



**WESTOVER
SCHOOL**



CURRICULUM GUIDE
2019-2020

WESTOVER SCHOOL
Middlebury, CT

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WESTOVER MISSION STATEMENT

Westover empowers girls to lead lives of consequence.

ACADEMIC VISION STATEMENT

Westover's educational curriculum fosters resilient, resourceful, confident, and independent young women by challenging them to think critically, solve creatively, work collaboratively, act morally, and communicate effectively. By enhancing self-awareness through reasoned and willing risk-taking, and by engaging each girl in meaningful work that builds the fulfilling habits of lifelong learning, our balanced approach to academic programming cultivates global awareness, and teaches young women that they can and should effect responsible change.

Enlightened Scholar
Engaged Citizen
Empowered Woman

GRADUATION REQUIREMENTS AND SCHEDULING

A student must complete a minimum of 18 credits and must complete her Senior year in attendance at Westover (except in cases of school-sponsored exchanges) in order to receive a Westover School diploma. While we have minimum requirements for graduation, in order for students to have opportunities for admission to all colleges and universities, we strongly recommend that students graduate with three full years of history and three full years of lab sciences. Choosing to take the minimum number of credits in history or science will limit a student's college choices.

Subject and credit minimum requirements for graduation are as follows:

SUBJECT	CREDIT
English	4
Mathematics	3
Languages	3
History	3*
Laboratory Science	2 1/3
Arts and Music	2**

* As Westover transitions to an official graduation requirement in History of 3 credits starting with the class of 2021, while rising Seniors will continue to have a 2 2/3 requirement.

** Students who complete the Women in Science & Engineering curriculum will be required to fulfill a total of 1 1/3 Arts/Music credits. WISE students will still need to take a course in visual art, music, and art history.

Participation in athletics is required throughout a student's years at Westover. The Wellness Curriculum is designed to serve our students throughout their career at Westover, which is required for graduation. Please see pages 59-61 for descriptions.

When requesting elective courses, students should realize that registration must be limited in such courses, and they are not guaranteed enrollment. In some courses Seniors will be given priority, while in some others course selection will be made on the basis of academic strength.

In general, Westover does not award credit for courses taken at other institutions. Exceptions are:

- high school level courses taken at previous schools, with approval of Westover department head.
- courses required for advancement in a discipline, with prior approval of the department head and the Academic Office.
- courses offered by One Schoolhouse, with approval of the OS enrollment committee.

ACADEMIC COURSE LOAD

- A student will normally take 5 courses per term and may take no more than 6 courses.
- An academic program consisting of 5 academic courses plus a one trimester (non-AP) studio art course is allowed with no additional permission required.
- A 4 course load, would be considered in extreme circumstances with the permission of the Dean of Academics.

GRADUATION REQUIREMENTS AND SCHEDULING

- A more rigorous course load, such as one consisting of 6 academic courses, should only be undertaken by a student who has demonstrated strong and consistent academic achievement, as evidenced by the attainment of High Honors with Distinction, for example, and must be approved by the Academic Office.
- However, students who elect to take 3 full-length AP courses in one year may take at most 2 other academic courses. (Single trimester AP English courses are not treated as full-length AP courses.)
- Because of the demands of the college application process, Seniors should not plan to take 6 academic courses in the fall trimester. Approval for such a schedule would require evidence of substantial progress on application essays before classes begin. However, special consideration will be given to Seniors who need to finish the WISE program.
- Students who wish to take 4 full-length AP courses in one year must secure the permission of the Academic Office.
- No student may take 5 full-length AP Courses over one academic year.

NOTE: Any student enrolled in an AP course is expected to take the AP exam in that course; an exam fee of approximately \$100 will be charged.

ENGLISH

- NINTH GRADE - ENGLISH I

(1 credit, full year)

Through readings in lyric poetry, drama, and fiction, English I provides an introduction to the interrelated themes of identity, self-discovery, and voice. In particular we examine the ways in which individual identity may be predetermined or chosen. Close consideration of a variety of texts and the study of vocabulary and etymology help students come to see language and literature as a dynamic continuity that extends across time and cultures.

As a beginning English course, English I emphasizes basic skills. The study of grammar, diction, and punctuation is combined with the mnemonic and listening skills necessary for academic competence. Through both expository and creative written work, students are taught to write unified, orderly, and well-developed paragraphs. Their work in English I gives students an opportunity to develop the scholarly and human values of patience, care, thoughtfulness, and resourcefulness.

- TENTH GRADE - ENGLISH II

(1 credit, full year)

English II begins students' examination of the three major literary forms: poetry, prose, and drama. In it, students learn how to think and write about the characteristic elements of each of these literary genres. Students compose a combination of exploratory and thesis-driven critical analysis essays on each of these genres. Building on English I's foundational work, English II students also hone their abilities to craft clear, sophisticated sentences that precisely articulate complex ideas according to the conventions of Standard English. Though the course emphasizes critical writing, students also have opportunities to write creative prose and poetry.

- ELEVENTH & TWELFTH GRADE - TRIMESTER COURSES & ELECTIVES

(3 trimester courses or electives each year; 1/3 credit each)

Eleventh grade students at Westover are required to take English III in their fall term followed by two English electives, generally one each in the winter and spring trimesters. Twelfth grade students take three English electives a year. Along with the literature studied and papers written in these courses, grammar previously learned is reviewed by means of brief instruction and regular Common Errors quizzes. Additionally, students are required to write poems for *The Lantern* in fall and winter electives.

- ELEVENTH GRADE - ENGLISH III

(1/3 credit, Fall trimester, students recommended by department)

Required for all Juniors NOT recommended for the Intensive Writing Seminar section of the course, English III concludes the foundational study of grammar and writing skills begun in English I and II. In addition, the course provides a final opportunity for each student to hone her skills in articulating, supporting, and developing her critical writing before moving on to elective courses. Students will focus their study on a single text or a few short texts in order to further develop their skills as critics and close readers. Though critical writing is emphasized, students will also be asked to write and thoroughly revise a lyric poem.

- ENGLISH III/INTENSIVE WRITING SECTION

(1/3 credit, Fall trimester, students recommended by department)

This course is specifically designed for all newly matriculated Juniors as well as for those returning Juniors who need to further review grammar, develop their critical writing, and improve their reading comprehension. Along with intensive review of grammar, diction, and Common Errors, students will write frequent critical essays, including one research essay.

FALL ENGLISH ELECTIVES (for Seniors only)

- MOBY-DICK

(1/3 credit, one trimester)

Published in 1851, Herman Melville's great whale of a novel is less a monolith than a motley quilt of many books all sewn into one. This course will concentrate on piecing out some of these patches as we seek to make sense of Ishmael, Ahab, Moby Dick, and Melville himself, this author who seems to aspire to the titles of naturalist, playwright, religious prophet, and national poet all at once. Along with the novel, we will read critical, literary, biblical, historical, and philosophical secondary sources. In keeping with the composite nature of the novel we are exploring, assignments will range from the creative to the critical, with the occasional viewing of films and one required field trip to Mystic Seaport thrown in for good measure.

- LITERATURE AND OPERA

(1/3 credit, one trimester; fulfills English credit and Music distributional requirement)

Composers have frequently been drawn to great literature for the stories of their operas. This course will be a study of two works of literature that inspired composers to write operas. The original work of literature will be compared to its opera version to discover transformations and illuminations of the story once music is added. We will examine the original literary works as well as the opera libretti for their musical, dramatic, and performative elements. The works to be studied will be *La Bohème*, novella by Henri Murger and opera by Puccini; and *The Turn of the Screw*, novella by Henry James and opera by Britten.

There will be a trip to a performance of *La Bohème* at the Metropolitan Opera House in New York, for which there will be a charge.

This course is co-taught among the English and Music departments.

- WORD/IMAGE: AN EXPLORATION OF VISUAL/TEXTUAL INTERACTION

(1/3 credit, one trimester; fulfills English credit and Art History distributional requirement)

What stories do word and image tell together? These have intermingled throughout history, at times in response to one another, at others infused into a single, hybrid form. What does it mean when images inspire words? When words invade images? How do the two forms interact to produce meaning? What is the aesthetic of the written word, and what is the language of the image? Throughout the course, we will consider the interplay of word and image in works by artists and poets across multiple times and traditions. This discussion-based class will invite students to analyze poems and artwork and to explore the interaction between word and image in their own poetry and image making.

This course is co-taught among the English and Art History departments.

ENGLISH

- ANCIENT GREEK THEATER

(1/3 credit, one trimester)

In ancient Greece, theater was a very big deal. During the fifth century BCE, the poet-playwrights Sophocles and Euripides gave new shape to well-known mythological stories and staged in Athens a series of dramatic masterpieces that resonate vibrantly and urgently twenty-five hundred years later. We will devote ourselves in this course to reading and jointly pondering four plays: *Antigone* and *Oedipus the King* by Sophocles, and Euripides' *Alcestis* and *Medea*. For dessert we will read portions of *The Frogs*, an extravaganza by the ancient Greek master of comedy, Aristophanes, which features Euripides in its cast of characters.

WINTER ENGLISH ELECTIVES (for Juniors & Seniors)

- AP® ENGLISH LITERATURE AND COMPOSITION

(1/3 credit, one trimester, students recommended by department)

This intensive literature and writing skills trimester elective for Seniors is designed to give training for the Literature and Composition Examination in Advanced Placement English in the spring. The course aims to strengthen understanding of literary and rhetorical terms and to hone critical reading and writing skills through further exposure to acknowledged classics of drama, fiction, and lyric poetry. The syllabus, centered on a single text well suited to the kinds of essay questions favored by the AP exam, will demand careful reading in addition to extensive in-class writing from students. Students in this course are required to take the Advanced Placement exam; the cost of the exam is approximately \$100.

- CRAFT OF POETRY

(1/3 credit, trimester, students recommended by department)

A course for students who are interested in poetry and for those who have had some success in the writing of poetry. To strengthen and diversify poetry writing skills, we will consult the testimony of a number of poets and make use of exercises designed and effectively used by poets in writing workshops. Because the surest means to writing effective poetry is to read poetry, we will also give critical attention to a great deal of contemporary and past lyric poetry with a view to understanding how it is made and how it achieves its effects. Creative writing assignments will be supplemented by a critical essay. Sources on the writing of poetry will include works by Tony Hoagland, Ted Kooser, Richard Hugo, and Mary Oliver. Students must be willing to commit themselves to frequent writing and revision.

- GREAT SCOT: THE NOVELS OF ROBIN JENKINS

(1/3 credit, one trimester)

Though little known in this country, Scottish novelist Robin Jenkins [1912-2005] is widely studied in Britain, where he continues to gather acclaim as one of Scotland's greatest writers, one who made a study of the devastating effects of various forms of social injustice. This course will study three of his shorter novels, *The Changeling*, *Just Duffy*, and *The Pearl Fishers*, in order to explore the interesting duality, or "double vision", that Jenkins employs, though to different effect, in nearly every one of his works. Though Jenkins is in most ways a realist and characterized himself as a severely moral novelist, careful study of Jenkins' works suggests that the seemingly obvious oppositions required by

that moral view of the world, of good and evil, innocence and corruption, tragedy and hope, damnation and redemption, refuse to stay put. Jenkins challenges the reader in every novel by forcing us to reflect on the categories of judgement by which we determine meaning, both in our reading and in our lives.

- NATIVE AMERICAN WRITERS

(1/3 credit; one trimester)

For this course students will read and consider recent contributions of Native Americans to the body of American Literature. Native peoples are resurgent and contributing in important ways to American literature, spirituality and politics.

Writers such as Louise Erdrich, Leslie Marmon Silko, Sherman Alexie, Natalie Diaz, James Welch, Scott Momaday, Winona Laduke, Vine Deloria Jr., John Trudell, Barney Bush and Joy Harjo might appear on the reading list.

- JANE AUSTEN

(1/3 credit, one trimester)

In this course we will carefully consider two beloved 19th Century novels, *Pride and Prejudice* and *Persuasion*. One of the great writers of what came to be known as the novel of manners, Jane Austen compels her readers to engage in the practice of judgment and evaluation necessary to understand the moral intelligence of her characters as they find themselves beset by various crises of judgment. Austen helps us understand the place of intelligence and moral direction in the most delightful, humorous descriptions of family life, romance, literature, and commerce. Along with the books will view cinematic productions of these novels.

This course will also provide a literary introduction to the Austen country that will be a focus of the Glee Club trip during March Break this year.

- BORDERS AND ROMANCE

(1/3 credit, one trimester)

In this course we will read *All the Pretty Horses* by Cormac McCarthy, a love story about American Cowboy meets Mexican beauty. For background context to our reading, we will consider the historical and political concept of national boundaries in general and the United States/Mexican border in particular.

- HOW ARE WE TO LIVE?

(1/3 credit, one trimester)

An exploration of ways in which five essential and profoundly influential writers who lived and worked in Europe at the end of the nineteenth century and into the first half of the twentieth struggled with and responded to the questions and contradictions of human existence in early modern times – questions and contradictions with which we continue to live today.

Our readings will include the novellas *The Death of Ivan Ilych* by Leo Tolstoy and *The Metamorphosis* by Franz Kafka; Hermann Hesse's novel *Siddhartha*; *The Misunderstanding*, a play by Albert Camus; and Rainer Maria Rilke's *Letters To a Young Poet*.

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- **YOU ARE NOT A GADGET: AN ESSAY IN CULTURAL INQUIRY**

(1/3 credit, one trimester)

How does technology reshape the people it has been invented to serve? Named after Jaron Lanier's cautionary 2010 volume on the internet's effects on our brains, this course will interrogate ways in which technology infiltrates our minds, homes, and relationships. We will discuss and write about movies and television (think *Black Mirror*), short stories, essays, and studies that raise questions about how recent technological advances complicate and challenge what it means to be human. While you will be provided these texts in the course's first half, the latter half will be driven by your own research into a contemporary technological controversy of your choice. At the course's conclusion, you will submit your essay to News-Decoder for publication consideration.

SPRING ENGLISH ELECTIVES (for Juniors & Seniors)

- **LOVE IN THE SHORT-SHORT**

(1/3 credit, one-trimester)

Self-love. Love between people. Love for our pets. Broken love in the family. Let's explore love through creative writing. A short-short, also known as flash fiction, is a short story typically under a thousand words. Students will read many short-shorts as well as longer short stories to inspire their own creative writing. Students will produce one short story or three short-shorts. There will also be a unit on creative nonfiction, where students will write a personal essay. Find your "inner, victorious V." Let's be vulnerable and write about love.

- **VIRGINIA WOOLF**

(1/3 credit, one trimester)

An exploration of the writings of one of the twentieth century's most brilliant and innovative authors. We will begin the course with a consideration of Woolf's importance as a feminist writer through careful study of the influential essay *A Room of One's Own*. As we go on to examine her narrative experimentation with point of view and 'stream of consciousness' writing in such novels as *Mrs. Dalloway*, *To the Lighthouse*, and *The Waves*, as well as in some short stories and sketches, we will explore the ways in which Woolf's fictions reflect yet expand on her feminist convictions to touch on profound human truths.

