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### Graduation Requirements:

Twenty-two (22) credits are required for graduation.

One credit equals one full year course or the equivalent.

The standard course load is five or six classes each semester.

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**Upper School Philosophy Statement**

The Blake Upper School believes in giving students a wide variety of academic, artistic, and athletic opportunities in order to develop their skills, expose them to new ideas, and foster their individual interests and collaborative capabilities. We believe in nurturing independent, self-motivated, and self-reliant individuals who assume greater and greater responsibility for their own learning, take on active and meaningful leadership roles, and become increasingly aware of, and sensitive to, their interdependent roles in our community and the world. As the curriculum progresses, classes become increasingly student centered and students will be given a considerable amount of freedom, even at the risk of temporary failure. Toward this end, we encourage all members of the community to engage in a creative and ongoing process of self-inquiry. Above all, we believe in promoting the Blake School’s four core values of respect, love of learning, integrity, and courage.

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**THE BLAKE SCHOOL (Grades 9-12)**

The Blake School, Northrop Campus
511 Kenwood Parkway
Minneapolis, MN 55403
Phone: 952-988-3700  Fax: 952-988-3705
www.blakeschool.org
ARTS

DEPARTMENTAL REQUIREMENT:
Minimum of four semesters during grades 9-12

THEATRE

Acting
First or Second Semester Course
This course explores theatre through improvisation techniques, theatre games, voice and movement training, stage combat, audition techniques and contemporary scene study. Students will learn a variety of acting techniques, broadening their ability to create interesting and believable characters, based on the principles of Stanislavski. This class regularly engages students in activities to build confidence and strengthen performance skills.

Advanced Acting
First Semester Course
Prerequisite: Acting
This course will be offered every other year. It will be offered during the 2016-2017 academic year.
Advanced Acting students will expand their skills and knowledge through the in-depth exploration of language, character development, acting styles and history. This exploration emphasizes Shakespeare, classic styles, physical expression, vocal techniques and the study of important people and plays that have shaped the path of acting and theater.

Playwriting
Second Semester Course
Prerequisite: Acting
This course will be offered every other year. It will be offered during the 2016-2017 academic year.
This class gives students the opportunity to work with theatrical ideas in writing. Activities include play analysis, scene writing, development of dialogue, expression of ideas within the dramatic and visual aspects of theater, character development and the writing of a one-act or full-length play. Playwriting scenes and plays will be read aloud for class feedback. This course culminates in an evening of staged readings of the pieces. Scripts also are considered for production in the student-directed play series.

Advanced Theatre Production
First Semester Course
Prerequisite: Acting
This course will be offered every other year. It will be offered during the 2015-2016 academic year.
Students will participate in the complete process of play production including set design, costume design, light design, casting, acting and directing. This study unfolds while producing a full-length play as the class final project. This course may be repeated for credit.

Musical Theatre
Second Semester Course
This course will be offered every other year. It will be offered during the 2015–2016 academic year.
Students will explore many aspects of musical theatre including auditioning, acting within the song, musical theatre repertoire, vocal preparation, choreography, solo / group singing and musical theatre history. This class is taught by theatre and choral music faculty.

SPEECH & DEBATE

Argumentation/ Debate
First Semester Course
This course is an introduction to the development and application of argument in debate situations. The course will concentrate on the development of speaking, listening, research, and critical thinking skills. Class requirements include participation in a minimum of two competitive debates in the Twin Cities area on weekends.

Advanced Debate: International Affairs
Year Course
2 class meetings per week; 0.5 credit
Prerequisite: Argumentation/ Debate
This course will be offered every third year. It will be offered during the 2016-2017 academic year.
This advanced course in argumentation and public speaking utilizes the competitive format of policy debate. The course includes speech writing, research, speaking, and critical thinking skill development. The course examines current issues in international affairs, including foreign affairs and relations, military capabilities of nations, international organizations, and how the United States best operates in an increasingly multi-polar world. Understanding methods of foreign policy analysis are covered within the content of the class. Class requirements include competitive debates with other schools in the Twin Cities on weekends.

Advanced Debate: Contemporary Society
Year Course
2 class meetings per week; 0.5 credit
Prerequisite: Argumentation/ Debate
This course will be offered every third year. It will be offered during the 2017-2018 academic year.
This advanced course in argumentation and public speaking utilizes the competitive format of policy debate. The course includes speech writing, research, speaking, and critical thinking skill development. The course examines current issues in contemporary society and uses a variety of philosophical and public policy methods to analyze contemporary debates in our society. Topics will be generated from the current competitive debate topics released by the National Forensic League. Course content covers methods of deconstruction, as well as race, class and gender analysis. Class requirements include competitive debates with other schools in the Twin Cities on weekends.

Advanced Debate: United States Domestic Political Issues
Year Course
2 class meetings/week; 0.5 credit
Prerequisite: Argumentation/ Debate
This course will be offered every third year. It will be offered during the 2015-2016 academic year.
This advanced course in argumentation and public speaking utilizes the competitive format of policy debate. The course includes speech writing, research, speaking, and critical thinking skill development. The course examines current issues in United States domestic affairs, including economics, race and class, party political processes, federalism and checks and balances in the United States system of government. Understanding methods of public policy analysis are covered within the content of the class. Class requirements include competitive debates in class. Class requirements include competitive debates with other schools in the Twin Cities on weekends.
MUSIC

Music Technology: Composition and Production  
First Semester Course  
Prerequisite: Sophomore, junior or senior standing

This course will focus on the fundamentals of music composition and the electronic manipulation of musical sound through the use of MIDI (Musical Instrument Digital Interface) sequencing, notation and production software. Assignments will focus on technological tools to aid and enhance creativity and music composition. Culmination of the class may be a public performance of student work. Prior music reading skills are helpful, but not necessary.

Advanced Music Technology: Composition and Production  
Second Semester Course  
Prerequisite: Music Technology: Composition and Production

This course will delve more deeply into music composition and the electronic manipulation of musical scores through the use of MIDI (Musical Instrument Digital Interface) sequencing, notation and production software. Projects continue to explore the use of technology as a creative tool, including digital recording and production of live music, and basic film score composition. Culmination of the class may include a public performance of student work.

Band  
Year Course  
Band is open to all students in grades 9-12 who have previous instrumental music experience. Emphasis in this course is placed on the continuing development of instrumental technical facility, the study of a broad musical repertoire in terms of structure, musical elements, historical and cultural background and terminology; and the development of an aesthetic approach to music through performance and listening. Performances include at least two concerts per year, spring band tour, solo and ensemble contest and other performance opportunities. This course may be repeated for credit. Note: Seniors planning Senior Programs must continue in this course for both 3rd and 4th quarters and perform in the Spring Concert.

