faculty and the larger Blair community.

*Prerequisites: English 2, completion of Foundations of Literary Writing & acceptance of proposal; department approval required.*  
**Three units.**

## **ADVANCED SEMINAR: 4-3-2-1 (SEMESTER)**

*Transcript Name: AdvSem Comparative Genre*

This course focuses on four genres of literature, each celebrating a single, different author. With a reading list comprising four poems, three short stories, two plays and one novel, this course seeks to recognize the use of language—written and spoken, dramatic and playful, intensely private and conspicuously public. More specifically, students consider the strengths of each form in presenting material to make us think, laugh, empathize and understand. A range of authors from various cultural and ethnic backgrounds push us to consider themes particular to a group of people, as well as those themes universal to the human experience. Assessments include regular presentations to classmates as an extension of seminar discussions, journal reflections, and a final exhibition that includes producing both a longer analytical essay and engaging in small group discussion.

*Prerequisite: English 2; department approval required. 1.5 units.*

## ADVANCED SEMINAR: AFRICAN AMERICAN LITERATURE (SEMESTER)

*Transcript Name: AdvSem Af. Am. Literature*

Ralph Ellison's *Invisible Man* begins with the narrator's declaration: "I am invisible, understand, simply because people refuse to see me." The anonymity of the narrator underscores the identity crisis experienced by African Americans who were denied basic human rights and stripped of their identities during slavery and the postwar era of Reconstruction. Paradoxically, Black literature itself is an assertion of Black identity; the works studied in this course shed light on what it means to be African American. At one point, the unnamed protagonist of *Invisible Man* asks himself a universal question: "WHO...ARE....YOU?" Given that we all struggle to find an answer to that question, students can intrinsically relate to the unnamed narrator's experience. Examining different works from the African American canon, including *Invisible Man*, *Their Eyes Were Watching God*, *The Color Purple*, *Giovanni's Room* and *The Women of Brewster Place*, this course offers a parallel journey of self-discovery as students read about characters who endeavor to find themselves and express their individuality in American society.

*Prerequisite: English 2; department approval required. 1.5 units.*

## ADVANCED SEMINAR: AUTHORIZING AMERICA ON THE ROAD 1 & 2 (FULL YEAR)

*Transcript Name: AdvSem Authoring America on the Road 1 & AdvSem Authoring America on the Road 2*

Have you ever wanted to climb out your window and run away when an endless pile of tedium awaits you on your desk? Through the lens of those who have traveled into the heart of America, students in this course embark on a literary adventure outside the Blair bubble. Strange encounters, philosophical musings and vivid descriptions encourage students to imagine and define what it means to be American and how our landscape fosters a unique national identity. The class juxtaposes different types of memoirs and fiction, examining the United States through the metaphorical window of different authors who have taken to the road. After studying how the story of America is told through fiction and nonfiction, students produce a memoir in tandem with their analytical portrait of America.

*Prerequisite: English 2; department approval required. Three units.*

## ADVANCED SEMINAR: FANTASY & SCIENCE FICTION—LOOKING INTO THE PAST & THE FUTURE TO SEE THE PRESENT (SEMESTER)

*Transcript Name: AdvSem Fantasy and Science Fiction*

While we often think of science fiction as predictive—and, perhaps, to some extent as prescriptive—this course is descriptive in its ability to help us understand essential, timeless aspects of being human more clearly by casting us in a setting seemingly different from the present. Acknowledging that our enjoyment of good fantasy as an escape can be misleading, the course underscores how fantasy can be experienced as a welcome jump into a mythological past. At its best, it can also feel like a return or at least a visit to a simpler but mystical setting in which our most humane qualities and closest relationships—stripped of modern complications—can thrive. In both cases, this step away from the concerns and pressures of the present is often an indirect invitation into the very world we had hoped to escape, but presented in a way that is invigorating, and, oddly enough, authentic. The primary objective of this course, then, is for students and faculty to improve the quality of questions we formulate about who we are in the here and now—individually and collectively—and to offer tentative but thoughtful answers. The portfolio will consist of journal reflections, analytical writings and notes for formal oral presentations.

*Prerequisite: English 2; department approval required. 1.5 units.*

## ADVANCED SEMINAR: LITERARY MODERNISM (SEMESTER)

*Transcript Name: AdvSem Literary Modernism*

This course evaluates modernism as a genre and traces the evolution of modernist literature to the early part of the 20th century, a time characterized by anxiety surrounding the breaking of social structures and the rapid development of economics and industrialization, as well as shifting societal perspectives on sexuality, gender and race. Students read a variety of modernist works, including *Cane*, *The Lost Lady*, *Absolom, Absolom!*, *The Sun Also Rises*, *Their Eyes Were Watching God* and *The Waste Land*. With the goal of identifying how modernism has been shaped by writers belonging to the "Lost Generation" and those who were part of the inception of the Harlem Renaissance, this course explores the psychological themes present in modernist novels and their relevance to the human condition today. Students analyze each work through a social justice lens, asking themselves how literature fosters critique of society and ourselves. Major novels will be supplemented by secondary sources that explore psychology, grief and trauma, delving into how they relate to the radical breaking of social boundaries mirrored in the modernist trait of challenging literary form. Assessments include—but are not limited to—essays, a verbal exam, presentation of writing and structured discussions.

*Prerequisite: English 2; department approval required. 1.5 units.*

## ADVANCED SEMINAR: NUNS, GUNS & ROSES (SEMESTER)

*Transcript Name: AdvSem Women's Literature*

From an abbey on the edge of ruin in the early 12th century to an apocalyptic suburb of Los Angeles, California, this course explores the way women shape and are shaped by the context of their lives. Students examine their own understandings and assumptions of feminine and masculine ideals—and how they may differ between times and places—through discourse and analysis of a wide variety of sources ranging from modern media to medieval texts. How does faith affect personal understanding of the self and others? As characters and authors grapple with questions of faith, identity, power, love and survival in female bodies across centuries, students will delve into the themes through daily writing, active discussion, and presentations culminating in a creative work that displays the breadth and depth of their engagement with course material.

*Prerequisite: English 2. Cross-listed with the religion & philosophy department & fulfills the religion-and-philosophy requirement for students; department approval required. 1.5 units.*

## ADVANCED SEMINAR: PHILOSOPHY & LITERATURE (SEMESTER)

*Transcript Name: AdvSem Philosophy and Literature*

How do we understand what philosophers call the “good” or attack the “problem of evil” as we negotiate our lives? What does it mean to believe in God, or “the Force” or a “higher power” and how do various religious and cultural belief systems share common underpinnings? This course asks students to approach a variety of prose, poetry, film and other forms of rhetoric with a thematic lens and asks them to read in depth on the philosophical questions that most haunt them. This reading intensive course begins with an essential question: Where do we find God and what does that mean to a variety of cultures?—leading students to consider what is monstrosity or miracle and where do we find such themes in literature and in our lives. Texts: Stoics (Seneca, Epictetus, etc.), Plato, Martin Luther King, Dostoevsky, Mary Shelley, John Donne, John Green, and various short works and films.

