

# 2018 / 2019 ACADEMIC COURSE GUIDE



**Lawrence Academy**  
Groton, Massachusetts



# Lawrence Academy Diploma Requirements

The requirements listed below are those necessary to qualify for a diploma from Lawrence Academy. These are the minimum requirements, and Lawrence Academy believes that students should strive to exceed these requirements. Also, college entrance requirements often exceed Lawrence Academy's diploma requirements.

<b>English</b>	Complete a year of English for every year at Lawrence Academy.
<b>Math</b>	Complete Math 3.
<b>Foreign Language</b>	Complete two consecutive levels of any one language (French, Spanish, Latin, or Chinese), regardless of the level at which the student begins their freshman year.
<b>History</b>	Incoming 9th grade students: Complete three years, one of which must be U.S. History. Students entering after the 9th grade: Complete two years, one of which must be U.S. History.
<b>Science</b>	Incoming 9th grade students: Complete physics, chemistry, and biology. Students entering after the 9th grade: Complete chemistry and biology.
<b>Arts</b>	Incoming 9th grade students: Complete two years of art, one of which must be Artistic Expression. Students entering after the 9th grade: Complete the equivalent of one term of art for each year attending Lawrence Academy (i.e., a term course each year they are enrolled).
<b>ESL</b>	Students entering Lawrence in the English as a Second Language program are expected to spend only two years in the program if they enter at the ESL intermediate level. ESL Literature and ESL Skills count as English credits; ESL Sociocultural Studies and ESL Bridge History count as history credits. After students are placed in the mainstream curriculum, they must meet the department requirements whenever possible. Non-native English speakers will not be given foreign language credit for their native language.
<b>Winterim</b>	Complete a two-week Winterim for every year at Lawrence Academy.
<b>Community Service</b>	Complete six hours of community service for every year at Lawrence Academy.

# 2018 / 2019 Academic Course Offerings

## Arts

### Artistic Expression • 101 • Year Long

*Required of all ninth graders.*

In Artistic Expression, students will develop a respect for the creative space of the classroom and experience the process of making art in a variety of forms. In an environment safe for taking risks, students will learn to use the creative process to articulate their individual perspectives through visual and performing arts. They will playfully and spontaneously explore elements of design and expression to develop their individual artistic “voice.” Students will observe artwork carefully, making inferences about intention and purpose, growing comfortable with responding critically to the work of others and to having their own work critiqued. Ninth graders will leave this course prepared for meaningful and disciplined study in any of the visual and performing arts they may study in the coming years.

### Honors Dance 1 • 122 • Year Long

*Prerequisite: Instructor’s permission.*

This year-long honors dance offering is designed for students looking for a sustained and rigorous immersion into dance, and it consists of a three-pronged approach: skills, choreography, and performance. While the course will touch upon all three elements during each term, the emphasis early on will be the improvement of physical technique. The second point of emphasis will be choreography, which itself may be divided into two components — material invention and compositional structure — and the third point of emphasis will be performance skills. Adding foundation to all three aspects of the course will be research into the history and theoretical philosophy of dance as a human endeavor. This class will also work collaboratively with the other honors-level arts classes throughout the year, giving all students a multidisciplinary arts experience.

### Honors Dance 2 • 123 • Year Long

*Prerequisite: Honors Dance 1 and instructor’s permission.*

This course will only be offered to those students who have excelled in Honors Dance 1. The curriculum will largely consist of the same components and emphases, with the following additions: an expectation of increased ability to focus and concentrate; increased complexity in compositional structure; and greater leadership and consciousness of the subject matter and issues with which today’s artists are grappling.

### Honors Lawrence Academy Singers • 031 • Year Long

*Prerequisite: Senior or junior standing and instructor’s permission.*

This course is offered to juniors or seniors who have sung in LA Singers for at least three trimesters and who have passed a musical proficiency test. In addition to participating as a full member of the choir by preparing repertoire and studying methods in sight singing, vocal technique, ensemble building, and expression, Honors LA Singers students serve as student leaders. Students will lead in a variety of ways based on interest and experience, including running sectionals, conducting the choir, composing or arranging for the choir, researching and analyzing the repertoire, and assisting the conductor. The ensemble prepares concerts for the end of each trimester and repertoire for various events on and off campus throughout the year.

## Honors Lawrence Academy Band • 032 • Year Long

*Prerequisite: Senior or junior standing and instructor's permission.*

This course is offered for juniors or seniors who have played in LA Band for at least three trimesters and who have passed a musical proficiency test. In addition to participating as a full member of the band by preparing repertoire and studying technique, ensemble building, and expression, Honors LA Band students serve as student leaders. Students will lead in a variety of ways based on interest and experience, including running sectionals, conducting the band, composing or arranging for the band, researching and analyzing the repertoire, and assisting the conductor. The ensemble prepares concerts for the end of each trimester and repertoire for various events on and off campus throughout the year.

## Honors Theatre Ensemble • 025 • Year Long

*Prerequisite: Instructor's permission.*

This year-long course will build on fundamental skills learned in previous theatre courses or productions and will give students the opportunity for more in-depth study. Students' work will focus on developing their acting and directing skills as well as techniques for devising original work. Students will be asked to collaboratively develop and perform material in an ensemble, as well as to analyze and interpret theatrical literature from the point of view of the director, actor, and designer. By exploring new ways of telling stories and communicating ideas theatrically, and by guiding their peers as directors, students will deepen the search for their own artistic voice. In the spring trimester, students will adapt, write, or select a one-act play that they will direct in a fully realized production.

## Honors Visual Art 1 • 131 • Year Long

*Prerequisite: Instructor's permission. Please note: This course includes a studio fee.*

This year-long art course is designed for the highly motivated visual art student. It will give students the guidance and instruction they need to create portfolios of their own work, both for the college admission process and for their own artistic development. Students will be expected to experiment with new materials and techniques, as well as focus on one medium with the goal of producing a coherent body of work. While significant portions of the course will be dedicated to individual pursuits, the class will also participate in group assignments and formal critiques. This class will also work collaboratively with the other honors-level art classes throughout the year, giving all students a multidisciplinary arts experience.

## Honors Visual Art 2 • 132 • Year Long

*Prerequisite: Honors Visual Art 1, senior standing and instructor's permission. Please note: This course includes a studio fee.*

This year-long course is designed for students who took Honors Visual Art 1 as juniors. Emphasis is placed on each student developing his or her artistic voice as they set their own goals and build their portfolio. Students are expected to work extensively within their principle media but are also encouraged to continue to experiment with other media in order to broaden their range as visual artists. Instruction is individualized to each student as they work to achieve their goals and develop their artistic voices.

## Honors Digital Media • 017 • Year Long

*Prerequisite: Instructor's permission; and a previous course in photography or film*

The focus in the Fall will be still photography with skill-building projects, field trips, and critiques. During the winter term, the emphasis will be on sequential photography and /or film. In Spring Term, students will concentrate on projects of a more independent nature and can work in still or video media.

## **Music — Independent Music Instruction • 020 • Year Long (1/3 credit total)**

*Please note: Students will be charged the school's usual fee for lessons. Receiving credit for this course is dependent on the successful completion of all three terms. If the student drops this course prior to completion, no credit will be issued. Ninth graders may participate if their schedule allows.*

Independent Music Instruction offers students an individualized learning experience with a private instructor. In the lessons, students develop technique and expression while they explore the repertoire for their instrument. Students receive one 50-minute lesson per week and are expected to practice a minimum of two hours per week. Students will be required to perform in two of the three recitals throughout the year and are encouraged to participate in the vocal and instrumental ensembles.

## **Term Courses**

*All 1/3 credit unless otherwise indicated. Open to all sophomores, juniors, and seniors unless otherwise indicated.*

### **Dance — The World of Dance • 126 • Winter, Spring**

This dance course is designed to introduce students to the complexity and profoundness of dance. We will look at dance from a historical perspective, exploring the anthropological, social, and religious roots of dance. We will look at the legends and mythologies surrounding dance, trace their origins, and analyze their impact on our modern perceptions. This class will include both movements in the studio and readings on religion, psychology, and anthropology.

### **Dance — Choreography • 070 • Fall, Spring**

This class is designed to introduce students to dance composition involving the invention of raw material and the structuring or crafting of that material into a piece of dance or physical theatre. Students invent movement utilizing thematic, psychological, and musical stimuli. They further explore craft (or composition) and increase their understanding of dance “conventions” and physics: use of space, textural dynamics, speed, and the impact on the viewer. While this is not a dance technique class, it is a movement class, and students are expected to perform their own and others’ choreographed material both in class and in a public setting.

### **Dance — Introduction to Dance • 120 • Fall, Winter**

This class focuses on the physical side of dance. Students will do exercises designed to increase flexibility, strength, and awareness of their bodies in movement. They will dance in a variety of styles in order to build confidence and the facility to dance generally, to improve their performance capabilities.

### **Music — Lawrence Academy Singers • Fall, Winter, Spring**

*May be taken by term or for the full year. Open to students at all grade levels. May be repeated as often as desired. Students may also participate for no credit, provided they are free during the block when the class meets.*

LA Singers is a chorus for credit. You do not need prior experience to sing in the chorus. We will learn and create choral music in styles that span the depth and breadth of music history. Also incorporated will be methods in sight singing and vocal technique. Emphasis will be placed on ensemble building, expression, and service. The ensemble will prepare concerts for the end of each trimester and repertoire for various events on and off campus throughout the year.

## **Music — Lawrence Academy Band • Fall, Winter, Spring**

*Prerequisite: Some prior musical experience on an instrument. May be taken by term or for the full year. Open to students at all grade levels. May be repeated as often as desired. Students may also participate for no credit, provided they are free during the block when the class meets.*

LA Band is an instrumental performance ensemble for credit. Students will learn, perform, and create musical arrangements in many different styles. Also included will be methods in improvisation, sight reading, and basic technique. The ensemble will prepare concerts for the end of each trimester and repertoire for various events on and off campus throughout the year.

## **Music — Introduction to Music • 018 • Fall, Winter, Spring**

This course introduces students to the world of music. By using the fundamentals of music theory, music history, and musicology, students will become more active listeners and observers. Students will apply these skills by learning basic guitar and piano, and by composing and performing at various levels. This class is intended both for students who wish to continue their study of music and for students who are interested in trying something for the first time.