Advanced Band  
Year Course (no exceptions)  
Prerequisite: Junior or senior standing and audition

Students enrolling in Advanced Band are part of “Band” and will have all of the standard expectations and requirements PLUS elevated requirements and expectations that will enhance their musicianship and leadership skills. Students with the Advanced Band designation will be required to: Prepare a solo for Region/State Solo & Ensemble Contest; research and prepare program notes for concert repertoire; meet with instructor outside of class once every other week; and take on leadership responsibilities within the ensemble leading sectionals, doing concert and tour organization, etc. This course may be repeated for credit.

Chamber Orchestra  
Year Course

Chamber Orchestra is open to students in grades 9-12 who have previous experience with violin, viola, cello, or double bass. Emphasis in this course is placed on the continuing development of individual technical facility, the study of a broad musical repertoire in terms of structure, musical elements, historical and cultural background and terminology; and the development of an aesthetic approach to music through performance and listening. Performances include at least two concerts per year, spring concert tour, solo and ensemble contest and other performance opportunities. This course may be repeated for credit. Note: Seniors planning Senior Programs must continue in this course for both 3rd and 4th quarters and perform in the Spring Concert.

Advanced Chamber Orchestra  
Year Course (no exceptions)  
Prerequisite: Junior or senior standing and audition

Students enrolling in Advanced Chamber Orchestra are part of “Chamber Orchestra” and will have all of the standard expectations and requirements PLUS elevated requirements and expectations that will enhance their musicianship and leadership skills. Students with the Advanced Chamber Orchestra designation will be required to: Prepare a solo for Region/State Solo & Ensemble Contest; research and prepare program notes for concert repertoire; meet with instructor outside of class once every other week; and take on leadership responsibilities within the ensemble leading sectionals, doing concert and tour organization, etc. This course may be repeated for credit.

Women’s Chorus  
Year/or Single Semester Course

This choir is open to all female students, grades 9-12. No audition is required. The course emphasizes development of vocal technique specific to adolescent female voices and music literacy skills for the singer. Each singer builds her individual skills while learning women’s choral music literature from a wide variety of styles and eras. This group performs in one major concert each semester, and takes part in other opportunities as they may arise. Students may register for either one or both semesters. This course may be repeated for credit.

Men’s Chorus  
Year/or Single Semester Course

This choir is open to all male students, grades 9-12. No audition is required. The course emphasizes development of vocal technique specific to adolescent male voices and music literacy skills for the singer. Each singer builds his individual skills while learning men’s choral music literature from a wide variety of styles and eras. This group performs in one major concert each semester, and takes part in other opportunities as they may arise. Students may register for either one or both semesters. This course may be repeated for credit.

A Cappella Choir  
Year Course (no exceptions)  
Prerequisite: Audition

This select, mixed gender choir is comprised primarily of 10-12 graders, though ninth graders may audition. The course emphasizes further development of already established individual vocal technique and music literacy. This group performs challenging, mixed a cappella literature from a wide variety of styles and eras. Performances include two major concerts per year and spring choir tour, as well as other performing opportunities that may arise. This course may be repeated for credit. Note: Seniors planning Senior Programs must continue in this course for both 3rd and 4th quarters and perform in the Spring Concert.

Student-Led Ensembles (co-curricular)

Blaker’s Dozen  
No Credit

This choir is a select group of male students who perform in a variety of styles of male choral literature, including light, popular a cappella selections. Blaker’s Dozen rehearses twice a week before school from 7:15-7:55am on Tuesday and Thursday mornings. Performances include two concerts per year, spring choir tour, solo & ensemble contest and many off-campus events. This group is student-led under the artistic direction of the choral music teacher. Auditions are required and are held in early fall. All members must
also be enrolled in a choral music class in order to participate in this group.

**Blakers in Treble**  
No Credit

This choir is a select group of female students who perform a variety of styles of women’s choral literature, including lighter, popular music. Blakers in Treble rehearses twice a week before school from 7:15-7:55am on Tuesday and Thursday mornings. Performances include two concerts per year, solo & ensemble contests, spring choir tour, and many off-campus events. This group is led by students under the artistic direction of the choral music teacher. Auditions are required and are held in early fall. **All members must also be enrolled in a choral music class in order to participate in this group.**

**Jazz Express**  
No Credit

Jazz Express is a select combo of motivated student musicians who work to develop their jazz performance skills and improvisation. Emphasis is on performance as this group performs often for events in the community at large as well as in school. **Membership is by audition only and is limited to students enrolled in Band or Orchestra.**

**Jazz Combo**  
No Credit

Jazz Combo is a combo of student musicians who are working to form a basis for jazz performance and improvisation. Emphasis is on style and skill development. This group performs in all band concerts and occasionally outside of school. **Membership is by audition only and is limited to students enrolled in Band or Orchestra.**

**VISUAL ARTS**

**21st Century Art History**  
First Semester Course  
Prerequisite: Junior or senior standing

This course explores the current art world, how it came to be, and where it may be headed. With weekly trips to the Walker Art Center, local galleries, and artist studios, students will experience first-hand the art that is shaping contemporary conversations about our world. In an ever-more global age of technological overload, political tension, and environmental degradation, artists continually push us to see anew. Course work includes looking, reading, discussion, and writing, as well as creating multimedia presentations.

**Advanced Media Arts Seminar**  
Second Semester Course  
Prerequisite: Animation, Digital Filmmaking, or Game Development  
This course may be repeated for credit.

For those students who have already taken at least one of the other Media Arts courses (Animation, Filmmaking, Game Development), this course offers an opportunity to further explore and develop their skills in a studio-based environment. Advanced projects will challenge creativity while taking existing skills to the next level. This course also offers opportunities for students to explore collaboration across different disciplines - filmmakers working with game developers, or animators working with filmmakers, for example.

**Animation**  
Second Semester Course

Follow in the footsteps of Disney, Warner Bros, and Studio Ghibli as you learn how to bring your drawings and graphics to life. This course focuses on the fundamentals of character animation, fusing best practices of contemporary animation as used at studios like Pixar and DreamWorks. Students will learn such concepts as timing, squash and stretch, keyframes and tweening, composition, and many others. Even as they learn the techniques of animation, they will be encouraged to experiment and make their own discoveries. The class will have screenings of animated films, both features and shorts, and student work will be presented on Blake’s Vimeo channel and in gallery shows.

