

Course of Study and Electives

Grades 9–12 | 2021-22

Contents

Course	Grade	Page
Visual and Digital Arts		
Introduction to the Creative Process	9	3
Visual and Digital Arts Workshop	10	3
Studio Practice	10	4
Sculpture Foundations Studio	11–12	4
Film Arts I and II	11–12	4
Advanced Studio in Art I and II	11–12	4
Super Studio (Mastery & Advanced Studio Art)	12	4
Design and Engineering Electives		
Design and Engineering Workshop	10	5
Design and Engineering Studio	11–12	5
Computer Science I: Programming Fundamentals	11–12	6
Computer Science 2: Advanced Topics	11–12	6
Performing Arts		
Introduction to the Creative Process (Music)	9	7
Music Workshop	10	7
Music Theory and Practice	9–10	7
Vocal Workshop	9–10	7
Music Theory and Practice	11–12	8
Advanced Music	9–12	8
Performing Arts and Social Activism	11–12	8
High Intensity Practice (Hip)		
HIP Thinking	9–10	9
History and Other Non—English Electives		
Emotionology	11–12	9
Global Monumental History	11–12	9
Journalism: Theory and Practice	11–12	10
Journey To The East	11–12	10
Latin America Political History	11–12	10
Storytelling Laboratory	11–12	11
Topics in World History	11–12	11
Humanities		
English	9	11
English	10	12
Advanced Humanities	10–11	12
American Studies: English	11	12
World Literature: English	12	13
Mastery		
Mastery Seminar: Introduction to Mastery	9	13
Mastery Workshop	9	14
Senior Seminar: Mastery Capstone	12	14
Super Studio: Mastery & Advanced Studio Art	12	14
Mathematics		
Integrated Math 2	9	15
Integrated Math 3	10	15
Integrated Math 4	11	15
Integrated Math with Data and Probability	11	16

Course	Grade	Page
Introduction to Calculus	12	16
Calculus	12	17
Advanced Calculus	12	17
Philosophy of Economics	11–12	17
Statistics	11–12	17
Mathematical Research 2	11–12	17
Modern Languages		
Spanish 9	9	18
Spanish Discovery & Breakthrough	9–10	18
Spanish Exploration: Photography	9–10	19
Spanish Empowerment: Marketing	9–10	19
Spanish Exploration: Critical Issues facing Contemporary Latin America through Podcasts	9–10	19
Spanish Empowerment: Contemporary Life	11–12	19
Spanish: Advanced Beauty and Aesthetics	11–12	20
Chinese	9	20
Chinese Foundations	9	20
Chinese Discovery and Exploration	9–10	21
Chinese: All Things Considered	9	21
Chinese Journey	11–12	21
Chinese Encounters and Interactions	11–12	21
Chinese: Concrete and Abstract	11–12	22
Advanced Chinese Language through Culture and Literature	11–12	22
Science		
Integrated Science 1	9	22
Integrated Science 2	10	23
Advanced Physics (algebra-based)	10–11	23
Biochemistry	11	23
Cosmology and Astronomy	11–12	24
Advanced Chemistry	11–12	24
Advanced Biology	12	24
Physics C: Mechanics, Electricity and Magnetism	12	24
Psychology	11–12	25
Sociology	11–12	25
Senior Seminars		
Consciousness, Ethics and the Search for Meaning	12	25
Visual Narratives	12	26
Senior Seminar: Mastery Capstone	12	26
Wellness And Movement		
Wellness and Movement	9–11	27
9th Grade Wellness	9	27
World Course		
World Course 9	9	28
World Course 10	9	28
American Studies: World Course	11	29

Art Electives

Visual art and design courses are devoted to the recognition and development of each student's creative potential. We see art as a means of exploring, discovering and expressing one's unique and valuable vision of the world. Our visual arts courses do not merely emphasize skills; they ask students to examine meaning and intention in art making. Design and engineering electives explore the bridge between the physical and digital worlds, teaching a range of skills from traditional woodworking techniques to 3D digital fabrication and engineering design, and computer programming and robotics.

Grade 9: Introduction to the Creative Process

All 9th graders are required to take either Introduction to the Creative Process: Visual and Digital Arts Workshop or the Introduction to the Creative Process: Music.

Grade 10

All 10th graders are required to choose either the Visual and Digital Arts Workshop, the Design and Engineering Workshop, or Creative Process: Music Workshop depending on their interests. These are year-long classes.

Grades 11–12

Over the course of their junior and senior years, students may opt to take electives in Arts and Design. The course offerings span visual, digital, design, engineering and/or performing arts.

Visual and Digital Arts: Introduction to the Creative Process

Credits: 1.0

Grade: 9

Prerequisite: None

Required for all 9th graders

Students in this full-year studio course learn to bring their unique ideas to life through visual art practice and close attention to the creative process. Engaged in thoughtful explorations of materials, tools and techniques in select digital and fine arts media, students understand that there are multiple ways to approach and realize an artwork. While purposefully researching art history strands and contemporary trends, students identify questions, sketch, experiment and create original works of art reflecting on and documenting their process throughout. Ninth-grade artists present finished work publicly and engage in critique to deepen their understanding of the artistic choices that they're making and how these choices impact meaning. Students use Chelsea galleries as a regular resource and also have the opportunity to meet with professional artists to learn about their creative practices.

Visual and Digital Arts Workshop

Credits: 1.0

Grade: 10

Prerequisite: None

In this 10th-grade workshop, a wide range of digital and studio art processes are explored as students expand their visual communication skills and determine their particular passions for art-making. For the first three terms, students generate work inspired by a series of assignments addressing particular skills and techniques including but not limited to drawing, printmaking, 3D design, photography and film. Term 4 is dedicated to individual artistic investigations related to self-selected themes. Throughout the course, students consider their creative development within an art historical context while also engaging with current trends in contemporary art. Field trips to local galleries and visits with professional artists are a regular part of this course. The Visual and Digital Arts Workshop is a prerequisite for higher level art classes in 11th and 12th grades.

Studio Practice

Credits: 1.0

Grade: 9–10

Prerequisite: None; students may elect this course in addition to Introduction to the Creative Process

In this advanced art elective students will take their creativity and curiosity to the next level while also examining their own artistic practices. The variety of media explored will be determined by student interest and may include a combination of photography, painting, printmaking and sculpture. While students are guided by initial assignments, emphasis is placed on student voice, and opportunities for students to follow unique interests will be supported. Additionally, students can expect to assemble art portfolios and exhibit their work. Visiting galleries and connecting with artists will be an intrinsic part of this class.

Sculpture Foundations Studio

Credit: 1.0

Grades: 11–12

Prerequisite: None

This studio offers an introduction to seeing, thinking and working in three dimensions. Students examine three-dimensional space, form, materials and the emotions they elicit through the sculptural processes of casting, carving and construction. Students work with a selection of materials including wood, plaster and clay. During the first semester, students are inspired by assignments while developing technical skills and material understanding. In the spring, students pursue self-directed project work. Visiting artists' studios and galleries will be an integral part of this course.

Film Arts 1 and 2

Credit: 1.0

Grades: 11–12

Prerequisite: None

Film represents one of our culture's most powerful art forms, merging disciplines as diverse as photography, painting, sculpture, performance, music and writing. Given that moving images dominate our culture, this class will initially emphasize watching films in order to deconstruct the relationship between sound and image in generating meaning. After a term of close analysis, review and discussion of both narrative and non-narrative storytelling approaches, students will develop their own moving-image practice by creating a series of original shorts. Working collaboratively to determine thematic and aesthetic choices, students will learn and apply basic production, shooting and editing skills. The class will culminate in a film festival juried by prominent guest artists.

Students who have previously taken this class and would like to continue working in the medium will receive advanced credit- Film Arts II.

Advanced Studio Art I and II

Credit: 1.0

Grades: 11–12

Prerequisite: Permission of instructor

Culminating with a final exhibition, this class creates the community, structure and space for the most serious artists to pursue their work. Students taking this class are expected to be independent, dedicated artists who are excited to pursue their interests and passions in the studio. No projects are assigned rather students develop the creative confidence to dive deeply into their artistic pursuits. Group critiques, research in contemporary art, readings and documentation of the creative process are major elements of the course. Students interested in all media (including photography, experimental film and sound art) are encouraged to apply.

Students are eligible to take Advanced Studio as a junior and senior. Returning students will receive a level 2 credit on their transcript.

Super Studio (Mastery & Advanced Studio Art)

Credit: 2.0

Grades: 12

Prerequisite: Permission of instructor

The Super Studio elective affords artists double the amount of time to pursue their unique creative practice and passion. Students enrolled in this

double block arts elective will have the support of the Advanced Studio Art community and participate in all coursework while also benefiting from additional mastery time built into their schedule to be in the studio.

Design and Engineering

Design and Engineering Workshop

Credit: 1.0

Grades: 10

Prerequisite: None

In this 10th-grade workshop, students explore the mindsets, skillsets and toolsets embedded in the iLab to develop their creative process through the lens of a designer/engineer. Our inquiry will be driven by the questions: “What is the role of the designer/engineer in society?” “How have our technological innovations changed us and our world?” “How can we innovate in a sustainable way?” “How can we find a problem worth solving?” “Is the medium the message?”