- **GENESIS, JOB, AND THE GOSPELS**

(1/3 credit, one trimester)

A course directed at both acquainting students with the varied writings of the Bible and providing students with tools for reflecting on those writings. We will pay strict attention to the different literary genres of the Hebrew Bible and New Testament. Our reading will be supplemented with readings from Greek, Babylonian, Hindu and other mythologies. Because of the length of the trimester, this year's course will include an extended consideration of the New Testament Gospels.

- **JANE'S HEIRS**

(1/3 credit, one trimester)

Centered on our exploration of Charlotte Bronte's classic, much-loved *Jane Eyre*, this course will investigate the novel and its legacy in literature and popular culture. We will read Jean Rhys's

modernist prequel/sequel to Bronte, *Wide Sargasso Sea*, a stunning contextualization of the original novel's themes and characters that both argues with and expands on Bronte's feminist concerns. If we have time, our readings of these two works may be supplemented by excerpts from Gilbert and Gubar's classic study *The Madwoman in the Attic* as well as by a viewing of one of the many, many cinematic versions of Jane's story, a story that continues to be told and re-told with surprising frequency.

- THE SHORT STORY

(1/3 credit, one-trimester)

An exploration of the elements and aims of short story writing. Students will gain an appreciation of the economy of short fiction as they study stories written by masters of the craft, write critical essays on those stories, and write their own stories. Students can expect to read three to four stories each week. Authors will include Zadie Smith, Karen Russell, Anton Chekhov, Isak Dinesen, Joyce Carol Oates, Flannery O'Connor, Alice Walker, Amy Tan, Sandra Tsing Loh, Jorge Luis Borges, Tim O'Brien, E.M. Forster, Gabriel García Marquez, Jhumpa Lahiri, Guy de Maupassant, Tobias Wolff, and Bharati Mukherjee.

- HAWTHORNE AND THE NEW ENGLAND RENAISSANCE

(1/3 credit, one-trimester)

In this class students will read a variety of stories by Nathaniel Hawthorne in addition to the primary text, *The Scarlet Letter*. Through the texts we will consider both Hawthorne's contribution to the discussion of gender and culture, as well as his thinking as a response to Emerson's transcendentalist philosophy.

- JAMES BALDWIN IN BLACK AND WHITE

(1/3 credit, one-trimester)

Black, gay, and for many years an expatriate in France, James Baldwin forged for himself a distinctive literary voice rooted in the turbulent experience of being an outsider in mid-twentieth century America. In short stories, essays, and novels, Baldwin laid bare the savage effects of discrimination on the individual psyche, and, at the same time, offered a powerful challenge to the national consciousness of the white majority. In this class we will explore Baldwin's work in different genres and his characters of different races to discover the ways that Baldwin continues to speak to our present moment. Works read will include *Go Tell It on the Mountain*, *Giovanni's Room*, and selected short stories and essays.

- METAMORPHOSES

(1/3 credit, one trimester)

Imagine: One day you wake up to find yourself in a body that is not your own. How would you feel? Would you still be yourself? Could you become, in this new shape, more yourself than you were before? This course will consider works of literature and film that imagine what it is like to live in a body that has been radically transformed (whether through acts of fate, fortune, or will) and the feelings of terror, grief, and renewal that such bodily alterations spur. In doing so, it will invite you to examine the extent to which being one's self — indeed, being a self — connects to the form that one's body takes. Readings may include Ovid's *Metamorphoses*, Kafka's *The Metamorphosis*, Jean-Dominique Bauby's *Diving Bell and the Butterfly*, Octavia Butler's "Bloodchild," and

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Juliet Jacques' *Trans: A Memoir*. Films may include James Cameron's *Hedwig and the Angry Inch*, David Cronenberg's *The Fly*, and Jordan Peele's *Get Out*.

MATHEMATICS

The mathematics program at Westover is a sequence of courses from Algebra I through Calculus. In all courses, modern methods of presenting concepts are blended with traditional training in basic skills. The emphasis is on student involvement in reading, discussion, and the development of problem solving strategies. Technology is an important element in all courses. Entering students are introduced to the operation of the graphing calculator. All mathematics courses require the TI-84 calculator (any edition).

Three credits of math are required for graduation. The Math Department does not generally award credit for courses taken at other institutions or with tutors over summer break. Exceptions are: High school level courses taken at previous schools, with approval of Westover department head. Courses required for advancement in a discipline, with prior approval of the department head and Academic Office. Courses offered by One Schoolhouse, with approval of the enrollment committee. Students with strong ability and interest in math and science may be invited to participate in the co-curricular enrichment program, Women in Science and Engineering (WISE), described on pages 50-52.

- **ALGEBRA I**

(1 credit, full year)

Algebra I gives students a foundation for all future mathematics courses. Students are introduced to solving equations, solving inequalities, functions, linear functions, systems of equations and inequalities, exponents and exponential functions, polynomials and factoring, quadratic functions and equations, radical expressions and equations.

- **GEOMETRY PLUS ALGEBRA**

(1 credit, full year)

This course covers all the major topics included in a typical Geometry class while extending the student's algebra skills with an intensive review that is integrated throughout the year. Students completing this course will advance to either Algebra II or Honors Algebra II.

- **HONORS GEOMETRY PLUS ALGEBRA**

(1 credit, full year, prerequisite: by department assignment in Winter Term)

This course covers all the major topics included in a typical honors level Geometry class while extending the student's grasp of algebra by solving challenging exercises throughout the year. Students completing this course will advance to either Algebra II or Honors Algebra II. The Honors track will encounter more challenging problem sets and move at an accelerated pace.

- **ALGEBRA II**

(1 credit, full year, prerequisite: Algebra I and Geometry Plus Algebra)

A course in algebra which leads towards Pre-Calculus. Topics covered include: variations and graphs, linear relations, systems of equations, inequalities, powers, roots, parabolas and quadratic equations, polynomial and rational functions, logarithms, introductory trigonometry, matrices, and sequences and series. Reading and problem solving are emphasized, and real-life situations are used to motivate algebraic ideas throughout this course.

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- **HONORS ALGEBRA II**
(1 credit, full year, prerequisite: Algebra I and Geometry Plus Algebra)
A course in algebra that covers standard second year algebraic topics at an accelerated pace. In addition, advanced topics of algebra are studied and an introduction to pre-calculus and functional trigonometry is given.
- **PRE-CALCULUS**
(1 credit, full year, prerequisite: Honors Algebra II, Algebra II or permission of the department)
This course reviews all elementary functions and introduces advanced properties of specific functions essential to calculus. Special attention is given to the study of: polynomial, trigonometric, exponential and logarithmic functions, graphing techniques, and complex numbers.
Note: With permission of the math department and the college counselor, Seniors in Pre-Calculus may drop this class for Spring Term.
- **HONORS PRE-CALCULUS**
(1 credit, full year, prerequisite: Honors Algebra II, Algebra II or permission of the department)
The course begins with an introduction into mastering the ability of reading a math textbook in conjunction with a study of topics in probability and statistics. The course continues with an intensive study of polynomial, rational, exponential, logarithmic, and trigonometric functions, graphs, and proofs. The concept of derivative is introduced through limits. This course requires students to solve problems algebraically and to use their graphing calculators to analyze problem situations both graphically and numerically.
Note: With permission of the math department and the college counselor, Seniors in Honors Pre-Calculus may drop this class for Spring Term.
- **HONORS PRE-CALCULUS PLUS CALCULUS**
(1 credit, full year, prerequisite: Honors Algebra II and permission of the department)
A full year course which leads towards study in AP® Calculus BC. It covers trigonometry and all precalculus topics, and includes an introduction to calculus. It is assumed that students in this course will be able to move at a faster pace and that they will take AP® Calculus BC at Westover in the following year.
- **CALCULUS**
(1 credit, full year; prerequisite: Pre-Calculus)
A full year course of calculus designed to cover all the major topics of AP Calculus AB but with less rigor. Students enrolled in this course are not expected to take the Advanced Placement exam.
- **AP® CALCULUS (AB)**
(1 credit, full year; prerequisite: Honors Pre-Calculus)
A full year course designed to represent first semester college-level calculus, including the theory of limits, as well as differentiation and integration. Emphasis is placed on a multi-

representational approach to calculus, with concepts, results, and problems being expressed geometrically, numerically, analytically, and verbally. This course has one additional class meeting per week. Students in this course are required to take the Advanced Placement exam; the cost of the exam is approximately \$100.

- AP® CALCULUS (BC)

(1 credit, full year; prerequisite: Honors Pre-Calculus Plus Calculus or AB Calculus)

A full year course designed to represent second semester college-level calculus. Emphasis is placed on a multi-representational approach to calculus, with concepts, results, and problems being expressed geometrically, numerically, analytically, and verbally. Topics beyond the scope of AP® Calculus AB are explored. Students may take this course as a sequel to AP® Calculus AB or after taking Honors Pre-Calculus Plus Calculus. Because the A, B, and C syllabi for calculus will be covered, the pace of this course is extremely fast, and the course has one additional class meeting per week. Students in this course are required to take the Advanced Placement exam; the cost of the exam is approximately \$100.

- STATISTICS

(1 credit, full year; prerequisite: Pre-Calculus)

A statistics course that will introduce students to the major concepts of collecting and analyzing data, and for drawing conclusions from their analysis. active learning and communication are high priorities. Students learn to use the statistical capabilities of their graphing calculator to carry out routine computations, create graphical displays and perform some analyses.

MATH ELECTIVES

- INDEPENDENT STUDY

(1, 2/3 or 1/3 credit; Permission of the Department Head required)

A course for students who have successfully completed the standard courses offered in the mathematics program at Westover.

- HISTORY OF MATH (SPRING TERM)

(1/3 credit math or world history elective, 1 trimester elective, prerequisite: World History I & II, Honors Algebra II, Algebra II or permission of the department)

This is an introduction to the history of mathematics from ancient civilizations to present day. The course will begin with exploring Babylonian and Egyptian mathematics, The Chinese Remainder Theorem, and early number theory. The course will continue through history exploring both female and male mathematicians, discussing not only their contributions but controversies and major break through. Students will study major mathematical discoveries in their cultural, historical, and scientific contexts. This course explores how the study of mathematics evolved through time, and the ways of thinking of mathematicians of different eras - their breakthroughs and failures. Forms of evaluation will include a group presentation, class discussions, and a final paper.

MATHEMATICS

ONE SCHOOLHOUSE COURSES SPONSORED BY THE MATH DEPARTMENT

- AP® MACROECONOMICS
(1 credit; Westover prerequisite: Successful completion of AP AB or BC Calculus; Permission of the Department Head required)
Please see page 53 for course description.
- AP® MICROECONOMICS
(1 credit; Westover prerequisite: Successful completion of AP AB or BC Calculus; Permission of the Department Head required)
Please see page 54 for course description.
- ADVANCED MATHEMATICS: MULTIVARIABLE CALCULUS AND DIFFERENTIAL EQUATIONS
(1 credit, full year; prerequisite: AP ®Calculus BC; Permission of the Department Head required)
Please see page 54 for course description.
- ADVANCED MATHEMATICS: LINEAR ALGEBRA
(1 credit, full year; prerequisite: AP® Calculus BC; Permission of the Department Head required)
Please see page 54 for course description.

LANGUAGES

The Language Department offers course sequences from the introductory to the Advanced Placement levels in French, Latin, and Spanish. The Department determines the level at which a student is placed in the language program she chooses. Each student is required to successfully complete Westover's third-level course in one of these languages in order to graduate, though she is encouraged, if eligible, to pursue the study of her chosen language beyond the requirement or to begin the study of a second foreign language upon meeting that requirement. Students for whom English is their second language are generally exempt from this requirement.

FRENCH

- FRENCH I

(1 credit, full year)

In this introductory course, students will learn the basic communicative functions as well as the basic structures of the French language. Grammar lessons will be reinforced with photos and images, skits, and physical response exercises. Students will also be exposed to cultural aspects of the French-speaking world through songs, video excerpts, and short articles. Classes are conducted in French.

- FRENCH II

(1 credit, full year)

Students will continue to develop grammatical and speaking skills in this second year course, with an increased emphasis on writing. Some basic grammatical lessons will be supplemented with more advanced material according to the needs and interests of the class. Students will experience French culture through songs, skits, film and use of the Internet. Active participation in class discussions and exercises is essential. Classes are conducted in French.

- FRENCH III

(1 credit, full year)

Students will continue to hone skills in grammar, speaking and listening in this third year course, with an increased emphasis on developing advanced reading and writing skills. As in previous courses, students will be expected to apply these skills in communicative activities in the classroom. Basic grammar lessons will be supplemented with images and video, skits, and use of the Internet. Students will be exposed to culture through short stories, periodical articles, and films, thus improving their vocabulary and reading comprehension skills. This class will be taught solely in French. Active participation is essential.

- FRENCH IV

(1 credit, full year)

This course is designed for students who wish to increase their knowledge of Francophone cultures and gain proficiency in their communicative and written skills. After an extensive grammar review to strengthen the skills needed for reading, writing, listening, and speaking, we will cover themes such as education, the environment, the arts, travel, technology, the place of women in French society, and current events. Students will also examine historical topics including the Paleolithic era and the Lascaux caves, the Middle Ages and the legend of Tristan and Iseut, the French Renaissance, and Napoleon. In addition, they will study excerpts of works by French authors such as Molière, Voltaire,

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St. Exupery, and Victor Hugo. The study of French and Francophone movies will allow students to gain an in-depth knowledge of certain facets of French culture. Classes are taught solely in French and student participation is essential.

- AP® FRENCH

(1 credit, full year; permission of the department required)

AP® French is comparable to an advanced level college French course. Students will be exposed to a holistic approach to language proficiency through interdisciplinary topics and will be trained in the different formats of the exam. The course includes an in-depth review of the most complex structures of French grammar. Students will enrich their vocabulary and gain additional cultural awareness. They will also further their understanding of the Francophone world and its cultures using a variety of authentic resources: audio and video recordings, literary texts, journalistic articles, advertising, charts, graphs, broadcasts, podcasts, films, and songs.

Classes are taught solely in French; students will be required to speak only in French in class and to participate in group discussions with enthusiasm. Students in this course are required to take the Advanced Placement exam; the cost of the exam is approximately \$100.

LATIN

- LATIN I

(1 credit, full year)

This course offers an introduction to the elements of Latin grammar, syntax, and vocabulary as tools for reading the language. Students will also explore the history of Rome, classical mythology, and the Latin roots of English words. Composition and introductory oral communication are used to reinforce the grammatical concepts of the course. Elements of Roman culture and society are presented through Latin passages and supplemented with English readings.

- LATIN II

(1 credit, full year)

After reviewing the material learned in Latin I, students continue the study of Latin vocabulary, grammar, and syntax. The readings are, for the most part, adapted from Classical Latin literature. The writings of Livy, Cicero, Ovid, Sallust, & Aulus Gellius, among others, serve to broaden the students' appreciation of the longstanding presence of the Latin language.

As in Latin I, students will pay steady attention to the Latin origins of English words, as well as to the structural differences between the two languages, as a way of developing a deeper understanding and appreciation of both. Continued exploration of the historical and cultural context in which these authors wrote will broaden students' awareness of the connections between those contexts and our own.