**Ceramics I**  
First or Second Semester Course

This course introduces students to the world of clay art. Through utilizing pottery wheel processes, hand building techniques, and surface decorating concepts, students will explore their creativity, strengthen observational skills, and make connections between their lives and cultures very different than their own. Students develop a foundational understanding of the physical nature of ceramic materials and processes while stretching their ability to express their ideas with the clay medium. Through studio work, group critique, and art historical studies, students gain fresh awareness of their visual environment and abilities to create functional and decorative objects.

**Ceramics II**  
Prerequisite: Ceramics I  
First or Second Semester Course

Building a diverse repertoire of pottery wheel techniques, and applying them to design problems is the primary focus of Ceramics II. Students expand upon the foundation level wheel-throwing skills and concepts to which they were introduced in Ceramics I to begin creating forms of greater nuance and sophistication. Through learning the skills necessary to create mugs, bottles, pitchers, vases, lidded jars, and teapots, students develop the ability to put form to their ideas with confidence. In Ceramics II, students learn to set up the electric kiln for firing, and participate in a group outdoor raku firing.

**Ceramics III**  
Prerequisite: Ceramics II  
First Semester Course

Sculpting a human head from a clay block, learning to assemble multiple wheel thrown pieces into large functional objects, creating ceramic artwork by making and using plaster molds, and using the design process to create a series of themed artworks is at the core of Ceramics III. Field trips to galleries and museums, sketchbook studies, and regular group critiques complement the significant studio-based focus of this advanced level course. Ceramics III students develop a heightened understanding of the clay art process by learning to formulate and analyze glaze recipes and fire kilns. In this course students will gain significant confidence in their technical and creative problem solving abilities. **This course may be repeated for credit.**

**Drawing and Painting I**  
First or Second Semester Course

This course introduces students to the ease of seeing and recording the world around them. Using figure, portrait, and landscape, a variety of techniques and media are explored to create both realistic and abstract drawings and paintings. Students develop the ability to express their ideas with confidence and clarity. Field trips to the Walker Art Center and Minneapolis Sculpture Garden help develop an understanding of contemporary art in our city. Through studio work, group critique, and art historical studies, students gain fresh awareness of their visual environment and newfound abilities to create images with real visual impact.

**Drawing and Painting II**  
Prerequisite: Drawing and Painting I  
First or Second Semester Course

Permanent wall drawings, multi-media assemblages and service learning field trips, where students draw and give portraits as gifts,
Photography I

First or Second Semester Course

Prerequisite: Photography I

You have grown up in a world filled with photography. To your parent, a camera was a single-purpose device that only took photographs and was brought out for special occasions, but you know a world where the camera is so omnipresent that it’s in everyone’s pocket.

You will learn more about cameras and photography than you ever thought possible. We’ll cover digital photography, ranging from high-resolution digital SLR cameras to smartphones. We will delve into the origins of photography and use a darkroom to learn how artists and scientists worked together to find a way to write with light.

Ultimately, this class provides creative, expressive ways to use the camera.

For most projects we will use 35mm film cameras and digital single-lens reflex (SLR) cameras that allow manual control of focus, aperture and shutter speed. Students do not need to have a personal camera to take this class.

Photography II

First Semester Course

Prerequisite: Photography I

Dig deep into photography-related issues like alternative processes, new cameras and lenses, composition and aesthetics, copyright law, model release forms, the history of photography, how to assemble a coherent portfolio of your work, and careers in photography.

Photography III

Second Semester Course

Prerequisite: Photography II

Continue your work with 35mm film or digital SLR, as well as learn new cameras, film types and photochemistry. The primary focus of class will be for students to identify themes or topics they wish to pursue in their photography in order to build and exhibit a coherent body of art. This course may be repeated for credit.

Printmaking I

First or Second Semester Course

As an art class Printmaking may sound esoteric, but chances are that you’re wearing clothing with a printed design and carrying a print in your wallet. Printmaking differs from most art forms in its ability to make multiple, identical works of art instead of a single unique piece. Some call it “the democratic art form” and others summarize printmaking as “art made with stencils.” Those are correct, but an oversimplification. The beauty of printmaking is that it can seamlessly combine many different art techniques: drawing, painting, calligraphy, text, and photography all merge into a harmonious art form.

To make intaglio prints, we will etch and engrave metal plates using chemistry and tools, then ink the grooves and run the plate through a hand-cranked printing press. It’s a 600-year old technology still used to print the modern dollar bills in your wallet. In screen printing we will create stencils, then use a squeegee to squish ink through the stencil onto paper, canvas and other materials. And in relief prints we will carve blocks, much like you did in 6th grade Wood Shop, but with a greater degree of complexity.

Printmaking II

Second Semester Course

Prerequisite: Printmaking II

Dig deeper into the realm of printmaking, and investigate a wide range of alternative methods for monotype, relief, stencil, intaglio and screen printing. Learn more than you thought possible about printing paper and ink. The class will be largely hands-on, punctuated with demonstrations and historical research. This course may be repeated for credit.
Visual Design Studio I: Introduction to Design

First Semester Course

Prerequisites: Two introductory-level visual art courses, and one advanced visual art course

Through studio-based activities like drawing, printmaking, 3D construction, and computer graphic manipulation, students learn the fundamentals of 2D and 3D design with emphasis on developing critical thinking and creative problem solving techniques. Topics covered in this course include design sketching, rendering, visualization, typography, logo/brand ID design, product design, and interior design. To develop perspective and strengthen original ideas, students will study global and historic design traditions and regularly participate in critique sessions.

Visual Design Studio II

Second Semester Course

Prerequisite: Visual Design Studio I
Exception (Class of 2016 only): Two introductory-level visual art courses, & one advanced visual art course

Design is deliberate. It is a process of exploring multiple solutions and choosing the most promising option. The purpose of this course is for students to investigate the question: how can quality design be used to enhance our interaction with the world?

This is a hands-on studio course where projects take the form of design challenges that include graphic design, print advertising, page layout, packaging design, clothing and personal accessory design, furniture design, and landscape design. Students will study global and historic design traditions, learn from guest speakers currently employed in the design field, and regularly participate in critique sessions to develop perspective and strengthen original ideas. A self-defined, final design project and/or exhibition are a requirement of the course. This course may be repeated for credit.
COMMUNICATIONS

DEPARTMENTAL REQUIREMENT
Psychology of Communication or the equivalent (see below) is required for all students during grade 12.