Over four terms, the class will engage in a series of projects that explore these questions and develop foundational skills in the following areas:

- Design thinking through a user-centered design process of discovering a need and designing and prototyping solutions
- Design and fabrication through the use of digital and traditional tools and technologies such as computer aided design (CAD), laser cutting and engraving, 3D printing, woodworking and metalworking
- Computational thinking through modern computer programming languages and interactive media, embedded electronics and robotics.

Past projects have included board game design, mobile app development, products for a more sustainable life, set design, fashion design and branding, and many more!

This class is strongly recommended as a prerequisite for higher-level Design and Engineering electives in 11th and 12th grades.

Design and Engineering Studio

Credit: 1.0

Grades: 11–12

Prerequisite: None

How can 21st century tools be utilized and combined to solve real-world problems in a sustainable, useful and unique way? This 11–12 Design and Engineering elective based in the iLab asks students to assume the mindset of a designer/engineer to identify everyday problems in their community that can be solved with a physical or digital product. They will research and analyze existing solutions, fabrication techniques and materials, and work collaboratively and individually to plan, design, build and test new solutions. In the first semester we will focus on building advanced creative and technical skills, in the second half of the year students will identify real-world problems and design their own self-directed projects to solve them.

Although there is no prerequisite for this course, it is preferable that students have previously had experience with the Design and Engineering Workshop.

Computer Science 1: Programming Foundations

Credit: 1.0

Grades: 11–12

Prerequisite: None

What are the central ideas of computer science and how do they impact people and society? How are data, physical phenomena, and mathematical concepts represented on a computer and used to solve problems? How do we think computationally in order to develop and implement algorithms on computational devices?

In this course students explore such questions through the study of modern computing innovations and the art of programming. They will be exposed to the “7 big ideas of computer science”: Creativity, Abstraction, Data and Information, Algorithms, Programming, The Internet and the Global Impact.

Computer Science 1: Programming Foundations

Credit: 1.0

Grades: 11–12

Prerequisite: None

What are the central ideas of computer science and how do they impact people and society? How are data, physical phenomena, and mathematical concepts represented on a computer and used to solve problems? How do we think computationally in order to develop and implement algorithms on computational devices?

In this course students explore such questions through the study of modern computing innovations and the art of programming. They will be exposed to the “7 big ideas of computer science”: Creativity, Abstraction, Data and Information, Algorithms, Programming, The Internet and the Global Impact.

Students will learn to think computationally in order to analyze data, develop abstractions and implement algorithms in one or more modern computer programming languages. Projects may include designing simple text-based or graphic games, building a basic website, or working with programmable electronics. Students will gain an overview of current impacts of computer science on society and the environment, and also research and present positions related to topics at the intersection of ethics and technology.

Although no prior experience is needed to take this course, it is designed to prepare students for higher level work in computer science and programming.

Computer Science 2: Advanced Topics

Credit: 1.0

Grades: 11–12

Prerequisite:

Computer Science 1: Programming Foundations or permission of instructor

How do computer scientists and software engineers use computational thinking and programming to solve problems? What is the impact on our society and environment of the computational artifacts that we create?

This course seeks to answer these questions, building on the fundamentals introduced in Programming Foundations. Students will engage in advanced computational topics such as machine learning, data science, evolutionary algorithms, object-oriented programming, electronics/robotics and more. They will exhibit mastery of these topics through a series of projects designed to solve real-world problems. They will also investigate and report on the impacts of computer science on society and the environment, and present their findings in formal presentations, debates, or by organizing guest lectures and panels.

Performing Arts

Introduction to the Creative Process (Music)

Credit: 1.0

Grades: 9

Prerequisite: This course is open to students who can demonstrate the ability to play an Orchestra or Band instrument (Strings, Winds, Brass, Percussion).

Students in this full-year seminar will learn to bring their unique ideas to life while brainstorming collectively with their peers through music in large and small ensemble settings. In dedicating their attention to process, students will understand that knowing something well requires being able to articulate how a question is generated, researched, sketched, iterated and reflected upon. Students will effectively present and communicate their investigations as manifested through the medium of music while embracing a diverse range of technical and conceptual challenges. The course ultimately seeks to cultivate the skills and thinking necessary to realize a project from start to finish in a deep and meaningful way, while appreciating that the process is ultimately what defines the success of the final product. organizing guest lectures and panels.

Music Workshop 10

Credit: 1.0

Grades: 10

Prerequisite: This course is open to students who can demonstrate the ability to play an instrument that can be integrated into a large ensemble (Strings, Winds, Brass, Percussion, Guitar).

Students in this full-year seminar will learn to bring their unique ideas to life while brainstorming collectively with their peers through music in large and small ensemble settings. In dedicating their attention to process, students will understand that knowing something well requires being able to articulate how a question is generated, researched, sketched, iterated and reflected upon. Students will effectively present and communicate their investigations as manifested through the medium of music while embracing a diverse range of technical and conceptual challenges. The course ultimately seeks to cultivate the skills and thinking necessary to realize a project from start to finish in a deep and meaningful way, while appreciating that the process is ultimately what defines the success of the final product

Music Theory and Practice Workshop 9/10

Credit: 1.0

Grades: 9–10

Prerequisite: None

This workshop provides musicians an environment in which to patiently develop technical mastery of their instruments through in-depth exploration of a wide variety of musical genres, including American R&B, Afro pop, contemporary art music, indie rock, blues and jazz and music suggested by students themselves. The class focuses above all on nurturing the skills necessary to play real music with real feeling. While the elements of musical literacy are addressed, equal attention is paid to performance variables that elude notation. The ensemble is not limited to traditional symphonic band and string instruments, but is open to all instruments including keyboards and guitars.

Vocal Workshop 9/10

Credit: 1.0

Grades: 9–10

Prerequisite: None

In this intensive, active and creative class, students will sing songs in a wide variety of styles and learn about the art of song interpretation, arranging and lyrical structures. They will explore the many approaches to singing popular music, musical theater, classical, a cappella, jazz and rock. Students learn and sing solos, duets and small group numbers and learn tools of analysis and performance practice. This is a performance-based class. A strong commitment to performing is required.

Music Theory and Practice Workshop 11–12

Credit: 1.0

Grades: 9–10

Prerequisite: Permission of instructor

This class meets in a workshop setting, providing musicians an environment in which to patiently develop technical mastery of their instruments through in-depth exploration of a wide variety of musical genres, including American R&B, Afro pop, contemporary art music, indie rock, blues and jazz, in addition to music suggested by students themselves. The class focuses above all on nurturing the skills needed to play real music with real feeling. While the elements of musical literacy are addressed, equal attention is paid to performance variables that elude notation.

The ensemble is not limited to traditional symphonic band and string instruments but is open to all instruments including keyboards and guitars. (Keyboard players may use instruments provided by the school; guitarists should bring their own instruments to class.) Drummers are given the opportunity to work both on a full kit and with a variety of world percussion instruments. In addition, all ensemble members participate in African and Afro-Caribbean drumming as an integral part of the ensemble's rhythmic development.

This elective features in-class demonstrations by guest artists and numerous opportunities for formal and informal ensemble performances throughout the semester.

Advanced Music

Credit: 1.0

Grades: 9–12

Prerequisite: This is a course for instrumentalists. Admission is by audition only; a strong commitment is expected.

Advanced Music is a unique opportunity for the most dedicated and advanced musicians to meet. The course presents all high performing students in grades 9–12 with the opportunity to play and perform together. The class meets during zero block every day for an intense 30-minute workout on repertoire, ranging from funk to Afro-pop to jazz from all eras. The ensemble becomes the representative school band and is the go-to unit for school functions, events, celebrations and parties. In addition, the band plays regularly at events outside of school such as the annual Holy Apostles Gala and the spring Prom Dress Drive for the residents of the Chelsea Houses. The ensemble will also participate in local student jazz festivals, such as Lincoln Center's Essentially Ellington festival.

Performing Arts and Social Activism

Credit: 1.0

Grades: 11–12

Prerequisite: None

In this course, we will examine how to use live performance to advance social change. The course surveys the work of a wide variety theater artists, dancers and musicians who have created work to advance social change. Students analyze the methodologies of specific artists and then experiment with these approaches in their own project work. Throughout the course we will meet with professional performing artists who will share their work and conduct hand-on workshops. The course examines different forms of "Verbatim" theater, Theater of the Oppressed, Alvin Ailey and leading African American choreographers, AIDS plays and revolutionary music throughout the 20th Century. This is a course for those who love to perform and are passionate about engaging globally and locally.

High Intensity Practice (HIP)

HIP Thinking

Credit: N/A

Grades: 9–10

Prerequisite: None

In these courses, students develop and exercise exible-thinking skills through regular writing and math practice. Both halves of the HIP program center on cultivating the highest level of cognitive skills—empathy, creativity, mental agility, critical thinking, extended concentration and stamina—through practice and targeted feedback on daily challenges.