*Prerequisite: English 2. Cross-listed with the religion & philosophy department & fulfills the religion-and-philosophy requirement for students; department approval required. 1.5 units.*

## ADVANCED SEMINAR: REEL READING I & II (SEMESTER)

*Transcript Name: AdvSem Film and Literature Analysis 1 & 2*

Students learn to identify the film techniques of shooting and

editing, as well as the grammar and rhetoric of film, so that they can use this knowledge as a means of analyzing what they see and hear. Using film as their texts, students watch a range of classic (Reel Reading I) and contemporary (Reel Reading II) films. From analyzing singular shots and scenes to entire films and selections from a director's body of work, students engage in analytical writing, producing personal and creative work that includes written scenes and the production of short films. *Prerequisite: English 2; departmental approval required.*

**1.5 units.**

## ADVANCED SEMINAR: SHAKESPEARE & COMPANY (SEMESTER)

*Transcript Name: AdvSem Shakespeare*

In this course, students read medieval and early modern texts written predominantly by Chaucer and Shakespeare. Encouraged to question and apply how these works are relevant in today's world and society, students are also challenged to ask how these old books and language relate to secondary sources. Students learn to read Middle English and analyze complex and philosophical ideas with a social justice lens—how can literature inspire us to be critical about our society and ourselves? Course material includes *The Canterbury Tales*, *Romeo and Juliet*, *The Tempest*, *Titus Andronicus* and more. Assessments will include—but are not limited to—essays, a verbal exam, presentation of writing and structured discussions.

*Prerequisite: English 2; department approval required. 1.5 units.*

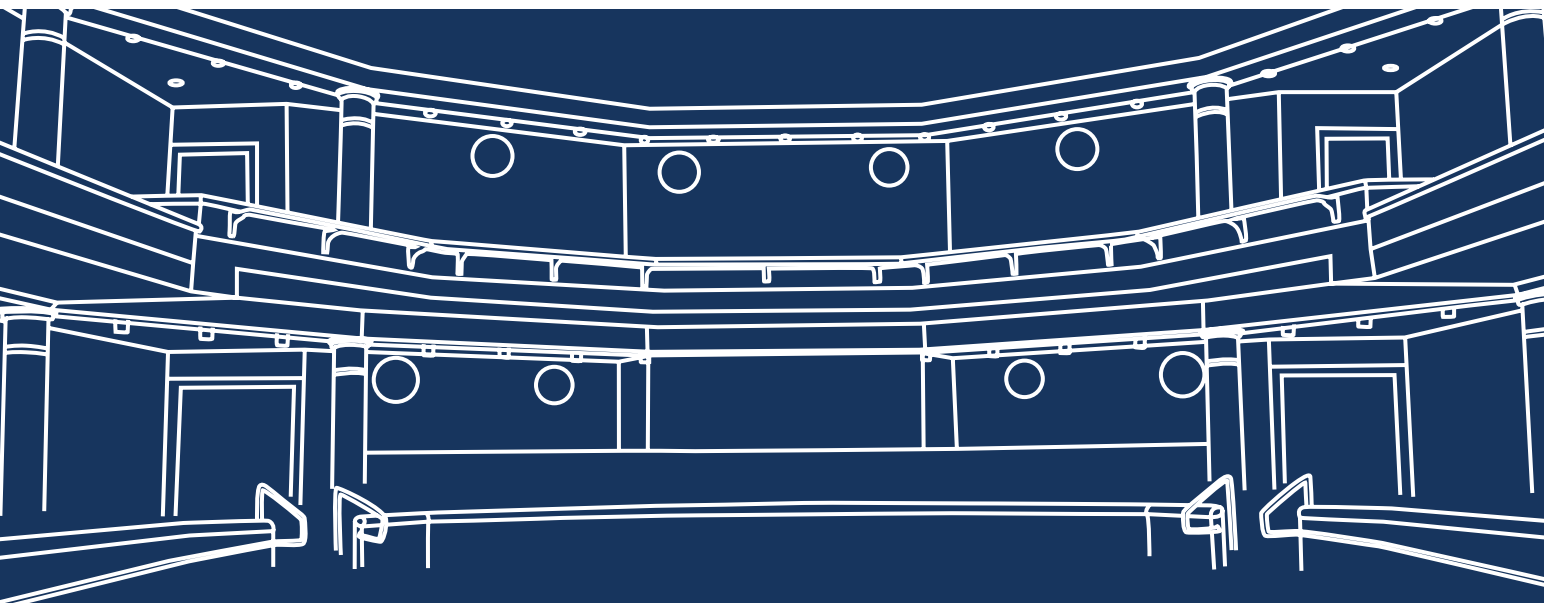
## ADVANCED SEMINAR: THE LITERATURE OF BROADWAY MUSICALS (SEMESTER)

*Transcript Name: AdvSem Literature of Musicals*

This advanced English course raises the curtain on Broadway musicals as a form of literary expression. Students consider three long-running Broadway musicals, exploring the intersection of music, lyrics, script, choreography and set production as they gain an appreciation of the musical currently experienced on the Great White Way. Through the study of *Hamilton*, *Into the Woods* and *Hadestown*, musicals produced from 1987 to today, the class closely reads dialogue and lyrics, analyzes musical composition and views live or recorded performances. The course's final project includes the production of an original minimusical (produced individually or in collaboration with others as part of a team), evaluating a current musical in juxtaposition with one or all of the three musicals examined or the study of one of the analyzed plays studied beyond its original run.

*Prerequisite: English 2; department approval required. 1.5 units.*





# FINE & PERFORMING ARTS

*Katherine Sykes, Chair, Fine Arts*

*Jennifer Pagotto, Chair, Performing Arts*

## FINE ARTS

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### **ADVANCED SEMINAR: EXPERIMENTAL ART— MATERIALS & METHODS (SEMESTER)**

*Transcript Name: AdvSem Experimental Art*

How did Jackson Pollock create his large-scale paintings? Why did Picasso use wallpaper and cardboard to create masterful works of art? In this advanced-level seminar, students are challenged to embrace novel and innovative techniques, thereby stretching their creative boundaries and diversifying their portfolios. This course explores the use of integrated materials to make art, including non-traditional and alternative techniques. By exploring the work of other artists, and through engaging hands-on practice, students make mixed media creations that demonstrate use of color, spatial composition and texture. The seminar's focus on both two- and three-dimensional design revolves around a self-driven thematic body of work or style using dry and wet pigments, ink, metal leaf, printmaking, plaster, clay, encaustic, found objects and more. The course culminates in students assembling and presenting a materials portfolio in either digital or printed form.

*By permission of the instructor only. 1.5 units.*

### **ADVANCED SEMINAR: PORTFOLIO (FULL YEAR)**

*Transcript Name: AdvSem Portfolio - Ceramics/Film/2D Art/  
Graphic Arts/Photo/Architecture*

Designed for qualified students wishing to pursue advanced study in two-dimensional, three-dimensional, photo, film, graphic design or architecture, this course asks students to create a unique body of work, identify how and why they crafted their artwork, and explore a diverse range of working artists. Building upon their existing portfolios, students engage with one another on collaborative projects as they seek peer feedback geared toward helping them refine their ideas and grow artistically. Students create a body (or bodies) of work based on a continuum of thought and investigation with four required cohort checkpoints, which then culminates in a two-part, final display (portfolio, webpage, exhibition, performance, screening or art book) of work among the cohort. Students work from a recursive series of reflections and develop their personal voice and technical skills to work with independence.

*By permission of the instructor only. Three units.*



## ADVANCED SURVEY: WHY ART MATTERS— MAKING GLOBAL CONNECTIONS (FULL YEAR)

*Transcript Name: AdvSur Art History*

Why does art matter? Art is a material record of human creativity, resourcefulness and shared experiences. It serves as a catalyst for understanding and forging a shared sense of identity. By studying art, we deepen our understanding of ourselves and the world to see things from varied perspectives and to help reconstruct vanished or threatened cultures. This art history course adopts an all-encompassing approach using visual arts as a tool to introduce students to interwoven themes, diverse social customs, religions and belief systems spanning the globe. Students look to art of the past to make connections about how different parts of the world approached similar problems throughout time. Through this, they refine their skills in visually analyzing, decoding visual culture and thinking with an art historical lens, while developing their ability to identify commonalities and differences. The in-class experience, which will be complemented by visits to local museums to ground learning in real-world contexts, includes discussion-based learning with hands-on applications of art and art history, including sketching, sculpting, crafting museum replicas and curating exhibitions.