As part of the senior experience, each student is required to present an assembly speech to the Blake community and is required to design and execute a self-directed senior project during the final weeks of the school year. Psychology of Communication will guide and advise students through these requirements.

Assembly Speech
The basic elements of successful public speaking will be taught. Students will write a prototype of that speech and work on delivery with the instructors.

Exemption
A very small number of students will qualify for exemptions from Psychology of Communication. Eligible students must apply for an exemption during the spring of junior year using the form available on Moodle. Exempt students are required to work independently with the Director of Speech & Debate on the assembly speech and the senior program project.

Exemption Eligibility
Beginning with Class of 2016:
Departmental approval and one year or more of Advanced Debate prior to the senior year with enrollment in Advanced Debate during the senior year.

Senior Program
Senior program is an individual learning opportunity that offers students the space and time to execute a self-designed project that falls outside the standard school day and/or curriculum. In their Psychology of Communications course, seniors will write a persuasive project proposal and defend their proposal through an oral defense to a committee of faculty and administrators. Once approved, the project will be conducted during the last two weeks of the school year. Optionally, students may apply to extend their project to three weeks or to the entire fourth quarter of the school year. Only a select number of project extensions will be awarded.

Senior program is worth one credit. Each senior must meet academic and attendance eligibility requirements to participate in a self-designed senior program. Please consult the Upper School Handbook for details.

Spectrum (Newspaper)  
Fall and/or Second Semester Course  
0.25 semester credit

This co-curricular period allows the staff of The Spectrum to work on the writing, editing, and layout of the paper. Enrollment for this period is open to all students in grades 10-12 who would like to contribute to the production of this award-winning school newspaper. Students who intend to apply for editorial positions are strongly encouraged to enroll for the full year. Course may be repeated.

Yearbook  
First Semester or Year Course  
2 class meetings per week; 0.25 semester credit

This course provides an opportunity to work on the design and production of a tangible publication: Reflections, the Blake Upper School yearbook. Students will learn multiple aspects of book production: concept, design, layout, photography, and copywriting. Using an all-online workflow – meaning you can work on the book anywhere at any time – students will create a publication that defines the personality and character of each class. The final product will be a lasting collection of memories, events, and relationships.

This course is open to grades 10-12. Leadership positions exist for juniors and seniors; students with leadership positions must enroll for the full year. Beginning with the Class of 2016, this course cannot be counted toward the Arts departmental requirement. Course may be repeated.
ATHLETICS

DEPARTMENTAL REQUIREMENT:
Participation as a playing member of a Blake athletic team for one season during both grades 9 and 10.

Students involved in a significant and ongoing individual sport or physical activity may petition the Athletic Director to use this sport or activity to fulfill the athletic requirement. Students can also fulfill their athletic requirement by participating on Blake club teams such as the Blake Area Equestrian Team, Blake Sailing Team, Ultimate Frisbee Team and Synchronized Swimming.

FALL
Cross Country (Boys and Girls)
Football (Boys)
Soccer (Boys and Girls)
Swimming (Girls)
Tennis (Girls)
Volleyball (Girls)

WINTER
Alpine Skiing (Boys and Girls)
Basketball (Boys and Girls)
Fencing (Boys and Girls)
Hockey (Boys and Girls)
Nordic Skiing (Boys and Girls)
Swimming (Boys)

SPRING
Baseball (Boys)
Golf (Boys and Girls)
Lacrosse (Boys and Girls)
Softball (Girls)
Tennis (Boys)
Track & Field (Boys and Girls)

28 total sports (14 Boys, 14 Girls)

HEALTH

DEPARTMENTAL REQUIREMENT:  
Health in grade 10

Health  
First or Second Semester Course

This course will deliver health and wellness information aimed at promoting healthy behaviors, increasing responsible decision-making, and encouraging healthful living. As a result of this course, students will gain an understanding of how to make positive lifestyle changes in the areas of physical wellness, mental health, chemical health and relationships/sexual health, and they will work toward personal application of the information into their daily lives. The overarching theme of this course is to allow students to practice and model making healthy decisions (short and long term) that will reduce the risk of future health concerns. In addition to taking personal responsibility for their health and well-being, students will also use the knowledge that they have acquired to educate their friends and family.

Health is also available as a Blake Summer Programs course for students entering grades 9-12. This summer course fulfills the Health graduation requirement. For more details, please see the Summer Academic Courses section of this catalog.
ENGLISH

DEPARTMENTAL REQUIREMENTS:
8 semesters of English, including English 9: World Literature, English 10: American Literature and at least one English course each semester of 11th and 12th grades.

Students will have one-on-one writing conferences with their teachers outside of class time at least once each semester.

REQUIRED COURSES (GRADES 9-10)

English 9: World Literature Year Course

This English course builds a foundation of skills that will empower ninth graders to be effective lifelong readers and writers. The class is also coordinated with the Social Studies courses World Cultures and Big History. Readings may include Simon Armitage’s The Odyssey, R. K. Narayan’s Ramayana, Edwidge Danticat’s Krik? Krak!, Chinua Achebe’s Things Fall Apart, Chimamanda Adichie’s Purple Hibiscus, Athol Fugard’s “Master Harold” ... and the boys, Naomi Nye’s Words Under the Words, Dominic Cooke’s Arabian Nights, William Shakespeare’s Twelfth Night or Romeo and Juliet, and Salman Rushdie’s Haroun & The Sea of Stories. Throughout the year, students will consider such questions as the following: Why do we read? Why do we write? Why do we tell stories? Why do we talk about the stories we read and hear? What are the conversations that stories create? The power of story and the influence of perspective on story are important themes.

English 10: American Literature Year Course

Sophomores in this course will read literature of increasing stylistic and thematic complexity in a variety of genres. Students will be expected to move well beyond the literal level in their interpretations of texts, as they begin to recognize the difference between “story” and “literature.” Students will think deeply about what it means to be an American and what defining characteristics make up American Literature. In particular, we will examine the texts we read for what they can teach us about issues of race, class, and gender in the United States. Annotating texts and developing effective discussion skills are strands throughout the year. In their writing, students will explore a variety of forms, including creative writing and analytical essays. Texts include: J.D. Salinger’s The Catcher in the Rye, Arthur Miller’s Death of a Salesman, Tim O’Brien’s The Things They Carried, August Wilson’s Fences, Zora Neale Hurston’s Their Eyes Were Watching God, and F. Scott Fitzgerald’s The Great Gatsby. Other texts are determined by individual teachers.