History Electives

Emotionology

Credit: 1.0

Grade: 11–12

Prerequisite: None

This interdisciplinary course explores insights that scientists, historians, and creative writers have generated into human emotion. Each unit will focus on a different emotion: hope, laughter, fear, love, surprise, disgust, etc. First, we'll survey recent breakthroughs that neuroscientists have made into the study of emotion. Do emotions reside in the body or in the mind? Second, we'll explore what social scientists have revealed about the role of emotion in modern-day society. Which emotions are most important in multicultural democracies? Finally, we'll examine how literary texts are able to generate emotion in readers. How are fictional texts able to "move" readers emotionally? And how can fictional texts move people to take action in the real world?

Global Monumental History

Credit 1.0

Grades 11–12

Prerequisite: None

What can a monument tell us about a people, a place and a time? In this public history, art and architecture course, we will seek to answer these questions and more by studying monuments from the ancient world to the present: from China's Terracotta Army to New York's September 11th Memorial. Students will learn about the role of public memory in society through the ages and consider what they think is worth remembering when they design and create their own memorial for a capstone project.

Journalism: Theory and Practice

Credit 1.0

Grades 11–12

Prerequisite: None

“A good newspaper, I suppose, is a nation talking to itself.” — Arthur Miller

This course explores journalism as a force for communication, democracy and change. It asks how publications—newspapers and magazines such as *The New Yorker* and *The Wall Street Journal* and student publications such as *The Highliner*—act as public forums for expression and leading voices in the free and open discussion of ideas.

While overseeing production of *The Highliner*, students study journalistic principles and develop essential journalistic skills in research, inquiry, reporting and writing for a publication. Students discuss hot-button issues in the field, conduct research and gather, process and disseminate relevant news. In weekly journalism roundtables, students workshop their feature articles, op-eds, essays and human-interest stories while weighing the principles of truth, accuracy, objectivity, impartiality, accountability and fairness.

Coursework includes practical experience in producing *The Highliner*, fieldwork on and around the Avenues campus and theoretical study through texts by Marshall McLuhan, Nellie Bly, Studs Terkel, Hunter S. Thompson and Jacob Riis.

Note: Students are not required to be enrolled in *The Highliner* club to join.

Journey to the East

Credit: 1.0

Grade: 11–12

Prerequisite: None

With a primary focus on China and Japan, and reference to Korea and Vietnam, this course will lead students on a journey through time and space to explore the historical movements and forces in East Asia before and during the transition to modernity. It attempts to identify the common ethos that shaped the region while recognizing individual countries their own distinctive identities. It emphasizes the interactions of East Asia with the West and the struggles of the East Asian countries to preserve their independence in the modern world order of the 19th century. Questions such as how international diplomatic, commercial, military, religious and cultural relationships joined with internal processes to direct the development of East Asian societies are asked. Perceptions and misperceptions of each other by East Asians and “foreigners” are addressed. Using primary source documents such as memoirs and diaries, as well as period fiction, art, architecture, memoirs, films, and selected scholarly writings, the journey to understand the historical dynamics of East Asian societies will begin.

Latin America Political History

Credit 1.0

Grades 11–12

Prerequisite: None

Join this course if you'd like to understand key themes in the identity, politics, and socio-economic development of Latin America. We will explore the idea of what it means to be “American”—Latin American, that is—within the region's unique intersection of indigeneity and the peoples of Africa, Asia and Europe. We will investigate ancient civilizations and indigenous peoples, European conquest and Latin American revolutions, military dictatorships and democratic movements, foreign intervention and global aspirations. This will be a history course focused on the political life of the region: who has power, how has power been wielded, and what has the impact of these power dynamics been. Consequently, a major theme will be inequality, including race, class, and gender, and particular attention will be granted to the region's changing relationship with the United States. Lastly, we will also learn through cultural artifacts: we will hear the beats and voices, see the artwork and architecture, and hopefully even taste the flavors—indigenous, immigrant, fusion. You will emerge with a sense of how the region has defined itself at crucial junctures of regional and international history, while also having the opportunity to specialize in a particular country or countries. “History never really says goodbye. History says, ‘See you later.’” - Eduardo Galeano, Uruguayan author and journalist.

Storytelling Laboratory

Credit 1.0

Grades 11–12

Prerequisite: None

Storytelling has always been central to human experience—it's how we explain and make sense of the world. But today, audiences are quick to tune out and search for more entertaining experiences. In the 21st Century, the way we need to communicate and tell stories is changing. This course will explore and foster dialogue across diverse populations and enhance our understanding of the work of filmmakers, writers, teachers, community workers, business leaders, ministers, counselors, social justice workers—people for whom the art and act of storytelling are essential. While engaging with a wide variety of stories and modes of storytelling, students in The Storytelling Laboratory will revisit the fundamentals of how to tell a compelling story, and dive into what and how we tell our own stories in the 21st Century via a collaborative, interdisciplinary project.

Topics In World History

Credit: 1.0

Grade: 9

Prerequisite: None

This course will focus on selected topics in world history. Each unit will provide opportunities for deep learning to connect developments from the past to present global issues and students' lives. Students will apply their historical understanding to engage in problem solving to address modern challenges.

Humanities

In the humanities, students move between separate history and English classes, yet their studies originate from a single, integrated course. By reading historical texts in conjunction with literary texts, students come to appreciate why a familiarity with history is indispensable to a full understanding of literature.

English 9

Credit: 1.0

Grade: 9

Prerequisite: None

In the 9th grade, students study some of the foundations of civilization and literature. They examine the rise of ancient China, India, Islam and the eventual emergence of the West and learn about the interconnectedness of civilizations that make world history one history. In-depth studies hone in on the ways in which the world was globally connected and how different major civilizations evolved as global power brokers. By studying the inward turn of China, the traditions of India, the rise of Islam and ultimately the emergence of Europe from the “dark ages,” students confront the major historical notions of cause and effect, intercultural exchange and conflicting narratives. Stories from these places and time periods provide students with exciting opportunities to learn and practice foundational research techniques, analyze competing histories and amplify their own writing and reading skills and worldview through wrestling with these materials.

Students also study origin texts and complete a study in various literary genres from a global perspective. They learn how to give voice to their own stories as a means of developing the knowledge and confidence that they live lives worth the telling. Particular emphasis is placed on student-centered discussions and process in completing all work. Students take time to reflect on and refine their writing and discussion skills as a means to identify ways in which they might communicate and work together with each other most productively.

English 10

Credit: 1.0

Grade: 10

Prerequisite: English 9

What have been the causes and effects of modern globalization and what can literature tell us about them? This is the central question that drives 10th-grade humanities. Globalization often indicates the acceleration of movement across space and borders of people, goods, information, technology and ideology. This course examines significant periods in modern history that have led to the state of globalization we know today: colonization, the Enlightenment, the scientific and industrial revolutions, the rise of modern Islam and the World Wars. Students make connections between these periods and contemporary events as a means of exploring the cause and effect relationship between the past and the present—especially the influence of the past on international politics and conflict, social and economic stratification and the natural environment. Students examine the human impact of globalization in part through a study of works of literature that tell stories of displacement, migration and the shifts in identity that often result.

Advanced Humanities

Credit: 1.0

Grade: 10–11

Prerequisite: World 9 and instructor approval

Advanced Humanities will focus on interpretive methods, texts and genres that are rarely featured in traditional English and history courses. During the first half of the year, students will explore some of the theories and lenses that have made the humanities a vigorous and vitalizing area of study. Possibilities include literary theory, cultural criticism, media studies, ecocriticism, philosophy, psychoanalysis and feminist theory. Foundational works from these intellectual traditions will be put into conversation with cultural texts such as novels and plays, paintings and films, music and essays. During the second half of the year, students will pursue their individual passions in greater depth by embarking on research projects or creative endeavors. Undertaking original academic and creative work will push students to appreciate the complexity of their topics, to connect with outside organizations doing work around their interests and to hone their skills at presenting their work in a public forum such as a publication, festival or conference.

American Studies: English

Credit: 1.0

Grade: 11

Prerequisite: English 10

What is unique about the great experiment called “America”? What might it mean to found a nation on ideals such as freedom, equality, opportunity and democracy? Do any of those ideals conflict with one another? To what extent has the nation lived up to its organizing ideals?

This interdisciplinary course in American studies draws upon insights and methodologies from the fields of American history and American literary studies. Students learn to think about America from two angles. First, to get the “facts” straight, we explore the untold and sometimes troubling aspects of America’s history. How has American society been shaped by a history that includes slavery, Indian removal and imperialism? We also explore how activities such as storytelling and mythmaking—that is, the production of cultural “fictions”—contribute to the shaping of national identity. Is it possible that a nation with such a violent past could also stand for a set of genuinely liberating ideals? What are the beliefs, practices and myths that have enabled America to cohere and perpetuate itself?

Students also learn to write clearly and effectively, with a sense of audience and purpose. They are encouraged to engage passionately in inquiry and argument construction in discussions and beyond. Students are expected to evaluate the written and oral arguments of others, paying equal attention to questions of fact and interpretation to begin reflecting on their own experiences, values and beliefs through the personal essay form.