*Preference given to juniors & seniors. **Three units.***

## PERFORMING ARTS

### ADVANCED SEMINAR: MUSIC PERFORMANCE (FULL YEAR)

*Transcript Name: AdvSem Music Performance*

Advanced performance students opt into coursework in ensemble and solo music study, which builds upon the department's mission of developing artistic expression, collaborative performance, a reflective learning process, and rigorous study of collegiate-level and diverse repertoire. In addition to their primary ensemble, students participate in a weekly advanced chamber ensemble rehearsal and offer and attend additional performances off-campus, as well as engage with their performance cohort to study topics in advanced musicianship. By the end of the course, students are prepared to enter collegiate ensembles and music courses beyond Blair's curriculum.

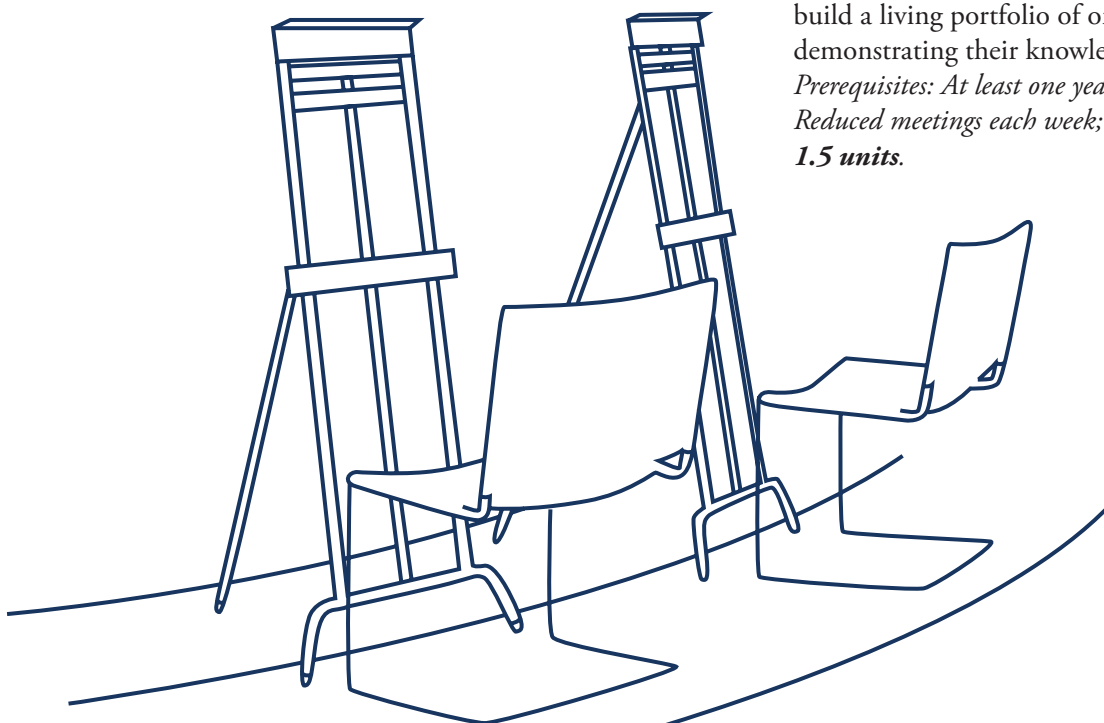
*Prerequisites: Completion of at least one year in either Blair Singers, Jazz Band or Symphony Orchestra & concurrent enrollment in the group; by permission of the instructor only (audition required). **1.5 units.***

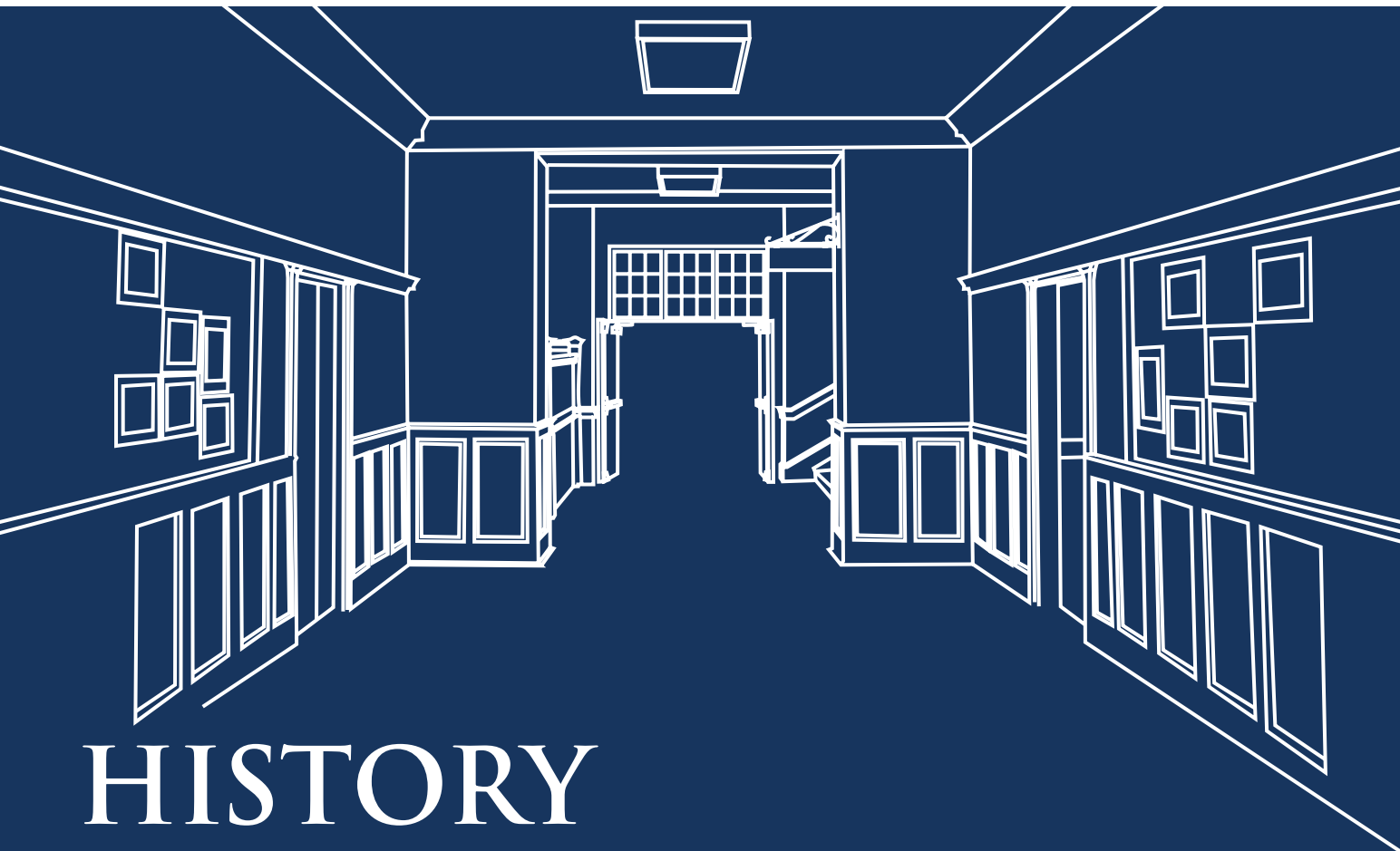
### ADVANCED SEMINAR: MUSIC, THEORY & COMPOSITION (FULL YEAR)

*Transcript Name: AdvSem Music, Theory and Composition*

In this course, students build on work completed in non-advanced Blair performing arts courses, specifically the digital music sequence, which is focused on music theory, composition and creation. This course serves as an advanced continuation, allowing students the opportunity to dive deeply into written and aural principles in music theory, explore music history from the early 19th century to the present, and build a living portfolio of original compositions and recordings demonstrating their knowledge and skill.