## **Music — Musicianship 1 • 028 • Fall, Winter, Spring**

*Prerequisite: Introduction to Music.*

Musicianship 1 picks up where Introduction to Music leaves off: at the beginning of tonal harmony. A solid foundation with identifying notes on the staff, reading rhythmic notation, understanding accidentals, and basic proficiency on the piano is expected. Students will compose and analyze music that uses basic tonal harmony in major and minor keys without modulation.

## **Music — Musicianship 2 • 023 • Fall, Winter, Spring**

*Prerequisite: Musicianship 1*

Musicianship 2 continues from Musicianship 1, beginning with modulation techniques. Similar to Musicianship 1, a solid foundation with identifying notes on the staff, reading rhythmic notation, understanding tonal harmony, and basic proficiency on the piano is expected. Students will compose and analyze music that uses tonal harmony in major and minor keys with modulation and tonicization. Counterpoint will also be introduced.

## **Music — Musicianship 3 • 024 • Fall, Winter, Spring**

*Prerequisite: Musicianship 2.*

Musicianship 3 completes the series of Musicianship courses and starts off with analysis of four-part chorales. Similar to the previous Musicianship courses, a solid foundation with identifying notes on the staff, reading rhythmic notation, understanding tonal harmony, and basic proficiency on the piano is expected. Students will explore the theme and variation technique of composition, write fugues and other counterpoint forms, and interpret their analyses and compositions for performance.

## **Music — Songwriting • 010 • Spring**

*Prerequisite: Basic proficiency on piano or guitar is expected.*

This course focuses on the art of songwriting, combining the elements of creative self-expression, lyric writing, notation and leadsheet, technical proficiency, and collaboration. Live and digital musicians are welcome. Students will create a portfolio of work in varying styles, culminating in an independent production of a mini album.

### **Music — Music Technology • 008 • Spring**

This course provides a practical guide to music technology equipment and sound, including everything from choosing equipment to selecting the right type of microphone and finding your way around a typical live sound mixer, while focusing on recording and sound design. Using digital audio sequencing and the basic principles of audio recording, students will record, edit, mix, and burn their work to a CD. Pro Tools, Logic Pro X, and Garageband software will be used to compose and record music. Students may use the included loops or create their own backgrounds for improvisation, movie soundtracks, and any genre of music. Knowledge of Macintosh computers is helpful, but not required.

### **Theatre — Theatre Ensemble • 129 • Fall, Spring**

The best way to study and appreciate an art is by doing it; therefore, the main focus of this introductory course is on making theatre an active and collaborative process. Creating effective theatre requires an understanding of a story, character, composition, and the power of both verbal and non-verbal language. In this course, students study these basic elements through the playing of theatre games, basic acting exercises, improvisation, ensemble work, and in-class performances, which help students discover their own creative voices. The course begins by developing a strong ensemble that can work, play, create, and solve problems together. Students critique their own and others' performances, and they learn how to evaluate what "works" onstage, as well as to understand why.

### **Theatre — Acting • 096 • Spring**

This course begins with basic exercises to hone the actors' tools, beginning with focus, energy, and imagination. As we dive more deeply into the craft of the performer, we learn the importance of goal or intention, obstacles, and playing of tactics. Students examine classic and modern dramatic texts from the point of view of the actor, bringing the words on the page to life in exciting and dynamic ways and experimenting with a variety of performance styles. Continued skill development in voice, movement, and improvisation builds a stronger foundation of tools for the actor.

### **Theatre — Improvisation • 091 • Fall, Winter, Spring**

This unpredictable, incredibly fun, and challenging course asks students to focus on listening, responding honestly, and making strong and truthful actor choices. Students develop a foundation of acting techniques and work to solve problems collaboratively during spontaneous performances. Improvisation is also applied to the creation and rehearsal of scripted material. Activities include theatre games, storytelling, character development, and scene building. The ultimate goal of the work is to hone the student's ability to be truly alive, playful, and paying attention to the moment they are in, so the value of this work is clearly wide-ranging.

### **Visual Arts — Drawing • 102 • Fall**

*Please note: This course includes a studio fee.*

The goal of this course is twofold: First, this course will introduce students to the techniques necessary to represent the world around them through observational drawing; second, students will use those skills to express themselves creatively and artistically and to begin to establish an individual style and voice. Students use graphite, charcoal, ink, pastels, and colored pencils, among other media, as they explore elements of art such as line, light and shadow, and composition. Peer critiques and individualized attention from the teacher help students develop both technical skills and their creative voices.

## Visual Arts — Painting 1 • 104 • Fall

*Please note: This course includes a studio fee.*

This course introduces students to the many ways they can express themselves through the medium of paint. While some time is spent learning color theory and painting techniques through class exercises and assignments, the majority of the course focuses on the creation of unique, individual art. Some of the genres available for exploration and experimentation are still-life, portraiture, working from images, and abstractions. Peer critiques and individualized attention from the teacher help students develop both technical skills and their creative voices.

## Visual Arts — Painting 2 • 108 • Fall

*Prerequisite: Painting 1*

Painting 2 is a continuation of Painting 1, with a focus on developing more specific techniques using paint. Students will have a choice to use water or oil paints to create work, and the students will generate the subjects of the paintings. The students will have to make a plan for their work that develops not only their techniques in painting but also their voices. They will need to articulate the rationale for their imagery and use continued research of artists and inspirational material to support their work.

## Visual Arts — Photography 1 • 106 • Fall, Winter

*Please note: This course includes a studio fee.*

This black-and-white film class challenges students to visually explore the world around them through the camera lens. Each week, projects are assigned that encourage creative thinking and new ways of artistic expression. Camera operation in the manual mode for creative control is stressed. Film developing and enlarging photos in the darkroom are part of the weekly process. A short written reflection is required for every project.

## Visual Arts — Photography 2 • 107 • Spring

*Prerequisite: Photography 1 or instructor's permission. Please note: This course includes a studio fee.*

This class builds on students' knowledge of composition, camera function, film processing, and darkroom procedures to produce high-quality photographs. The basis and history of the photographic process, from pinhole cameras to glass negatives to Polaroids, are explored and utilized. Alternative processes in the camera arts realm are also explored.

## Visual Arts — Digital Photography • 093 • Fall, Winter, Spring

*Prerequisites: Photography 1 or instructor's permission. Please note: This course includes a studio fee.*

This course teaches the foundations of using a digital camera and editing photographic images in the digital darkroom. Students discover how to apply the concepts learned in Photography 1 to the digital medium. Adobe Photoshop is used to create photographs that range from being subtly enhanced to dramatically altered. Various methods of creating prints and books are applied. Projects are assigned to help students understand the expressive qualities inherent in this photographic medium.

## Visual Arts — Creating the Digital Photography Book • 094 • Spring

*Prerequisite: Digital Photography or instructor's permission. Please note: This course includes a studio fee.*

Using digital photography, students will spend the trimester learning the aesthetic and technical aspects of photography. Students will be encouraged to express a personal style and explore areas of special interest. The ultimate goal of this course is the creation of a book that contains cohesive thematic content as well as the demonstration of an individual expressive style. Design, layout, editing, and software usage will be important skills in creating this personal artifact.

## Visual Arts — Sculpture • 136 • Spring

*Please note: This course includes a studio fee.*

This course introduces students to the challenges involved with creating art in three dimensions. The class focuses on both the conceptual phases of an assignment and the technical issues of actually building the work of art from the materials at hand. Some of the materials used include clay, metal, wood, plaster, and stone, as this class deals with issues including space, form, and content. Emphasis is placed on the students expressing their own personalities through their work, as well as developing technical skills. Peer critiques and individualized attention from the teacher help students develop both technical skills and their creative voices.

## Visual Arts — Printmaking • 177 • Fall

*Please note: This course includes a studio fee.*

This course covers a wide range of printmaking techniques, from very fast and spontaneous mono-printing to slower and more deliberate linoleum block printing. Printmakers can make use of drawing, painting, and carving techniques even before the actual printing process. This course introduces students to the artistic potential of printmaking as they learn how to express themselves through the materials used and the printing process itself. Peer critiques and individualized attention from the teacher help students develop both technical skills and creative voice.

## Visual Arts — Film 1: Digital Editing • 090 • Fall

This course is a fast-paced introduction to digital filmmaking and Final Cut X editing software. Students will produce many short movies in small groups to explore a variety of techniques and begin critiquing their work with a careful eye. They will learn to work together to build a better understanding of the tools available to modern filmmakers.

## Visual Arts — Multimedia • 098 • Winter

*Please note: This course includes a studio fee.*

Students will explore the connection between what they want to say and the media they choose to convey their artistic ideas. They will receive instruction in printmaking, collage, drawing, and 3D assemblage. Incorporating design principles, students will use alternate surfaces, as well as media associated with the technological age, to create expressive works. The historical and social perspectives of these artistic processes and how they relate to our present day will be examined. Students will maintain a sketchbook/journal, and they will participate in peer critiques.

## Visual Arts — Animation • 009 • Spring

This course is an introduction to the animation process, and students will work together to create a variety of short projects. They will begin with basic flipbook and stop-motion techniques and move towards using software to animate drawings digitally. This course will put an emphasis on observing motion carefully and using sequential imagery to communicate ideas. Students will observe and critique each other's work with the goal of better understanding both the challenges and possibilities of setting artwork in motion.

## Visual Arts — Ceramics • 105 • Winter

*Please note: This course includes a studio fee.*

This course will introduce students to the world of clay. Hand-building, wheel throwing, and glazing techniques will all be explored as students learn how to express themselves through this ancient and versatile medium. Both traditional vessel-making and contemporary sculptural methods will be used. While introductory in nature, this course can also be an appropriate place for students with some experience to advance their skills.

## Visual Arts — The Figure • 022 • Winter

Students will learn to use the body as form to create visual art to express aspects of the human condition. Within this course, they will use a variety of materials to create works on paper, drawing, collage, and painting. Using the figure, students will develop their skills in gesture and weight/balance, learn to handle proportion, and organize and analyze optical shape relationships and their design. Most days will be spent drawing from a live model and then using sketches to create finished pieces of work. Through reflection, the students will develop their voice and use these ideas for a body of work.

# English

All students must take at least one English course during every term of every year they are at Lawrence Academy. Ninth graders, tenth graders, and eleventh graders take yearlong, comprehensive courses covering grammar, usage, syntax, literary genres, and the process of composition. Tenth graders with an A- average or higher at the end of their tenth-grade year may be recommended for Honors English Composition. Twelfth graders take the yearlong Senior English Seminar, Honors Writing, or Honors Literature, with placement in these courses to be determined by the department.