World Literature: English

Credit: 1.0

Grade: 12

Prerequisite: None

This course continues the development of students as readers, writers, speakers and listeners by providing opportunities to refine the skills introduced and advanced in previous humanities courses. Our study will include a focus on various genres, especially as they inform and are informed by style and structure. Texts will continue to be drawn from those voices that encourage engagement with issues of race, class, gender and sexuality and will originate from global perspectives and traditions. Though this course will not be connected to a specific history course, interdisciplinary work will still comprise a significant portion of our studies. Writing assignments will allow students to exercise their creativity as well as their analytical skills and may range from poetry and short stories to personal and analytical essays.

Mastery

γένοι' οἷός ἐσσι μαθῶν

“Learn and become who you are.” —Pindar, Pythian 2.72

As a cornerstone of the Avenues experience, the Mastery Program has one mission: to inspire a world of happier, more meaningful lives through the beautiful engagement of one's passions.

It is with this goal in mind that we provide students both time and space during the school day to strive toward the focused achievement of exceptional skill in a desired domain. If you are familiar with Fifth Term in the upper grades or Minimester in the middle grades, the Mastery program is all that and more. Imagine a young historian researching a minor historical figure in order to add to the academic literature of this period, a team of young scientists working with college professors to harness the potential of radio waves to power small electronic devices or a songwriter working with mentors to write and produce her first album. The possibilities are endless in Mastery, and our students' work is limited only by their imaginations.

Mastery Seminar: Introduction to Mastery

Full-year course

Grade: 9

Prerequisite: None

The beginning of the Mastery journey is the Mastery seminar, where students are introduced to the thinking and research that supports this endeavor. It's a place where we build a common story around the quest for mastery in order to help students develop a personalized pathway toward their own goals. Our hope is that by the end of the year, each student in our program will have fallen in love with a dream of his or her future and will actively take those first steps toward achieving that dream.

This experience has been carefully designed to acquaint our freshmen and sophomores with the expectations and work within our formal Mastery program, which officially begins in our Mastery Workshop classes. There are many entry points into the program and many opportunities for students to pursue Mastery who are not in the formal program. However, we invite all students who have successfully demonstrated engagement in this seminar to submit an application to the formal program. Please see your dean or a Mastery teacher for more information.

For those students who have demonstrated a commitment to their domain and who have been accepted into the formal Mastery program at Avenues, Mastery Workshop exists as vital time and space within the regular school day to help students develop their knowledge, conceptual understanding, judgment, reflection and skill in a particular area. This is a unique opportunity for students to do passion-driven work under the watchful eye of a Mastery teacher who will act as both as a mentor and a guide on this journey.

Mastery Workshop

Full-year course

Grade: 9–10

Prerequisite: Mastery Seminar: Intro to Mastery and approved application to the Mastery program

Students in Mastery Workshop may choose to work independently or in small teams on long-term interests in this space, whatever that interest may be: humanities and literary arts, innovation and entrepreneurship, performing arts, science and math, sports, technology and engineering or visual arts. Students here will be granted common time with those peers who share similar interests in order to discuss their work, troubleshoot obstacles, and inspire innovation and achievement in their projects. Students are expected to maintain a Mastery portfolio throughout the year and may choose to work toward the completion of a Mastery project for inclusion in the spring showcase.

NOTE: Seniors interested in pursuing Mastery are asked to sign up for the Senior Seminar: Mastery Capstone class as their first option. Seniors who have a scheduling conflict or who wish to extend their Mastery options with Mastery Workshop should see Mr. Shorr and their dean to begin this conversation.

Senior Seminar: Mastery Capstone (Crosslisted under Senior Seminar)

Credit: 1.0

Grades: 12

Prerequisite: Prior Mastery experience and approved application to the Mastery program

For those students who have chosen to pursue Mastery in some form over their years at Avenues, the senior-year Mastery seminar is the culmination of that journey. Seniors in this capstone class will conceive of, develop and present an original senior project to our community. It is much like a Fifth Term Mastery experience, except with much more time and space to develop that idea over the course of a year. Students entering this class are not required to have a fully-formed idea from the outset, but we do ask that they have a general idea of the domain in which they would like to work. Students in this class will work closely with faculty, mentors and, potentially, experts in the field to help them dive deeper and more thoughtfully into their work. This Mastery seminar has an additional academic component built around an exploration of the science and psychology of creativity. The goal is not only to study creativity as an abstract academic concept but to hold it in our hands, to work the material of it and to learn how to entwine it deeply into our lives. Placed within the context of a student's project work, this study presents an opportunity to students working in any domain to assume the mantle of young creatives in their chosen fields.

Applying what they learn from this exploration, our students will graduate from the Mastery program with an expanded sense of self, an objective view of their work and an understanding that when they engage beautifully in their passions they have an almost magical ability to affect the world in positive ways. The Mastery seminar is at once a pathway, an endpoint and an invitation to fulfill the mission of the Mastery program: to inspire a world of happier, more meaningful lives through the beautiful engagement of one's passions.

Super Studio (Mastery &

Credit: 2.0

Grade: 12

Prerequisite: Permission of instructor

The Super Studio elective affords artists double the amount of time to pursue their unique creative practice and passion. Students enrolled in this double block arts elective will have the support of the Advanced Studio Art community and participate in all coursework while also benefiting from additional mastery time built into their schedule to be in the studio.

Mathematics

All Integrated Math 2, Integrated Math 3 and Integrated Math 4 courses feature two parallel sections: Integrated Math STEM and Integrated Math General. General sections of Integrated Math classes focus class time on creating a robust understanding of the curricular content, and provide ample opportunities for support questions. Students in the General section develop a robust understanding of the curricular material, and become proficient in the social construction of mathematical knowledge. STEM sections encourage students who have a keen interest or passion for science, math or engineering to use the curricular material as a point of embarkation, applying their new knowledge to STEM topics through independent investigation and extension activities. Students in STEM sections are expected to be motivated participants who utilize discussions to extrapolate from the curricular material and extend their thinking, while seeking any mathematical support they need independently of class time. As we believe that any student's interests and engagement with different subjects can change throughout high school, movement between the General and STEM sections is possible in any year, with the support of a teacher and recommendation and Dean approval.

Integrated Math 2

Credit: 1.0

Grade: 9

Prerequisite: Completion of 8th-grade mathematics (Incoming students: Algebra 1)

This seminar-style integrated math class encourages students to become active participants in lively discussions in order to develop a deeper understanding of mathematical reasoning. Students focus on developing skills to write and communicate mathematics accurately, as well as acquiring a lifelong passion for enjoying the beauty and the creativity involved in mathematics. After a short review of basic methods of solving second-degree equations—such as quadratic formula, completing the square, solutions as roots and x-intercepts and axis of symmetry—quadratics are used to apply the Pythagorean theorem to distance in the plane and solving other geometric problems. Algebraic concepts are used to establish a basic understanding of the distance between two points on a coordinate plane, which then becomes synonymous with slope, triangles and vectors. Students also explore average rate of change, linear motion and the optimum path of travel through the use of vectors and parametric equations. Two column or paragraph proof strategies, in-depth circle and right triangle trigonometry are used to investigate the logical structure of Euclidean geometry and to solve challenging problems. Topics in geometry include properties of parallel lines, triangles, quadrilaterals and polygons; congruence and similarity between geometric figures.

Integrated Math 3

Credit: 1.0

Grade: 10

Prerequisite: Completion of Integrated Math I (Incoming students Algebra II and/or Geometry)

This seminar-style integrated math class encourages students to become active participants in lively discussions to develop a deeper understanding of mathematical reasoning. Students focus on developing skills to communicate mathematics accurately, as well as acquiring a lifelong passion to enjoy the beauty and the creativity involved in mathematics. Students in Integrated Math 3 class start the year with the continuation of explorations in similarity, circle properties, as well as problems in triangle trigonometry. Investigations into the application of fundamental geometry skills on various types of problems blend into the study of the volume of solids and graphical study of trigonometric functions and circular motion. Students work on volume and trigonometry over an extended time period, which allows them to fully grasp the details of these important concepts. Later in the year, students start exploring matrices, exponential functions, logarithms and real-life applications of those functions. Other topics include the counting problems that utilize permutations and combinations which lead to many topics in Probability.

Integrated Math 4

Credit: 1.0

Grade: 11

Prerequisite: Completion of problems from Avenues Math 3 Book to complete IM3

This seminar-style integrated math class encourages students to become active participants in lively discussions to develop a deeper understanding of mathematical reasoning. Students focus on developing skills to communicate mathematics accurately, as well as acquiring a life-long passion to enjoy the beauty and the creativity involved in mathematics. This typically 11th grade math course starts the year with a continuation of explorations that combine many previous topics from IM2 and IM3 which allow students to synthesize problem solving practices. Investigations into the

application of fundamental geometry skills on various types of problems blend into the study of the inverse functions and periodicity. More advanced probability problems lead into utilizing random walks to discover ideas about the binomial theorem and show connections to both Pascal's triangle and combinations. Sequences and series have a major focus and the concept of the infinite becomes more apparent. This allows a natural transition into the concept of convergence of series and asymptotes of functions. Limits helps get students conceptually prepared for the study of calculus.