*Prerequisites: At least one year's study of an instrument or voice. Reduced meetings each week; by permission of the instructor only. **1.5 units.***





# HISTORY

*Jason Beck, Chair*

## **ADVANCED SURVEY: U.S. HISTORY (FULL YEAR)**

*Transcript Name: AdvSur US History*

Advanced Survey: U.S. History addresses the fundamental question of identity in the American experiment. While studying early colonialism and the birth of the republic, students consider the cultural, economic and social diversity of early America, the tension between local and central authority during the struggle for independence, the establishment of the Constitution, economic and social change, slavery, and the growing sectional conflict that culminated in secession and Civil War. Addressing overarching questions related to economic and social changes of the late 19th and early 20th centuries as the United States emerged as a world power, the course culminates with a study of the Cold War, the Civil Rights movement, the social and political turmoil of the 1960s, the crisis of Vietnam, and the Reagan revolution. Throughout the class, students consider how current events reference or reflect these historical developments. Driven primarily through source analysis and discussion, learning takes place independently and in small groups.

*Prerequisite: Modern European History; departmental approval required. **Three units.***

## **ADVANCED SEMINAR: COMPARATIVE GOVERNMENT & POLITICS (FULL YEAR)**

*Transcript Name: AdvSem Comp. Government and Politics*

Advanced Seminar: Comparative Government & Politics centers on one main question: What influences who holds power in government and how is that power wielded? The course uses the United States and six other main case study countries—each from a different region of the world and with different types of governments—to compare and analyze constitutional, electoral and party systems. Further, those countries demonstrate how demographics, culture and history interact with those systems. Portfolio assessments designed to scaffold and build students' research skills include student projects that compare a course concept across multiple countries three times throughout the year.

*Prerequisite: U.S. History or Advanced Survey: U.S. History; departmental approval required. **Three units.***

## ADVANCED SURVEY: EUROPEAN HISTORY (FULL YEAR)

*Transcript Name: AdvSur European History*

This college-level course surveys the cultural, economic, political and social developments shaping Europe from c. 1450 to the present. Students analyze primary and secondary sources and develop historical thinking skills while wrestling with overarching questions about postmedieval Europe. Questions include: Where have European governments historically derived their power? What is the relationship between citizens and their government? How does the nature of society impact the development of art and music? What voices have not been represented in traditional historical narratives? Students demonstrate their proficiency through active participation in discussions, regular assessments and creative projects.

*Prerequisite: Modern European History, U.S. History or Advanced Survey: U.S. History; preference given to seniors. **Three units.***

## ADVANCED SURVEY: MICROECONOMICS (FULL YEAR)

*Transcript Name: AdvSur Microeconomics*

This full-year course provides an introduction to micro-economic concepts, the equivalent to a first-semester college economics class. Students learn about opportunity costs, supply and demand, elasticity, market structures, factor markets and the role of government. Portfolio assessments include a marketing plan presentation and an industry research project. Other skills emphasized include analyzing graphs and charts, as well as learning how to relate current and historical events to classroom concepts.

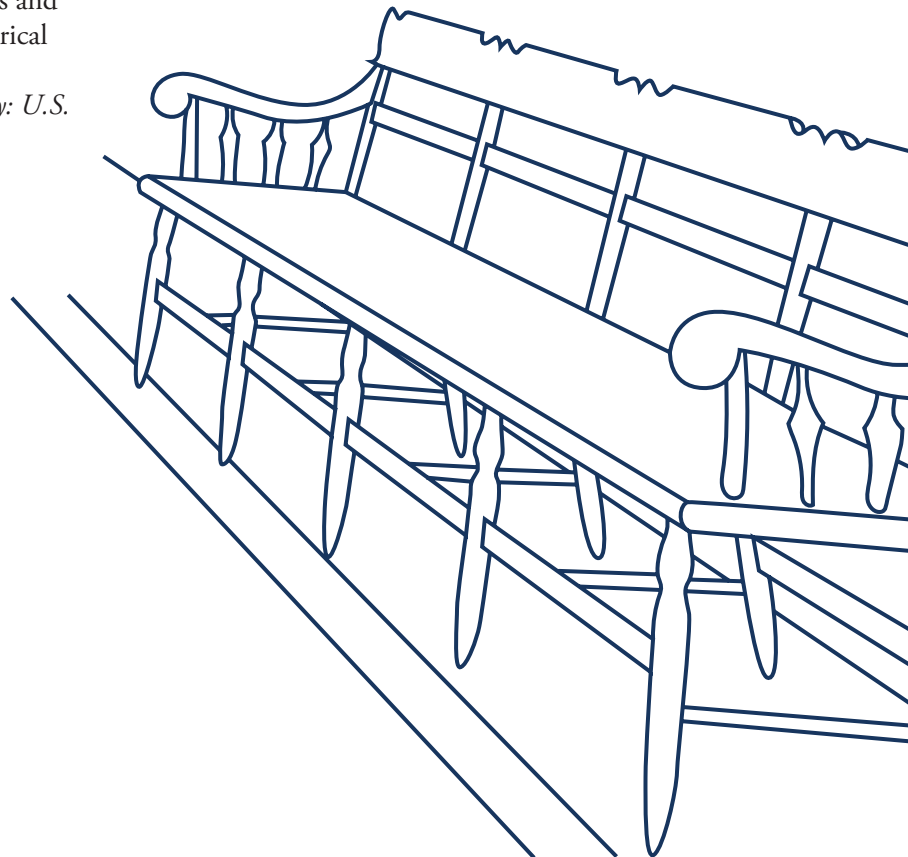
*Prerequisites: Algebra 2 & U.S. History or Advanced Survey: U.S. History; departmental approval required. **Three units.***