COURSES FOR GRADE 11

The electives for juniors are all discussion-based seminars that offer students both intensive literary study and a heightened focus on the process of writing. Students will engage texts that invite close reading while they develop tolerance for ambiguity, appreciation for complexity and strategies to avoid reducing any text to a single meaning or issue. Reading selections for all electives explore genres, voices and literary traditions that span the globe.

As writers, students will be encouraged to focus on process: drafting, revising, discussing, revising and revising their work, with the ultimate aim of producing thoughtful, cogent essays in a voice that feels natural to the student. The writing will strike a balance between literary analysis, where students have the opportunity to develop their insights as readers and interpreters of literature, and personal essays, where students will reflect on their own lives and the world around them. Written teacher feedback on student writing highlights progress toward stated outcomes and details opportunities for growth and revision. At least once a semester, and in most cases more frequently, students schedule one-on-one writing conferences to work with the teacher in a more detailed, focused way on some important aspect of their writing.

English 11: AP English Literature Year Course

This course will pursue a broad variety of reading experiences by engaging with texts on their own terms and for their own sake. The reading list will range widely in genre, form, mode of expression, time period and culture of origin, and students will write a variety of analytical, expository and creative responses to what they read throughout the year. Students will be well prepared to take the AP Literature examination in May, should they choose to do so. There is a supplemental charge to take an AP Exam that will be the responsibility of the student to pay. Financial aid is available.

English 11: Versions of Reality First Semester Course

This seminar will explore the ways authors have represented what’s "real," what’s magical, supernatural or spiritual, and what happens when people question the distinction between the two. Students will examine the roots and legacies of a paradoxical world where magical things really happen, a world of ghosts and witches and gods and monsters whose existence is not constructed as an element of fantasy or legend, but as a part of the lived experiences of people in our world today.

English 11: Creating Identity First Semester Course

“Why are we who we are?” This course will examine what literature has to say about how one’s identity is constructed. Students will explore how the “forms” of race, class, gender, and sexuality determine our content as people and how language influences this content. The class will be taught as a seminar, focusing on the close reading of texts.

English 11: Honor, Glory, Greed Second Semester Course

What will people do and give up to fulfill an ideal or desire? This literary seminar will focus on the ideas and obsessions characters devote their lives to fulfilling. Closely reading novels, stories, plays and poems, students will examine the meanings of these characters’ achievements and the costs and consequences of fulfilling their desires.

English 11: The Literature of War Second Semester Course

Springing from the concept of the literature of war, this seminar will draw from stories, plays and poems about civilians and soldiers, women and men, children and adults, “friend” and “foe” as they experience conflict across a broad range of cultures and time periods. An interactive writing project involving interviews with survivors and veterans of conflict will involve students in the last quarter of this semester elective.
COURSES FOR GRADE 12  First Semester Courses (To facilitate sectioning these electives may change by semester)

English 12: The Literary Essay  First Semester Course

In a departure from the traditional analytical essays emphasized in previous English courses, this course focuses on writing well-crafted, nuanced personal essays—that is, essays that speak from the “I” and prioritize personal experience. Students will study and practice artistic and creative use of literary techniques such as narrating with scenes, dialogue, point of view, and recording details and observations. There will also be a focus on reporting, in which students will explore and make sense out of a place, person, or idea through investigative research. Though the primary focus is on writing, students will be expected to read and discuss weekly—after all, strong writers are voracious readers. Students will study the work of professional essayists in an attempt to discover their techniques and to understand how to merge content and craft. The course emphasizes the importance of discovering one’s own voice and style through writing exercises, peer workshops, class critiques, and above all, revision. Daily writing practice, short papers, and several substantially revised essays will be required.

English 12: Myth and Memory  First Semester Course

If, as Frost said, poetry is what’s lost in translation, then myth is a form of storytelling that transcends translation – delivering tales that still resonate within us centuries later. In this course, students will engage older texts such as the epic Gilgamesh, Ovid’s Metamorphoses, and Homer’s Odyssey, as well as modern retellings and “refractions” such as John Gardner’s Grendel, Zachary Mason’s Lost Books, and Ali Smith’s Girl Meets Boy. After careful reading and seminar discussions, students will write a balance of analytical meditations and personal reflections on these powerful works.

English 12: Native American Fiction, Folklore, & Film  First Semester Course

In order for us to make sense of where we are going, it is vital to look not only to the past, but to listen the original inhabitants of a place. This course will read and hear the voices of indigenous people from the past and today as they steadily speak today in fiction and film. We will address the costs and benefits of an oral tradition as a form of literature, as well as questions of authenticity, the Noble Savage, the Urban Indian, the Trickster, and representations and objectification of indigenous people and culture in our nation’s consciousness. The course will culminate with proposals to this question: What can Indigenous literature teach us as we move forward in a global society? Students may read fiction by Louise Erdrich, David Treuer, Leslie Marmon Silko, and Sherman Alexie and view films such as Fast Runner, Smoke Signals, Frozen River, and Reel Injun.

English 12: Shakespeare  First Semester Course

In this course, we will explore some of the plays and poems that lead to the common view across the world that, four hundred years later, Shakespeare is still the greatest writer of all time. We’ll learn what makes Shakespeare’s work influential, beautiful, and profound. In addition to discussion, we will watch film, read plays aloud, and attend a professional performance. This course is for all students, not only “English types.” Last year’s reading list: Hamlet, Twelfth Night, Henry IV I, King Lear and selected sonnets.

English 12: Utopian & Dystopian Fiction  First Semester Course

How does one confront (and resolve) the dilemmas of modern society? Why the persistent need to imagine and construct ideal societies? By whose standards does one decide what is ideal and what is not? Who is excluded from the dominant discourse? These are the primary essential questions with which this course will be concerned. This course will use a combination of seminars and literature circles to closely examine and juxtapose the imaginative fiction of utopian and dystopian works that offer critical analysis or constructive visions of future possibilities, all of which have either social, political, or ecological implications. Texts may include Margaret Atwood’s The Handmaid’s Tale, Lauren Groff’s Arcadia, Cormac McCarthy’s The Road, Jose Saramago’s Blindness, and Colson Whitehead’s, Zone One. Poetry and film will be examined as well. The course will culminate with a project that asks students to construct their own utopia or dystopia that gives voice to their own societal hopes and fears by imagining alternatives to present circumstances.