Any eleventh or twelfth grader with a particular passion for writing may choose to take Honors Writing as a second English with special permission, upon departmental review of produced work. However, placement in a second English class is not guaranteed, as preference is given first to students recommended for that course, and, second, to twelfth graders who want to take a second English.

Eleventh and twelfth graders may request to take an independent study course in English only in addition to a regularly scheduled English course. They may not take an independent study course in English instead of a regularly scheduled English course. Department permission is required. (For more information, see Independent Study in The Student Handbook.)

## The Journey • 201 • Year Long

This course focuses on developing students' understanding of themselves as readers and writers by asking them to read literature in four genres -- short story, play, poem, and novel -- and to create interpretations which pay close attention to the text, not only using evidence to support the students' reasoning in inferences and conclusions, but also using fundamental literary terms and devices. Students express their ideas by speaking and listening in seminars and presentations as well as by writing in analytical essays, personal essays, poetry, and stories. A preliminary study of formal matters in writing, such as vocabulary, grammar, usage, mechanics, and style, is included. The coursework revolves around a metacognitive approach in which students are encouraged to know and understand themselves as learners and to think for themselves in their study of such texts as *The Odyssey*; *My Children, My Africa*, and *The Secret Life of Bees*.

## The Individual and Society • 202 • Year Long

In this course, students are not told what to think but are asked to make determinations for themselves. This course develops students' academic skill in reading, writing, speaking, listening, and thinking. Students read in the four genres, studying such texts as *Antigone* and *The Alchemist*. They also write papers, participate in seminars, projects, and presentations, and focus on literary terms and devices, as well as vocabulary-building and the mechanics of good writing, reinforcing student self-awareness of learning strengths and weaknesses. The course also looks beyond the self to the world in which we live, revolving around the theme of the individual and society throughout the ages and around the globe.

## English Composition • 205 • Year Long

In this course, students focus on demonstrating their self-awareness by increasingly making choices about what they read and what they write, as they develop their analytical reading, thinking, and writing skills through their study of short fiction, poetry, novels and plays, such as *Twelfth Night*, *A Lesson Before Dying*, and *The Great Gatsby*. Because the English curriculum emphasizes original thinking in all its classes, students also choose what ideas they want to pursue in their written and spoken expression. An emphasis on writing the analytical expository essay continues all year, with opportunities to write short fiction, poetry, and the personal essay. Considerable emphasis is placed on class participation in discussions and formal seminars, and on rewriting and editing using proper English grammar. One hallmark of the course is the Judith French Poetry Recitation Competition, in which students exercise initiative and responsibility by choosing a poem to study closely, memorize, and perform.

## Honors English Composition • 206 • Year Long

In this more demanding honors course, students are expected to begin the year exercising their self-knowledge by taking full responsibility for their learning, making choices about how they read, what they think is important in their reading, and developing their own ideas in both written and spoken expression. Students read three to five works of fiction, a Shakespeare play, several short stories, and a great deal of poetry, including such titles as *Hamlet*, *Station Eleven*, and *Beloved*. Writing centers on analytical expository essays, with occasional in-class writing. Students also write personal essays, poems, and stories, and their works are critiqued by peers. Class participation in discussions and seminars is required, and students are expected to start discussions themselves. One hallmark of the course is the Judith French Poetry Recitation Competition, in which students exercise initiative and responsibility by choosing a poem to study closely, memorize, and perform.

**Honors English Composition Requirements:** To be eligible, students must be recommended to this course by their English teacher, have an A- average or higher, and be deemed capable of the demands of honors work, pace, depth, and volume. An incoming student new to the school must also submit a graded writing sample from the past year and have permission of the department chair and the instructor.

## Senior English Seminar • 208 • Year Long

This is a course in which students practice reading, writing, listening, speaking, thinking, and organizing, as well as curiosity, resilience, empathy and integrity. Over the course of the year, they develop a working understanding of their own individualized learning processes within those skills and the ways in which those skills overlap and inform one another in their academic lives. Independent initiative and inquiry is a hallmark of this course, and the year culminates in student-designed independent work on a relevant topic of their own choosing.

Each term, students engage in six seminars. They write three pieces of literary analysis, one piece of fiction or poetry, and two personal persuasive essays.

## Fiction into Film

This course focuses on narratology and the translation of fiction onto the screen. Focusing on the manipulation of the original text, students read novels and films and discuss the screenwriter's interpretation of an original work. Analytical writing focuses on discourse, character development, dialogue, and the ways authors and screenwriters convey meaning to their audience. Creative writing includes scene writing and screenwriting. Readings include *The Shining*, *One Flew Over the Cuckoo's Nest*, *A Clockwork Orange*, *Brokeback Mountain*, *Legend of the Fall*, *Fight Club*, *Interview with a Vampire*.

## Breaking Form

This course explores writers who break the rules of conventional literature. Students also experiment with breaking form to write stories and poems of their own. Titles include: *A Visit from the Goon Squad* by Jennifer Egan, *The Things They Carried* by Tim O'Brien, *Father Comes Home from the Wars* by Suzan-Lori Parks, *Fun Home* by Alison Bechdel, and poems by E.E. Cummings, and Emily Dickinson.

## Searching for “You” and Success

This course explores the question What does it mean to be a successful person and to have a successful life? What skills and attributes are required? Students record and reflect on their own success. Self-assessment is integral to their work throughout the year. The literature students read examines the stories of people who are or are not successful. Each term students read a wide variety of texts that challenge them to think critically and creatively with a growing tolerance for ambiguity. Texts include *Native Son*, *The Things They Carried*, *The Natural*, as well as TED talks, spoken word performances, and selected short films.

## Mythological Literature

In this course, students will explore the literature of ancient mythology and how it has evolved over the years. How reading informs writing and how literature is a conversation that spans time and location are the central ideas of this course. The course will begin with texts such as *The Odyssey*, *Metamorphoses*, and *The Thousand and One Nights*. Exploration of this kind of story continues with examining works by Hans Christian Anderson, The Brothers Grimm, and Aesop. In the spring term, students read more contemporary novels to see how these myths have been transformed and re-imagined by authors Toni Morrison, J.R.R. Tolkein, Hermann Hesse, and Margaret Atwood.

## Children’s Literature – Genre, History, Analysis

The course introduces students to the forms, themes, history, and uses of literature written for children ages three to twelve. Genres include traditional fiction/folktales, contemporary realistic fiction, picture books, fantasy/science fiction, historical fiction, and poetry/verse. Students develop an appreciation for the literary qualities of children’s literature and become acquainted with the history and development of children’s literature and explore how race, class, gender, and ethnicity educate children about diversity, equity, and inclusion. Texts include *The Rough-Faced Girl*, *Beautiful Daughters*, *The Iliad*, *The Arabian Nights*, and *The Hobbit*

## Dreaming of Love and Other Four-Letter Words

In this course, students attempt to answer the question: Who gets their dreams to come true? Each term focuses on a specific group of Americans in their quest to obtain the “dream”. Students explore the concept of love and its juxtaposition to hope, fear, and hate by reading the following novels: *The Beans of Egypt, Maine*, *Their Eyes Were Watching God*, and *The Wangs vs The World*. Students research and view documentaries such as the Supreme Court Case for *Loving v. Virginia*, in addition to exploring the topics of rural poverty, systematic racism, and immigration.

## Literature of War and Trauma

This course focuses on a central question: How and why do we create art in the wake of unimaginable violence and trauma? Students travel from "The Great War" to the present, examining texts that explore the violence, contradiction, and healing of wartime. How does literature affect understanding of the human condition and capture experiences that, in and of themselves, cannot be understood? Texts include *All Quiet on the Western Front*, *One of Ours*, *Catch 22*, *Slaughterhouse Five*, *The Things They Carried*, and *Billy Lynn’s Long Halftime Walk*, as well as films like *Saving Private Ryan* and *Restrepo*.

## Utopia/Dystopia

Throughout the year, students consider the ideas of utopia and dystopia in theory and in text. At the beginning of each term, students consider the idea of utopia as it relates to the theme or topic of the term. As the term progresses, they turn to looking at the breakdown of utopia and idealism into forms of dystopia related to the same theme or topic. Texts include *Brave New World*, 1984, *The Handmaid's Tale*, *Player Piano*, and *Station Eleven*, as well as films like *Blade Runner* and *Avatar*.

## Journalism in America

In this course students will study the basic rules, tools, and techniques of print and online journalism as well as the role of media in our society. Students will practice investigative skills, responsible reporting, and journalistic writing techniques; learn blogging, podcasting, videography, photography, and how to use social media to promote content. They will read from a variety of sources to understand the modes of journalism available to them as well as the role of media in our society. Both independent and collaborative work will be expected throughout the year.

## Honors Literature • 209 • Year Long

This course focuses on texts from a wide variety of genres and time periods. The requirements for the course are equivalent to a first-year college English course, expecting students to think critically and creatively as they wrestle with ambiguity, to read at a greater depth, volume, and pace, and to write in all forms, using original ideas. The demands in quality and quantity of work are high, and a serious commitment on the students' part is essential. The course provides intensive instruction in the critical reading of literature and frequent opportunities to analyze literature in writing as well. Both in-class-writing and formal literary analysis are the central focus. Throughout the year, students investigate topics of their own choosing based on their understanding of their own learning, and in the spring, they develop extensive original analysis on a topic of their choice.

**Honors Literature: Requirements:** Students may take Honors Literature as their only English class provided they have been recommended to do so by the English department. To be eligible, students must meet the following criteria: a teacher recommendation based on department expectations for honors level work, plus an A- average or higher in the previous year's English class, or a B+ average or higher in an honors course. Students new to the school must also submit a graded writing sample from the past year and have permission from the department chair and the instructor.

## Honors Writing • 210 • Year Long

This course explores the possibilities of each student's writing imagination with an emphasis on two major themes: habits of mind and creative sensibility. The course introduces students to the basic tools of poetry, fiction, and non-fiction and involves daily writing, reading, and analysis. Students participate in workshops, presentations, and seminars. Because this is a process writing course, students are evaluated based on the quality of their thinking and understanding in their latest drafts, revisions, comments in workshops and peer critiques, reading responses, and weekly self-assessments. The year culminates in independent creative work, allowing students to design and implement a project of their own choosing, with particular focus on their ability to set and meet goals, and their understanding and internalizing of the themes of the course: habits of mind and creative sensibility.