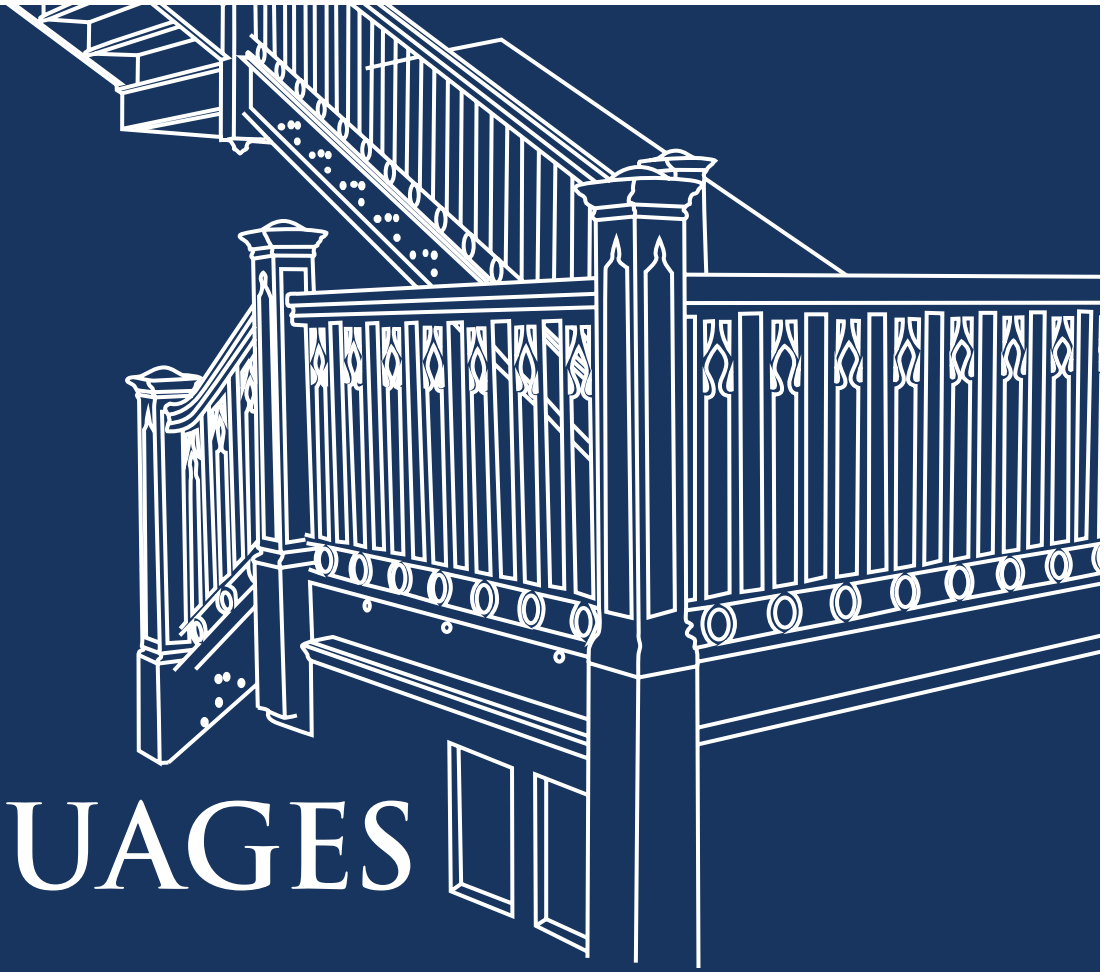
## ADVANCED SEMINAR: AMERICAN CONSTITUTIONAL LAW (FULL YEAR)

*Transcript Name: AdvSem US Constitutional Law*

This advanced constitutional law course challenges students to refine their skills in analytical reading, critical thinking, and the art of conveying complex ideas in clear and accessible language. Through in-depth reading of landmark Supreme Court opinions, students dissect constitutional doctrines, as well as their moral, political and practical foundations. Students learn through engaging and lively discussions, developing their ability to listen to and articulate diverse viewpoints and ask thoughtful questions that advance understanding. Assessments are based on a role-play of a Supreme Court oral argument where students act as attorneys and justices, plus essay writing and podcast assignments.

*Prerequisite: U.S. History or Advanced Survey: U.S. History; departmental approval required. **Three units.***





# LANGUAGES

*Joyce Lang, Chair*

## CHINESE

### ADVANCED SURVEY: CHINESE LANGUAGE A (FULL YEAR)

*Transcript Name: AdvSur Chinese Language A*

Students in this course, offered in alternate years, not only engage in developing their proficiency in the Chinese language by focusing on advanced vocabulary and sentence structures, but also learn about authentic Chinese culture and how language relates to the culture. The curriculum revolves around various topics, including modern daily life, traditional customs and activities, Chinese food culture, families and communities, social customs and values. Students immerse themselves in reading short stories, novels and current news articles, as well as watching films. During discussions, the class exclusively uses the target language. Additionally, students demonstrate their language skills and cultural understanding through essays, debates, video projects and presentations. The course also explores an essential question that serves as a guiding principle prompting students to critically analyze and understand the profound influence of cultural elements on language use and communication within the Chinese context: In what ways

do specific cultural aspects, such as social customs or values, impact communication in Chinese?

*Prerequisite: Chinese 3 Honors or the permission of the teacher & department chair. **Three units.***

### ADVANCED SURVEY: CHINESE LANGUAGE B (FULL YEAR)

*Transcript Name: AdvSur Chinese Language B*

This course delves into Chinese history, art, culture and literature while deepening language proficiency through advanced vocabulary and sentence structures. Emphasizing cultural integration and understanding, students explore topics such as Chinese dynasties, Tang poetry, historical figures, common expressions and daily habits. The course fosters critical thinking by asking how an advanced understanding of the Chinese language enhances our comprehension of Chinese history and culture. Through extensive reading of stories, articles, novels and film screenings, students expand their knowledge, fluency and grasp of the interconnectedness of language, history and culture, building on their solid foundation in Chinese as they seek deeper insights.

*Prerequisite: Chinese 3 Honors or the permission of the teacher & department chair. **Three units.***

## FRENCH

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### ADVANCED SURVEY: FRENCH COLONIZATION & CULTURE (FULL YEAR)

*Transcript Name: AdvSur French Language*

We often hear French referred to as a global language. This course delves into how this came to be, notably through colonization, and explores the ramifications on contemporary Francophone societies. The first semester focuses on the history, literature and politics of French colonialism and the period of decolonization up through the 1980s. Students dive deep into a selection of Francophone regions. During the second semester, the class pivots to looking at contemporary language policies, as well as language use and references to this power dynamic in politics, education and music. The course's culminating assessment is a presentation in which students choose another Francophone region other than the ones already covered in class to dissect the contemporary role of French in the context of a trip proposal for a travel company. Throughout both semesters, students also complete a sequential study of advanced grammatical concepts to be practiced in context.

*Prerequisite: French 3 Honors or the permission of the teacher & department chair. **Three units.***

### ADVANCED SEMINAR: FRANCOPHONE CINEMA (SEMESTER)

*Transcript Name: AdvSem Francophone Cinema*

This course dives into the septième art: film. Students learn about the history of film in general before they watch, analyze and discuss both short and feature-length Francophone films (watched together as a class in French with French subtitles). Using cinematography vocabulary as they dissect the socio-political, cultural and historical context of the films, students write an original screenplay and produce a short film that references or gives homage to a work the class has studied. The course's final product is a film festival during which students provide the opportunity for a director Q and A.

*Prerequisite: Advanced Survey: French Colonization & Culture or the permission of the teacher & department chair. **1.5 units.***

### ADVANCED SEMINAR: FRENCH CURRENT EVENTS & MEDIA PERSPECTIVES (SEMESTER)

*Transcript Name: AdvSem French Current Events and Media*

This course encourages critical thinking, analysis and engagement with real-world issues in the Francophone world through an in-depth exploration of current events and media. The class analyzes key sociopolitical issues, cultural trends and media representations. Through a combination of lectures, discussions and multimedia resources, students develop a comprehensive understanding of diverse perspectives and

realities shaping the Francophone world today. Topics include global affairs, social movements, cultural phenomena and media landscapes focusing on the French language and its manifestations in different regions. In the portfolio assessment, students demonstrate linguistic and cultural competencies by critically analyzing media representations of a specific cultural phenomenon or current event in the Francophone world.

*Prerequisite: Advanced Survey: French Colonization & Culture or the permission of the teacher & department chair. **1.5 units.***

## LATIN

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### ADVANCED SURVEY: DEATH OF A REPUBLIC (FULL YEAR)

*Transcript Name: AdvSur Latin A*

Faith in institutions is at an all-time low, strongmen vie for power and the columns holding up society are collapsing. Welcome to Rome in the 1st century BCE. This course translates and analyzes the literature and philosophical thought of the time immediately preceding and following the fall of the Roman republic as students consider the question: How should we behave as the world burns around us? Course assessments include exams, essays and presentations; portfolio assessments ask students to engage in argumentative debate, translation and close text analysis from the time period.