- LATIN III

(1 credit, full year)

This course, structured as three distinct units which vary from year to year, provides an opportunity for students to explore topics and genres in a focused and in-depth manner. In the 2019-2020 school

year, the topics will be Latin Composition, Murder & Conspiracy Trials, and the Trojan War. In the fall trimester, Latin Composition, students will apply their knowledge of Latin grammar, syntax, and vocabulary to write original pieces of prose and poetry. In the winter term, Murder & Conspiracy Trials, students will read prosecutory and defence speeches from some of the most notable legal cases from the Roman world; this research will be accompanied by a close study of Roman oratory. In the spring term, the Trojan War, Vergil and Ovid will provide poetic tales not only of the war, but of its aftermath and its impact on the Mediterranean world.

- **LATIN IV/V ELECTIVES**

(1/3 credit, one trimester; prerequisites: successful completion of Latin III or the equivalent)

The Latin IV/V electives are offered concurrently with Latin III, and share the topics with the themes listed above. Students may choose to take one, two, or all three electives.

- FALL TERM: LATIN COMPOSITION
- WINTER TERM: MURDER & CONSPIRACY TRIALS
- SPRING TERM: THE TROJAN WAR

SPANISH

- **SPANISH I**

(1 credit, full year)

In this introductory course, students will learn the basic communicative functions as well as the basic structures of the Spanish language. They will perform reading, writing, speaking, and aural comprehension exercises. They will also be introduced to cultural aspects of Spain and Latin America. Classes are conducted in Spanish.

- **SPANISH II**

(1 credit, full year)

Students will continue to develop grammatical and speaking skills in this second year course, with an increased emphasis on writing. Increased emphasis is placed on oral-aural skills, along with practice in writing and reading. Students are further exposed to Hispanic culture in reading materials. Classes are conducted in Spanish.

- **SPANISH III**

(1 credit, full year)

This course extends the study of basic patterns with concentration on the more complex aspects of Spanish grammar in addition to expanding vocabulary. The focus is on the continued improvement of comprehending spoken and written material, and augmenting speaking and writing skills in Spanish. Students practice their listening and speaking skills by speaking with their instructor and classmates in the classroom through varied activities. The complexity of the short readings gradually increases over the course of the year. Various websites are introduced to the students to aid in their preparation and study outside of class as well. As the year progresses, increased emphasis is placed on the student's proficiency in speaking Spanish. Classes are conducted in Spanish.

LANGUAGES

- HONORS SPANISH III

(1 credit, full year; permission of the department required)

Like *Spanish III*, this course extends the study of basic patterns with concentration on the more complex aspects of Spanish grammar. Concepts are covered in depth and reinforced by a wide range of discussion-based activities. Literary and cultural readings are used for class discussion and writing assignments, giving students the opportunity to consolidate their knowledge by the active use of the language. The course also offers increased exposure to Hispanic history and culture through the use of film and Internet resources. As the year progresses, increased emphasis is placed on oral proficiency. Classes are conducted in Spanish.

- SPANISH IV

(1 credit, full year)

This course is designed for students who wish to increase their knowledge of Hispanic culture and gain proficiency in their communicative skills. There will be a comprehensive grammar review to strengthen the skills needed for reading, writing and speaking. Grammar study will be interspersed with units covering a variety of Hispanic cultural topics and movies from throughout the Hispanic world. Classes are conducted in Spanish and participation in class discussions is essential.

*Seniors, with the permission of the instructor and the department chair, may opt to take only the Fall Term, or both the Fall and Winter Terms.

- HONORS SPANISH IV

(1 credit, full year; permission of the department required)

Building on prior study of the Spanish language and cultures associated with it, this upper-level course aims to provide a thorough review of all grammar structures, expansion of vocabulary, a general insight to Hispanic literature, as well as an increased proficiency in communicating and understanding Spanish. A wide variety of projects will be assigned throughout the year in order to enhance the student's overall confidence and comfort in using Spanish. The class will make use of available technologies to enhance the students' language experience. All students will be expected to use only Spanish at all times in this course. Classes are conducted entirely in Spanish.

SPANISH V ELECTIVES

(Prerequisite: Successful completion of Spanish IV or Honors Spanish IV and departmental recommendation. Students may take just the Fall elective, both the Fall and Winter electives, or all three terms.)

- CURRENT AFFAIRS IN SPANISH (FALL TERM)

In this course, students will be able to practice their Spanish language skills through examination and discussion of current affairs through a themed approach. Classroom debates of topics, written opinion responses, and daily news items will be enhanced by the continued explanation of grammar in context. A strong emphasis will be placed on the acquisition of vocabulary in addition to the exclusive use of Spanish.

- A BRIEF HISTORY OF SPAIN (WINTER TERM)

As the title suggests, this course will consist of an overview of the history of the Spanish peninsula, including its influence upon the larger world. This course will be conducted entirely in Spanish.

- MUSIC, CINEMA, AND ENTERTAINMENT IN SPANISH (SPRING TERM)

Through film, theatre and music, students will explore the performing arts of the Spanish speaking world. This course will be conducted entirely in Spanish. Students will be involved in the Spring theater production of Cinderella Eats Rice and Beans: A Salsa Fairytale, a bilingual performance for young audiences.

- AP® SPANISH

(1 credit, full year; permission of the department required)

An AP® Spanish Language course is comparable to an advanced level college Spanish language course. Emphasizing the use of Spanish for active communication, it encompasses aural/oral skills, reading comprehension, grammar in context, and composition. In this course, special emphasis is placed on the use of authentic source materials and the integration of language skills. There is extensive training in combining listening, reading, and speaking (or listening, reading, and writing) skills in order to demonstrate understanding of authentic Spanish-language source materials. Classes are conducted entirely in Spanish. Students in this course are required to take the Advanced Placement exam; the cost of the exam is approximately \$100.

ENGLISH AS A SECOND LANGUAGE

The English as a Second Language (ESL) program is designed for students who have already achieved a high/intermediate level of competence in both spoken and written English, but may need some additional support to be successful in Westover's rigorous academic curriculum. The aim of the program is to refine students' English skills so that these non-native speakers may be fully engaged in the Westover community. A fee is charged for English as a Second Language courses.

- ENGLISH AS A SECOND LANGUAGE I

(1 credit, full year; taken concurrently with English I)

ESL I is an intensive course in which new students will hone their listening, speaking, reading, and writing skills in English so that they may be able to participate as fully as possible in their academic courses, especially English and History, and in every other aspect of Westover life.

In addition to focusing on the English language, students will learn about United States history and culture. They will be required to do substantial work outside class; in particular, *ESL I* students will be expected to practice English with native speakers at every opportunity. Careful attention will be paid to individual students and their specific needs.

ESL I meets three times a week. Students in *ESL I* are also enrolled in *English I* and receive a combined *English I/ESL* grade for their work in both courses. This combined grade will be the average of the grades in the two courses.

- ENGLISH AS A SECOND LANGUAGE II

(1 credit, full year; taken concurrently with English II)

This course is designed for new students who have been placed into *English II*, but need additional support, particularly in grammar and writing. Much of the course content will be driven by the needs of the enrolled students.

ESL II meets three times a week. Students in *ESL II* are also enrolled in *English II* and receive a combined *English II/ESL* grade for their work in both courses. This combined grade will be 75% *English II*, 25% *ESL II*.

- ENGLISH AS A SECOND LANGUAGE SUPPORT

(Not for credit)

ESL Support sessions are scheduled for new international students who arrive at Westover with such exceptional English skills that they do not require the intensive support of an ESL class. Students are provided with tutorial help as needed for successful performance in their coursework at Westover. Students will be expected to bring to tutoring sessions questions based on their work in other courses, particularly *English I* and *English II*.

HISTORY

The History program at Westover is designed to develop understanding and appreciation of economic, social, cultural, and political heritage throughout the world and assists students in knowing themselves more fully within changing historical contexts. To satisfy graduation requirements, each student, starting with the class of 2021, will complete three years of History: World History I in the Ninth Grade, World History II in the Tenth Grade, and a year of U.S. History by the end of the Twelfth Grade. The U.S. History requirement can be met by a combination of American History electives or Advanced Placement United States History. Those graduating before 2021 are strongly urged to complete at least three years of History at Westover.

WORLD HISTORY COURSES FOR NINTH AND TENTH GRADES

- WORLD HISTORY I: FOUNDATIONS IN HUMAN SOCIETY

(1 credit, full year)

World History I provides a global perspective on human history from the earliest human migrations to the disintegration of the Mongol Empire in the 1300s. Focusing on belief, trade, technology, and cultural exchange, the course emphasizes the major intellectual, political, social and economic developments in Afro-Eurasia. As the first course in a two-year World History sequence, topics of study include the Agricultural Revolution, the rise of cultures in Mesopotamia, Egypt, and China, the challenges of ruling huge empires before modern communications, major world religions and belief systems, and transregional interactions and trade systems including the Silk Roads, Sea Roads and Trans-Saharan Trade.

An important goal of the course is to build analytical and writing skills that will help students generally as they study, read, and write at Westover and beyond. In applying these skills in history, students will focus on analyzing and evaluating primary and secondary source documents and will learn how to use evidence to support well-organized written arguments. We will also work to develop a growth mindset and the metacognitive skills that will allow students to stretch themselves as learners in all contexts, as well as to establish the geographic knowledge essential to becoming informed world citizens. Students will be guided to think and write critically, to consider multiple points of view, and to discover how understanding the past is essential in making sense of the present and preparing for the future.

- WORLD HISTORY II: THE MODERN WORLD

(1 credit, full year)

World History II: The Modern World continues students' exploration of world history with an emphasis on discovering how the modern world has been shaped. Beginning with the economic, political, and intellectual roots of modern society, the second half of world history centers on ways that a world system developed and accelerated from the early merchant activity in Asia through European expansion, empire building, colonization and revolution to the long 20th century and beyond.

Students will build on the skills learned in World History I with an emphasis on research, writing, and the appropriate use of evidence to support arguments. Work on these skills will culminate in a research paper and presentation.

HISTORY

UNITED STATES HISTORY COURSES FOR JUNIORS AND SENIORS

Juniors and Seniors will complete a year of U.S. History before graduation by taking three U.S. History electives or Advanced Placement United States History.

FALL U.S. HISTORY ELECTIVES

- COLONIAL ENCOUNTERS: EARLY AMERICAN HISTORY

(1/3 credit, trimester)

This course begins with the assumption that indigenous peoples, Europeans and Africans all played a vital role in shaping this continent, and therefore our best and most honest insights into this period of history will come when we focus on interactions among the many peoples of colonial North America, rather than the story of only a few. This term we will delve deeply into the complex and often unequal encounters between and among the people of three continents in colonial North America. In our study, we will give attention to a wide variety of perspectives—male, female and non-binary, slave and free, rich and poor, insider and outcast—in order to paint a richer portrait of the America that these individuals and groups helped to create.

- THE U.S. CONSTITUTION: THE AGE OF WASHINGTON, JEFFERSON AND HAMILTON

(1/3 credit, trimester)

Checks and Balances. Immigration. Impeachment. State's Rights. Supreme Court Decisions. Gun Control. Personal Rights. The Social Contract. Nothing could be more relevant in an era when the basic tenets of American Democracy are under question. This course will discover the unique underlying principles found in the U.S. Constitution and Bill of Rights and attempt to apply them to modern-day situations. How does the Constitution address the issue of impeachment of a high government official? What does the Bill of Rights actually say about gun control? What does the 4th amendment allow for in the process of search and seizure? These questions and more will help develop our knowledge of the American system and improve the quality of our citizenship.

- HERSTORY: WOMEN IN AMERICAN HISTORY

(1/3 credit, trimester)

Even today, many textbooks frame history around the accomplishments of men in positions of power. In this course, we will recenter our narrative on the women--both famous and nameless--who have shaped every period of U.S. history. Giving the greatest weight to the early days of American history, we will consider the myriad ways in which women have contributed to our society, as well as the many challenges they've faced and overcome. In each time period, we will consider how the opportunities and obstacles that women faced were changing, as well as how they remained the same, and we will study the ways that women fought for their equality. As we examine women's experiences within the larger context of U.S. history, we will ask whether American history looks different from the perspective of women living at the time. In our study, we will give careful consideration to how other aspects of identity, such as race, class and sexual orientation intersect with gender in order to form a more complicated picture of women's history.

WINTER U.S. HISTORY ELECTIVES

- RAGE AGAINST THE MACHINE: THE INDUSTRIAL REVOLUTION AND THE PROGRESSIVE ERA

(1/3 credit, trimester)

By 1890, many Americans were fed up with the status quo. They were dismayed by the transformations wrought in the U.S. by industrialization, political corruption and urbanization, and they fought for economic, social, political and moral reform over the course of the next three decades. In this class we will examine these reform movements from the perspective of our own time, when the term ‘Progressive’ is once again in the news and shaping elections. In the course of our studies, we will examine questions relevant to both the early 20th century and today: How has technological progress shaped society for good and ill, and what obligation do we have to those who are left behind? What role should government play in shaping our economy and society? How do we balance the values of the American Dream with social justice?

- BLACK AMERICA: SLAVERY, THE CIVIL WAR AND RECONSTRUCTION

(1/3 credit, trimester)

It has been more than 150 years since Abraham Lincoln’s “Emancipation Proclamation”, and yet race relations have improved at an agonizingly slow pace and at times, appear to be moving backwards. This course will look at the long-term effects slavery had on the United States, what the Civil War did (and didn’t do) for race relations and examine how Reconstruction policies following the war actually inflamed the situation for years. Over the course of the term, students will investigate famous court decisions such as Plessy vs. Ferguson, compare the struggle for black rights to the women’s rights movement of the same era, evaluate many of the plans, such as the movement to Liberia, that attempted to solve the situation and become familiar with many of the leading advocates - Sojourner Truth, Harriet Tubman, Frederick Douglass, Booker T. Washington, W. E. B. DuBois and more. Finally, the course will look forward and attempt to apply the lessons learned from that time to the current age.

- AMERICAN IMMIGRATION: THE ORIGINAL MELTING POT

(1/3 credit, trimester)

*“Give me your tired, your poor,
Your huddled masses yearning to breathe free,
The wretched refuse of your teeming shore.
Send these, the homeless, tempest-tost to me,
I lift my lamp beside the golden door!”
-Emma Lazarus, “The New Colossus”*

The United States began as a nation of immigrants, and immigrants have profoundly shaped U.S. society over the past two and a half centuries. During that time, this country has debated many questions related to immigration: Are immigrants the key to America’s success? Has America fulfilled its promises to immigrants? Should this country serve as a land of opportunity for everyone? What are the benefits and challenges of immigration economically and socially? As a society, should we strive to be a ‘melting pot’ or a ‘salad bowl’? What do we owe to the original inhabitants of North America, who were displaced and decimated by immigration? In this course, we will explore these questions and others by examining immigration at different periods of U.S. history, focusing most prominently on the 19th through the early 20th centuries. We will consider a wide variety of immigrant identities,

HISTORY

asking why different groups came to America and what their experiences were after their arrival.

SPRING U.S. HISTORY ELECTIVES

- NATIVE AMERICAN HISTORY

(1/3 credit, trimester)

When the first Europeans arrived on North American shores, they encountered a diverse set of indigenous peoples with a rich history stretching back for many millennia. In this course we will approach U.S. History from the perspective of native peoples, beginning with Precontact societies and ending with today. As we study Native American encounters with European settlers and later with the U.S. government, we will give attention not only to the great hardships that Native Americans have faced, but also to the important ways in which tribes have fought for their rights in a changing social and political landscape.