**NOTE:** *Any student enrolled in an English course may take the AP exam in the spring.*

**Honors Writing Requirements:** Students may take Honors Writing as their only English class, provided they have been recommended to do so by the English department. To be eligible, a student must meet the following criteria: a teacher recommendation based on department expectations for honors level work, plus an A- average or higher in the previous year's English class, or a B+ average or higher in an honors course. Students new to the school must also submit a graded writing sample from the past year and have permission of the department chair and the instructor.

Students who have a particular passion or talent for poetry and fiction and wish to take Honors Writing as a second English course may do so only with permission of the department upon review of produced work.

The department gives twelfth graders preferred placement in Honors Writing.

# ESL

## **ESL Intermediate Skills • 293 • Year Long**

This course emphasizes the acquisition of skills in English that will allow students to improve their academic achievement in their other courses. Students will study grammar, paying special attention to problem areas for learners at this level: article use, subject-verb agreement, spelling, count/non-count nouns, word forms, etc. The study of sentence structure focuses on the formation of complex sentences using clauses and their punctuation. Students work to master the standards of paragraph writing; they then move on to the different organizational patterns used in paragraphs. Later, students learn to create their own essays; they practice writing on various topics assigned weekly. Vocabulary study is emphasized in conjunction with the development of reading skills.

## **ESL Intermediate Literature • 290 • Year Long**

This class focuses on strengthening the skills of reading and writing about different forms of literature. Students begin the year by reading short stories while working on comprehension and vocabulary; later, students learn a variety of strategies with which to better analyze longer literary works in greater detail in class and in written assignments. Participation in class discussions, responding to literature in journal entries, and learning how to conduct seminars on literary analysis are emphasized.

## **ESL Intermediate Sociocultural Studies • 294 • Year Long**

This ESL class investigates the socio-cultural landscape of the United States as a means of strengthening those critical academic skills needed by students whose native language is not English. Using a sociological studies model, students learn about how the American value system is reflected in the icons, behaviors, and practices of the American people; students also contrast and compare their own cultural practices and norms with those of the host culture. To target skill development, this sociocultural content is delivered in a variety of ways. Students are also introduced to research skills and the effective use of the library; they are instructed in the use of technology and speaking skills as needed. A special emphasis is placed on helping students acclimate to U.S. classroom culture.

## **ESL Advanced Skills • 289 • Year Long**

This course allows students to review specific topics that are problematic for ESL students while pushing their spoken and written expressions to higher levels. In addition, students must work to increase their active vocabulary to the degree necessary to succeed at the next level. In their essays, students must be able to prove mastery of the four rhetorical writing styles and the correct use of grammar expected at this level by the ESL curriculum. In addition, students must master the note-taking, listening, and speaking skills outlined in the curriculum goals. Finally, students must be able to read at grade level with at least 75 percent accuracy without the use of external aids or assistance. Thus, students are expected to maintain a great degree of self-discipline in their studies.

## **ESL Advanced Literature • 291 • Year Long**

In this course, students work to become active readers and analytical thinkers. The course uses a variety of literary works to help students practice taking reading notes and analyzing literary devices. In class, students study the idea of a genuine question about a text and practice participating in class discussions. Presentation of evidence from the readings is expected daily. Students also learn new vocabulary in context, and they must work towards reading at grade level by the end of the course.

### **ESL Advanced Sociocultural Studies • 693 • Year Long**

This course allows students to delve into a variety of topics that surround American culture and values while increasing their English skills and research skills to succeed at the next level. Key basic skills required for mastery are the ability to synthesize information and to think critically about the material. Writing that is based on information from multiple sources must include personal thinking and analysis. Students are expected to meet outside of class with the instructor on a regular basis.

### **ESL Bridge Skills • 288 • Year Long**

Students enrolled in this year-long class explore different modes of communicating effectively as writers and speakers of English. While studying vocabulary and grammar throughout the year, with an emphasis on improving sentence structure, fluency, and accuracy, students practice critical thinking and put into practice the principles of public speaking while working to improve their pronunciation, enunciation, animation, volume, and pacing. In addition, they practice using descriptive and persuasive writing in a variety of assignments.

### **ESL Bridge Literature • 292 • Year Long**

This ESL course assumes knowledge of and competency in high-intermediate skills in English. It serves as a bridge to the mainstream classroom and is, therefore, more demanding. Unabridged readings include short stories, poetry, a play by Shakespeare, and other longer works of literature that help prepare students to meet the challenges of mainstream classes. In addition to the challenges of a variety of writing and speaking assignments, students are expected to participate actively in discussions and are encouraged to form their own interpretations of the readings. Seminar behaviors and expectations are also learned.

### **ESL Bridge History • 694 • Year Long**

This course is designed to give students a greater depth of preparation for the mainstream history classroom. It allows students to work on the skills of reading and writing at a much higher level but still within an ESL setting. Primary source readings in history allow students to practice and improve classroom discussion skills while gaining familiarity with the content of Western Civilization and U.S. history courses. Note-taking while doing assignments and while participating in class is also a focus of the course. Research skills, including using the library efficiently, taking notes, paraphrasing, and citing sources, are practiced in conjunction with writing a short term paper and other projects. Each student is expected to participate daily in class.

## **History**

### **Global Cultures: Then and Now • 612 • Year Long**

*Required of all 9th graders.*

This course serves as the introduction to the history department curriculum at Lawrence Academy. This skills-based course will require students to read and understand a wide variety of primary source material so as to explore a number of cultural topics from past and present. Communication, close reading, analytical writing, and critical reasoning skills are emphasized. Students will learn the characteristics of various cultures from around the world and understand what behaviors and needs are essential for a culture to exist and prosper. Additionally, students will develop an appreciation for how cultures express themselves in unique and diverse ways and address the challenges that may threaten their survival. The course will also highlight the interaction between cultures: How do cultures and various societies cooperate and learn from one another, and why might those cultures conflict? The course will have a research component as well, as it is emphasized throughout the history curriculum at Lawrence Academy.

## **Conflict and Change in Society • 600 • Year Long**

*Required of all 10th graders.*

This course builds on the skills instructed and cultural topics covered in the ninth grade. As sophomores, students will learn and discuss a number of themes and ideas associated with world history. Using both Western and non-Western topics in a dynamic, interactive, and student-centered approach, students will continue to focus on and develop their academic skills by using content that emphasizes primary source material from key moments and events in world history. Topics include the role of the individual within a society or state, how and why states are formed, and why states cooperate and conflict with one another. Students explore imperialism and colonialism, causes of revolution, genocide, theories of governance, and various forms of government. Additionally, students will look at forms of protest, the rise of Islam, and issues challenging our collection of states around the globe. Research is also an important component to this course, as students continue to do the work of historians at Lawrence Academy.

## **U.S. History • 601 • Year Long**

*Prerequisite: Conflict and Change in Society.*

U.S. History consists of a series of problems (for example: the American Revolution, the Civil War, the Great Depression, or the Civil Rights Movement) that, taken together, are an introduction to American history. Students are encouraged to think as historians do, using a variety of sources to answer questions, construct interpretations, and find meaning in historical events; they will also undertake a major research project. Simulations, primary source readings, analytical writing, and research skills will be emphasized in the course.

## **Honors U.S. History • 606 • Year Long**

*Prerequisite: Department recommendation and junior standing.*

Honors U.S. History will resemble U.S. History in its problem-based approach to the course. Students will use a variety of sources, including mainly primary documents but also secondary sources, period literature, and films, to examine significant events in our past, such as the American Revolution, the Civil War and Reconstruction Era, and the Civil Rights Movement, and confront the important issues in American history. An emphasis will be placed upon analytical writing, but students will also be expected to contribute to class discussions on a daily basis, complete regular reading assignments, and write a substantial research paper. Not only will Honors U.S. History move at an accelerated pace, but students will be required to look deeply and critically into the sources in order to gain a sophisticated understanding of the American experience.

## **Human Geography • 632 • Year Long**

*Open to juniors and seniors.*

The many ways in which human societies create, alter, and interact with their cultural and physical environments is the main focus of those studying geography. With that in mind, the purpose of this course is to introduce students to a wide range of topics studied in the expanding field of geography. Students will explore a number of important themes and will often investigate in-depth case studies that show how geography and culture shape the political, social, and economic realities of the world around them. Students will learn to recognize how natural and man-made landscapes reflect and determine human habits, activities, and relationships. The purpose of this class is to help students draw on these insights, combine them with new ideas, and structure them in such a way that they may further develop a coherent perspective on the contemporary and changing world.

## Honors Senior History: Nukes and Commies • 602 • Year Long

*Prerequisite: U.S. History and department recommendation.*

How did the United States get to the point of conspiring to give Fidel Castro an incurable skin fungus or assassinate him with an exploding seashell? Why have brainwashing, overkill, failsafe, hotline, McCarthyism, MAD, ICBM, SALT, and Dr. Strangelove become part of our vocabulary? The goal of this course is to make today's news understandable through a study of America's relationship with the rest of the world since World War II. Special attention will be given to the competition — known as the Cold War — between the U.S. and various communist nations. Students in this course will examine communism in theory and in practice in Russia, China, and Cuba, as well as the special role of nuclear weapons and strategic thought in the Cold War. There will be an extensive examination of topics such as the origins of the Cold War (1945–1952), the Cuban Missile Crisis, and Vietnam, and students will study how the Cold War affected popular culture by watching and discussing films such as *Invasion of the Body Snatchers*, *The Manchurian Candidate*, and *Dr. Strangelove*. To better understand the period following the Cold War, students will be called on to learn about Iraq, Iran, Afghanistan, and the United States' relationship with Russia. There will be frequent writing assignments and a demanding schedule of readings, taken from a variety of sources. Critical thinking skills, logic, and argument will be stressed.

## Honors U.S. Government and Politics • 604 • Year Long

*Prerequisite: U.S. History and department recommendation. Please note: All students enrolled in this course are expected to complete summer work.*

During this year-long course, students will become familiar with the nature, framework, traditions, and values of the American political system. The course will focus on the three basic institutions of American government: Congress, the presidency, and the judiciary. The constitutional underpinnings of our government, political parties, the bureaucracy of American government, the interest groups that try to influence decisions, civil rights, and civil liberties will all be discussed thoroughly. Students can expect this course to be demanding. There will be substantial reading and essay writing about both political theory and current politics. There will be a strong emphasis on discussion and the analysis of texts, and students can expect regular writing and rewriting assignments.