Students in advanced sections delve deeper into probability and combinatorics, and geometric and arithmetic sequences and series. Later in the year, advanced sections start discussing some fundamental topics of differential calculus such as average and instantaneous rate of change, which guide students to the formal study of calculus topics.

Integrated Math with Data and Probability

Credit: 1.0

Grade: 12

Prerequisite: Completion of Avenues Integrated Math 3

This eleventh grade math course has students continuing their study of mathematical ideas with a focus on functions that are relevant to topics in data analysis and statistics. After a brief review of some topics from IM3, students will apply their knowledge of functions such as quadratics, exponentials and periodic functions to model data and make predictions. Problems with probability and combinatorics. Applications of matrices will be studied such as Markov Chains that allow repeated probability calculations to predict future events. Logarithms will be used to linearize data in order to find the best fit of sets of collected data. Technology will aid students in as many ways as possible, including graphing, fitting functions to data and finding future values.

This course is offered as an alternative to Integrated Math 4, and does not prepare students for the study of calculus, but allows students to prepare for statistics and other discrete math courses that are often college requirements for many majors. Students interested in taking a calculus course the following year should take Integrated Math 4 instead.

Introduction to Calculus

Credit: 1.0

Grade: 12

Prerequisite: Integrated Math 4 (Incoming students: Algebra 2/Precalculus) and teacher recommendation

In order to give students a broader perspective on the toolkits required in college-level differential calculus courses, this senior-year math course focuses on advanced problems, trigonometric functions, with an emphasis on circular motion, exponential and logarithmic functions, matrices, finite and infinite sequences and series, probability and combinatorics and their applications in real-life situations. Students also explore the idea of average and instantaneous rate of change using basic limits and concepts and techniques of differentiation.

Calculus

Credit: 1.0

Grades: 11–12

Prerequisite: Integrated Math 4 (Incoming Students: Precalculus) and teacher recommendation

Calculus at Avenues is a course meant for students who are highly motivated to master the techniques and many of the applications of Differential and Integral Calculus. Students will learn applications of the concepts which define Calculus as they work through the development of the subject, all while continuing their studies in Avenues' student-centered, problem-based environment. Some primary areas of study are the Theory of Functions and their Graphs, Combinations of functions, Limits, and Continuity, the Concept of a Derivative as the "Slope of a Graph." Applications range from an Analysis of Graphs of Functions to Error Estimates in computations using measured data. The study of Integral Calculus will include the Fundamental Theorem and its applications to Accumulation Functions.

This course provides an excellent opportunity for students to develop their skills in Advanced Algebra, Analytic Trigonometry, and the many Families of Functions and the properties members of the family have in common, as well as how members differ, which calculus makes clear. The students will extend their study of Advanced Analytic Geometry, learning to shift their thinking to learn the polar coordinate system. Calculus provides a way to see its class members leave Avenues with the ability to apply mathematics in future studies of the physical, natural, and social sciences, in addition

to finance and economics.

Advanced Calculus

Credit: 1.0

Grades: 12

Prerequisite: Integrated Math 4 and teacher recommendation

Advanced Calculus at Avenues continues the familiar problem-based learning style in a much more student-centered, seminar-style setting. The course is intended for students who have demonstrated the ability to succeed in collaborative as well as self-directed learning activities, who are interested in pursuing STEM fields, and have displayed a high level of mathematical maturity. Mastery of Algebra, Geometry, Trigonometry, and Function Theory are required, as well as being familiar with the concept of limits, and slope functions or the Derivative of a function, from the Integrated Math sequence leading up to this course. Students will be held to high standards for independent work in their homework and class contributions, which will include formal assessments, conclusions drawn from individual problem presentations, and mathematical writing assignments over the duration of the course.

Students entering Advanced Calculus are expected to be familiar with Limits of Sequences and Functions, Continuity, and the meaning of the Derivative, along with some exposure to some methods of differentiation. The Majority of the course will be a deep and rigorous study of Integral Calculus, including advanced methods of anti-differentiation of definite integrals and using those methods along with the Fundamental Theorem of Calculus to discover the Advanced Geometric and Physical Applications of Integral Calculus. Improper Integrals are explored and provide the students an entrance point to the Rigorous study of the Theory of Infinite Series and Parametrically-Defined, Vector-Valued Functions. This course provides a wonderful yet highly challenging sense of closure to the mathematics program at Avenues.

Philosophy of Economics

Credit: 1.0

Grades: 11–12

Prerequisite: None

At its core, Economics is the study of how a society chooses to allocate limited resources. As a social science, these choices are inextricably tied to our fundamental beliefs about human nature and the manner in which we behave in our daily interactions. Beginning with a survey of economic theory ranging along the spectrum from pure Capitalism to Socialism, this is a discussion-based course designed to spark debate over the many relevant social, political and economic topics that shape our everyday lives. The course will use economics, and the philosophical and psychological underpinnings of economic theory, as a lens through which to explore topics such as healthcare, labor laws, educational policy, environmental regulation and social justice. Each of these topics have powerful ethical implications; this class will explore historical case studies as well as current events in which our morals and ethics either align or conflict with the economic principles upon which societies, through policies and economic structures, are built.

Statistics

Credit: 1.0

Grades: 11–12

Prerequisite: None

Statistics is the practice of collecting, analyzing, interpreting and presenting data. This project-based course will guide students to learn the major concepts and tools that will allow them to make sense of data, draw generalizations and tell meaningful stories using data. The content covered during this four-term course is equivalent to a one-semester, non-calculus based introductory college course in statistics. Throughout the year, students will get a chance to design, administer, and present results from surveys and experiments. Through probability and simulations, students will construct models for random behavior. Sampling distributions will provide the logical structure for confidence intervals and hypothesis tests. To develop effective statistical communication skills, students will learn to produce written and oral analyses of real data. All of these skills will not only help students to be responsible practitioners of statistics, but also informed consumers of statistics in their daily lives.

Mathematical Research 2

Credit: 1.0

Grades: 10–12

Prerequisite: Prior enrollment in Mathematical Research, or recommendation by the instructor. Closed to new enrollments.

For students new to Avenues in grades 10–12: Outstanding performance on a rigorous placement test that includes all topics in Integrated Math 2 and 3, with demonstration of creative and critical-thinking skills. Students who demonstrate strong competency on the placement test will be invited

to present to a committee of math teachers; final placement is dependent on recommendation of department

This course is designed specifically for those students who demonstrate outstanding success in math. Students from grades 11–12 who have demonstrated themselves to be independent, curious and industrious math explorers are invited to enroll in this class where collaboration and independent research will complement each other. Students are expected to exhibit fluency in topics and skills ahead of their current grade levels. They are also expected to dedicate time to mathematical research outside of the classroom and participate as much as possible in mathematics competitions.

Modern Languages

Older students are motivated by seeing how what they are learning can help them act and by understanding that this learning matters. With this understanding, our language program moves toward learning language from and within contexts where students are tasked with using language to accomplish real world tasks.

Learning through context is learning language through accomplishment of tasks as opposed to solely learning language properties (vocabulary, grammar) as the units/themes of instruction. Unlike other traditional language programs, where the curriculum consists of grammatical units referred to by linguists as “focus on forms approach,” Avenues students learn through context, a meaning-driven methodology. Our shift to thematic courses allows students to engage in purpose driven work while following the scope and sequence of the language of study. With this in mind we pivot from a numerical leveled system and place our students where they will be excited to apply their learnings to new contexts while raising the “why” as an important motivator to learning. Students begin their Spanish language learning journey from discovery and breakthrough to advanced studies in beauty and aesthetics. Chinese language learners progress from basic foundations courses to advanced studies in culture and literature.

Spanish Grade 9

Credit: 1.0

Grades: 9

Students enrolled in Spanish will continue their development of the Avenues Language Scale communicative skills (oration, discussion, writing and reading) with an emphasis on performance tasks and oral production. Instruction is focused on outcomes designed for different proficiency levels as students demonstrate their mastery through performance-based and project-based activities. The course emphasizes the expansion of students’ language use in authentic and relatable themes as they develop a greater appreciation for and understanding of Spanish language and culture.

Spanish Discovery & Breakthrough

Credit: 1.0

Grades: 9–10

Prerequisite: None

This introductory thematic course prepares students to use greetings, tell time and discuss school subjects, foods, family and friends and leisure activities through the art of photography and images. The class is conducted in Spanish and aims to empower students to become competent communicators. Students are exposed to material that allows them to have a better understanding of the Hispanic culture by studying different aspects of all Hispanic countries. Vocabulary focuses on school, shopping, family, clothes, foods found in restaurants and markets, holidays and tourist activities. Students learn the grammatical structures to enable them to talk about everyday situations in the present as well as in the future.

Spanish Exploration: Photography

Credit: 1.0

Grades: 9–10

Prerequisite:

Spanish Discovery & Breakthrough or equivalent language proficiency

This course is a natural progression from Spanish 1, as students have to manipulate a larger amount of vocabulary and are also exposed to more advanced grammatical structures and authentic material. This course provides students with plenty of opportunities to become more proficient in the target language using all three modes of communication (interpersonal, interpretive and presentational).