COURSES FOR GRADE 12  Second Semester Courses

English 12: African American Literature  Second Semester Course

Interested in courageous conversations? If you answered “yes,” then this semester long course is for you! African American literature grew out of the oral tradition of storytelling and spirituals. In this course, you will consider this vernacular tradition and its impact on African American authors to come along after this early time period. As students consider the content of literary works, they will explore a number of cultural, historical, and political themes, while they examine how the issues of gender, race, and class affect the meanings of varied works. Students will leave the course with a broader and more nuanced sense of African-American writing (and authors) and will hopefully be compelled to read more varied cultural texts as they move beyond the walls of Blake. Readings may include Invisible Man (Ellison) and Waiting (Butler).

English 12: Colonized and Globalized Worlds  Second Semester Course

History has proven that even the best of intentions prove faulty when colonization occurs. Less noble intentions foster objectification and obliteration of people and their cultures. While giving voice to the oppressed and silenced, we will also deconstruct the perspective of the colonizers who more often see “a mirror image of themselves and their own assumptions than the reality of what is there” (Young). Using a variety of texts, we will examine the perceptions, relationships, and consequences of colonial history and trace the contemporary impact in Nigeria, India, Pakistan, and the Caribbean. Some address of post-colonial theory will ground the course; however, fiction will drive this course. Texts may include Joseph Conrad’s Heart of Darkness, Graham Greene’s The Quiet American, and short stories and poems by Hanif Kureishi, Jhumpa Lahiri, Jamaica Kincaid and Derek Walcott.
English 12: The Individual & Nature  Second Semester Course

What is our proper place in the world? To what extent are human beings “natural”? In what ways have we transcended “nature”? How has the idea of nature shaped our identity as Americans? How might a deeper understanding of these questions impact how we live today?

Possible authors include: Alan Weisman, Annie Dillard, the Popol Vuh (Mayan) and other indigenous creation myths, Barbara Kingsolver, Terry Tempest Williams, Henry David Thoreau, Leo Tolstoy, Jim Harrison, Robert Hass, Mary Oliver, Gary Snyder, Barry Lopez, John Krakauer, John Muir, Willa Cather, Peter Matthiessen and Claude Wilkinson.


Outside Activities: Media Fast, Weekly tree observation & visit.

English 12: Creative Writing – Fiction and Poetry  Second Semester Course

This class is all about creative writing. The heart of our work will be the writer’s workshop, during which students present their own stories and poems to one another for peer response and review. Between writing projects, we will read stories and poems by established writers with an eye to the elements and techniques that make their work sing. When not considering the work of classmates and other writers, we will engage in playful writing exercises designed to help us enliven our own language and voices. Our goal is that all will leave this course with a handful of short stories and poems they can proudly call their own, along with a series of reusable activities and exercises designed to generate ideas for writing beyond the scope of this class. In addition to refining our own writing, we also make opportunities available to meet with and discuss the art of creative writing with published authors.

English 12: Comedy  Second Semester Course

Comedy has been called “the last refuge of the nonconformist mind.” It is also spectacle, vitality, absurdity, and happy endings. This course will explore this diverse genre, its patterns and variations, trying to understand what makes us laugh and why that matters. We will read plays, watch films, analyze jokes, and perhaps even consider cartoons. In short, this course will be a study of the most happy of aspects of universal human culture. Our material will be chosen from artists such as Moliere, Wilde, Charlie Chaplin, Kubrick, Ionesco, Yasmina Reza, and the Coen Brothers.
Enrollment in a minimum of four semesters of mathematics offered by the Blake Mathematics Department; successful completion of Geometry and Algebra II at Blake or, for students new to the School, through courses that are equivalent to those offered at Blake. Computer science courses will not count toward the mathematics graduation requirement.

Because problems that depend upon mathematics for their solution arise in many fields, the mathematics department strongly recommends that students continue the study of mathematics in all semesters. Nearly all Upper School students complete four years of mathematics.

The department offers several courses of study to meet the varied needs of our student body:

- Students with an interest in the social sciences or humanities are encouraged during their junior and senior years to choose Functions, Statistics & Trigonometry with Modeling or Probability & Statistics or one of the other semester electives.
- Students interested in the applied sciences or pure mathematics are encouraged to take some level of Pre-Calculus and Calculus before graduation, as well as semester electives that provide an opportunity to participate in mathematics research or to explore advanced mathematics in greater depth.

The most common courses of study are outlined in the Mathematics Course Sequences flowchart found at the end of this section. Students are not locked into a mathematics course sequence and, with appropriate preparation, it is possible for them to switch sequences at various times during their mathematics career. This will require consultation with the mathematics department.

In order to be successful, a student enrolling in a mathematics course must be proficient in preceding mathematics concepts and skills. The course prerequisites and evidence of readiness recommendations listed in this course guide provide a way for students to demonstrate mastery of prerequisite content. The mathematics department strongly recommends that a student who has not demonstrated evidence of readiness consider an alternative mathematics course sequence. If a student who has not demonstrated evidence of readiness desires to enroll in a course, the student must consult with his or her mathematics teacher to develop a monitored plan for demonstrating proficiency in prerequisite concepts and skills. The plan must be successfully completed by May 15, 2015 in order for the course request to be honored.

The department will place students who are new to Blake in the appropriate course based on mathematics experience, readiness, teacher recommendation, and test results. Students may be asked to take a placement exam.

**Algebra IB**

*Prerequisite: Algebra IA or equivalent*

Algebra IB is the second half of a two-year algebra I sequence that begins in eighth grade. Prerequisites for this course include facility with real numbers, exponents and radicals, order of operations, the distributive property, solving one-, two-, and multi-step linear equations, and writing, graphing and analyzing linear equations. *Algebra IB* builds on the foundation laid in *Algebra IA* to address topics such as inequalities, systems of linear equations and inequalities, polynomial equations and factoring, radical expressions, and rational equations, and an introduction to exponential growth and decay models. The course emphasizes both skill development and problem solving. Students new to The Blake School who have not completed the prerequisites for Algebra IB should consult with the mathematics department and are encouraged to complete a summer course or to pursue summer independent study in order to gain the required proficiency.

**Geometry**

*Prerequisite: Algebra I or Algebra IB or teacher recommendation*

From its earliest beginnings as a set of rules arrived at by trial and observation, Euclidean geometry was developed by the Greeks into a set of conjectures concerning figures formed by points, lines, planes and circles. Topics include congruence, logic and proof, similarity, properties and areas of circles and polygons, relationships of lines and planes in space, solids and their volumes, right triangle trigonometry and transformations. This course emphasizes both deductive and inductive reasoning.