## Term Courses

### Gender, Family, and the Media • 638 • Fall, Spring

*Open to seniors and juniors.*

How does the media influence who we become? Who controls the message? Who controls the media? This course will examine some of the relationships between the media in the United States and the social constructions of gender and family. After a brief introduction about the evolution of the media and gender issues, students will explore the relationship between media and culture. General areas of study will include media stereotypes in advertising, film, and television; masculinity and femininity; and media literacy. Students will decode media representations of gender, analyze media culture, and develop an appreciation of the media's cultural influence. Students will be expected to analyze primary sources, write short papers, complete a journal of their observations and present their findings, and discuss the issues surrounding the media and social/cultural relationships.

### Taxes, the Economy, and You • 610 • Fall

*Open to seniors and juniors.*

The course will serve as a lens into many topics surrounding how the government raises revenue and allocates those funds to different sectors within the global economy. Students will begin with a study of taxes, why they are necessary, and the many ways governments collect revenues from individuals and businesses. Students will develop an appreciation for how the U.S. government spends the revenue it raises and the funds it borrows. There will be a number of case studies and simulations involving current events and issues. Students will complete a research project on a topic of their own choice.

## **Criminal Justice: Underlying Foundations • 641 • Fall**

*Open to seniors and juniors.*

This course is designed to introduce the underlying philosophical foundation of the notion of “criminal” behavior, and then look more closely at differing examples of criminal justice systems, including the U.S. General areas of study will include the concept of “law,” issues raised by enforcement, the process of determining guilt or innocence, and, finally, the issue of punishment. There will be a variety of readings and projects, with emphasis on reading comprehension and class participation.

## **Social Psychology • 682 • Winter**

*Open to seniors and juniors.*

Humans are social animals, and this course will look at human behavior through the lens of society with its rules, norms and institutions. We will try to understand why people behave differently within the different groups they belong to, and how these groups influence our behavior. Why are we so susceptible to peer pressure? What is the influence of our culture and our family on our behavior? Why do we tend to follow the wishes of figures of authority? We will also look at how behavior helps to shape the attitude we have of the world. This class will have an emphasis on discussion, along with projects, experiments and papers.

## **Terrorism in the Modern World • 611 • Winter**

*Open to seniors and juniors.*

This course will serve as a primer for topics associated with terrorism in the modern world. The course will look at terrorists and terror groups by investigating their goals and motivations, as well as the various tactics they use to meet their ends. The course will also address the cost and techniques associated with combating terror and terror groups. The class will rely heavily on case studies, research, and simulations to allow the students to better contextualize the causes and effects of terrorism in the world in which they live.

## **The Psychology of Personality • 614 • Spring**

*Open to seniors and juniors.*

All humans have a “personality.” But where does it come from? Is it a product of our genes, our environment or both? Can we change our personality or are there elements of it that seemed to be fixed in place. This course will look at these questions and the many studies that have been done to understand why “we are who we are.” This will mean we will study some of the biological/genetic reasons, the environmental factors that affect us, and how both of these interact to help create who we are. Of course, we will study some of the psychologists (ex: Freud, Rogers, Skinner) and their schools of thought. This will have an emphasis on discussion, along with projects, experiments and papers.

## **Public Policy and the Environment • 681 • Spring**

*Open to seniors and juniors.*

This one-term interdisciplinary science and history course focuses on public policy and the environment. Students will investigate the relationship between the government and public spaces, ecosystems, and resources. Students will study how governments, at all levels, regulate, promote, and secure various resources and ecosystems through policy and enforcement. Additionally, students will see the impact and consequences of government action and inaction on the environment at the local, regional, and global level. This course will consist of doing research in the field and in the library, writing analytical essays, using case studies, and participating in simulations.

# Language

*Please note: A placement test will be required for all students continuing to study a language. A placement test is not needed if this is the student's first year studying a particular language.*

## **French 1 • 301 • Year Long**

This course provides an introduction to the study of French. The aim of the course is to teach students to speak, understand, read, and write the language, with a focus on communicative competence. The course also introduces students to cultural and geographic information about the French-speaking world. The language laboratory is an important learning tool throughout the course.

## **French 2 • 302 • Year Long**

*Prerequisite: French 1.*

French 2 expands upon the material in French 1, and students will significantly broaden their vocabulary. Grammatical structure is analyzed as necessary, though the emphasis remains on inductive learning and the development of oral proficiency. This course also stimulates cultural awareness and the development of writing skills.

## **French 3 • 303 • Year Long**

*Prerequisite: French 2.*

Students consolidate and expand on complex points of French grammar (compound tenses, subjunctive mood, relative pronouns, and sentence structure) while developing their reading ability through a variety of cultural readings, informal dialogues, and short stories. Emphasis is placed on oral and written communication, with the course being conducted almost entirely in French. Students are required to write essays entirely in French and are gradually introduced to literary analysis as they develop their written expression. The language laboratory is used weekly to enhance language skills.

## **Honors French 3 • 308 • Year Long**

*Prerequisite: Department recommendation and A- in previous year's non-honors course.*

Honors French 3 follows a similar curriculum to French 3 but at a more accelerated pace. Honors French 3 students are responsible for more cultural and historical readings and greater content than their French 3 counterparts. Honors French 3 students must also complete longer assignments, write more essays, and answer more questions on each test and quiz. Students in Honors French 3 are held to a higher standard in their class participation and critical thinking.

## **French 4 • 304 • Year Long**

*Prerequisite: French 3.*

This course is taught in French and covers grammar, literature, and cultural topics. Grammatical topics are chosen based on student need with the goal of improving oral and written communication skills in dialogue, composition, and presentation. The course introduces students to more nuanced vocabulary, reinforces grammar skills, and develops reading comprehension, written expression, and literary analysis skills through exposure to a variety of prose excerpts and poetry readings of moderate difficulty.

## Honors French 4 • 309 • Year Long

*Prerequisite: Department recommendation and A- in previous year's non-honors course or B- in previous year's honors course.*

Honors French 4 follows a similar curriculum to French 4; however, Honors French 4 students are responsible for more readings and deeper understanding of the content than their French 4 counterparts. Honors French 4 students must also write more for homework, speak and lead discussions more in class, and answer more questions on each test. Students in Honors French 4 are held to a high standard in their class participation and critical thinking.

## French 5 • 305 • Year Long

*Prerequisite: French 4.*

Students entering French 5 will study French through three different lenses: literature, cinema, and art history. While studying literature during the fall term, French 5 students will explore themes, metaphors, and historical context through authentic Francophone literature. In the winter, French 5 students will study French culture and history through film by analyzing characters, plot, history, and relevant themes. Art history will be the focus of French 5 in the spring, when students will study the major French art movements, from the Renaissance to Impressionism, covering the major French historical events, how they influenced art, and how art influenced the population at the time. An emphasis is placed on spoken French, as students speak only French while in class. Written assignments, longer essays, and periodic tests will assess students' written French and comprehension of the material, as will frequent presentations on the material. French 5 students complete a term-long project in which they incorporate what they have been learning into an actual 30-minute lesson that they teach to their classmates. Students registering for French 5 can expect to receive assignments during the summer.

## Honors French 5 • 306 • Year Long

*Prerequisite: Department recommendation and A- in previous year's non-honors course or B- in previous year's honors course.*

Students in French 5 and Honors French 5 are in the same classroom, and Honors French 5 follows the same curriculum as French 5. Honors French 5 students, however, are responsible for more cultural and historical information than their French 5 classmates. Students will complete longer written assignments, give more frequent oral presentations, and answer more questions on each test and quiz. Students in Honors French 5 are held to a higher standard in their class participation and critical thinking. Each term, Honors French 5 students will complete a longer, more in-depth project than students in French 5. Students registering for Honors French 5 can expect to receive assignments during the summer.

## Latin I • 311 • Year Long

Students are introduced to the basic vocabulary, forms, grammar, and syntax needed to read and understand Latin. There is a great deal of practice in sight-reading as the students become more proficient. Through the study of Latin derivatives, students strengthen their English vocabulary. An appreciation for and understanding of the Roman people and their many contributions to the world in which we live will be a concomitant goal throughout the year.

## Latin II • 312 • Year Long

*Prerequisite: Latin I.*

Students will continue their extensive study of vocabulary, forms, and syntax while perfecting their Latin reading skills. These Latin readings, as well as accompanying cultural notes, will provide further insight into Roman customs and institutions.

## Latin III • 315 • Year Long

*Prerequisite: Latin 2.*

Having completed all of the essential grammar in Latin 2, students in Latin 3 will, for the first time, consistently read great Latin authors. Grammar review is integrated into the analysis of the texts being read. Typically, students are asked to look over lines of a piece of text for grammatical constructions and vocabulary that they do not recognize, then proceed to translation after grammar and vocabulary are made clear. Typical readings in this course are the philosophical essays of Cicero in the fall term; myths from Ovid's *Metamorphoses* in the winter term; and Catullus' poems in the spring term. Students are required to do a special project each term, such as rewriting one of the myths in a contemporary setting; creating an artistic rendering of a scene from the literature; or having a propaganda trial on Augustan politics.

## Honors Latin III • 314 • Year Long

*Prerequisite: Department recommendation and B+ in previous year's non-honors course.*

Having completed all of the essential grammar in Latin 2, students in Honors Latin 3 will, for the first time, consistently read great Latin authors. Grammar review is integrated into the analysis of the texts being read. Typically, students are asked to look over lines of a piece of text for grammatical constructions and vocabulary that they do not recognize, then proceed to translation after grammar and vocabulary are made clear. Typical readings in this course are the philosophical essays of Cicero in the fall term; myths from Ovid's *Metamorphoses* in the winter term; and Catullus' poems in the spring term. Students are required to do a special project each term, such as rewriting one of the myths in a contemporary setting; creating an artistic rendering of a scene from the literature; or having a propaganda trial on Augustan politics.

## Latin IV • 310 • Year Long

*Prerequisite: Latin 3.*

This course spends the fall and winter terms focusing on one of the most important works in Western literature, Vergil's *Aeneid*. Students work to improve both their sight translation and poetry analysis skills, and learn about modern scholars' interpretations of this epic. The spring term is devoted to translating a new author, ranging from Lucretius to Propertius to Tacitus, so that students may experience a variety of authors from different genres. The emphasis is for students to develop strong analytical and communicative skills, which will allow them to succeed in any college-level course.