Students deepen their understanding of how to communicate in the language and understand Hispanic culture at more complex levels. Learning the Spanish language and culture reinforces and expands their knowledge of other disciplines. Through a more advanced series of culture-based activities, students continue to develop awareness of cultural commonality and diversity.

Spanish Empowerment: Marketing

Credit: 1.0

Grades: 9–10

Prerequisite:

Spanish Exploration or equivalent language proficiency

Students practice the four skills of writing, reading, speaking and listening in a more advanced setting to elicit the three modes of communication (interpersonal, interpretive and presentational). Students develop greater comfort and fluency in Spanish grammar and are able to communicate more complex ideas and narrate information using a different array of tenses. They practice difficult structures such as the use of object pronouns, subjunctive mood and adverbial conjunctions, as well as hypothetical and future structures. They develop their communication skills through both an expanded vocabulary and the use of idiomatic expressions. They hone their skills when they need to “talk around” unfamiliar vocabulary words, express opinions, support those opinions and engage in discussion and argument. All grammar is used within a cultural context, including discussion of topics from the World Course.

Spanish Exploration: Critical Issues facing Contemporary Latin America through Podcasts

Credit: 1.0

Grades: 9–10

Prerequisite:

Spanish Exploration or equivalent language proficiency

Learn about contemporary Latin America through country-specific case studies that span a host of critical issues. Students will learn about the historical, political, economic and social contexts that have precipitated these issues. This course is a natural progression from Spanish Discovery & Breakthrough, as students have to manipulate a larger amount of vocabulary and are also exposed to more advanced grammatical structures and authentic material. This course provides students with plenty of opportunities to become more proficient in the target language using all three modes of communication (interpersonal, interpretive and presentational).

Students deepen their understanding of how to communicate in the language and understand Hispanic culture at more complex levels. Learning the Spanish language and culture reinforces and expands their knowledge of other disciplines. Through a more advanced series of culture-based activities, students continue to develop awareness of cultural commonality and diversity.

Spanish Empowerment: Contemporary Life

Credit: 1.0

Grades: 11–12

Prerequisite:

Spanish 3 or equivalent language proficiency

The topic Contemporary Life will provide a focal point for practicing all three modes of communication and for discussion of the following contexts of study: Education and Careers, Entertainment, Travel and Leisure, Lifestyles, Relationships, Social Customs and Values, and Volunteerism.

Students contrast educational systems in the U.S. to those in Spanish-speaking countries, compare the differences and similarities of the variety of school systems that exist, talk about the need for having diversity in a school and compare the public and private school systems. Students also

investigate what the requirements are for acquiring acceptance to a variety of universities and what the cost is to obtain higher education in the Spanish-speaking world.

Students also analyze skills and abilities required in a variety of career options and relate them to their own skills and abilities, assess personal, educational and career skills that are transferable to various jobs, understand how societal needs and functions influence the nature and the structure of work, learn about how people talk about work and careers and what the job conditions are like in Spanish-speaking world. They also discuss their future plans, interview for a job, and express agreement and disagreement. Students read about work benefits in the Spanish-speaking world and labor equality. They create conversations between an employer and job applicants, try to negotiate the work contract with the employer and also organize and hold a job fair in class.

Spanish: Advanced Beauty and Aesthetics

Credit: 1.0

Grades: 11–12

Prerequisite:

Spanish Empowerment: Contemporary Life or equivalent language proficiency

This class is loosely based on the AP Spanish guidelines. This language course is rigorous and fast-paced and will be conducted entirely in Spanish. Students are expected to use the Spanish language exclusively with their teacher and their peers. The curriculum of this intense, college-level class is designed and intended to reinforce and sharpen students' language and critical-thinking skills in a wide array of topics across the three communicative modes: interpersonal, interactive and presentational.

The class theme, Beauty and Aesthetics, will provide a focal point for practicing all three modes of communication and for discussion of the following contexts of study: Defining Beauty, Defining Creativity, Fashion and Design, Language and Literature, Visual and Performing Arts, Architecture.

Students are engaged in discussions on the concept of beauty and fashion throughout history and discuss the current perception of beauty in our world and its impact on the apparel industry. They discuss the influences that the ideals of beauty have on their own lives as well as the lives of Hispanic young people and also compare the expression of the ideals of beauty in the arts from their own community as well as the Spanish-speaking world.

Chinese Grade 9

Credit: 1.0

Grades: 9

Prerequisite: None

Students enrolled in Chinese continue to refine their communication skills in all four areas of the Avenues Language Scale: oration, discussion, writing and reading. Students demonstrate their Chinese proficiency across the three communicative modes—interpersonal, interpretive and presentational—and the five goal areas—communication, cultures, connections, comparisons and communities. The course emphasizes the expansion of students' language use in authentic and relatable themes as they develop a greater appreciation for and understanding of Chinese language and culture.

Chinese Foundations

Credit: 1.0

Grades: 9

Prerequisite: None

This course aims to develop each student's awareness and knowledge of Chinese proficiency across the three communicative modes—interpersonal, interpretive and presentational—with four primary goal areas: communication, cultures, and connections and communities. Students are introduced to the phonetic system of pīnyīn and learn to differentiate the sounds with correct spelling and intonation. In order to build a solid foundation for character recognition, students will be introduced to the most frequently used phrases, with particular emphasis on stroke orders, radicals, and understanding the structure of characters. The goal of this course is to develop students who are able to communicate and exchange information about familiar themes using phrases and simple sentences, always supported by frequently used language that is utilized in real-life situations. Students will also be expected to handle short social interactions in everyday situations by asking and answering simple questions.

Chinese Discovery and Exploration

Credit: 1.0

Grades: 9–10

Prerequisite:

Chinese Foundations or equivalent language proficiency and teacher recommendation

This course builds upon the fundamental skills mastered in Chinese Foundations or an equivalent course. Students continue to use the phonetic system of pinyin to assist their pronunciation and intonation, as well as to learn new characters and expressions. Daily exercises designed for recognizing and reproducing the individual sounds, tones, words and sentences are given in class to help the students sharpen their listening and speaking skills. Students continue to build their skills in recognizing and writing characters by hand while also being introduced to using a computer to express themselves through writing.

This course journeys beyond the foundations of learning into territory that prepares students to carry themselves in day-to-day activities. It will cultivate necessary skills in all four modes of language learning, exposing students to various topics we encounter in our lives. By the end of the year, students should be able to successfully speak to different aspects of themselves, their lived experiences, and to conduct dialogue with others in many different contextual situations. They will also attain a deeper understanding of culture and context in the Chinese-speaking world, and be able to understand the main idea of most texts that are put in front of them.

Chinese: All Things Considered

Credit: 1.0

Grades: 9

Prerequisite:

Chinese Discovery and Exploration or equivalent language proficiency and teacher recommendation

This course is designed primarily for students who have satisfactorily completed Chinese Discovery and Exploration or an equivalent course. It attempts to prepare students to demonstrate their Chinese language skills by exploring a variety of topics related to everyday life and personal interests and studies, including school and education, housing and shelters, food and health and friendship and work. Students will use a variety of authentic materials such as advertisements, signs and posters, newspapers, media broadcasts, movies and television dramas, in addition to text.

By the end of the year, students are expected to reach and sustain the level of “Intermediate” on the Avenues Language Scale of proficiency across all skill areas. They are expected to be able to identify and summarize both main ideas and important details in what they read and hear and to make appropriate inferences and predictions. Students can present information using a series of connected sentences in paragraph length. With two-way interactions, such as conversing face-to-face or exchanging written correspondence, students engage in a variety of activities in which an active negotiation of meaning is required. They can usually say what they want to say about themselves and their everyday life and make themselves understood to their audience.

Chinese Journey

Credit: 1.0

Grades: 11–12

Prerequisite:

Chinese All Things Considered or equivalent language proficiency and teacher recommendation

This course journeys beyond the foundations of learning into territory that prepares students to carry themselves in day-to-day activities. It will cultivate necessary skills in all four modes of language learning, exposing students to various topics we encounter in our lives. By the end of the year, students should be able to successfully speak to different aspects of themselves, their lived experiences, and to conduct dialogue with others in many different contextual situations. They will also attain a deeper understanding of culture and context in the Chinese-speaking world, and be able to understand the main idea of most texts that are put in front of them.

Chinese Encounters and Interactions

Credit: 1.0

Grade: 11–12

Prerequisite: Chinese Journey or equivalent language proficiency and teacher recommendation

Encounters and Interactions is a course fundamentally rooted in our relationships with various aspects of the world. Speaking is widely believed to be the most crucial mode of a language, and speaking is usually done with others. Exchanges and connections are formed through interaction. This

course will aim to journey beyond the self and explore the world around us. Through this class, students will cultivate their capacity to interact on multiple levels of eloquence. This class will also expose students to real and unabridged media such as news, film, social media, etc. through that exposure, students will develop comfort and confidence with their own abilities to speak with their authentic voice and interpret the words of others

Chinese: Concrete and Abstract

Credit: 1.0

Grades: 11–12

Prerequisite: Chinese Encounters and Interactions or equivalent language proficiency and teacher recommendation

This course allows students to understand and articulate more complex ideas and tones by conveying emotion through dialogue and understanding the internal states of oneself and others. We will tackle this difficult challenge through the means of storytelling, reading short stories, debating world topics, forming opinions and supporting those opinions in concrete ways and with abstract concepts. By the end of this course, students should be able to speak and write comfortably in passage length and confidently read things unfamiliar to them, using what they have learned to reveal what they must learn.