**Honors Geometry**

*Prerequisite: Honors Algebra I*

*Evidence of readiness: B in Honors Algebra I*

This course gives a more rigorous treatment of the topics covered in Geometry, emphasizes deductive reasoning and formal proof, and approaches geometry from synthetic, analytic, and transformational perspectives. Additional topics will be chosen from symbolic logic, axiom systems, finite geometries, non-Euclidean geometry, the nine-point circle, Ceva’s Theorem, proofs of the Pythagorean Theorem, advanced constructions, higher dimensions (*Flatland*), networks, topology, fractals, the Golden Section, Platonic and Archimedean solids and their duals, cyclic quadrilaterals, Cantor infinity, vectors and parametric equations.

**Algebra II**

*Prerequisite: Algebra I or Algebra IB, and Geometry*

*Evidence of readiness: Completion of Algebra I or IB and Geometry*

*Algebra II* is a course that extends and reinforces the problem solving and symbolic reasoning found in *Algebra I*. Students learn the skills required to investigate properties and transformations of various functions, including linear, quadratic, higher-order polynomial, exponential, and radical functions, with an introduction to logarithmic and rational functions. Applications are made in the areas of inequalities, systems of equations, and mathematical modeling. Algebraic manipulation and computation are mastered in the context of reasoning and problem solving.

**Honors Algebra II**

*Prerequisite: Honors Algebra I and Honors Geometry*

*Evidence of readiness: B in Honors Algebra I and Honors Geometry*

*Honors Algebra II* incorporates aspects of a problem-based learning curriculum and is designed for students who prefer independent problem solving and who demonstrate persistence and confidence in tackling novel problems. The course gives a more rigorous treatment of the topics covered in *Algebra II* and includes additional topics such as conic sections, matrices, sequences and series.

**Functions, Statistics & Trigonometry with Modeling**

*Prerequisites: Geometry and Algebra II*

This course, which emphasizes the collection and analysis of data using tools from *Algebra II*, is hands-on in its approach. Many of the problems are of an interdisciplinary nature and the use of technology and dynamic modeling software is an integral part of the curriculum. Topics include sequences and series, functions and graphs, permutations and combinations, best-fit lines and curves, systems of equations, linear programming, probability and statistics. The course
reinforces topics from Algebra II and provides excellent preparation for both Probability and Statistics and Pre-Calculus.

Pre-Calculus

Prerequisite: Geometry and Algebra II, or Functions, Statistics & Trigonometry with Modeling (FST)
Evidence of readiness: B in Algebra II or B in FST

This course focuses on functions and their characteristics, including trigonometry. Although the course begins with a brief review of algebra concepts, students in Pre-Calculus must already possess a strong foundation in algebra. Topics include function notation and transformations; combinations and composition of functions; linear, quadratic, polynomial, rational, exponential, logarithmic, and trigonometric functions; sequences and series; and analytical trigonometry.

Honors Pre-Calculus

Prerequisites: Honors Geometry and Honors Algebra II
Evidence of readiness: B in Honors Geometry and B in Honors Algebra II

This course gives a more rigorous treatment of the topics covered in Pre-Calculus. Additional topics include parametric equations and an introduction to limits.

Calculus

Prerequisite: Pre-Calculus or Honors Pre-Calculus
Evidence of readiness: B+ in Pre-Calculus

Calculus is a mathematical tool used to analyze changes in physical quantities. It was developed in the seventeenth century by Gottfried Wilhelm Leibniz and Isaac Newton to study the major scientific and mathematical problems of the day. Students in this course will develop a deep understanding of the important ideas of calculus and a strong foundation to prepare them for continued study of calculus. Topics include limits, derivatives, and integrals, with an emphasis on application, problem solving and conceptual fluency.

Probability and Statistics

Prerequisite: Functions, Statistics & Trigonometry with Modeling or Pre-Calculus or Honors Pre-Calculus

This semester course introduces students to the major concepts and tools for collecting, analyzing, and drawing conclusions from data. Students use projects as a basis for learning how to collect data sensibly, identify bias, and display and analyze statistics obtained from data, using technological software designed to allow them to explore many of the central questions of statistics. Students also explore probability theory and its many applications, including disease detection and casino gaming.

ADVANCED PLACEMENT & POST-AP MATHEMATICS

AP Statistics

Prerequisite: Pre-Calculus or Honors Pre-Calculus
Evidence of readiness: B in Honors Pre-Calculus or A- in Pre-Calculus

This course gives a more rigorous treatment of the topics covered in Probability and Statistics, with special focus on the underlying theory of probability. Students enrolling in AP Statistics will be expected to sit for the Advanced Placement Statistics examination in May. The supplemental fee for taking the AP exam will be the responsibility of the student. Financial aid is available.

AP Calculus AB

Prerequisite: Honors Pre-Calculus or Calculus
Evidence of readiness: B in Honors Pre-Calculus or B in Calculus or teacher recommendation.

AP Calculus AB is a college-level course in calculus that includes limits, derivatives, integrals and their applications. The course will emphasize proof and an understanding of fundamental concepts, along with development of computational skills. Considerable time will be devoted to preparing students to take the AP exam. Students enrolled in AP Calculus AB will be expected to sit for the Advanced Placement Calculus AB examination in May. The supplemental fee for taking the AP exam will be the responsibility of the student. Financial aid is available.

AP Calculus BC

Prerequisite: AP Calculus AB
Evidence of readiness: A- in AP Calculus AB or score of 4 on the AP Calculus AB examination

AP Calculus BC is the first half of a two-semester second-year calculus sequence. It is required that students enrolled in AP Calculus BC also enroll in Post-AP Advanced Calculus. AP Calculus BC includes the remaining topics from the AP Calculus BC syllabus that are not in the AP Calculus AB syllabus, including the calculus of the polar coordinate system, vector calculus, curvilinear motion as defined parametrically, specialized methods of integration, separable differential equations, indeterminate forms, infinite series and Taylor series. Students will be expected to sit for the Advanced Placement Calculus BC examination in May. The supplemental fee for taking the AP exam will be the responsibility of the student. Financial aid is available.

Post-AP Advanced Calculus with Differential Equations

Prerequisite: AP Calculus BC

This advanced calculus course focuses on post-AP calculus topics, including the formal \( \Delta x \rightarrow 0 \) (epsilon-delta) definition of the limit, the expansion of vector calculus to include the T-N referential coordinate system and curvature, the Gamma function (factorials and probability distribution functions), Laplace transforms, and first-order homogenous linear and non-linear differential equations. The course emphasizes an understanding of fundamental concepts in conjunction with the acquisition of computational skills.