## Honors Latin IV • 316 • Year Long

*Prerequisite: Department recommendation and B+ in previous year's non-honors course or B- in previous year's honors course.*

This course spends the fall and winter terms focusing on one of the most important works in Western literature, Vergil's *Aeneid*. Students work to improve both their sight translation and poetry analysis skills, and learn about modern scholars' interpretations of this epic. The spring term is devoted to translating a new author, ranging from Lucretius to Propertius to Tacitus, so that students may experience a variety of authors from different genres. Honors students are required to present and develop essays frequently on a variety of topics, ranging from their own translations to scholarly research and publications on the Latin texts studied in class. The emphasis is for students to develop strong analytical and communicative skills, which will allow them to succeed in any college-level course.

## Spanish 1 • 331 • Year Long

This course offers an introduction to the study of Spanish, with an emphasis on the active and practical use of the language for communication. Students learn vocabulary and grammatical structures through oral and listening activities as well as written exercises. Spanish and Latin American geography and culture are integral parts of this course. The language laboratory, along with other technological resources, plays an important part in the Spanish 1 curriculum.

## **Spanish 2 • 332 • Year Long**

*Prerequisite: Spanish 1.*

An emphasis on speaking and writing continues in the second year of Spanish courses. The focus remains on communicative skills in Spanish, supplemented by practical applications of grammar principles. The students' comprehension levels are tested through active oral, aural, written, reading, and cultural exercises. Spanish is spoken throughout the course, but English may be used to explain some points of grammar. By the end of the year, students should be able to handle most situations that require basic communication in the language. Spanish and Latin American culture are an integral part of the course. The language laboratory is frequently used to enhance students' skills.

## **Spanish 3 • 333 • Year Long**

*Prerequisite: Spanish 2.*

Spanish 3 emphasizes a review and expansion of grammar topics, as well as the refining of written and oral skills. Correct application of complex grammar structures is practiced through reading and writing articles and texts dealing with Hispanic literature, art, and culture. The class is conducted in Spanish to the greatest extent possible, and students have ample opportunities to use the language and improve fluency. The language laboratory is used for further development of language skills and cultural appreciation.

## **Honors Spanish 3 • 338 • Year Long**

*Prerequisite: Department recommendation and A- in previous year's non-honors course.*

Honors Spanish 3 follows a similar curriculum to Spanish 3; however, it does so at a more accelerated pace. Honors Spanish 3 students are responsible for more cultural and historical readings and greater content than their Spanish 3 counterparts. Honors Spanish 3 students must also complete longer assignments, practice more in-depth writing, and will be expected to know an extensive amount of material for all assessments. Students in Honors Spanish 3 are held to a higher standard in their class participation and critical thinking as well.

## **Spanish 4 • 339 • Year Long**

*Prerequisite: Spanish 3.*

Spanish 4 is conducted entirely in Spanish by both the teacher and the students. Students are expected to practice their oral skills in Spanish through full participation in all activities and by making a commitment to speaking Spanish and actively listening in the classroom. The course aims to further develop proficiency in reading, writing, listening, and speaking Spanish through a variety of drills, presentations, debates, discussions, projects, grammar reviews, and weekly use of the language laboratory. The course begins with a thorough review of previous grammar topics and moves to more advanced concepts, such as the subjunctive mood, both present and past. Students read a variety of authentic selections to advance reading comprehension and analysis skills, explore historical time periods and culture, and compare and contrast literary pieces and their style throughout the Hispanic world.

## Honors Spanish 4 • 344 • Year Long

*Prerequisite: Department recommendation and A- in previous year's non-honors course or B- in previous year's honors course.*

Candidates for Honors Spanish 4 should demonstrate strong conversational skills and be eager to communicate exclusively in the target language. One of the primary goals of Honors Spanish 4 is to improve students' oral proficiency; therefore, it is imperative that students entering the course be willing to participate frequently in class discussions, debates, and conversations. In addition, students should demonstrate a strong aptitude for the study of Spanish grammar. The course begins with a thorough review of previous grammar topics and moves quickly into an in-depth study of the subjunctive mood (both present and past tense). Additional grammar topics are introduced to further expand students' knowledge. At the same time, the course seeks to develop reading and writing skills while simultaneously exposing students to a variety of cultural experiences and lessons. Students registering for Honors Spanish 4 can expect to receive assignments during the summer in order to ensure continuity from one level to the next.

## Spanish 5 • 335 • Year Long

*Prerequisite: Spanish 4 and department recommendation.*

This course is conducted entirely in Spanish. Its goal is to advance proficiency in all skill areas through extensive practice in listening, speaking, reading, and writing. Material is presented in thematic units of study; literature, film, and art figure prominently and mix throughout the year. Further study of advanced grammar topics is undertaken, and an emphasis is placed on practical applications of grammatical structures.

## Honors Spanish 5 • 337 • Year Long

*Prerequisites: Department recommendation and a grade of B- or above in Honors Spanish 4*

This is a course where all forms of communications are in Spanish, both inside and outside of the classroom. Students will be pushed to attain a high-level of both speaking proficiency and reading comprehension. Readings will include short stories and poetry, and a novel. Authors may include Isabel Allende, Julio Cortazar, Laura Esquivel, Gabriel Garcia Marquez, Ana Maria Matute and Pablo Neruda. Students will participate in seminars to discuss the readings, and they will write analytical essays on the literature they have read.

## Honors Spanish 6 • 336 • Year Long

*Prerequisites: Department recommendation and a grade of B- or above in Honors Spanish 5*

This rigorous course requires a passion for Spanish and a willingness to take intellectual and creative risks. This is a fully immersive course aimed at attaining a high level of both oral and written fluency. There will be a distinct focus reading, discussing and writing analytical essays on Hispanic literature. Students will read many different genres and create their own stories based on the literature they read. The Hispanic authors may include Isabel Allende, Julio Cortazar, Laura Esquivel, Gabriel Garcia Marquez, Ana Maria Matute and Pablo Neruda.

## Chinese 1 • 390 • Year Long

This course provides an introduction to the study of Chinese (Mandarin). The aim of the course is to teach students to pronounce and write Pinyin and its intonations, and to understand, read, and write Chinese characters, with a focus on communicative competence and useful conversations. The course also introduces students to cultural and geographic information about the Chinese-speaking world. The language laboratory is an important learning tool throughout the course.

## Chinese 2 • 391 • Year Long

*Prerequisite: Chinese 1.*

This course aims at further developing the skills that were established in Chinese 1. Basic material is reviewed and expanded upon, enabling students to advance their knowledge of Chinese grammar in the cultural context of daily life in China. Speaking and listening skills continue to be stressed, and writing in Chinese characters is now mandatory. Chinese word processing enables students to read and express themselves in writing in Chinese.

## Chinese 3 • 392 • Year Long

*Prerequisite: Chinese 2.*

This course expands and refines the students' foundation in Chinese language and culture. New grammar, vocabulary, and characters are introduced, then extensively practiced in class using a wide variety of instructional techniques and material. Continued word processing in Chinese provides students with a useful tool to express themselves with greater ease when preparing written assignments. The development of stronger listening and speaking skills remains a priority.

## Honors Chinese 3 • 394 • Year Long

*Prerequisite: Department recommendation and A- in previous year's non-honors course.*

Students in Chinese 3 and Honors Chinese 3 are in the same classroom, and Chinese 3 Honors follows a similar curriculum to Chinese 3; however, it does so at a more accelerated pace. Chinese 3H students are responsible for more cultural and historical readings, and greater content than their Chinese 3 counterparts. Chinese 3H students must also complete longer assignments, write detailed essays, and answer more questions on each test and quiz. Students in Chinese 3H are held to a high standard in their class participation and critical thinking.

## Chinese 4 • 393 • Year Long

*Prerequisite: Chinese 3 or equivalent.*

In this accelerated course, linguistically strong students are encouraged to hone their reading, writing, word processing, listening, and speaking skills in Chinese. Writing assignments involving both writing and typing are given frequently in order to help students communicate constructively and creatively. Previously learned concepts and textbook materials are significantly expanded through introductory expository speaking that begins the process of mastering new grammar patterns and creative ways of describing realistic situations, people, character, locations, etc. Varied aspects of Chinese culture and history are used as topics for reading and class discussion.

## Chinese 5 • 395 • Year Long

*Prerequisite: Chinese 4 or equivalent*

This course is conducted almost exclusively in the target language; students are expected and encouraged to express themselves without relying on English. The course relies heavily on authentic materials to supplement textbook content. It is designed for students with sufficient Mandarin-speaking proficiency who understand and speak without major grammatical errors about daily life situations and simple sociocultural topics. It aims to further strengthen students' tonal control, expressional intonation, grammatical accuracy, and overall competence in interpersonal, interpretive, and presentational speaking. Assignments require a greater degree of creativity, initiative, and organization that is considerably more complex than those of a standard fifth-year class.

# Math

*Please note: Students who elect to remain in an honors course after the first semester must stay for the rest of the year; new students are to be placed at the discretion of the department. All new students must complete a math placement test.*

## Mastery Classroom Description for Math 1 and Math 2

At Lawrence Academy, our Mastery Classroom is one where students work collaboratively with teachers and other students toward mastering the skills and content of the course. Students access the content using screencasts, helpful links from the online textbook, problem sets, and projects. Teachers work with students to set goals, discuss concepts, solve problems, and create and review personal portfolios of mathematical work. Mastery is assessed at the completion of each section through a Mastery Check, where students must earn an 80 percent or higher to move forward. Grades below 80 percent will require the student to do more work with the teacher to improve their knowledge and take another Mastery Check. After completing all sections in a chapter, students must earn a 70 percent or higher on the chapter test to move forward to the next chapter. Grades below 70 percent will require the student to review work with the teacher to improve their understanding.

### Math 1: Integrated Algebra & Geometry 1 • 410 • Year Long

Math 1 is a Mastery Classroom that incorporates the work traditionally associated with Algebra 1 with a variety of geometric applications. The topics from algebra include operations on real numbers; linear functions, graphs and equations; systems of linear equations and linear inequalities; polynomial algebra; Factoring and exponent rules. Geometric applications taught include properties of polygons and areas of polygons, triangle similarity, ratio and proportion, triangle and quadrilateral properties, and areas and volumes of solids.

### Math 2: Integrated Algebra & Geometry 2 • 420 • Year Long

*Prerequisite: Math 1.*

Math 2 is a Mastery Classroom that allows for greater continuity of learning and understanding algebra and geometry. Topics from geometry include angle relationships, congruent triangle proofs, and circle properties. Geogebra is used extensively to investigate concepts and properties. The algebra of Math 1 is reviewed and expanded upon. Areas of study include linear functions, absolute value functions and translations, quadratic algebra, and quadratic functions with graphical transformations. Applications to real problems are presented in both algebra and geometric contexts.