- TURBULENCE: JFK, THE SPACE RACE, CIVIL RIGHTS AND ROCK 'N' ROLL

(1/3 credit, trimester)

No time period in U.S. History has been more volatile than the period between the end of World War II and the modern era. Consider the following events that occurred within this small window: The assassinations of JFK, RFK, MLK, Jr. and Malcolm X; The advent of NASA and the race against the Soviets to get into space; The threat of nuclear war as tensions with the Soviets heat up; Violent clashes between the old, white regime and the newly formed black civil rights groups; The rise of American music with early Rock 'n' Roll artists such as Chuck Berry, Elvis and Led Zeppelin challenging a conservative society. Put them together and you have one of the most controversial periods in American history. This course seeks to understand the motivations behind this set of incidents and movements and track their effects - many of which are still felt today.

- AMERICA IN THE AGE OF GLOBALISM

(1/3 credit, trimester)

100 years ago the United States was emerging from a period of profound isolationism. World War I thrust America onto a world stage, fighting for the rights of self-rule and determination. By the end of World War II, the US was a true world power - economically, politically and socially. Today, we live in an increasingly small world, one in which great distances and borders have melted away thanks to modern travel, the internet and social media. What is America's place in this world? Why are Americans often the targets of terrorism? How has social media affected our interactions? What are the U.S.'s responsibilities to other countries? To what degree are we required to correct humanitarian and environmental problems? These questions and more will be asked and interpreted with the goal of defining our place in an era globalism.

ADVANCED PLACEMENT

- AP® UNITED STATES HISTORY

(1 credit, full year; permission of the department required. This course is for Juniors and Seniors.)

Colonization. The Revolution. Westward Expansion. Immigration. The World Wars. The Great Depression. The Civil Rights Movement. In this full year course we recount the story of America from the beginning to the present. Students work extensively with primary sources and texts to determine the causes and consequences of major turning points. We will examine the contributions of

presidents and poets, senators and slaves, workers and writers in creating our diverse nation. Students will develop historical analytical skills of causation, comparison, continuity and change, and historical argumentation as they analyze social, political, economic, and cultural historical themes. Students write frequent essays and complete multiple-choice assessments in preparation for the format of the Advanced Placement exam. The student who completes this course will have a solid foundation in American History. Students in this course are required to take the Advanced Placement exam; the cost of the exam is approximately \$100.

ONE SCHOOLHOUSE COURSES SPONSORED BY THE HISTORY DEPARTMENT

- AP® US GOVERNMENT & POLITICS and AP® COMPARATIVE GOVERNMENT & POLITICS
(1 credit, Westover prerequisite: Successful completion of AP® U.S. History)

NOTE: students may not take this class while simultaneously taking another AP History course. This course does NOT fill graduation requirements in History. Please see page 55 for course description.

SCIENCE

The Science Department offers a balanced and varied curriculum of biological and physical sciences. These include year long surveys of the major disciplines as well as trimester electives devoted to more specialized topics. To satisfy graduation requirements, each student must complete at least two full years of laboratory science, one biological and one physical, in addition to at least one of the trimester laboratory electives. Most students, however, opt for at least three full years of science (biology, chemistry and physics), a program considered as a minimum by most competitive colleges. AP® Chemistry and AP® Environmental Science will be offered alternating years. AP® Physics C: Mechanics and AP® Biology will be offered annually.

BIOLOGY

- BIOLOGY

(1 credit, full year)

An introduction to the study of life, tracing its evolution from organic molecules through single-celled organisms to more complex plant and animal forms and their interrelationships in and with their environment. The course emphasizes structure and functional adaptations to the pressures of survival found in diverse environments. Topics of current interest, such as infectious disease, genetic engineering, and environmental pollution, are included in the curriculum. In the lab and in the field, both quantitative and observational skills are developed.

- AP® BIOLOGY (offered annually)

(1 credit, full year, prerequisite: Honors Chemistry (preferred) and/or Honors Physics and permission of the department)

A course designed for the highly motivated student with a special interest in biology. Since this is the second biology course the students will take, the course moves at a rigorous pace. Reading from a college text, weekly laboratory work with extensive written reports, and weekly study questions will demand serious attention and organization from the successful student. As in other AP courses, there may be one extra class meeting per week. Students in this course are required to take the Advanced Placement exam; the cost of the exam is approximately \$100.

Each topic of study will center around at least one of the following “Big Ideas” in biology:

- ❖ Big Idea 1: The process of evolution drives the diversity and unity of life.
- ❖ Big Idea 2: Biological systems utilize free energy and molecular building blocks to grow, to reproduce and to maintain dynamic homeostasis.
- ❖ Big Idea 3: Living systems store, retrieve, transmit, and respond to information essential to live processes.
- ❖ Big Idea 4: Biological systems interact, and these systems and their interactions possess complex properties.

CHEMISTRY

- CHEMISTRY

(1 credit, full year)

An introduction to the study of chemical systems. Investigation of the structure of matter, organization of the periodic table, bonding, and nomenclature provide a basis for performing chemical calculations and examining chemical reactions. This is followed by applications such as nuclear chemistry, gases, solutions, and acids and bases. Students will learn what important roles

chemistry plays in their lives as well as its effect on the environment around them. They will put the scientific method into practice through regular laboratory experiments that are designed to reinforce principles taught in class and teach a variety of laboratory, experimental, and analytical techniques.

- HONORS CHEMISTRY (prerequisite for all AP Science options)

(1 credit, full year)

An accelerated study of chemical systems. The structure and properties of atoms, the periodic table, and fundamental chemical reactions are introduced early in the course and are followed by more detailed and specialized topics including the behavior and properties of gases, solutions, and acids and bases. Nuclear chemistry and environmental issues are also considered. Scientific problem solving is emphasized, both conceptually and mathematically. Frequent labs reinforce principles encountered in class and teach a variety of laboratory, experimental and analytical skills. A number of the lab exercises are student designed. Group lab work encourages collaborative, communication, and thinking skills.

- AP® CHEMISTRY (offered every other year, including 2019-2020; again in 2021-2022)

(1 credit, full year, prerequisite: Honors Chemistry and permission of the department)

This course is designed for the highly motivated science student with a special interest in chemistry and/or engineering. The course moves at a very rigorous pace. An emphasis on chemical calculations, the mathematical formulation of principles, and more complex laboratory experiments drawn from college texts differentiate this course from its prerequisite. One third of the experiments are inquiry-based labs. As in other AP courses, there will be one extra class meeting per week. Students in this course are required to take the Advanced Placement exam; the cost of the exam is approximately \$100.

Topics:

- ❖ Fall – The Structure of Matter, Stoichiometry, Solutions, and Thermochemistry;
- ❖ Winter – Periodicity, Bonding, Intermolecular Forces, and the Control of Chemical Reactions;
- ❖ Spring – Equilibrium, Thermodynamics, and Electrochemistry.

PHYSICS

- PHYSICS

(1 credit, full year; concurrent Algebra II preferred)

This conceptual course begins with an introduction to the history and to the basic principles and topics of Newtonian physics. We then move onward, using these basic ideas, to study and apply the phenomena and concepts of physics, including gravitational, waves and wave mechanics, electricity and magnetism, and light. Time permitting, we will also look at some aspects of modern physical theory, including the foundations of relativity and quantum mechanics. Students will learn, through reading, labs, and demonstrations, how to work and think logically and how to solve basic problems related to the physical world around them.

- HONORS PHYSICS

(1 credit, full year; concurrent Algebra II preferred)

This course examines the fundamental laws of nature, laws which govern the behavior of the matter, energy, space and time comprising our universe. Topics include Newtonian mechanics, wave

SCIENCE

mechanics, thermodynamics, electricity, magnetism, light and some aspects of modern physics including relativity and quantum mechanics. These concepts will be developed thoroughly through mathematical analysis. Emphasis will also be placed on the historical development of scientific thought and on the impact which the study of physics has had on the way we see the world. Labs will explore and extend the concepts introduced in class.

- **AP® PHYSICS C: MECHANICS**

(1 credit, full year, prerequisite: Honors Physics, AP® Calculus or taking it concurrently and permission of the department)

This rigorous calculus-based physics course is designed to challenge students who intend to pursue the physical sciences or engineering at the college level. The course will cover topics in kinematics; Newton's laws of motion; work, energy and power; systems of particles and linear momentum; circular motion and rotation; and oscillations and gravitation. Laboratory work will augment and enhance student understanding of the topics covered. As in other AP courses, there will be one extra class meeting per week. Students in this course are required to take the Advanced Placement exam; the cost of the exam is approximately \$100.

ENVIRONMENTAL SCIENCE

- **AP® ENVIRONMENTAL SCIENCE** (offered in: 2019-2020; offered again in 2020-2021)
(1 credit, full year, prerequisite: at least two years of science, one of Biology and one of either Honors Chemistry or Honors Physics, and permission of the department)

As the subtle and delicate balance of our planet's interwoven physical and biological systems becomes better appreciated and understood, so do we humans become more aware of how crucial this balance is to our continued existence. In this interdisciplinary science course we will address and analyze some of the most pressing issues of our time. Though global warming is arguably the "hottest" environmental topic of the century, many others deserve and will receive

our attention, including management of depleting resources such as land, water, minerals, and fossil fuels, the steady growth of human population, the increasing demand for decreasing reserves of energy and nutrition, decreasing biological diversity, and increasing pollution of air and water. The weekly labs will be diverse, some in the field, others in the lab, some physical, and others with a focus on biology and organisms. As in other AP courses, there may be one extra class meeting per week. Students in this course are required to take the Advanced Placement exam; the cost of the exam is approximately \$100.

FALL SCIENCE ELECTIVE

- **FORESTRY AND NATURAL RESOURCES**
(1/3 credit, one trimester, prerequisite: Biology and Chemistry)

Whether you are a treehugger or not, almost everyone loves the beauty and serenity of a healthy forest. Our precious woodlands not only supply us with aesthetic beauty, but also play a valuable role in nature. Trees support a great deal of our wildlife's ecosystem while providing needed lumber, paper products, food and even oxygen. Forests, however, cannot protect themselves and depend greatly on humans for conservation. In Forestry and Natural Resources, you will learn more about this

meaningful relationship and how environmental policy, land use, water resources, and wildlife management all factor into current forestry issues. This course incorporates a significant amount of outdoor fieldwork in our own Westover Woods, where you will learn how to identify, catalog and measure the common species found in our local system. You will also learn techniques to analyze and information through a Graphical Information Systems (GIS) which has broad applications in natural and social sciences, humanities, environmental studies, engineering, and management. As a culminating project, connected to our Building Bridges Theme Year, students in this class will work to design and implement Pollinator Pockets and Pathways on our campus.

- **DEVELOPMENTAL PSYCHOLOGY**

(1/3 credit, one trimester, prerequisite: Biology)

How do infants and children make sense of the world? What are the important milestones crucial in human development? This introductory Psychology course will cover topics of development with a focus on infancy and childhood. We will discuss cognitive, social and biological developments and investigate individual differences between us. We will delve into various theories and explore the many influence on human development. Students will complete an observational study and research a developmental stage of their choice as part of this course.

WINTER SCIENCE ELECTIVES

- **ASTRONOMY: A TOUR OF THE SOLAR SYSTEM**

(1/3 credit, one trimester, concurrent Algebra 2)

Have you ever looked at the stars and wondered about the worlds outside of our own? Our solar system - the sun and all the bodies that orbit around it - has a long and fascinating history. In this course, we will study the origins of our solar system, which probably started with a bang. We will explore the small rocky planets of the inner solar system like Venus and Mars, as well as the rings and exotic moons of the giant gas planets like Jupiter and Saturn. Finally, we will learn about icy bodies like Pluto in the outer reaches of the solar system. There will be occasional required evening observational astronomy labs to investigate first hand our moon and the planets using the telescopes and observatory at Westover.

- **ABNORMAL PSYCHOLOGY**

(1/3 credit, one trimester, prerequisite: Biology)

What categories a behavior as abnormal? This course will delve into historical and modern views of abnormal behavior. We will explore the nature, cause and treatment for various mental disorders through case studies and films as well as examine research and possible interventions.

SPRING SCIENCE ELECTIVE

- **HYDROLOGY**

(1/3 credit, one trimester, open to grades 10-12, no prerequisite)

Water is all around us and is absolutely necessary for life. Water is so powerful that as it moves, it changes the land and transports dissolved and solid material. At times, there can be far too much or far too little. Hydrology is the study of how water moves in our environment, be it as rainfall, in rivers or lakes, in glaciers, or underground. In this course, students will conduct experiments and carry out field projects on water chemistry and watershed dynamics -- including the study of watershed delineation as revealed in maps, water flow in local streams as directly measured, and the

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effects of land use on surface and groundwater. Students will also examine interactions between humans and water, how it has been used and misused over the centuries as well as how it has been depicted and imagined by writers and environmentalists. Topics of study will include the development of New England mill towns, Thoreau's Walden Pond, Edward Abbey's writings on the red-rock desert country of the American Southwest, and John McPhee's study of the Atchafalaya river basin.

ARTS

The Arts, both visual and performing, are essential to life, learning and creative problem solving. The Art Department at Westover provides an immersive and varied program that facilitates an interchange of ideas and encourages students to become more aware of the world around them. Through collaborative and independent learning processes and the mastery of thoroughly taught skills, students learn to see clearly, listen acutely, think critically, and to explore creatively so that they can move and express themselves with confidence.

Two credits in the Arts are required for graduation. Students who complete the Women in Science & Engineering (WISE) curriculum will be required to fulfill a total of 1 1/3 Arts credits. All new 9th and 10th grade girls are required to take Meaning and Making.

The basic Arts requirements for all students are:

- 1/3 credit: Meaning & Making
- 1/3 credit in Music
- 1/3 credit in Art History

The remaining credits may be fulfilled through any other Arts offering.

Please see page 48 for an explanation of Performance Emphasis Track.

**NOTE: A student may take an Interdisciplinary Studies in the Arts course for Music. The student must decide whether it will be used for Art History or Music credit; it may not be used for both.*

***NOTE: Students will be charged a materials fee for Studio Arts of \$60.00 per course. Students who may hesitate to take an art course because of materials fees should speak to their Advisor and the Dean of Students about the possibility of receiving support from the Faculty Fund.*

STUDIO ARTS

- FALL, WINTER & SPRING: MEANING & MAKING (M&M)

(1/3 credit, one trimester; pass/fail, requirement for all new 9th and 10th grade students)

This course is a prerequisite for art history and upper-level, advanced studio art electives. It is recommended, but not required, that a student takes Meaning and Making before enrolling in other art electives. In the same school year, this course may be taken in conjunction with, before, or after an entry level studio art elective (such as Introduction to Photography, Ceramics I, Needle Arts, Drawing I or Exploration and Expression).

A student may pass out of entry level studio art electives (such as Introduction to Photography, Drawing I, Ceramics I) for full credit with approval of the Art Department. In order to do so, she must present a portfolio of her most recent work to the Head of Visual Art.