*Prerequisite: Latin 3 or the permission of the teacher & department chair. **Three units.***

## SPANISH

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### ADVANCED SURVEY: SPANISH LANGUAGE— BOOKS ON A BOAT: A STEAMBOAT RIDE THROUGH THE LITERATURE OF LATIN AMERICA & SPAIN (FULL YEAR)

*Transcript Name: AdvSur Spanish Language*

This course explores Latin America and Spain via literature as students explore the essential question of what it means to hail from those regions. This maiden voyage through literature and culture uses the metaphor of a steam boat ride that originates in Puerto Vallarta, México, then travels south to Puerto Quetzal in Guatemala before continuing to Tribugá, Colombia, then to Callao, Perú, and, finally, arriving in Ushuaia, Argentina, reading “great books” along the way. After a brief pause, students traverse the Atlantic to dock in Barcelona, Spain. Writers representing Magic Realism, Modernismo, Vanguardismo, Indigenismo and Surrealismo are considered, and a study is made of the countries visited.

*Prerequisite: Spanish 3 Honors or the permission of the teacher & department chair. **Three units.***

## ADVANCED SEMINAR: SPANISH-AMERICAN FILM & CULTURE (SEMESTER)

*Transcript Name: AdvSem Spanish-American Film & Culture*

Ever wish you could look into the window of another culture or immerse in the sounds and sights of another country or another time? All of this is possible through film, and, in this course, students practice advanced Spanish language skills and learn about culture by viewing several films and connecting them to the topics of history, art, religion and food. Students can choose a portfolio assessment: writing an essay; creating a slide presentation; or producing short movies, skits, and fiction writings on the topics they are exploring.

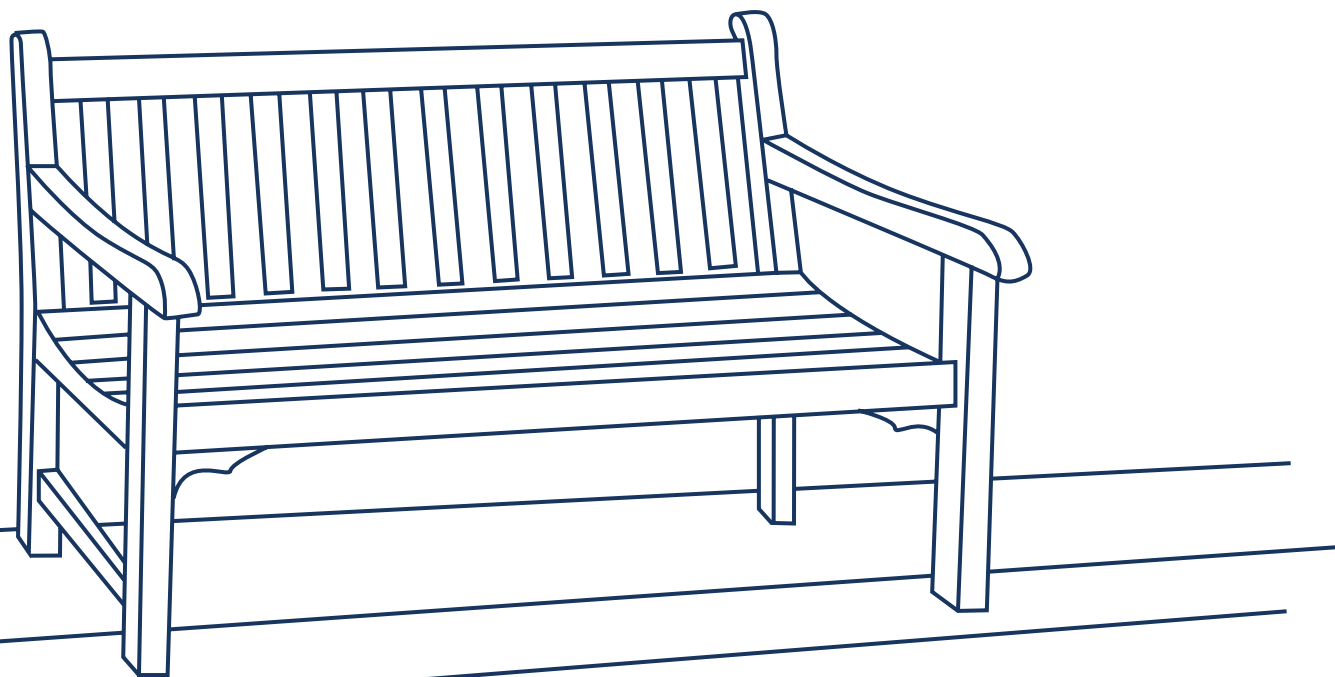
*Prerequisite: Advanced Survey: Spanish Language or the permission of the teacher & department chair. 1.5 units.*

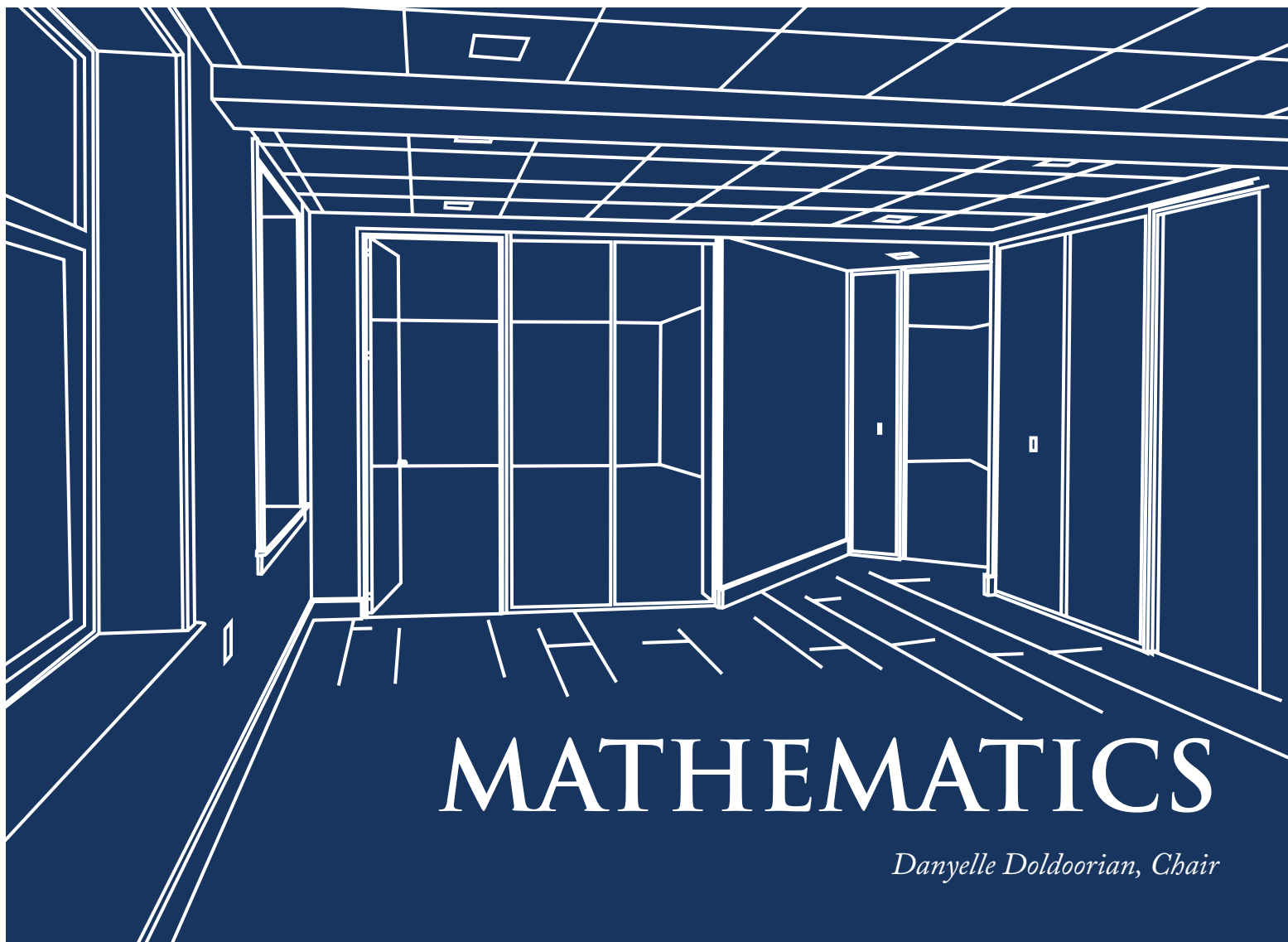
## ADVANCED SEMINAR: MAGICAL REALISM IN CONTEMPORARY LATIN-AMERICAN LITERATURE (SEMESTER)