Advanced Chinese Language Through Culture and Literature

Credit: 1.0

Grades: 11–12

Prerequisite:

Concrete and Abstract or equivalent language proficiency and teacher recommendation

This course journeys beyond the foundations of learning into territory that prepares students to carry themselves in day-to-day activities. It will cultivate necessary skills in all four modes of language learning, exposing students to various topics we encounter in our lives. By the end of the year, students should be able to successfully speak to different aspects of themselves, their lived experiences, and to conduct dialogue with others in many different contextual situations. They will also attain a deeper understanding of culture and context in the Chinese-speaking world, and be able to understand the main idea of most texts that are put in front of them..

Science

Integrated Science 1

Credit: 1.0

Grades: 9

Prerequisite: None

This course focuses on developing the ability to think and behave like scientists and engineers. By engaging in authentic scientific investigations and engineering design projects, students develop a deep understanding of big ideas like energy transfer and system dynamics that are applied in all fields of scientific and engineering work.

9th-grade science is broken down into three major units. In the first two terms, students investigate the nature of matter and materials by zooming in to explore the forces and energy transfers that govern everyday materials at molecular, atomic and subatomic scales. They also explore how those same forces and energy transfers govern the formation of the universe, galaxies, stars and planets. In the second half of the year, the course explores how engineers have applied scientific concepts to design our modern world. In Term 3, students use the cell phone as a case study to investigate how devices take advantage of various energy transformations to store, process and transfer information in the form of waves. Students then apply their understanding of forces and energy transfer to design and build a solution to a physical problem—such as a case to protect the cell phone.

Integrated Science 2

Credit: 1.0

Grades: 10

Prerequisite: Completion of Integrated Science 1

Tenth-grade science focuses on developing the ability to think and act like a scientist. Students develop a deep understanding of big ideas like the properties, structure and behavior of matter, as well as its interaction with energy. The primary means of investigation is through laboratory exploration, group discussion and readings. Students conduct inquiry and directed lab experiments that require application of concepts learned in class.

The first half of the school year investigates the nature of matter and materials by exploring the energy transfers that govern everyday materials at molecular, atomic and subatomic scales. The second half of the year focuses on the activities and systems of living and nonliving things in our environment by applying the properties, behavior and interactions of matter and energy.

Advanced Physics (algebra-based)

Credit: 1.0

Grades: 10–11

Prerequisite: STEAM 09 or 10 and instructor approval

Advanced Physics students build upon the foundations of physics from earlier science courses to delve more deeply into understanding mechanics, electricity and magnetism, waves, and modern physics. Each term focuses on one main idea, including lab design and experimentation, as well as a more rigorous approach to using equations to model complex systems. We begin with a study of projectile motion and two and three-dimensional mechanics. In electricity and magnetism, we build on the understanding of these systems to study more complex circuit design and apply knowledge of induction to designing motors and other applications. Lastly, we take a full term to study introductory modern physics, including a study of the development of quantum mechanics as both a model and a way of thinking about the universe.

Biochemistry

Credit: 1.0

Grade: 11 Prerequisite: Completion of Integrated Science 2 and instructor approval

This course is a full-year, in-depth study of how chemistry drives biology. The core principles of science are used to promote deep understanding and appreciation of complexity, diversity and interconnectedness of life on earth.

The course focuses on the correlation between structure and function starting at the molecular level and up to the level of organisms, the chemical principles that drive biology and enable cell metabolism, principles of classical and molecular genetics and evolutionary theory, energy transformations within living systems and interactions between organisms and their environment. The study of major discoveries in biology will facilitate the understanding of and provide insight into modern and future problems and solutions. The emphasis is placed on the modern biotechnological and technical advances as applicable to medicine, food production and human wellness. Students will be able to apply knowledge gained in this course to their everyday lives and use learned lessons to make informed choices as members of a global community.

Laboratory investigations and other experiential learning opportunities will help students acquire a deeper understanding of concepts while developing their analytical skills. Students will gain skills using laboratory apparatus and correct laboratory techniques and procedures. They will learn the uses of classical and contemporary equipment in a biological laboratory. Dissections of chosen organisms will be used to promote the understanding of organization and functions of living things. Students will design and carry out long and short-term investigations using principles of the scientific method and use proper formats for reporting their findings.

Cosmology and Astronomy

Credit: 1.0

Grade: 11–12

Prerequisite:

None

This class will focus on the nature of the Cosmos not only placing emphasis on what we know but, more importantly, how we know what we know about the universe. Topics include a survey of critical thinking skills (including logical fallacies and thinking flaws), the search for extraterrestrial life, the history of cosmology, astrophysics, stellar evolution, the nature of light, the structure of the universe, the origin and fate of the universe (cosmology), galaxy evolution, General Relativity and contemporary issues in cosmology and astrophysics. Emphasis is placed on using previously encountered science concepts and adding missing puzzle pieces to build a framework that allows students to understand how the Cosmos can evolve from a very simple state 13.8 billion years ago to the highly ordered and complex.

This course is a full-year, in-depth study of how chemistry drives biology. The core principles of science are used to promote deep understanding and appreciation of complexity, diversity and interconnectedness of life on earth.

Advanced Chemistry

Credit: 1.0

Grade: 11–12

Prerequisite: Integrated Science 2 and instructor approval

Advanced Chemistry expands upon the foundations of physical science developed in earlier science courses. The course is designed for students to attain a more in-depth understanding of the structure and properties of matter, chemical reactions and thermochemistry. The concept of the conservation of mass and energy is developed more quantitatively. Students apply their understanding of periodic trends to predict the products of a reaction. The nuances of the different types of reactions are explored through laboratory investigation.

Advanced Biology

Credit: 1.0

Grade: 12

Prerequisite:

Completion of Integrated Science 3 or Advanced Chemistry, or by teacher recommendation

With the discovery of the structure of DNA, the sequencing of the human genome and the advent of biotechnology, molecular biology increasingly affects our understanding of the underlying principles of biology. This course builds on previous knowledge to help foster a broad understanding of biological concepts. Major areas of study include the chemical basis of life, cells, reproduction, genetics and epigenetics. Major themes are the immune system, nervous system and the endocrine system of regulation approached in a manner that develops higher-level thinking skills while providing real-world implications and applications. Emphasis is placed on the analysis of data generated through biotechnology lab activities.

The course is intended for students who have earned strong grades in previous science coursework and have been recommended by a science teacher for advanced study.

Physics C: Applied Physics with Calculus

Credit: 1.0

Grade: 12

Prerequisite:

Advanced Integrated Math 3, Advanced Physics, and instructor approval

This course is a one-year, calculus-based, university-level physics course, especially appropriate for students planning to specialize or major in the physical sciences and/or engineering. The course combines a depth of knowledge in physics with a significant dose of calculus and how it applies to the understanding of the workings of our physical universe. Students will begin with topics explored in Advanced Physics and expand this understanding by studying rotational kinematics and dynamics, harmonic motion as well as fluid mechanics. In the second half of the year, students begin to apply both differential and integral calculus to various canonical problems in physics ending with an introduction to differential equations, slope fields, Taylor series approximations and multi-variable calculus.

Psychology

Credit: 1.0

Grade: 11–12

Prerequisite: Completion of Integrated Science 2

This class focuses on both human behavior and neurology, beginning with social psychology and extending to how the brain works and how signals are transmitted in the body. Major topics include behaviorism, sensation and perception, muscle movement, processing, how to measure neural activity and factors that affect the transmission of nerve signals. Key projects include measuring action potential in human and nonhuman animals, behavioral studies in insects and tests in cognition. The course will include researching case studies, writing research papers, conducting labs and investigations, lectures and class discussion.

Sociology

Credit: 1.0

Grade: 11–12

Prerequisite: Completion of Integrated Science 2

Students will examine historical and contemporary social phenomena through a variety of disciplinary and theoretical lenses, investigating the makeup of the human social condition.

Sociology would mirror psychology's emphasis on skeptical reading of theoretical and mass-market writing in the social sciences. Students will be tasked with analyzing academic studies as well as popular representation of sociological theory, determining for themselves the fidelity of the conclusions drawn within. Student success in sociology will chiefly be determined by their individual initiative and drive to engage in the material and incorporate their own lived experience into the theoretical work they encounter. Students will be asked to conduct both quantitative and qualitative research throughout the year to think imaginatively and to continue to develop the nuanced thought process required to engage with complicated and controversial topics.

Chief among their work throughout the year will be a theoretical analysis and research project, completed separately but working in tandem. For the former, students will be tasked with identifying a research question to which they would apply their own analysis of a chosen sociological theory or series of theories. After developing their own concepts of the human social condition, students will then be asked to conduct their own research on their chosen topic, to analyze their findings in the context of their previous theoretical work. In order to complete these tasks, Sociology students will receive research training and support. They must also, however, take the initiative to conduct independently-driven research with minimal support from the course instructor.