This one-term required course for incoming 9th and 10th graders is designed to provide both the novice and experienced student the opportunity to create works of art, while promoting visual perception and literacy. Girls will learn the principles of art and design through study of vocabulary and class discussions. A field trip to the Yale Art Gallery will enable students to see works of art in a

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formal setting. Over the course of the term, students will participate in visual perception and literacy sessions, which allows students to examine works of art, to think, to contribute observations and ideas, to listen, and to build understandings together. As students employ essential art vocabulary terms, they will learn to convey their thoughts and ideas about art more effectively to others. Playing the online game *Kahoot!* in class will help to expand vocabulary knowledge. A series of hands-on projects, using 2D media, will later be used to reinforce and further enhance understanding of key concepts and terms. The importance of drawing from life will be introduced in this class. Prolonged, engaged study from observation is a challenging activity that requires students to decipher information that is not flattened on a screen. In our media-saturated world we are bombarded by imagery on a daily basis. Many of us “look,” but we don’t all “see.” The exercise of drawing from life is essential to the art experience, because it is about seeing. Collaborative thinking and risk taking will be encouraged as students critique work, both individually and as a group. Finally, students will also take a Westover artwalk to increase awareness of –and promote interest in –the plethora of studio art and art history electives offered here on campus.

ADVANCED STUDIO COURSES

Two terms of Drawing are required as a prerequisite for Painting, or the student must receive special permission of the department. The course Exploration In Painting And Color: Newcomers Welcome is open to juniors and seniors; M & M required for freshmen and sophomores.

The same advanced studio course may be taken more than once; as students build on their level of experience, more demanding assignments are given, and a gradual increase of independence is expected. Trips to galleries, art museums, and studios are made when appropriate, and occasionally a visiting artist will talk with a class.

FALL ELECTIVES

- CERAMICS COIL BUILDING

(1/3 credit, one trimester, suggested, but not required M&M as prerequisite)

One of the most satisfying materials to work with is ceramics clay. It is difficult to hold a lump of wet clay in your hands and not form something with it. This introductory level handbuilding course for beginners will introduce students to methods used to create forms with clay, with coil building being our focus. Students in this class will learn the following: kneading, wedging, recycling, firing, pinching, slab making, coiling and glazing. Students will develop these skills and improve their craftsmanship throughout the term. Ideas and thoughts will be articulated during individual and group critique sessions. Some drawing will be required as girls work out their ideas in their sketchbooks. Students who have already taken a Westover

Ceramics course may enroll in this elective,, even if it is for a second time, and work at a more independent/ advanced pace. *(Materials Fee: \$60.00)*

- DRAWING II

(1/3 credit, one trimester, prerequisite Drawing I)

“Time moves in one direction, memory in another. We are that strange species that constructs artifacts to counter the natural flow of forgetting.” -William Gibson

In Drawing II students are introduced to the fundamental tools and methods of intense observational drawing. Beginning with line and working towards full-value representations, we will discover the versatility and power of the pencil as we learn to use it through sound practice and inventive intelligence. We will work to strengthen our ability to successfully translate or interpret what we perceive in the 3 dimensional world into a 2 dimensional representation on paper. Students will learn to give attention, not just to isolated objects, but to the whole environment in which objects exist and to treat everything within their field of vision as important. This process of drawing democratically will provide students with a greater area of represented stuff in each drawing, about which they will learn to make intuitive, intentional choices deciding what to emphasize, what to exclude, and how to compose their pictures. Students will leave this course with new tools and understanding and with work which may be included in college portfolios. We will take advantage of our proximity to NYC to visit museums and galleries. (*Materials Fee: \$60.00*)

- EXPLORATION IN PAINTING AND COLOR: NEWCOMERS WELCOME

(1/3 credit, one trimester, Prerequisite M & M required for freshmen and sophomores; open to juniors and seniors)

This course is designed both for students who have already taken Painting in Oils and want to grow as painters and work with more freedom, as well as for students who may not previously have been able to fit in a Drawing or Painting elective but would like to learn to paint. Initially, inexperienced painters will be taught basic paint handling and color mixing and more experienced students will dive into a new project, but both groups will combine within the first two to three weeks of class and be on the same track from then on. We will explore painting as a language and a way of interpreting the visual world and of representing personal experience. We will learn to paint in a direct way and apply that approach to a variety of subject matter. We will also make a study of color and try some more experimental approaches to painting, using additive color (as in Divisionism or Pointillism) and treating color as a tool for expressing ideas and emotion. While projects will be structured, students will be encouraged to make personal choices regarding subject matter and painting approach/method as the class progresses. (*Materials Fee: \$60.00*)

- SCULPTURE: SMASH, SHAPE, SCRATCH, CREATE!

(1/3 credit, one trimester, M&M suggested, but not required as prerequisite)

This co-taught, hands-on beginning sculpture course offers an opportunity for students who wish to create three-dimensional art. Students will explore the element of form using a variety of materials and techniques. Introductory lectures and demonstrations will take place with the bulk of the time spent on making artistic three-dimensional works. A mastery of tools, materials, techniques and processes will develop over the course of the term, as students find their own creative voice. Students will complete works with high level of craftsmanship, while working up to their own ability. A sense of commitment, and individual initiative and ownership of process, will be expected over the course of the term. Completed projects will include: jewelry casting; plaster carving; and a found object destruction and reconstruction sculpture. Completed projects will be displayed around the school and community. (*Materials Fee: \$60.00*)

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WINTER ELECTIVES

- DRAWING I

(1/3 credit, one trimester, suggested, but not required M&M as prerequisite)

Learning to draw is considered fundamental to learning to produce other forms of visual art. Not only are the skills acquired through drawing useful, but a sketch is frequently the first step in producing new artwork. Drawing is also popular because the necessary materials are cheap and widely available and because the drawing process is fast, direct, and can be done almost anywhere. In this trimester course students are exposed to various black and white media and are encouraged to study their subjects through careful observation. Drawing techniques covered are "bind" drawing, contour line, still life and self portraiture. Projects focus on the basic elements of drawing—line, shape, light, shadow, texture, shading, proportion, perspective, and composition—and improve drawing and observation skills. Both abstract and representational imagery will be explored as subject matter.

(Materials Fee: \$60.00)

- DRAWING III: LIGHT, SPACE, STRUCTURE, FORM

(1/3 credit, one trimester, prerequisites: M&M, Drawing I, Drawing II)

Drawing III will build upon and refine the skills and understanding gained in Drawing II, and allow students to create drawings which are more convincing, intuitive, and personally expressive. Students will be given greater freedom in the choice of subject matter and materials, including drawing from the model. Greater attention will be paid to the way in which students conceive of and plan their drawings. They will study pictorial composition, light composition (the proportion of light to dark areas in a drawing), soft and hard edges, a variety of mark making techniques, and will use these skills to explore and to discover "intentional" picture-making. Visual vocabulary will increase by participating in oral critiques. Each student will maintain a sketchbook with drawing homework. We will take advantage of our proximity to NYC to visit museums and galleries. *(Materials Fee: \$60.00)*

- CERAMICS COMBINATION COURSE: HANDBUILDING AND THROWING ON THE WHEEL
(1/3 credit, one trimester, prerequisite: suggested M&M, but not required as prerequisite)

This course is a combination of assigned and self-directed projects, as well as a further exploration of shaping clay. Basic throwing on the potter's wheel and advanced hand-building are explored to create a series of pieces. Mastery of skills introduced, pride in craftsmanship, time spent outside of class working in the studio as well as an exploration of personal vision are integral for success. The culmination of pieces created will evolve from the student's choices throughout the process: concept, construction, technique (wheel, hand-building/modeling), surface decoration, glazing, and firing.

(Materials Fee: \$60.00)

- EXPLORATION AND EXPRESSION THROUGH MASK MAKING

(1/3 credit, one trimester, M&M suggested, but not required as prerequisite)

This three-dimensional hands-on course will focus on the practice of mask making. The mask will be a vehicle for students to explore a variety of media including, but not limited to: clay; wood; paper mache; plaster; and found objects. A trip to the Yale University Art Gallery in the beginning of the term will serve as a means for students to gain inspiration and gather ideas to bring back to the studio

for developing a body of work. Students will visit the African Gallery; the Indo Pacific Gallery; the Art of the Ancient Americas. Decorative techniques may include found objects; glaze; and tempera paint. A field trip to the Elephant's trunk outdoor flea market will provide an opportunity for students to find a variety of objects to use for decorative purposes, creativity and creation. *(Materials Fee: \$60.00)*

SPRING ELECTIVES

- **DRAWING I**

(1/3 credit, one trimester, suggested, but not required M&M as prerequisite)

Learning to draw is considered fundamental to learning to produce other forms of visual art. Not only are the skills acquired through drawing useful, but a sketch is frequently the first step in producing new artwork. Drawing is also popular because the necessary materials are cheap and widely available and because the drawing process is fast, direct, and can be done almost anywhere. In this trimester course students are exposed to various black and white media and are encouraged to study their subjects through careful observation. Drawing techniques covered are "bind" drawing, contour line, still life and self portraiture. Projects focus on the basic elements of drawing—line, shape, light, shadow, texture, shading, proportion, perspective, and composition—and improve drawing and observation skills. Both abstract and representational imagery will be explored as subject matter. *(Materials Fee: \$60.00)*

- **OIL PAINTING**

(1/3 credit, one trimester, prerequisite: M&M, Drawing I, II & III, or permission of the department)

This course is an introduction to the use of oil-based painting media in which the student will learn proper craft and methods. Students will learn to use oil paint and brush, applying the media to various surfaces. They will be creating Form through Value, exploring the effect of Light to Hue, be introduced to Color Theory, study additive and subtractive methods of creating color (physical vs. optical color mixing, etc.) and will very quickly begin to apply these skills to color mixing and painting. Each student will focus on composing paintings that they will execute with correct color/value relationships from their observed subject matter using the medium of paint to convincingly depict the physical, visible world. The visual vocabulary will increase by participating in oral and written critiques. Each student will complete a final project. Class maybe repeated at a more advanced/semi-independent level to prepare for AP Drawing Placement the next school year. *(Materials Fee: \$60.00)*

- **NEEDLE ARTS**

(1/3 credit, one trimester, M&M suggested, but not required as prerequisite)

Knitting offers the artisan a unique opportunity to design and create fabric from scratch with nothing more than sticks, string, and imagination. This course will focus in depth on the applications of knitting in fashion and in the visual arts. Students will learn basic and advanced hand-knitting techniques, how to interpret standard knitting instructions, and how to design their own work. In addition to working with yarns of various fibers, students can also explore knitting with nontraditional materials — wire, plastic, paper, and others. We also will look at the many ways that artists are employing knitting in their works. Students will apply what they have learned to a final project of their choice. *(Materials Fee: \$60.00)*

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- CERAMIC SCULPTURE

(1/3 credit, one trimester, M&M suggested, but not required as prerequisite)

This three-dimensional art class will cover non-functional ceramics and ways to use clay to create sculptures. Students will create freestanding, handmade pieces using sculptural techniques, including coil building, form molding and carving and work with simple clay forms. They will consider volume, weight, color, form, and texture while creating contemporary pieces. A trip to the Yale University Art Gallery, to view a variety of sculptural forms, will help students gather ideas and gain inspiration for developing their own works. No prerequisite is required, but those students who have done past course work in a Westover ceramics elective will work at a more advanced/ accelerated pace. *(Materials Fee: \$60.00)*

ADVANCED PLACEMENT

- AP® STUDIO ART: DRAWING

(1 credit, full year, prerequisite: Students in this course must have successfully completed M&M, Drawing I, II, III and Oil Painting or presented an extensive portfolio, and must receive the approval of the AP Studio Art instructor prior to enrollment in the course.)

The student and the teacher will design an Independent Study Program, based around the student's original visual idea and following AP guidelines. Students in this course are required to submit two components to the College Board (digital and physical); the cost is approximately \$100. (Materials Fee: \$60.00)

MEDIA ARTS: PHOTOGRAPHY AND VIDEO

The Media Arts program at Westover is designed to encourage all students to think creatively and critically, while learning how to use a remarkable variety of photo imaging and video making equipment. The studio is equipped to take students on the journey from traditional photographic darkroom processes, through modern digital practices and software. Courses are offered on a rotating basis in order to give students the opportunity to explore a wide range of techniques and to consider different ways of seeing and art making. Westover has several cameras available for student use, but if you are considering buying your own, please see the teacher for recommendations. An external hard drive is strongly recommended for students enrolled in digital classes.

The Emily Christopher Photography Scholarship, which covers the photography lab fee for three trimesters, is awarded each year to four students. See the photography teacher for more information.

FALL ELECTIVES

- INTRODUCTION TO PHOTOGRAPHY

(1/3 credit, one trimester; M&M suggested, but not required as prerequisite)

We live in a world in which most of us carry a camera around in our pockets at all times. With selfies, Instagram and Snapchat, our lives are saturated with photographs... so why not learn how to make good ones? This course will give students an introduction to black and white film photography and darkroom printing. Open-ended and conceptual assignments will be given to build student's creative problem solving skills and sense of ownership over their work. *(Materials Fee: \$60.00)*

- **PIXELS WITH PURPOSE: DIGITAL PHOTOGRAPHY**

(1/3 credit, one trimester; prerequisite: Introduction to Photography)

Art has always had the power to raise awareness and influence social change. In this class, students will have the opportunity to research a global, social, or political problem that they feel passionately about and create artwork in response to it. This course will build on student's knowledge of digital imagery and introduce them to large format printing. Students will use learn how to become effective image-makers with the use of DSLRs and editing software like Adobe Photoshop and Lightroom. Studio lighting, film scanning, and color management will be among the topics covered. The class will look at the work of influential artists and be challenged to create a portfolio of images with a global message. *(Materials Fee: \$60.00)*

WINTER ELECTIVES

- **INTRODUCTION TO PHOTOGRAPHY**

(1/3 credit, one trimester; M&M suggested, but not required as prerequisite)

We live in a world in which most of us carry a camera around in our pockets at all times. With selfies, Instagram and Snapchat, our lives are saturated with photographs... so why not learn how to make good ones? This course will give students an introduction to black and white film photography and darkroom printing. Open-ended and conceptual assignments will be given to build student's creative problem solving skills and sense of ownership over their work. *(Materials Fee: \$60.00)*

- **ADVANCED BLACK AND WHITE PHOTOGRAPHY**

(1/3 credit, one trimester; prerequisite: Introduction to Photography)

This course will give students the space to further explore and master the SLR 35mm film camera, and black and white darkroom printing techniques. Students will learn how to use different lenses, will compare new types of film, and will experiment with a variety of types of paper in the darkroom. Each student will have the freedom to develop a portfolio of work with a theme of their choosing. *(Materials Fee: \$60.00)*

SPRING ELECTIVES

- **THAT'S A WRAP!: VIDEO PRODUCTION**

(1/3 credit, one trimester; M&M suggested, but not required as prerequisite)

This project-based learning class will combine elements of sketch comedy, filmmaking, collaborative script workshopping and will guide students in making a series of video shorts. Topics covered will include improvisational skill building, scenic breakdown of comedy/drama in film, advanced editing techniques and the introduction of professional filmmaking equipment. Students will work together, and will be able to specialize in different production roles, both in front of and behind the camera. This course will be largely collaborative, culminating with a film screening open to the school. *(Materials Fee: \$60.00)*

- **BREAKING THE RULES: EXPERIMENTAL PHOTOGRAPHY AND ALTERNATIVE PROCESS**
(1/3 credit, one trimester; prerequisite: Introduction to Photography)

There is something amazing and unpredictable that happens when you use a cheap plastic camera. The camera body might have light leaks that will affect the film, or the plastic lens might distort your picture, giving your images a soft and sometimes eerie look. The "rules" of photography don't apply in this class. Students in this course will experiment with medium format Holgas, and Polaroid

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cameras. Darkroom techniques including double exposures, solarization, cyanotypes, and other experimental chemistry will also be covered. Students will produce a portfolio of images using a variety of techniques. (*Materials Fee: \$60.00*)

ADVANCED PLACEMENT

- AP® 2D DESIGN/PHOTOGRAPHY

(1 credit, full year; prerequisites: Intro to Media Arts or Intro to Photo and at least two upper level photo or video electives, or an approved portfolio submitted to the instructor. Students must receive the approval of the AP® Photography instructor prior to enrollment in the course.)