*Transcript Name: AdvSem Contemporary Latin Am. Lit.*

The course explores magical realism, a literary style originating in Latin America that combines reality and fantasy and offers sociopolitical insights. Students explore its evolution, key contributors and pertinence in contemporary realms such as social media and virtual realities. Engaging with Latin America's global literary impact, students sharpen their analytical skills through text analysis. Assessments foster both creative and critical thinking capacities and encompass portfolio creation, where students express their understandings through mediums like virtual reality or graphic novels, analytical essays, active class participation and a comprehensive final examination.

*Prerequisite: Advanced Survey: Spanish Language or the permission of the teacher & department chair. 1.5 units.*





# MATHEMATICS

*Danyelle Doldoorian, Chair*

## **ADVANCED SEMINAR: DIFFERENTIAL CALCULUS WITH APPLICATIONS (FULL YEAR)**

*Transcript Name: AdvSem Calculus A*

In Advanced Seminar: Differential Calculus, students undergo a yearlong exploration of tools for analyzing functions, which were developed by Newton and Leibniz in the 1600s. Specifically, methods for describing rates of change are precisely defined and applied to complex questions. The main topics covered include limits, continuity, differentiation and applications of differentiation. Students will demonstrate mastery of skills, as well as an ability to make connections in pure mathematics through projects and multistep problem sets. They apply those skills and connections to real-world problems through projects, such as designing a roller coaster and answering questions related to physics, economics and other areas.

*Prerequisite: Precalculus Honors-AB; departmental approval required. **Three units.***

## **ADVANCED SURVEY: INTEGRAL CALCULUS & SEQUENCES & SERIES (FULL YEAR)**

*Transcript Name: AdvSur Calculus B & C*

The yearlong course surveys the techniques and applications of integral calculus and sequences and series. It completes the two-semester sequence of the typical college calculus courses needed as entry points for the study of pure math and the natural sciences. Beginning with the fundamental theorem of calculus and the antiderivative, students learn such applications as area, volume, accumulation integrals and differential equations, among others. Attempting to explain why calculus wasn't developed until the 17th century and exploring the tools that modern European mathematics have that ancient Greeks, Indians, Mayans and Persians did not, the course ends with a flourish, using the tools of the infinite Taylor series to develop Euler's equation to demonstrate the beauty of mathematics in its purest form.

*Prerequisites: Precalculus/Calculus A or Advanced Seminar: Differential Calculus with Applications; departmental approval required. **Three units.***

## ADVANCED SEMINAR: MULTIVARIABLE CALCULUS (FULL YEAR)

*Transcript Name: AdvSem Multivariable Calculus*

Students develop an understanding of multivariable calculus and use these concepts to solve realistic problems through class discussion, group practice, homework assignments and projects. Among the topics covered are surfaces in three-dimensional space, vectors and parametric curves in two-dimensional and three-dimensional spaces, application of vector-valued functions, partial derivatives and optimization problems, directional derivatives, double and triple integrals, the Jacobian and change of variables, vector fields, line and surface integrals, divergence, and curl. Students explore Green's Theorem, Stokes' Theorem and the Divergence Theorem. In portfolio assessments, students work in groups to model real-world problems, such as how to maximize the profit obtained by targeting the right customers under budget and operational conditions.

*Prerequisites: Advanced Survey: Integral Calculus & Sequences & Series; departmental approval required. **Three units.***

## ADVANCED SURVEY: APPLIED STATISTICS (FULL YEAR)

*Transcript Name: AdvSur Applied Statistics*

This course provides a broad overview of how to aggregate, analyze and interpret data. Using tools like Microsoft Excel and Google Sheets, students will learn how to organize information with a statistical bend and create evidence-based arguments supporting their conclusions. Through a collection of student-driven projects, the course focuses on how to display information effectively and how to use it to support an argument in a cohesive manner.

*Prerequisites: Completion or concurrent enrollment in Advanced Seminar: Differential Calculus with Applications or satisfactory completion of the Statistics elective & concurrent enrollment in Calculus; departmental approval required. **Three units.***

## ADVANCED SEMINAR: NON-EUCLIDEAN GEOMETRY (SEMESTER)

*Transcript Name: AdvSem Non-Euclidean Geometry*

Non-Euclidean Geometry is a one-semester look at axiomatic or proof-based geometric analysis. This course reintroduces topics from earlier geometry courses through the lens of Euclid's original five axioms and how to construct a rigorous logical proof of these ideas as a way of gaining insight into the methods involved in advancing all mathematical study. From there, students examine what happens to these systems as axioms are changed or removed, particularly the Parallel Postulate, allowing them to explore neutral and hyperbolic plane geometries. Students are tasked with thinking like mathematicians and are responsible for constructing and sharing proofs with one another on a regular basis, with most grading focused on those presentations. The class culminates in the construction and presentation of an original geometric proof.

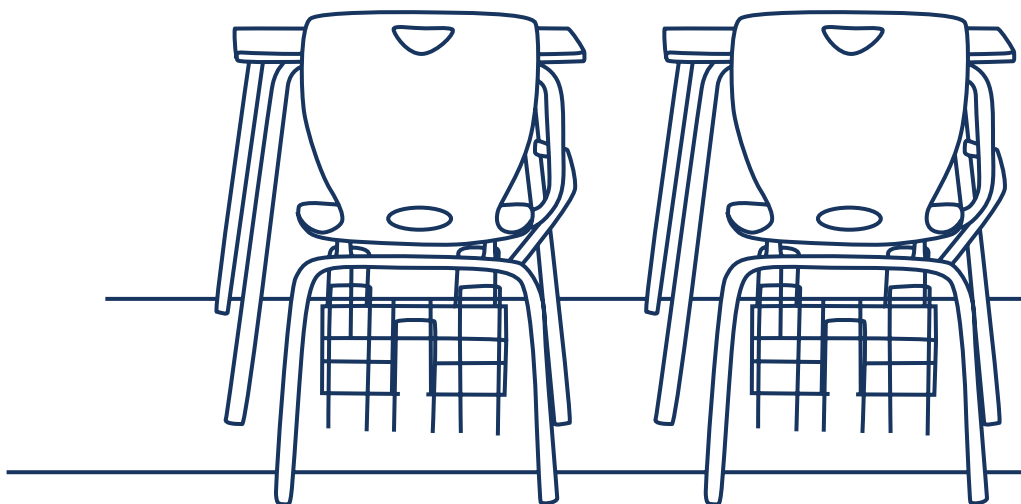
*Prerequisites: Honors Geometry & Algebra 2 Honors; departmental approval required. **1.5 units.***

## ADVANCED SEMINAR: DATA SCIENCE (FULL YEAR)

*Transcript Name: AdvSem Data Science*

How can data be used to show us more about the world? How do we know which data we can trust? To explain these questions that are at the core of data science, students learn how to use the Python programming language with fundamental statistical concepts. In addition to relevant mathematical and technical skills, students study various kinds of biases that exist in the data collection and analysis process, as well as about the limitations of data collection and aggregation. This course, cross-listed with the computer science and technology department, culminates with a project in which students analyze multiple large data sets in order to answer meaningful questions.