Senior Seminar

Senior Seminar represents robust collaborative connections between disciplines and, as such, marks the pinnacle of the Avenues experience. These seniors-only courses challenge students to demonstrate a depth of understanding appropriate for the end of their journey through the upper grades.

Consciousness, Ethics and the Search for Meaning

Credit: 1.0

Grades: 12

Prerequisite: None

We are living, conscious, intelligent, self-aware creatures sharing this strange reality we find ourselves embedded in. Chaos, order, life, death, crime, punishment, joy and suffering...the ongoing search for some means of reliable and meaningful navigation. We are all philosophers in a very real way as we try, together, to make sense of the countless questions we face regarding the nature of reality and how to conduct ourselves within it; individually, as a society, as a species, across time and space. Class begins by delving deeply into the Hard Problem of Consciousness bringing all the relevant science and philosophy to bear. The issue of Free Will is encountered quickly and dissected for all its incomprehensible

implications. Students swiftly find themselves groping for some sense of stability on the shifting landscape of human ethical dilemmas. By employing Artificial Intelligence, tempting (but flawed) philosophical stances and appropriate thinking tools, the course finishes by squarely grappling with the fundamental questions of meaning for which we all—as individuals and as a species—so dearly yearn to uncover.

Visual Narratives

Credit: 1.0

Grades: 12

Prerequisite: None

Influential art critic and writer John Berger famously wrote “the relation[ship] between what we see and what we know is never settled.” This course aims not to settle, but to question, probe and unpack the imagery of our world—the art, photography, and architecture—that consume, mystify and delight us. By more carefully asking ourselves what we see and how we are seen, we will aim for a greater understanding of the visual narratives that guide our lives. Because looking is an art form, a political act and historically constructed process, we will study art and art history as well as literature, film, and cultural criticism artfully and intellectually engaged in the act of looking. And we will learn from expert eyes—meeting regularly with artists, art historians, philosophers, and designers—seeing what they see, how they interpret the visible world around them and take action to improve it. Finally, we will create new visual narratives—in the form of film, literature, art, and design—reimagining visual life at Avenues and beyond, establishing new ways of seeing that celebrate possibility, beauty and joy.

Senior Seminar: Mastery Capstone

Credit: 1.0

Grade: 12

Prerequisite: Prior Mastery experience and approved application to the Mastery program

For those students who have chosen to pursue Mastery in some form over their years at Avenues, the senior-year Mastery seminar is the culmination of that journey. Seniors in this capstone class will conceive of, develop and present an original senior project to our community. It is much like a Fifth Term Mastery experience, except with much more time and space to develop that idea over the course of a year. Students entering this class are not required to have a fully-formed idea from the outset, but we do ask that they have a general idea of the domain in which they would like to work. Students in this class will work closely with faculty, mentors and, potentially, experts in the field to help them dive deeper and more thoughtfully into their work. This Mastery seminar has an additional academic component built around an exploration of the science and psychology of creativity. The goal is not only to study creativity as an abstract academic concept but to hold it in our hands, to work the material of it and to learn how to entwine it deeply into our lives. Placed within the context of a student’s project work, this study presents an opportunity to students working in any domain to assume the mantle of young creatives in their chosen fields.

Applying what they learn from this exploration, our students will graduate from the Mastery program with an expanded sense of self, an objective view of their work and an understanding that when they engage beautifully in their passions they have an almost magical ability to affect the world in positive ways. The Mastery seminar is at once a pathway, an endpoint and an invitation to fulfill the mission of the Mastery program: to inspire a world of happier, more meaningful lives through the beautiful engagement of one’s passions.

Wellness and Movement

Wellness and Movement

Credit: 1.0

Grades: 9–11

Prerequisite: None

In the 9th and 10th-grade Wellness and Movement (WAM) course, students touch on a broad spectrum of health and fitness topics. During movement sessions, students expand their knowledge of functional movements and circuit training, focusing on proper mechanics. Wellness classes cover a variety of health topics including positive psychology, sexual health, consent, nutrition and mindfulness. Themes are discussed holistically through Seligman's theory of well-being and flourishing, in which students become aware of how positive emotion, engagement, relationships, meaning and purpose and accomplishment impact their well-being and happiness. In the 11th grade, exercise physiology previously covered in 10th grade is supported by the use of heart rate monitors to track training intensity and motivate student engagement. As a culminating project at the conclusion of the 11th-grade course, students are challenged to produce a wellness TED Talk (WAM Talk) on a wellness topic of their choice.

In addition, students have an opportunity to participate in various activities of their choice such as spinning, rowing, dance, yoga, martial arts, strength and conditioning classes and more. The emphasis is on encouraging maximum participation, success, skill mastery and knowledge so students can develop the positive behavior for fitness and wellness for a lifetime. The underlying threads linking Wellness and Movement units are physical fitness maintenance, development and improvement.

A student who is on an athletic team attends practices during movement time instead of attending the regularly scheduled movement classes. In addition, two after-school or before-school practices also take place during the season, for a total of four or five practices each week.

9th Grade Wellness

Credit: 1.0

Grades: 9

Prerequisite: None

A semester-long deep dive into the theory and practice of personal well-being. Students will explore aspects of physical, mental, and emotional health, and build foundational habits towards a healthy and active lifestyle. Topics of study will include mindfulness, exercise science, healthful eating, stress management, sexual health, and relationship skills. Lessons will connect basic understanding of physiology and neurobiology with mindful movement, coping strategies, tools for skill acquisition, and examination of social influence and impact. The goal of this course is to develop a sense of purpose and self-efficacy when it comes to caring for personal health, and to set students up for success as they navigate through the social and emotional challenges of upper grades and beyond.

World Course Electives

The World Course program is linked with other courses, particularly English, as a crucial component of our intensive, interdisciplinary program. In grades 11 and 12, students select from topic-specific World Course electives, while in 12th grade, the Senior Seminars rounds out the World Course pathway.

In the 9th and 10th-grade Wellness and Movement (WAM) course, students touch on a broad spectrum of health and fitness topics. During movement sessions, students expand their knowledge of functional movements and circuit training, focusing on proper mechanics. Wellness classes cover a variety of health topics including positive psychology, sexual health, consent, nutrition and mindfulness. Themes are discussed holistically through Seligman's theory of well-being and flourishing, in which students become aware of how positive emotion, engagement, relationships, meaning and purpose and accomplishment impact their well-being and happiness. In the 11th grade, exercise physiology previously covered in 10th grade is supported by the use of heart rate monitors to track training intensity and motivate student engagement. As a culminating project at the conclusion of the 11th-grade course, students are challenged to produce a wellness TED Talk (WAM Talk) on a wellness topic of their choice.

World Course 9

Credit: 1.0

Grade: 9

Prerequisite: None

In World Course 9, students embark on a study of civilization and the sometimes tenuous position of the individual within it. Taking Sigmund Freud's early work *Civilization and its Discontents* as inspiration, but employing the tools of history and the social sciences to guide us, we identify the key features of civilization, explanations for its myriad forms and some of the costs that have attended it becoming the default condition under which we live. What allows civilizations to thrive, what causes them to fail and how they communicate (directly and indirectly) with each other to transfer culture, ideas and technology, will all inform our journey.

Moreover, alongside many of the other disciplines at Avenues, we will explore the role of the individual in society, and the challenges one faces trying to identify and express a true sense of self while surrounded by social pressure to conform to preset expectations. Finally, to emphasize tension between how things change and how they might stay the same, we will examine major philosophical traditions and see how they are or are not relevant in our lives today.

World Course 10

Credit: 1.0

Grades: 10

Prerequisite: None

World Course 10 examines the causes and effects of modernization and globalization. We do so through an examination of colonization, the Enlightenment, the Scientific and Industrial revolutions, the rise of modern Islam and the digital revolution. Lingering over our investigation is an awareness that "progress" is a contested term. Students make connections between history and contemporary events as a means of exploring the cause and effect relationship between the past and the present—especially the influence of the past on international politics and conflict, social and economic stratification and the natural environment.

American Studies: World Course 11

Credit: 1.0

Grades: 11

Prerequisite: None

The concept of the American Dream can be traced back to the earliest English settlers at Jamestown and Plymouth, seeking economic opportunity and fleeing religious persecution, respectively. However, at times, access to the American Dream was predicated on its denial to other groups. In attempting to present a more balanced and inclusive version of American History, we examine what the American Dream means and how it has meant different things to different groups and how the definition of the dream has evolved over time based on various social, political and economic conditions.

This interdisciplinary course in American studies draws upon insights and methodologies from the fields of American history and American literary studies. Students learn to think about America from two angles. First, to get the “facts” straight, we explore the untold and sometimes troubling aspects of America’s history. We also explore how activities such as storytelling and mythmaking—that is, the production of cultural “fictions”—contribute to the shaping of national identity. Is it possible that a nation with such a violent past could also stand for a set of genuinely liberating ideals? What are the beliefs, practices and myths that have enabled America to cohere and perpetuate itself?