This course guides students in preparing college level art portfolios by identifying strengths and weaknesses in their work, developing editing skills, and submitting their portfolio to the College Board. Students will be expected to think deeply about their work and photography by participating in group critiques and assigned readings. Experimentation with new media will also be encouraged. Students in this course are required to submit two components to the College Board (digital and physical); the cost is approximately \$100. (*Materials Fee per course: \$60.00*)

HISTORY OF ART

Three trimester courses are offered in the field of Art History. Through a critical study of how particular periods or ideas have shaped visual imagery, emphasis will be placed not only on examining art through socio-cultural and formalist approaches, but also on developing visual literacy and critical thinking. Because of its emphasis on looking, art history increases students' ability to derive meaning from direct observation, and to use those analytical skills to better understand historical and contemporary cultures. In addition to a wide array of course offerings, students benefit from museum trips and internship opportunities. The following courses are recommended for prospective AP® Art History students.

- ART HISTORY SOMSI INTERNSHIP

(1/3 credit, one trimester, application process required)

The Sonja Osborn Museum Studies Internship (SOMSI) is a term-long program wherein interns gain practical experience in museum work at Hill-Stead Museum. A student may apply for this internship as a rising junior or senior, must be planning on taking or is enrolled in AP Art History, and must be accepted by Hill-Stead Museum and Westover School. Students will not participate in a sport while participating in the program to allow time for students to participate in programming and curatorial work at Hill-Stead Museum. The intern may receive academic credit for her internship through the work she completes at Westover, namely through two projects that investigate Hill-Stead's collection and consider the shared histories of the school and the museum. The internship will culminate in a public symposium at the end of the term. Though it is preferred that the credit not count towards the elective course the student is required to take in conjunction with the AP Art History course, a student who has taken more art history elective courses in her junior year may be in a better position to substitute the internship credit for an art history elective in her senior year. Through funding for the program, transportation will be provided for the intern's visits to Hill-Stead, and she will receive a stipend for her time spent at the museum.

FALL ELECTIVE

- FRENCH PAINTING: 1760-1900
(1/3 credit, one trimester)

This course offers a survey of French painting from the pre-revolutionary period in France through the vanguard movements of the late nineteenth century. Beginning with artists like David, Delacroix, Ingres, and Géricault, our investigations will consider the impact of the revolutions of 1789, 1830, and 1848 in relation to the Napoleonic Empire and in light of the changing definitions of Neoclassicism and Romanticism. As our studies progress to the late nineteenth century through artists like Courbet, Degas, and Manet, our explorations will consider the origins of ‘modernism’ reflected in the rebuilding of Paris under Napoleon III. Representations of ‘modern life’ will be considered in the context of changing attitudes toward the city and country, the impact of Haussmanization manifested in scenes of urban life, and the transformation of public and private spaces. A social historical lens will help us gain insight into specific contexts of the period, from the institution of the French Academy to the entertainment arenas of the ballet and café. A trip to the Metropolitan Museum of Art will broaden our investigation of the period.

WINTER ELECTIVE

- FIGURING WOMEN
(1/3 credit, one trimester)

This course will investigate the representation of the female body in art. In considering the female figure as a body re-formed by social and cultural influences, we will investigate how imaging of the female form has traditionally been an act of regulation, and as such, we’ll question how that representation might reveal the values and beliefs of a particular period. What is the role of the female nude as icon, symbol, or allegory? What is the difference between the nude body and the naked body? How might we consider the western tradition of the female nude as a narrative of patriarchy? In considering these questions, we will investigate the roles women have traditionally played in representation through the goddess, the temptress, the virgin, and the mother. We will continue our investigation with a consideration of the history of representation of the black female body, as well as how contemporary feminist artists from a global perspective have sought to reclaim the female form through their art. This course will be conducted as a seminar with focused readings from art historical scholarship. A field trip to MoMA to see the exhibition “Betye Saar: The Legends of *Black Girl’s Window*” will broaden our exploration.

SPRING ELECTIVE

- RE-ENVISIONING THE ART HISTORICAL NARRATIVE
(1/3 credit, one trimester)

In the year of MoMA’s overhaul of its collection to reconfigure its galleries for a more inclusive representation of the narrative of modern and contemporary art, the question of what has been the narrative of art history and how it’s changing is necessary to consider now more than ever. In this course, we’ll unpack what has constituted the narrative of art history. What power dynamics have been perpetuated through the “masters” typically included in western art historical surveys? How have contemporary artists sought to shift the historical focus? To unpack these questions, we’ll take a look at contemporary artists like Kehinde Wiley, Titus Kaphar, Cindy Sherman, Kara Walker, Yinke Shonibare, Hung Liu, and Yasumasa Morimura who appropriate history and the western art historical tradition to reveal these structures of power in order to tell a new narrative of history and art. A field

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trip to MoMA's new installation which includes a focus on women, Latino, Asian, African-American and other over-looked artists will enrich our exploration.

ADVANCED PLACEMENT

- AP® ART HISTORY

(1 credit, year long)

The AP Art History course is equivalent to a two-semester college survey course that explores the nature of art, its uses, its meanings, art making, and responses to art. Through an investigation of diverse artistic traditions of cultures from prehistory to the present, students develop in-depth and holistic understandings of the history of art from a global perspective. Engaging with art through visual, contextual, and comparative analyses through a variety of art forms, students become active participants in constructing understanding of both individual works and their interconnections of art-making processes and products throughout history.

The course is offered to students who have already received credit or distribution fulfillment in art history, and have received a B or better in that course. To cover the material, students must take at least one art history course in the year they take AP Art History course. A considerable amount of reading and writing will be expected of the students, and assessments will be drawn from previous AP exams. While trips to museums and exhibitions once a term will be a regular part of this course, the course will culminate in a review at the Metropolitan Museum of Art and the Cloisters. Students are required to take the AP Art History Exam in the spring; there will be a fee charged of \$85.

INTERDISCIPLINARY STUDIES IN THE ARTS

These are trimester electives taught by members of the Art, Music and other departments. Each elective may be used as either a Music or Art History credit towards graduation requirements; the student must declare which it will be. If other departments are co-offering a course, credit options will be specified. These courses are a study of the Arts in relation to their historical or cultural background. Each trimester course, an era or thematic idea will be studied, blending an understanding of the art, music, literature, and history into a living whole. Concerts and museum trips are part of these courses. There will be a charge for concert tickets.

FALL ELECTIVE

- LITERATURE AND OPERA

(1/3 credit, one trimester; fulfills English credit and Music distributional requirement or fulfills Arts credit only)

Please see page 7 for the full course description.

This course is co-taught among the English and Music departments.

- WORD/IMAGE: AN EXPLORATION OF VISUAL/TEXTUAL INTERACTION

(1/3 credit, one trimester; fulfills English credit and Art History distributional requirement, or fulfills Arts credit only)

Please see page 7 for the full course description.

This course is co-taught among the English and Art History departments.

WINTER ELECTIVE

- PAIRINGS: COMPARATIVE STUDIES IN ART AND MUSIC

(1/3 credit, one trimester)

One of the primary goals of the arts is the expression of human experience, giving insight into what it means to be alive within a particular culture and period. There have been times when artists of different mediums, be they painting, music or poetry, have expressed themselves in similar ways or to similar ends. This course will explore these artists, some of whom knew each other, and some of whom did not, and how they reacted to the world around them in similar ways. Through an in-depth and comparative study of artistic pairings through history, we will explore the mathematical clarity of Michelangelo and Monteverdi, the social parody and modernity of Manet and Offenbach, the impressions of Debussy and Monet, the primitivism of Picasso and Stravinsky, the rhythms of jazz music and Jacob Lawrence, the blurring between art of life of Rauschenberg and Cage, and the repetitive processes Close and Glass. Through a formal consideration of the collaboration between words and music, dance and music, and image and music, this course will examine the critical and cultural dialogue these artistic explorations produce. A field trip will deepen our exploration of artistic pairings.

This course is co-taught among Music and Art History faculty. Students enrolled in this course may choose to complete the distribution requirement in either Music or Art History.

SPRING ELECTIVE

- MASTERPIECES OF EUROPEAN MUSIC

(1/3 credit, one trimester)

A study of some of Europe's most significant pieces of music. The course will also include a consideration of the circumstances surrounding the composition of each piece to gain a better understanding of its meaning. Composers from several periods will be studied, including Monteverdi, Bach, Mozart, Beethoven, Tchaikovsky, Clara Schumann, and Shostakovich. There will be a trip to a concert for which there will be a fee.

- ARCHITECTURAL ENGINEERING: THE ART OF SHAPING SPACE

(1/3 credit, one trimester)

What can buildings teach us about how they stand up and what they mean? How can the solutions of structural challenges architects have offered throughout history enhance the cultural experience of the building's function? This survey course will investigate aspects of architectural engineering by delving into the challenges and failures of construction throughout history. By reviewing architectural advancements from ancient to contemporary structures, the class will first problem solve through various hands-on labs the engineering challenges architects have faced. In exploring the physics behind how to make structures stand, students will develop a more comprehensive view of how the resulting historical structures produce meaningful function within a particular culture and context. Field trips, an analysis of an architectural space, and project-based designs will enhance our course of study.

This course is co-taught among the WISE and Art History departments. This course will satisfy both the Art History distribution requirement as well as counting as an upper level WISE elective. Priority will be given to students enrolled in the WISE program.

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PERFORMING ARTS

DANCE

- FALL, WINTER, SPRING: DANCE ENSEMBLE (*1/3 credit per trimester; minimum of 2 trimesters required; fulfills team sports requirement*)
Dance Ensemble and Dance Team members take technique classes at the beginner, intermediate and advanced level. The core curriculum is ballet and modern with additional classes in composition, jazz, contemporary, hip-hop, and tap. Cross training opportunities are also available in yoga, aerobics, physioball, Zumba and various workshops offered during the school year. Each student's dance schedule is determined by a placement/audition class and by a conference with the Dance Director. Several dance performances are scheduled throughout the year, as well as trips to various dance performances. Dance Ensemble and Dance Team members are encouraged to develop their own choreographic abilities and are invited to show their works in our annual spring concert.
- FALL, WINTER, SPRING: DANCE TEAM (*no academic credit; fulfills team sports requirement*)
Please see above for course description.
- FALL, WINTER, SPRING: DANCE CLASS (*no academic credit; fulfills individual sports requirement*)
This class is an introduction to a variety of dance styles, including ballet, modern, jazz, tap, Zumba, world dance, physioball and improvisation. Classes focus on the fundamentals of dance where students can explore the joy of moving

DRAMA

Westover's Theatre Program welcomes all students. Each play has many different characters and we strive for inclusion and diversity in our productions. Please see our Drama Director if you have questions about participating in the shows. Students with an interest in drama or tech who wish to do more than one play or musical a year should elect a *Performance Emphasis*.

THEATER PRODUCTIONS

- FALL PRODUCTION: GODSPELL [*Pending Approval*]
(*1/3 credit; one trimester*)
Godspell was the first major musical theatre offering from three-time Grammy and Academy Award winner, Stephen Schwartz (Wicked, Pippin, Children of Eden); and it took the world by storm. Led by the international hit, "Day by Day," Godspell features a parade of beloved songs, including "Prepare Ye the Way of the Lord," "Learn Your Lessons Well," "All for the Best," "All Good Gifts," "Turn Back, O Man" and "By My Side." A group of people help Jesus Christ tell different parables by using a wide variety of games, storytelling techniques and a hefty dose of comic timing. An eclectic blend of songs, ranging in style from pop to vaudeville, is employed as the story of Jesus' life dances across the stage. Dissolving hauntingly into the Last Supper and the Crucifixion, Jesus' messages of kindness, tolerance and love come vibrantly to life. Boasting a score with chart-topping songs and a book by a visionary playwright (John-Michael Tebelak) Godspell is a sensation that continues to

touch audiences. *ALL STUDENTS ARE ENCOURAGED TO AUDITION REGARDLESS OF EXPERIENCE.*

- WINTER PRODUCTION: THE ANTIGONE PROJECT

(1/3 credit; one trimester)

Although Sophocles' play "Antigone" was written in 441 BCE, its characters and themes still resonate today. Using the original text and subsequent adaptations as a starting point, we will use devised theatre techniques to create our own version of this Greek tragedy. Singers, dancers, actors and musicians are encouraged to participate in the exciting theatre-making collaboration. **ALL STUDENTS ARE ENCOURAGED TO AUDITION REGARDLESS OF EXPERIENCE.**

- SPRING PRODUCTION: *CINDERELLA EATS RICE AND BEANS: A SALSA FAIRYTALE*

Theatre For Young Audiences (TYA)

(1/3 credit; one trimester)

What will happen to Cinderella at the ball ... game? That's the surprising climactic question in this contemporary Latin-American Cinderella musical, which delightfully turns the classic fairy tale on its head, telling the story from both Cinderella and the "stepsisters'" perspective. Cinderella, a newcomer from Puerto Rico, comes to visit her "stepsister," Rosa, in the United States. The catch ... Cinderella only speaks Spanish and Rosa only speaks English. Will these two girls be able to reach an understanding at the (basket) ball game? With a fairy godfather and other delightful twists to the original story, *Cinderella Eats Rice and Beans: A Salsa Fairy Tale* crosses language and gender barriers, weaving a subtle lesson on empathy, sportsmanship and respect. Boys and girls will be cheering in their seats. Lauded by audiences, theaters, schools and academics, *Cinderella Eats Rice and Beans: A Salsa Fairy Tale* is a groundbreaking bilingual children's musical from the award-winning team of playwright Karen Zacarías and composer Deborah Wicks La Puma.

NOTE: The cast and crew will take this show on the road to local elementary schools and afterschool programs.

- FALL, WINTER, SPRING: TECHNICAL THEATRE

(1/3 credit, one trimester)

Taught in conjunction with the production each term, this course will offer students invaluable hands-on experience in theatre production. Students will learn how to use Westover's state-of-the-art lighting and sound systems, and create sets, costumes and props. This course is a prerequisite for any student interested in Directing or Stage Management.