*Prerequisites: Algebra 2 Honors & an introductory-level programming course with teacher approval. **Three units.***







# SCIENCES

*Kelly Hadden, Chair*

## **ADVANCED SURVEY: BIOLOGY (FULL YEAR)**

*Transcript Name: AdvSur Biology*

Advanced Survey: Biology builds off the foundations of Biology and Chemistry. The course focuses on the four big ideas of Biology (information, interactions, energy and evolution) and introduces concepts through case studies, laboratory work and real-world applications. The class uses the four big ideas to investigate experimental questions, garner and analyze data, and then communicate the findings of experiments in presentations and formal laboratory reports. Students also investigate the most advanced technologies in biology and identify past and future impacts on our society ranging from ethical implications to access and identification of communities that have been/will be served.

*Prerequisites: Biology & Chemistry Honors; departmental approval required. **Three units.***

## **ADVANCED SEMINAR: ORGANIC CHEMISTRY (FULL YEAR)**

*Transcript Name: AdvSem Organic Chemistry*

This one-year seminar course provides an introduction to the study of carbon-bearing molecules, as well as their transformations and uses in our world. Students expand their ability to organize large amounts of information regarding these molecules, find common features and use relatively few methods for effecting the transformation between molecules. The course includes very substantial laboratory work as students explore properties, transformations and verification. The work in the class relies heavily on collaboration and feedback, and students regularly present brief summaries of their investigative process, results and potential applications.

*Prerequisite: Chemistry Honors; departmental approval required. **Three units.***

## ADVANCED SURVEY: PHYSICS 1 (FULL YEAR)

*Transcript Name: AdvSur Physics 1*

The algebra-based Advanced Survey: Physics 1 focuses on describing the interactions of matter and energy by explaining the fundamental mechanisms that underlie natural phenomena. This course investigates topics of classical mechanics: motion, force, gravitation, energy and momentum conservation, as well as oscillations, waves and sound. These concepts are explored through the development of mathematics, relationships stemming from lab data collection, problem-solving and real-world applications. Emphasis is placed on the design and execution of lab investigations that address student-developed research questions. In addition to written assessments, students complete, document and reflect upon performance tasks at the conclusion of each topic.

*Prerequisites: Successful completion of Chemistry Honors & concurrent enrollment in Precalculus Honors or above; departmental approval required. **Three units.***

## ADVANCED SURVEY: PHYSICS 2 (FULL YEAR)

*Transcript Name: AdvSur Physics 2*

The calculus-based Advanced Survey: Physics 2 focuses on analytical problem-solving and experimental design. The course begins with a review of classical mechanics topics covered in Advanced Survey: Physics 1, layering in deeper calculus connections previously excluded. Students then expand their studies beyond mechanics into other topics, including mechanical waves, electrostatics, magnetic fields, electromagnetism and modern physics (including quantum mechanics and relativity). These subjects require students to become well versed in mathematical practices such as derivatives, integration and basic differential equations.

*Prerequisites: Chemistry Honors & Advanced Survey: Physics 1; Precalculus/Calculus or Advanced Seminar: Differential Calculus with Applications; departmental approval required. **Three units.***

## ADVANCED SURVEY: ANATOMY & PHYSIOLOGY (FULL YEAR)

*Transcript Name: AdvSur Anatomy & Physiology*

This course presents foundational knowledge of human anatomy and physiology in order to create greater agency in students over their own bodies, as well as prepare them for future careers in health-related fields. The course dedicates substantial time to dissections and model building as students seek to understand the three-dimensional structures of living organisms and the interrelationship of structures. Course assessments include research projects, lab practicals, case studies, model building and formal written assessments.

*Prerequisites: Biology & Chemistry; preference given to seniors. **Three units.***

## ADVANCED SURVEY: ENGINEERING SCIENCE (FULL YEAR)

*Transcript Name: AdvSur Engineering Science*

Using the fundamental tools learned in previous engineering and science classes, students brainstorm initial proposals before they progress through multiple phases of product or process development, refining and soliciting feedback for potential improvements along the way. This includes design, timeline, and resource plan, prototype, creation/fabrication, testing, analysis, iteration and implementation/launch. Goal-setting, planning and problem-solving are among critical skills developed. Through discussion with the instructor, this individually-led project fills an existing “gap” that is proven beneficial to our community in some technical, financial, educational, recreational or aesthetic manner. The “customers” continue to be involved throughout the project’s development. At implementation stages, students consider possible environmental impacts, both short- and long-term in nature, as well as interactive surroundings.

*Prerequisite: Engineering Science or Advanced Survey: Physics 1; departmental approval required. **Three units.***

## ADVANCED SEMINAR: INTEGRATED SCIENCE RESEARCH (FULL YEAR)

*Transcript Name: AdvSem Integrated Research*

Students investigate questions they proposed as students in the Foundations of Integrated Science Research (ISR) course. Using their proposal as a starting point, students execute experiments of their own devising as they collect and analyze data. Advanced Seminar: ISR students enjoy a large degree of autonomy, as their class time is almost entirely devoted to the completion of their research project with the support of an internal or external mentor. The seminar challenges students to approach the hard skills of original research with proposals that speak to their genuine interests and issues that go beyond their immediate environment. Throughout the course, students complete quarterly reports and share verbal presentations of their progress. The class ultimately culminates in a manuscript-style report in which students not only contextualize their project and summarize their results, but also look to the future in terms of the impact of their findings and where others in the field can pick up their research based on their conclusions.

*Prerequisites: Foundations of ISR & Chemistry; departmental approval required. **Three units.***

## ADVANCED SEMINAR: PHYSICS OF RENEWABLE ENERGY (FULL YEAR)

*Transcript Name: AdvSem Physics of Renewable Energy*

Advanced Seminar: Physics of Renewable Energy examines in detail the energy systems humans harness for their use and the basic scientific concepts that govern how they operate. From basic thermodynamics to fossil fuels, nuclear energy and solar power, all fuels have advantages and disadvantages to consider. In-class experiments are performed where possible to provide hands-on exposure to the topics explored. Students investigate both the basic science behind how each energy source works, as well as the consequences of their use. Climate change and socioeconomic impacts are key themes throughout the course, which considers the technical, economic, political, environmental, ethical and social contexts of the topic of energy. Classroom instruction emphasizes understanding the science of each fuel source. Portfolio assessments, including design of a passive solar house and a government proposal presentation, are centered on group work, research, analysis of existing energy systems and proposed changes to future energy systems.

*Prerequisite: Advanced Survey: Physics 1; departmental approval required. **Three units.***

## ADVANCED SURVEY: PSYCHOLOGY— UNDERSTANDING THE SCIENCE & MIND OF HUMAN BEHAVIOR (FULL YEAR)

*Transcript Name: AdvSur Psychology*

This course provides an overview of the scientific study of psychology. Students gain insight into human behavior and mental processes by exploring the seven psychological perspectives (biological, evolutionary, cognitive, behavioral, social-cultural, psychoanalytical and humanistic). Other topics covered include nature versus nurture, research methods, biology, learning theories, child-and-adolescent development, social influence and interactions. Students not only master the basics of current psychological theory and vocabulary, but also gain a better understanding of themselves and others. In semester one, students design an experiment to test a research topic of their choice. In semester two, students complete a case study analysis with a developed treatment plan for a real or hypothetical client. Throughout the course, students conduct research and think critically as they apply psychology concepts to real-world scenarios.

*Prerequisites: Biology & Chemistry; preference given to seniors.*

**Three units.**