### Math 2: Advanced Integrated Algebra & Geometry 2 • 422 • Year Long

*Prerequisite: Math 1.*

Math 2 is a Mastery Classroom that allows for greater continuity of learning and understanding algebra and geometry. Topics from geometry include angle relationships, congruent triangle proofs, and circle properties and proofs. The algebra of Math 1 is reviewed and expanded upon. Areas of study include linear functions, absolute value functions and translations, quadratic algebra, and quadratic functions with graphical transformations. Geogebra is used extensively to investigate concepts and properties. Applications to real problems are presented in both algebra and geometric contexts.

### Honors Math 2: Integrated Algebra & Geometry 2 • 421 • Year Long

*Prerequisite: Math 1 with a year-long grade of A- and meet the department's honors criteria.*

This course follows the same syllabus as the Math 2 course, but it covers the topics in more depth. Honors Math 2 will also cover triangle trigonometry, literal equations, complex numbers, and matrices.

### **Math 3: Functions and Applications • 430 • Year Long**

*Prerequisite: Math 2.*

Math 3 is a study of functions and their applications. Applications to real problems and real data are stressed throughout the year. Topics studied include functions and translation of graphs, quadratic and higher order polynomials, rational functions, exponential and logarithmic functions, and trigonometric functions. Each function family is studied algebraically, numerically, and graphically. Data analysis is introduced through Excel, and labs are completed in conjunction with each of the function families.

### **Math 3: Advanced Functions and Applications • 432 • Year Long**

*Prerequisite: Math 2 Advanced and department recommendation.*

Math 3 Advanced is devoted to the study of functions. The topics studied include functions and translation rules; higher order polynomials and their theorems; rational functions and equations; exponential and logarithmic functions; and right triangle and circular trigonometry. Each function family is studied algebraically, numerically, and graphically. Math 3 is the most technology-intensive of the required courses. Each unit of study includes analysis of real data.

### **Honors Math 3: Functions and Applications • 431 • Year Long**

*Prerequisite: Honors Math 2 with a year-long grade of B or higher, or Math 2 Advanced with a year-long grade of A- or higher. Students must also meet the department's honors criteria.*

This course does not follow the same syllabus as the Math 3; rather, it is a functions-based course that will cover quadratic, polynomial, exponential, logarithmic, and trigonometric functions in depth. While the course does work with applications, the focus is on theory and proof of function properties. Students enrolled in this course will also study polynomial theorems, log properties, trigonometric identities, and solving complex trigonometric equations.

### **Math 4: Precalculus • 440 • Year Long**

*Prerequisite: Math 3.*

This course is designed to strengthen students' core mathematical skills and to develop creative problem-solving skills. Topics studied include trigonometry, conics, sequences and series, through the infinite; the mathematics of finance and combinatorics and probability, through conditional probability. The topics studied in this course have broad applications in the social and biological sciences, business and management, and computer science.

### **Math 4: Advanced Precalculus • 439 • Year Long**

*Prerequisite: Math 3 Advanced with a year-long grade of B+ or higher and department recommendation.*

Moving beyond the required basic algebraic and trigonometric requisite topics, this course studies in depth advanced precalculus topics such as sequences, series, trigonometric identities, vectors, conic sections, and limits. Additional topics include combinatorics and probability, through conditional probability and expected value. While modeling problems keep the math-solving practical problems, students are exposed to ideas and topics that appear in a purely mathematical context.

## Honors Math 4: Precalculus • 442 • Year Long

*Prerequisite: Completion of Honors Math 3 with year-long grade of B or higher; students must also meet the department's honors criteria. Students who complete Math 3 Advanced with a year-long grade of A- and receive a department recommendation must do independent summer work and pass a barrier exam with a grade of 85 percent or higher to enroll.*

This course covers in depth the more advanced precalculus topics such as polar coordinates, parametric equations, complex numbers, conic sections, and vectors. The winter term covers the finite topics of set theory, combinatorics, and probability; the spring term covers sequences and series to the infinite, mathematical induction, limits, and an introduction to the derivative. This class is required of students considering Honors Calculus.

## Math 5: Calculus • 450 • Year Long

*Prerequisite: Completion of Math 4 Advanced with a year-long grade of B+ or higher and department recommendation.*

This is a full-year course that presents the topics of both differential and integral calculus. Topics include the four major concepts of calculus: limits, derivatives, definite integrals, and indefinite integrals. These topics make students use all of the earlier math material they have mastered in prerequisite courses. A review of necessary algebraic techniques is incorporated into the evaluation of limits, the rules of derivatives, and the study of optimization and related rates problems. There is also a strong emphasis placed on graphing techniques. The topics of integral calculus include indefinite integration and the fundamental theorem of calculus.

## Statistics • 470 • Year Long

*Prerequisite: Math 4.*

Statistics is an activity-based course that introduces students to the fundamental concepts and techniques employed when working with data. The course exposes students to four broad conceptual themes: exploring data, collecting data, probability, and testing hypotheses using statistical inference. The TI-84 graphing calculator will be an important tool for modeling and analyzing data sets.

## Honors Math 5: Calculus • 460 • Year Long

*Prerequisite: Completion of Honors Math 4: with a year-long grade of B or higher. Students must also meet the department's honors criteria.*

This is a full-year course that presents the topics of both differential and integral calculus. The topics make students use all of the earlier math material they have mastered in prerequisite courses. The course presents the topics of rates of change, limits, and derivative and graphing techniques; related rates, max./min. problems and other applications, and proofs of major theorems are included. The topics of integral calculus include indefinite integration, the fundamental theorem of calculus, and application problems. The modeling in this course exposes students to the direct connection between this branch of mathematics and the physical sciences.

## Honors Topics in Mathematics • 454 • Year Long

*Prerequisite: Department recommendation and completion of or concurrently taking Honors Math 5 or Math 5.*

This rigorous year-long upper level math course is designed for serious students of mathematics. It covers three distinct topics in mathematics. Students will study linear algebra, which is a field of mathematics used in engineering, science, economics, and computer science. This will be followed by an advanced statistics, which will focus on collecting and studying data and the many mathematical means which provide a basis for inferences and analyses. The final topic will be projective geometry, which is a non-Euclidean geometry. There will be a variety of assessments, which will include projects, modeling, and keeping notebooks, along with tests and quizzes.

## **Linear Algebra • 453 • Fall**

*Prerequisite: Completed or enrolled in Honors Math 4 or Math 4 Advanced and recommendation of department.*

Linear Algebra is a highly applicable field that is useful in mathematics, engineering, science, economics, and computer science. Solving systems of linear equations is a basic tool of many mathematical procedures used for solving problems. The students will become competent in solving linear equations, performing matrix algebra, calculating determinants, and finding eigenvalues and eigenvectors. Linear programming will also be touched upon using a project-based learning model.

## **Advanced Statistics • 452 • Winter**

*Prerequisite: Completed or enrolled in Honors Math 4 or Math 4 Advanced and recommendation of department.*

This term-long Statistics course will begin with a brief introduction to collecting data and studying distributions of categorical and quantitative variables. We will then study the z-distribution and central limit theorem, which will provide a basis for inferences of data. The bulk of the term will be focused on comparing proportions and means in multiple forms. Assessment of comprehension will be taken in the form of weekly problem sets, quizzes and/or tests, and individual projects.

## **Projective Geometry • 451 • Spring**

*Prerequisite: Completed or enrolled in Honors Math 4 or Math 4 Advanced and recommendation of department.*

Students in this course will be exposed to a non-Euclidean geometry. It will require that the students include in their thinking two different images of what happens at infinity. They will also have to think through what happens to familiar geometric figures as they are transformed by projections. This course will be more experientially based rather than a formal proof-based math course. Students will need to keep a notebook of drawings with explanations of the ideas presented.

## **Honors Computer Science • 409 • Year Long**

*Prerequisites: Permission of instructor and enrollment in or completion of Honors Math 4.*

This upper-level year-long course designed primarily for juniors and seniors is rigorous and includes a significant amount of work. Each week, students are expected to complete a programming assignment in addition to their daily homework. Students learn how to program using the programming language Java. Students learn all of the basic concepts of object-oriented programming while learning problem solving, design strategies and methodologies, organization of data (data structures), approaches to processing data (algorithms), and analysis of potential solutions.

## **Computer Science 1: Programming • 411 • Fall**

*Prerequisites: Permission of instructor and enrollment in or completion of Math 4 Advanced.*

This course is an introduction to computer science and computer programming using the language of Java. After students are introduced to the fundamental concepts of object-oriented programming, they go on to study how to design and write well-written programs incorporating the use of algorithms. At the same time, they are learning problem-solving techniques, design strategies and methodologies, basic organization of data (data structures), and analysis of their solutions.

## **Computer Science 2: Advanced Programming • 412 • Winter**

*Prerequisite: Computer Science 1.*

This course builds on the concepts covered in Computer Science 1, which is a prerequisite. Students continue learning the Java language in order to focus on developing algorithms and advanced object-oriented programming concepts in the pursuit of writing well-written computer programs. In the process, students develop advanced problem-solving skills, sophisticated design strategies and methodologies while incorporating advanced data structures into their programs. Students continue to learn how to analyze their programs in order to determine if they are well written and efficient.

## Computer Science 3: Advanced Object-Oriented Programming • 413 • Spring

*Prerequisite: Computer Science 1 and Computer Science 2.*

This course builds on the concepts covered in Computer Science 2. Students continue using the Java language to focus on using more advanced data structures and algorithms when designing and writing their programs. There is an emphasis on learning and implementing advanced concepts of object-oriented programming during program design. At the same time, students continue to develop problem-solving skills and design strategies and methodologies. Students learn sophisticated techniques for determining if their programs are efficiently written.

# Science

## Physics • 517 • Year Long

This freshman physics class gives students exposure to the basic laws of physics. The laws of physics will be explored in the laboratory and discussed in the classroom; in addition, some computer labs and simulations will be used throughout the course. Students will set up and solve problems and use basic mathematical skills to model ideas and manipulate formulae. Subject areas to be covered include kinematics, force, work, energy, electricity, waves, and sound.

## Chemistry • 503 • Year Long

*Co-requisite: Math 2.*

In this course, students examine a number of basic principles of chemistry, including atomic structure, the periodic table of elements, chemical bonding and reactions, stoichiometry, solutions, nuclear chemistry, organic chemistry, and biochemistry. Laboratory work develops and reinforces students' understanding of concepts with observable phenomena and encourages problem-solving and analytical thinking. This course conveys the excitement, challenges, and importance of understanding chemistry in order to function as a wholly literate citizen in modern society.