- WINTER: COSTUMING FOR THE THEATRE

This course will teach the basic skills of costume research, design and construction in conjunction with the winter production during the regularly-scheduled afternoon rehearsal slot. Students will gain understanding from script interpretation to design and the skills and materials required to execute a fully realized costume ready for production. Students will analyze a play, research historical periods to inform their costume design, learned about color and fabric choice, and learn to recognize and use the various tools of the costume designer's craft. Students will learn hand stitching, machine stitching, basic patterning and cutting.

(Please note: students who are interested in helping with costumes in the Fall or Spring Trimester should register for TECHNICAL THEATRE.)

ARTS

- STAGE MANAGEMENT/DIRECTING TRACK

Stage Management is an essential leadership role in any theatrical production. The Stage Manager is the liaison between the director and the technical crew, oversees the daily rehearsals and calls the show from the production booth. Students will receive instruction in the regularly-scheduled rehearsal slot, and take on the role of Stage Manager for any of the three Main Stage productions.

(Please note: Students who are interested in learning to direct for the theatre should plan to follow this track: Stage Manager>Assistant Director>Director. Eligible students may petition the Director of Drama for the opportunity to direct.

- TECHNICAL THEATRE APPRENTICESHIP I

(1/3 credit; full year, two year program permission of the department)

NOTE: Partial credit will not be given for an incomplete year.

Technical Theatre Apprentices receive “on the job training” during the productions in which they are enrolled, and on an as-needed basis for events such as guest artist performances, music performances, dance performances, and school events. Students enrolled in this program have a Performance Emphasis (*see page 49 for further details.*) There is a limit of four Technical Apprentices per year and students are expected to continue in the subsequent year with Technical Theatre Apprenticeship II. Interested students should speak to the Technical Director.

- TECHNICAL THEATRE APPRENTICESHIP II

(1/3 credit; full year, two year program permission of the department)

NOTE: Partial credit will not be given for an incomplete year.

Technical Theatre Apprentices receive “on the job training” during the productions in which they are enrolled. Second year Technical Apprentices will take charge of running events. They will gain more experience with equipment, including the lighting and soundboard. They will also have the opportunity to design their own lighting plots and become more proficient in sound engineering. Students enrolled in this program have a Performance Emphasis (*see page 49 for further details.*) There is a limit of four Technical Apprentices per year.

- GETTING THE WORD OUT: COMMUNICATION IN THE DIGITAL WORLD

(1/3 credit, one trimester; open to students in 9th - 12th grade)

Do you want to learn to express and communicate your ideas through writing, speaking, photography or performance? This course is designed to teach students 21st century skills in narrative writing, public speaking, and on-camera, webinar, and podcast techniques. Students will have the opportunity to craft and develop original pieces for News-Decoder and/or TED-Ed and to connect with secondary and university students and journalists around the world on current topics and contemporary global issues.

MUSIC

Students must take at least one of the following to meet graduation requirements:

- Glee Club*
- Interdisciplinary Studies in the Arts course
- Handbells*
- Instrument Ensemble*
- Private lessons (which includes two performances in student recitals. Performers must remain at recitals for at least one hour.)*

***NOTE: Partial credit will not be given for an incomplete year in a performing ensemble.**

- GLEE CLUB
(1/2 credit, full year)
Singing a wide range of music, including folk, popular, and classical music, the Glee Club sings several concerts each year in and outside the school. A European concert tour is taken once every three years.
- CHAMBER CHORUS
(No credit, full year, entrance by audition, available to Glee Club members)
Music from the 16th-21st century sung by a small group of singers experienced in part singing.
- HANDBELLS
(1/3 credit, full year)
Ensembles which ring music on handbells; one ensemble is for beginners, one for intermediate ringers and one for advanced ringers. Students learn to read rhythmic and pitch notation, techniques of bell ringing and ensemble playing. Performances include student recitals and the Candlelight Services. Two rehearsals are held per week. *Please note that partial credit is not given for performing ensembles.*
- INSTRUMENT ENSEMBLE (Open only to those students who are taking private music lessons.)
(1/3 credit, full year)
Players of string and wind instruments will be brought together in appropriate groupings to rehearse together. It is expected that members of the ensemble will be able to play an instrument when they join and will practice their part between group rehearsals. *Instrument Ensemble* is not intended to take the place of private lessons. Performances will include two student recitals and one or two other performances during the year.
- PIANO
(1/2 credit, full year, two recitals required, a fee is charged)
Individual instruction in piano. Each piano student has one lesson weekly.
- ORGAN
(1/2 credit, full year, two recitals required, a fee is charged)
Organ instruction for a limited number of students to be given separately or in conjunction with piano instruction.

ARTS

- OTHER INSTRUMENTS AND VOICE

(1/2 credit, full year, two recitals required, a fee is charged)

Individual instruction in other musical instruments and in voice can be arranged by the school.

ADVANCED PLACEMENT

- AP® MUSIC THEORY

(1 credit, full year, prerequisite: permission of the department)

Designed to supplement music theory and ear training courses taken by Westover students at Manhattan School of Music or Juilliard, or for students who have studied the fundamentals of music theory, this course offers a preparation for the AP Exam in Music Theory. Entering students should have a knowledge of all key signatures and basic chords. Students in this course are required to take the Advanced Placement exam; the cost of the exam is approximately \$100.

PERFORMANCE EMPHASIS

Students who have a serious interest in the Performing Arts, (this includes theatre, dance, music, and technical theater) may choose a Performance Emphasis Track. At the end of her Junior year, a student who has successfully completed the minimum Department Requirements designated below may earn a “Distinction in the Performing Arts” in her performance area. This Distinction will appear on her transcript under the heading “Honors and Awards.” The final decision of this Award of Distinction in the Performing Arts will be at the discretion of the department, based on the consistency and quality of a student’s work. Seniors who continue in the program will be eligible to receive Honorable Mention at the Awards Ceremony at the end of the year.

New Girl 9th, 10th or 11th graders may be permitted to apply their prior experience to the Performance Emphasis Track at the School’s discretion.

Minimum Department Requirements for a Performance Emphasis Track:

DRAMA EMPHASIS

Students with a strong interest in Drama or Technical Theatre may elect a Drama Emphasis with the following requirements:

- GRADES 9, 10, AND 11 (including New Girls*)
 - Two Terms of Drama (plus one term of Dance required in Grade 9 or 10)
**Note: If you are a new girl considering a Performance Emphasis, you must do the Fall Musical.*
- GRADE 12 – No Team Sport Required. Seniors may take three terms of Theatre
 - Students who drop out of Drama Emphasis in their Sophomore year will have the requirement of three Team Sports over the course of their Sophomore and Junior years.
 - A limited number of students with an exceptional interest in theatre may petition the Director of Drama and the Athletic Director to be allowed to be in a third play in their 9th, 10th or 11th year.
 - Students who are interested in playing a small role in any term may request permission from their Advisor.

- Drama Emphasis requires one term of Dance, which should be taken in Grade 9 or 10.
- A new student interested in doing a team sport in the fall may petition the Director of Drama and Athletic Director to use the Winter and Spring plays for her Drama Emphasis.
- The *Drama Emphasis Planner* will aid students, parents and Advisors through the process (*please see page 62*).

- **DANCE/DRAMA EMPHASIS**

Dancers with a strong interest in acting may petition the Director of Drama and the Director of Dance to substitute a term of drama for a term of dance in order to maintain a Dance/Drama Emphasis.

- **DANCE EMPHASIS**

The requirements for an Emphasis in Dance will be a minimum of two terms in each of a student's years at Westover on the Dance Team or the Dance Ensemble. A Planner is not necessary for dancers as no exemption from Team Sports is required for an Emphasis in Dance.

- **MUSIC EMPHASIS**

A student needs to successfully complete at least two years in a minimum of two concurrent music ensembles.

WOMEN IN SCIENCE AND ENGINEERING (WISE)

Women in Science and Engineering (WISE) is open to Freshmen and Sophomores by application. Program requirements include:

- two terms of WISE I, one of which must be Introduction to Computer Programming.
- four advanced electives or a full year of Computer Science and two advanced electives.
- Senior Engineering Project completed in the Senior year.

College level summer programs may, with prior permission of the department, be substituted for one advanced elective.

WISE I — FIRST YEAR COURSES

- FALL: PHYSICAL AND STRUCTURAL ENGINEERING
(1/3 credit, one trimester, pass/fail)
Physical & Structural Engineering draws on hands-on projects to explore the world of structural engineering. The course requires students to make observations about how the physical world behaves and use this information to design projects that perform optimally. Past projects have included building mid-to-large scale structural elements, constructing scale model houses, and bridge manufacturing. Exploration of structural materials, forces acting on structures, and historical significance of structures are discussed.
- FALL AND SPRING: INTRODUCTION TO COMPUTER PROGRAMMING
(1/3 credit, one trimester, pass/fail)
Introduction to Computer Programming uses Processing to bring to life the Java programming language. Students will explore control structure, user interaction, and basic graphics. This course also introduces the basics of object-oriented program design and develops the abstract thinking skills necessary to tackle *AP® Computer Science*. This course is required for all WISE I students.
- WINTER: ROBOTICS
(1/3 credit, one trimester, pass/fail)
This course is designed to introduce students to the cutting-edge field of robotics by allowing them to build structures and bring them to “life” through programming. By finding a greater understanding of the functions associated with a variety of materials, students will work collaboratively to construct machines designed to complete engineering challenges. They will then work to teach their creations how to perform various tasks. In this way, students will apply concepts from mechanical and structural engineering while gaining valuable experience in computer programming.

COMPUTER SCIENCE

- COMPUTER SCIENCE
(1 credit, full year, prerequisite: Introduction to Computer Programming or permission of the department)
This course introduces computer science concepts including basic program form, development of algorithms, data types, control structures, and object-oriented design using Processing with the Java programming language. It includes many small programming assignments to encourage mastery of the basics of the Java language.

- AP® COMPUTER SCIENCE
(1 credit, full year, prerequisite: Introduction to Computer Programming or permission of the department)

This course introduces computer science concepts including basic program form, development of algorithms, data types, control structures, and object-oriented design using the Java programming language. Students in this course are required to take the Advanced Placement exam; the cost of the exam is approximately \$100.

ADVANCED ELECTIVES (TENTH THROUGH TWELFTH GRADES)

- FALL: ELECTRICAL ENGINEERING
(1/3 credit, one trimester, prerequisite: Intro Programming)

Electrical components, devices, and systems are unavoidable in our everyday lives. This course will look at the application of electricity, electronics, and electromagnetism in our society. Students will dismantle electronics, construct circuits, and troubleshoot their creations. By investigating different aspects of circuitry through the use of Arduinos, students gain a better understanding of electrical systems and their programming, from the wiring in their houses to the circuit boards in their smart phones and computers.

- WINTER: NANOSCIENCE
(1/3 credit, one trimester, prerequisite: Chemistry (or taking it concurrently))

Nano is a metric prefix meaning a billion times smaller than a base unit. Things that happen on a nanoscale are very, very tiny. At this tiny scale, things get interesting. A material that does not conduct electricity full-size, does conduct when it's only a few atoms thick. This property was instrumental in allowing for large increases in computer storage without the additional bulk. Atmospheric nanoparticles may contribute to cloud formation and climate change. Nanoparticles in sunscreens may make them more effective, but what impact do they have on the water and soil quality when they wash off? This course will investigate the emerging field of nanoscience and its role in the environment. Laboratory work will include the examination of the nanoscience of water pollution, microbe-mineral interactions, and bacterial transport in groundwater. Students will also research current advances in nanoscience. The scale of the particles may be small, but their potential impact – good and bad – is huge.

- WINTER: SENIOR ENGINEERING PROJECT
(1/3 credit, one trimester, prerequisite: Senior status or permission of the department)

Serving as the culminating project of the WISE Program, the *Senior Engineering Project* is undertaken during the Senior year. Students will apply concepts and skills learned in previous WISE and related courses to a project of their choice, tackled individually or as a pair. Their project will include a tangible product, either digital or physical, that is improved over the course of the term through research, trial, error, and redesign. The *Senior Engineering Project* is **required for graduation from the WISE Program.**

WOMEN IN SCIENCE AND ENGINEERING (WISE)

- SPRING: ARCHITECTURAL ENGINEERING: THE ART OF SHAPING SPACE

(1/3 credit, one trimester, no prerequisite)

Please see page 43 for the full course description.

This course is co-taught among the WISE and Art History departments. This course will satisfy both the Art History distribution requirement as well as counting as an upper level WISE elective. Priority will be given to students enrolled in the WISE program.

- SPRING: SCIENCE AND ENGINEERING OF COLOR

(1/3 credit, one trimester, no prerequisite)

We've all admired beautiful drawings and paintings, but such works wouldn't be possible without the people who make artists' supplies. This class will investigate the surprising science and engineering involved in making art materials. Did you know that pencil lead is made by mixing graphite and clay and firing it in a kiln? The different colors of paints and dyes are created from an amazing range of materials, and the earliest photographs were blue. Learn about these secrets and more, and make your own graphite sticks and other materials.

ONE SCHOOLHOUSE COURSES FOR WESTOVER CREDIT

In addition to other courses, a student may consider applying to take a course through One Schoolhouse (OS), which oversees the Online School for Girls and Online Independent School (Co-ed). Courses approved by departments can be used to fulfill overall course load requirements. OS will provide quarterly grade reports in October 2019, December 2019, March 2020, and May 2020. For college applications an official transcript must be requested from OS through the OS coordinator. Though course descriptions and prerequisites listed below are from OS, Westover may suggest additional prerequisites depending on the course. OS courses run on a semester system (see below). All OS courses are full year courses, but please note that courses begin and end at different dates than the Westover school calendar. If a student is interested in taking an OS course, she must complete an enrollment proposal/application, which is a required process to ensure that we can effectively monitor and plan a student's course load and make sure that she meets the necessary pre-requirements for courses. For more complete information about the process and program, please see the One Schoolhouse Coursework Coordinator. The courses listed below have been approved by Westover Departments. OS course grades are not calculated into Westover's GPA information.

SEMESTER SCHEDULE

Fall Semester 2019

Fall Semester Classes Start – September 9, 2019

Final Day to Complete Semester Including Exam – December 13, 2019

Spring Semester 2020

Classes Resume – January 21, 2020

Final Day to Complete Semester Including Exam – May 1, 2020

MATHEMATICS

- AP® MACROECONOMICS

(1 credit; Westover prerequisite: Successful completion of AP AB or BC Calculus; Permission of the Department Head required)

AP® Macroeconomics introduces students to major economic issues such as basic market analysis, the causes of the cycle of economic growth and recession, the problems of inflation and unemployment, the causes and consequences of federal budget deficits, and the causes and effects of international trade imbalances and currency fluctuations. Students analyze the impact of fiscal and monetary policies as well as the debates surrounding the implementation of each. This course involves extensive reading, problem-solving exercises, online discussions, and research and writing about contemporary macroeconomic issues. Multiple modalities are employed for content presentation so as to encourage personalization; assessment evaluates each student's ability to utilize skill sets related to economic decision making. Strong reading, algebra, and analytical skills are necessary for success, as is strong motivation. AP® Macroeconomics develops informed, thoughtful, and globally-minded students, and thoroughly prepares students to take the AP® exam in the spring. Students in this course are required to take the Advanced Placement exam; the cost of the exam is approximately \$100.

ONE SCHOOLHOUSE COURSES FOR WESTOVER CREDIT

- AP® MICROECONOMICS

(1 credit; Westover prerequisite: Successful completion of AP AB or BC Calculus; Permission of the Department Head required)

AP® Microeconomics gives students an understanding of how economic decisions are made by individuals, firms, and organizational structures. The course emphasizes the nature and function of product markets, how prices determine an economy's allocation of goods and services, and how factors of production are allocated throughout the production process. Market structure, natural resource markets and the role of government are included. Students analyze societal issues through the lens of economic reasoning, develop critical thinking skills through the understanding and analysis of fundamental economic concepts, and increase their ability to analyze information and draw conclusions from a wide variety of real-world and hypothetical situations. Students complete collaborative projects, group discussions, problem sets, quizzes, and tests. The curriculum is developed to prepare students for the AP® Microeconomics examination in May and is recommended for juniors and seniors with strong mathematical reasoning skills and an interest in finance, business, or government. Students in this course are required to take the Advanced Placement exam; the cost of the exam is approximately \$100.

- MULTIVARIABLE CALCULUS AND DIFFERENTIAL EQUATIONS

(1 credit; prerequisite: AP ®Calculus BC; Permission of the Department Head required)

This yearlong course covers a typical college-level Calculus III curriculum, including vectors and vector-valued functions, curves and surfaces in space, partial derivatives and gradients, multiple integration, and line and surface integrals. In the course's final unit, students learn how to identify and solve various kinds of differential equations, including exact first-order equations, second-order homogeneous and nonhomogeneous linear equations, partial differential equations, and applications to various scientific fields. Built on a foundation of sophisticated problem solving, the course also features discussions and exploratory activities that will help students develop their advanced math skills in collaborative and creative ways.

- LINEAR ALGEBRA

(1 credit; prerequisite: AP ®Calculus BC; Permission of the Department Head required)

Students in this course learn how to think about vectors, the spaces in which vectors live, and linear mappings between those spaces, with applications to wide variety of practical problems. They develop powerful new ways of thinking mathematically, and gain application skills for fields in which multiple variables interact in ways that can be modeled by systems of linear equations. This yearlong course covers a typical one-semester college linear algebra curriculum, including matrix algebra, vector spaces, eigenvalues and eigenvectors, and applications to differential equations. Linear algebra is a required and very useful subject in college for many science and engineering majors, and it can be studied either before or after multivariable calculus. It's a great fit for the student who has completed AP® Calculus AB

or BC, who is passionate about a challenge to think in new ways, and who wants to see math applied to the real world.

HISTORY

- AP® US GOVERNMENT & POLITICS and AP® COMPARATIVE GOVERNMENT & POLITICS
(1 credit; Westover prerequisite: successful completion of AP US History)

AP US Government and Politics and AP Comparative Government and Politics is a yearlong course that provides students with an in-depth understanding of the American government as well as various political systems around the world. The fall focuses on American government, including how different agencies within the government interact, and how these agencies and their policies affect the daily lives of Americans. The spring covers AP Comparative Government and Politics, which is an introduction to the methodology of comparative politics, and an in-depth look at six different states: Iran, Nigeria, China, Russia, Mexico, and Great Britain. Students will understand what factors contributed to the development of the American political system, and the structure of the U.S. government and the American political process. They will also recognize major comparative political concepts and how to apply them. Finally, students will be able to compare political institutions and processes from across the world, and to form sound conclusions based on those comparisons. This course prepares students for both AP® exams in the spring. Students in this course are required to take the Advanced Placement exam; the cost of the exam is approximately \$100

INDEPENDENT EXPLORATION

In addition to the traditional curriculum, Westover offers a variety of curricular and co-curricular independent exploration programs in order to allow students the opportunity to pursue their passions.

INDEPENDENT SENIOR PROJECT (ISP)

(1/3 credit - non distributional, one trimester, spring or, if necessary, winter, application process required)

A Senior wishing to pursue a strong interest independently should consider undertaking an Independent Senior Projects (ISPs) during the Spring Term. Permission for a Winter Term project will be granted if there is a compelling argument in its favor. An ISP can be scholarly, artistic, or community oriented, but must be considered worthwhile to the overall education of the student and significant enough to take the place of a regularly scheduled course. Ideally, an ISP builds on a base of previously acquired knowledge and experience.

For a Spring Term ISP, the Senior must submit a formal application to the Academic Office by the second week in February. The application for a winter ISP must be submitted to the Academic Office by the last Friday in October. The application for either term must be reviewed and signed by the faculty project advisor, by the student's academic advisor and, in the case of a winter ISP, by the College Counselor. **The ISP committee approves each application based on the following criteria: the significance and integrity of the project, its feasibility, and the student's ability to fulfill all graduation requirements.**

RASIN CENTER FOR GLOBAL JUSTICE

The purpose of the *Rasin Center* is to ensure that the Westover community engages with the world beyond its walls through a focus on Community Service, Diversity, Environmental Sustainability, and Global Programs. Together, this collaboration encourages the community to move outward toward an awareness of our interconnectedness with all that is "not us" and accept our responsibility to care for that relationship through action, we make possible, for ourselves and others, deeper understanding, richer adventure, truer connection, and a fuller life. The Center's work supports our School's ideals of understanding and engagement as described in its mission statement: "*Westover School empowers girls to lead lives of consequence.*"

The Center's unique synergy supports our school's motto, "*To Think, to Do, To Be*", by inspiring our students;

- to believe that they, as individuals and in partnership with others, truly have the power to effect change;
- to respond to the complexities and challenges of our world with courage and creativity;
- to find joy and meaning in their efforts.

Students with a particular interest in and proven dedication to global justice may be eligible to receive the Rasin Center Global Justice Distinction at the end of their junior or senior year. Students can track their progress with the help of the Rasin Center; the below courses count towards the Distinction.

- ETHICS AND GENDER (WINTER TERM)

(1/3 credit, non-distributional; open to students in 9th - 12th grade)

This course will serve as an opportunity to explore traditional ethical theories as well as those voices that are missing from the historical narrative. Through discussion-based inquiry, students will not only consider theoretical ethics and our choices in the 21st century but also delve into case studies which elucidate the role gender has played and continues to play in determining social norms,

institutions, and the distribution of resources. From Plato to privilege, using the lens of gender but from the perspective of its intersection with both race and class, students will reflect on our rights and responsibilities as global citizens in a gendered world.

- **GETTING THE WORD OUT: COMMUNICATION IN THE DIGITAL WORLD**
(1/3 credit; one trimester; receives Art credit, open to students in 9th - 12th grade)
Please see page 46 for the full course description.

- **GLOBAL EXCHANGE PROGRAMS**

Westover's Global Programs provide opportunities for our community to learn more about ourselves and our neighbors--both within our walls and beyond. We are inspired by our motto *to think, to do, to be*; as part of this "being" we must push ourselves to cross borders and engage with one another. Through this engagement, we support students from all over the world as they join and thrive as part of the Westover community. We are all challenged to reflect on our home cultures and backgrounds as we strengthen and contribute to our pluralistic and global world. For decades, Westover has run successful exchange programs with a number of schools around the globe. These experiences shape participants and our greater community in important ways and demonstrate the value of a true global education.

- Australia (Perth): St. Mary's Anglican Girls' School
- China (Shanghai): Shangde Experimental School
- England (Thatcham): Downe House School for Girls
- France (Villers Cotterêts): Lycée Européen
- Japan (Kawasaki): Senzoku Gakuen
- Jordan (Amman): The Ahliyyah School for Girls
- South Africa (Cape Town): St. Cyprian's School
- Spain (Seville): Colegio Bienaventurada Virgen María Irlandesas de Bami

INVEST IN GIRLS (IIG)

(not for credit; a three year co-curricular program beginning in Sophomore year)

Invest in Girls is a financial literacy program which gives girls an introduction to financial and business concepts and exposes them to women and careers in business and finance. The program incorporates goal setting throughout the workshops and, regardless of whether or not the girls choose a career in finance, these life skills, centered around understanding financial issues, will help them in whatever path they choose. The goal of the program is to create financially confident, independent young women. The following describes the curriculum in each year:

❖ **Sophomore Year**

The workshops focus on personal finance and individual goal setting. Girls learn about the importance of creating spending plans (budgets), the power of compound interest and saving early in life.

❖ **Junior Year**

Girls learn about different types of investments, how to think about investing (diversification, risk, etc.), and the financial markets. Through an online game, girls invest virtual money and can actually follow their performance over time. The Juniors also are assigned alumni mentors in business or finance with whom they communicate monthly. Mentors receive monthly discussion topic suggestions.

INDEPENDENT EXPLORATION

❖ Senior Year

The workshops focus on social business concepts, by covering philanthropy, social entrepreneurship, impact investing, socially responsible investing and negotiation skills. Girls also get a basic understanding of financial statements so that they can make smarter investment and charitable decisions. The Seniors manage the school store, gaining hands-on experience working in and running a small business.

There are four 90-minute workshops in each of the three years. In addition, in each year, two industry trips are scheduled to expose girls to professional women in the world of finance. The trips are meant to augment the workshops and to give girls both an understanding of the business visited and advice on career and life choices.

MANHATTAN SCHOOL OF MUSIC (MSM)

Students in the Manhattan/Westover coordinated program must audition and be accepted by the Manhattan School of Music into their Pre College Division, a world class pre-professional school of music. Classes at Manhattan School meet Saturday mornings and include a private lesson in the student's instrument or voice, plus classes in Music Theory and Ear Training. At Westover these students must fulfill the basic arts requirements, but will be exempt from sports requirements for graduation. The Manhattan School of Music charges a separate tuition for these classes. Please see their [website](#) for more information. Westover School transportation will be provided for a fee.

ONE SCHOOLHOUSE (OS)

Please see pages 53-55 for a complete description of the program and the courses offered.

SONJA OSBORN MUSEUM STUDIES INTERNSHIP (SOMSI)

(1/3 credit, one trimester, application process required)

Please see page 40 for a complete description.

HEALTH & WELLNESS

The Wellness Curriculum is spread out over the four years of a student's academic career. Westover feels that there are aspects of the health curriculum that need more concentration over a longer period of time and adapted for each grade level. All topics are designed to encourage students to develop resiliency as well as the skills to become more proactive in maintaining wellness. As the curriculum progresses, not all topics will be assigned specific class time but rather may take the form of a workshop during orientation or drop periods throughout the year. Below is the breakdown of what each year will focus on. It is the goal that topics of wellness can be adopted into all aspects of a student's academic career at Westover. The Health and Wellness team will work interdepartmentally to ensure that this is part of the focus of their learning.

- FRESHMEN YEAR: NEW BEGINNINGS

(1/6 credit, one trimester plus workshops, required for graduation)

The focus for all freshmen will be developing skills around time management, stress management, nutrition, and how to build and maintain healthy relationships. Inherent in the latter is conflict resolution. An introduction to mental health will be covered, as well as topics to focus on disordered eating and hygiene.

- SOPHOMORE YEAR: HEALTHY LIVING

(1/6 credit, one trimester plus workshops, required for graduation)

In freshman year, a strong foundation was set to build on health and wellness and identifying self care for the students, this will be continued in Sophomore year as stress management and healthy relationships will continue. Going further into Spring term, the focus will shift to drug use/abuse and sex education.

- JUNIOR YEAR: PREPARING FOR THE FUTURE

(no credit, one trimester of workshops)

Stress management will continue to be a common thread, as well as the development of leadership skills. College counseling will also be a major piece of the curriculum. Beginning in January, Juniors will attend weekly College Seminars for eight weeks to learn about the college application process.

- SENIOR YEAR: LOOKING AHEAD TO COLLEGE

(no credit, workshops only, required for graduation)

The focus for Seniors will be looking ahead to college and how best to manage campus life independent of the confines of a small boarding school. The topics for Seniors will include budgeting, self-defense, safety on campus and at parties, sex education/protection, and alcohol/drug use/abuse.

NOTE: Having taken a health class at a previous school will not exempt a student from these required courses.

ATHLETICS

Athletics are an integral part of the curriculum at Westover, and student participation is required in all trimesters. There are a variety of team, individual and non-competitive offerings throughout the year. A “Pass” or “Fail” grade is determined by attendance and attitude. A “Pass” grade each trimester is necessary for graduation.

Students are encouraged to take part in a variety of sports during their years at Westover. New girls in grades 9 and 10 must take two team sports, one of which must be in the Fall Term. Freshmen and new Sophomores may participate in the fall play as a team sport.

All returning Sophomores and all Juniors must take one team sport per year; theatre productions *will not count as a team sport* for these girls. Seniors are not required to take a team sport. Any student may arrange to participate in a drama production in any one of the trimesters. Students on a **Performance Emphasis Track** (*please see page 48 for description*) may be exempted from two trimesters to participate in drama productions and will be required to participate in an appropriate team sport during the remaining trimester.

By petition to the head of the Athletic Department and her advisor, a student may be exempted from one trimester of sports her Junior or Senior years to take AP® Studio Art or one trimester of sports her Junior and Senior years for Community Service. If the student’s project advisor finds the student’s actual work unsatisfactory in biweekly checks, the athletic exemption will be cancelled. Students taking part in the Sonja Osborn Museum Studies Internship (SOMSI) (*please see page 40 for description*) or Manhattan School of Music (MSM) (*please see page 58 for description*) are exempted from sports during that trimester.

SPORTS OFFERED

FALL

Team Sports:

- Soccer, Cross Country, Volleyball
- Dance Ensemble, Dance Team (*please see page 44 for course description*)
- Fall Production (*team sport for new girls only, please see page 44 for course description*)
- Outdoor Program

Individual Sports:

- Dance Class (*please see page 44 for course description*)

WINTER

Team Sports:

- Basketball, Swimming, Squash
- Dance Ensemble, Dance Team

Individual Sports:

- Dance Class, Rock Climbing, Yoga,
- Fitness and Weight Training, and other rotating offerings

ATHLETICS

SPRING

Team Sports:

- Golf, Lacrosse, Rowing, Softball, Tennis
- Dance Ensemble, Dance Team
- Outdoor Program

Individual Sports:

- Dance Class, Senior Fitness and Weight Training

Those girls who become full-time managers will be excused from active sports participation during that term. They will receive a “Pass” or “Fail” and a comment for their managerial duties.

DRAMA/TECH EMPHASIS PLANNER

Student's Name: _____

Entered Westover in grade: 9 10 11 12

- **Grade 9 and New Girls**

Two terms of Drama, Plus a Team Sport or Dance.

FALL: Musical (*required*)* _____

WINTER: _____

SPRING: _____

- Play requirement fulfilled
- Dance requirement fulfilled

- **Grade 10 and 11**

Two terms of Drama, Plus a Team Sport or Dance.

FALL: _____

WINTER: _____

SPRING: _____

- Play requirement fulfilled
- Dance requirement fulfilled

NOTE: Students who drop out of Drama Emphasis in their Sophomore year will have the requirement of two Team Sports in their Junior Year.

- **Grade 12**

No Team Sport requirement. Seniors may take three terms of drama.

- Play requirement fulfilled

*A new student interested in doing a team sport in the fall may petition the Director of Drama and Athletic Director to use the Winter and Spring plays for her Drama Emphasis.