## Honors Chemistry • 504 • Year Long

*Prerequisite: Math 2 and department recommendation. To be considered for placement in an honors science course, students must have earned an A- average in a previous general science course or a B average in a previous honors science course.*

This first-year chemistry course is offered for students with previous records of high achievement in science and math and who are likely to pursue advanced work in the sciences. The topics covered in this class will be more numerous than those covered in Chemistry, and students will learn these topics in greater detail and depth. The pace of this course will be accelerated, and students will be asked to construct their own understandings of chemical concepts. Laboratory work will be a major part of this course in order to help students develop strong problem-solving and analytical thinking skills.

## Biology • 501 • Year Long

*Prerequisite: Chemistry.*

This biology course is designed to help students understand the human body and the living world. Students will explore the diversity of life, cell theory, evolution, genetics, ecology, and human biology. A background in chemistry will provide the foundation for a greater understanding of all areas of biology, including genetics, cell structure and function, physiology, and ecology. The lab experience will be a critical component of this course and is designed to offer hands-on activities that challenge students to think and act like scientists. Making careful observations and recording data are stressed. In addition, students will be required to design and carry out their own original experiments and write formal lab reports.

## Honors Biology • 502 • Year Long

*Prerequisite: Chemistry and department recommendation. To be considered for placement in an honors science course, students must have earned an A- average in a previous general science course or a B average in a previous honors science course.*

This course is offered as the biology component in the honors science sequence; the chemistry prerequisite enables the course to take a more biochemical and molecular approach to the science of biology. The topics covered in this class will be similar to those covered in Biology, but students will learn them in greater detail and depth. Writing and thinking skills are a significant part of students' evaluations. Much of the laboratory work involves open-ended experiences followed by formal lab reports.

## Advanced Physics • 506 • Year Long

*Prerequisite: Chemistry and Math 3.*

This course is offered to upperclassmen looking for exposure to the basic laws of physics. The laws of physics will be explored in the laboratory and discussed in the classroom; in addition, computer labs will be used throughout the course. Students will set up and solve problems using algebra and trigonometry. Subject areas to be covered include kinematics, force, work, energy, electricity, waves, and sound. Considerable time will be given to in-depth simulations to allow students to delve into some of these concepts more deeply.

## Honors Physics • 507 • Year Long

*Prerequisite: Chemistry, Math 3, and department recommendation. To be considered for placement in an honors science course, students must have earned an A- average in a previous general science course or a B average in a previous honors science course.*

Honors physics is offered to those students who have a previous record of high achievement in math and science and who wish to experience a more in-depth study of the concepts of physics, engineering, and technology. The physics topics covered in this course are the same as those covered in Physics and Advanced Physics, but they will be explored in greater detail and with the use of advanced mathematical problem-solving; in addition, students will get exposure to the principles of electrical and mechanical engineering through hands-on experimentation, as well as an introduction to basic computer programming and advanced data collection and analysis techniques.

## Marine Science • 508 • Year Long

*Prerequisite: Chemistry and Biology.*

This course begins with the study of oceanography, the physical nature, and the movement of the ocean. From waves and currents to tides and tsunamis, students will learn how our ocean has significant and lasting impacts on our shores, our weather, and our livelihoods. The study of marine biology, including creatures ranging in size from microscopic plankton to humpback whales and giant squid, will be explored. Students will gain insight into the diversity, ecology, and adaptations of marine organisms, and into the habitats of the oceans. At the end of the year, students will research the current issues in the marine sciences, such as climate change, fishery sustainability, and ocean acidification, and choose a specific area for further explorations. The course will be taught through laboratory experiments and live observations, activities, projects, discussions, and fieldwork.

## **Planet Earth: Plate Tectonics, Rocks, and Natural Disasters • 518 • Year Long**

*Prerequisite: Chemistry.*

The goal of this year-long course is to study and understand the basic composition and structure of the Earth and apply this knowledge to Earth's processes and natural disasters. Initial topics investigated will include Earth's structure and composition as well as the theory of plate tectonics. These topics are explored through hands-on activities and field work. The second portion of the course will be devoted to the study of Earth's natural hazards by examining the geological and physical processes behind them as well as our ability to predict and manage them. In this unit, students will have the chance to learn about and research a major volcanic eruption, earthquake, tsunami, and hurricane of their choice. Students will be responsible for composing case studies for each of these events and are expected to incorporate their knowledge of the Earth and its processes into their discussions.

## **Anatomy and Physiology • 505 • Year Long**

*Prerequisite: Chemistry and Biology.*

This year-long course focuses on the anatomy and physiology of the human body from the microscopic up to the macroscopic level. Through laboratory exercises centered on human organ structure and function, dissections of fresh and preserved mammalian specimens, and the study of diagrams and models, students will learn how the human body is assembled and operates. In this inquiry-based course, students will design their own experiments, research diseases, treatments, and current breakthroughs, examine case studies, and discuss modern-day controversies that arise from the study of medicine and the human body.

## **Environmental Science • 509 • Year Long**

*Prerequisites: Chemistry and Biology.*

This year-long course will take a project-based approach to environmental science. Students will spend considerable time in the lab and in the field, collecting and analyzing data to better understand environmental problems, and they will be expected to use scientific methodology to evaluate multiple solutions to those environmental problems. Topics investigated will include ecology, climate change, pollution, and other current issues. Students should expect frequent reading assignments and to participate actively in discussions of current topics in the field of environmental science.

## **Honors Environmental Science • 510 • Year Long**

*Prerequisites: Chemistry, Biology, and department recommendation. To be considered for placement in an honors science course, students must have earned an A- average in a previous general science course or a B average in a previous honors science course.*

Students in this college-level, interdisciplinary science course will use scientific principles, content, and methodologies to study the interrelationships of the natural world and learn to identify and analyze environmental problems. Critical-thinking skills will be applied to evaluate the risks associated with these problems and examine alternative solutions for resolution and prevention of such problems. Students will be expected to do substantial independent learning throughout the year, and the course will culminate with an independent research project.

## **Ecology, Evolution, and Animal Behavior • 525 • Year Long**

*Prerequisites: Chemistry and Biology.*

Ecology, Evolution, and Animal Behavior is a year-long course that consists of Ecology in the fall term, Evolution in the winter term, and Animal Behavior in the spring term. Students enrolled in the year-long Ecology, Evolution, and Animal Behavior course must take all three terms to receive full-year credit. Students wishing to take only one or two of the terms should enroll in those individual term courses.

## Term Courses

### Science, Philosophy, and Ethics • 511 • Fall

This course provides a unique opportunity for students to examine advances in science, technology, and engineering through the lens of the Humanities. Beginning with a study of philosopher Thomas Kuhn's *The Structure of Scientific Revolutions*, students will develop an understanding of how disruptive scientific advances occur, that they will then be able to apply to a more critical analysis of the modern scientific landscape. Through case studies, seminars, and class discussions, students will delve into the ethical ramifications of recent scientific advances in fields such as modern warfare technology and human genetic engineering, as well as how developments in the fields of science and engineering like DNA Cloning and Artificial Intelligence are impacting humanity's perception of religion, god, and what it means to be "human". Although these are some examples of the topics that will be investigated, students will also have the opportunity to investigate other areas of science, technology, and engineering of their choosing.

### Ecology • 513 • Fall

*Prerequisite: Chemistry and Biology.*

Ecology is the study of the interactions between organisms and their environment. This course will serve as an introduction to ecological concepts and their applications, both abiotic and biological. In addition to discussing ecological concepts, the class will look at an overview of local and global environmental issues and examine individual, group, and governmental activities that are important for protecting natural ecosystems. Students will focus on the comparison of different ecological communities and ecosystems and learn methods of sampling and analysis. The laboratory will consist of field excursions and exercises related to the field experience and ecological techniques.

### Electronics • 512 • Winter

*Prerequisite: Math 3*

This course is designed for students who are interested in having the opportunity to explore the world of electrical engineering. Students' time will be split between the classroom and the lab allowing them to examine both the theoretical and practical application of electrical engineering concepts. Areas of study include electricity, electrical devices and components, microelectromechanical systems, digital and analog logic, and circuit design. Much of this course is project-based, so students will be asked to think critically and creatively while working independently.

### Evolution • 515 • Winter

*Prerequisite: Chemistry and Biology.*

This course stresses the relevance of evolution to all of biology and to real-world problems. The discussion of evolution as a collection of facts and as an ongoing research effort with the goal of understanding it as an observable process, especially as it relates to modern medicine and the treatment of disease, will be the focus of the course. Emphasis is placed on the theoretical underpinnings of modern evolutionary biology (mutation, selection, migration, and drift) that produce evolutionary change. Additionally, students are introduced to a variety of analytical and technical skills used for studying evolution. Topics covered include population genetics, the theory of evolution by natural selection, concepts of fitness and adaptation, genetic and developmental bases of evolutionary change, modes of speciation, molecular evolution, macro-evolutionary trends in evolution, the origins of life, and extinction, among others. Exposure to the tremendous diversity within this discipline will illustrate why evolution is viewed as the central unifying theme of biology.

## **Robotics • 514 • Spring**

*Prerequisite: Math 3*

This is an almost entirely project-based course that will allow students to develop a deeper understanding and appreciation for the fields of robotics, mechanical engineering, and computer programming. In this course students will be asked to work independently and in groups to design, construct, and program robots to autonomously perform a variety of functions. No prior knowledge of robotics or programming is required, however students interested in this course should expect their resilience, time management skills, and ability to problem solve critically and creatively to be put to the test.

## **Public Policy and Environment • 681 • Spring**

This one-term interdisciplinary science and history course will be focused on public policy and the environment. Students will investigate the relationship between the government and public spaces, ecosystems, and resources. Students will study how governments, at all levels, regulate, promote, and secure various resources and ecosystems through policy and enforcement. Additionally, students will see the impact and consequences of government action and inaction on the environment at the local, regional, and global level. This course will consist of doing research in the field and in the library, writing analytical essays, using case studies, and participating in simulations.

## **Animal Behavior • 516 • Spring**

*Prerequisite: Biology.*

This term-long course is an introduction to the field of animal behavior. Basic principles derived from evolution, ecology, and development will be discussed, and these principles will be used to explain how and why animals behave as they do in particular situations. The course will focus on many important biological activities, such as foraging, communication, migration, predator-prey interactions, mating, and parental care. These concepts will be presented through various discussions, laboratory activities, and possibly field trips.