MATHMATICS & COMPUTER SCIENCE ELECTIVES

Students who have fulfilled their mathematics graduation requirements or who would like to simultaneously explore additional topics in mathematics or computer science are encouraged to consider mathematics or computer science electives. Actual course offerings will depend upon course enrollment. Some semester-long electives are offered in alternate years.

Electives offered every year

Fairness and Game Theory

Prerequisites: Geometry and Algebra II

The branch of mathematics called game theory deals with the underlying mathematical theory of conflict and cooperation. It is applicable whenever two individuals – or companies, political parties, or nations – confront situations where the outcome for each depends on the behavior of all. In this course you will develop a structured method for analyzing complex situations involving personal decision-making, social choice, conflict, fairness, and political power. You will even start to view everyday interactions in terms of game theory.
Additional topics of study may include fair division of resources, voting methods, and applications to business or economics. Through analysis of case studies, you will evaluate and apply these theories in various real-world contexts and explore the meaning of fairness and equity as applied and interpreted through a mathematical lens.

**Introduction to Computer Science**  
**Semester Course**  
**Prerequisite:** Algebra I or see Mr. Hickey

In this one-semester course, students will learn the elements of computer science and gain experience with general computational problem-solving techniques as they design, implement, test, and document programs in Python, a high-level programming language. Topics will include the structure and design of digital devices, how computers work, an introduction to programming (including machine language), and paradigms of programming (including functional, imperative, and object-oriented). The course will culminate in a final project in which students use computational methods to investigate and solve real-world problems. The societal and ethical impacts of computing will be integrated throughout via readings and discussion.

**Object-Oriented Software Design**  
**Semester Course**  
**Prerequisite:** Intro to Computer Science or see Mr. Hickey

Object-oriented programming is the paradigm of choice for web, desktop, and mobile applications. In this project-based course, students will learn the fundamentals of object-oriented programming while collaborating in teams to iteratively design and develop their own object-oriented applications. Communication, collaboration, and creativity will be emphasized as teams learn how to manage their projects, share code, and set goals and timelines. The hands-on nature of this course will encourage students to discover and learn problem solving and software design techniques as they become relevant to each project. Topics will include object-oriented programming, data structures, searching and sorting, graphical user interfaces, model-view-controller architectures, and object-oriented design patterns.

**Electives offered in 2015-16 and alternate years thereafter**

**Advanced Geometry**  
**Second Semester Course**  
**Prerequisite:** Geometry and Algebra II

If you enjoyed your first geometry course and you continue to find the visual side of mathematics compelling, this course will challenge and inspire you. From classic geometric problems of antiquity through the physics of optics to special curves (see the Wankel engine), from traditional Euclidean geometry to non-Euclidean geometries (think Einstein), we’ll cover ground that will give you an expanded view of the 2-dimensional (and 3-D and 4-D) world. We may even investigate space using interactive software that unites geometry and algebra: symbolic geometry! Is there a connection between Morley’s triangle and Napoleon’s triangle? Let’s find out!

**Graph Theory and Social Media**  
**First Semester Course**  
**Prerequisite:** Honors Geometry or department consent

Graph Theory, the study of networks, is a branch of modern discrete mathematics with many applications in science and business; it does not refer to the study of x-y graphs. In this inquiry-based seminar, students will learn Graph Theory concepts by analyzing social networks: Twitter, Snapchat, Facebook, Instagram, Yik Yak, etc. How many retweets are required before everyone at Blake can view the tweet? Which of your friends has the most influence on Twitter and Facebook? Questions like these relate directly to a variety of Graph Theory topics including set theory, proof by induction, isomorphism, planarity, Euler’s Formula, platonic graphs, genus, graph coloring, Hamiltonian and Eulerian walks, directed graphs, trees and path optimization. Students will learn mathematics as practiced by mathematicians—not a system of rules to be followed, but a field of questions to be explored via problem solving, conjecture and valid mathematical arguments.

**Research in Mathematics (Pure or Applied)**  
**2nd Semester Course**  
**Prerequisite:** Pure Math: Honors Geometry and department consent  
**Applied Math:** Honors Geometry and Intro to Computer Science  
**Admission** to this course is by application only.

The first quarter of this course prepares students to undertake beginning research in mathematics. Topics during the preparation period include problem solving and problem posing strategies, set theory, logic, methods of proof, and a comparison of computer-based mathematics and pure mathematics. Students will solve paradigmatic problems and develop the mathematical writing skills necessary for publication. During the second quarter students will be given a larger open question to investigate using either a pure or applied approach. Students will demonstrate progress by meeting benchmarks and giving presentations to the class throughout the quarter. Students who wish to continue their mathematics research will receive assistance in identifying a university mentor for summer research (minimum of 100 hours required) and in preparing for national math and science competitions.

**Electives offered in 2016-17 and alternate years thereafter**

**Introduction to Logic**  
**Semester Course**  
**Prerequisites:** Geometry and Algebra II

This course introduces students to the study of formal logic. Logic can be described as a way of thinking about thinking: the subject matter of logic is arguments. If you are interested in philosophy, mathematics, computer science or linguistics, a solid grounding in formal logic is invaluable. The study of formal logic helps develop the skills and techniques needed to present and evaluate arguments in any discipline or vocation (e.g. law, debate, politics, ethics). Students will become familiar with Venn diagrams, syllogisms, logical validity, inductive and deductive reasoning, along with a variety of symbols, concepts, principles and “languages” underlying symbolic logic.

**Discrete Systems**  
**Second Semester Course**  
**Prerequisites:** Geometry and Algebra II

This course, subtitled “The Art of Math,” is designed to acquaint students with examples of mathematical concepts in architecture, art, music and nature. Through the study of branches of mathematics such as knot theory, projective geometry, group theory and other disciplines within discrete mathematics, the course will offer opportunities for first-hand experience through the generation of art works, the writing of papers, and the study of real-world applications. Additional topics include fractals, chaotic systems and the development and application of the Golden Section.

**Seminar in Number Theory**  
**First Semester Course**  
**Prerequisite:** Honors Algebra II or department consent

Did you know that you can find a gap between successive prime numbers that is as large as you wish? Or that Goldbach’s Conjecture that every even number (except 2) can be written as the sum of two prime numbers is one of mathematics’ oldest unsolved problems? In this seminar students will use the inquiry method to explore the elegant properties of integers and prime numbers, learning how modern number theory has contributed to practical developments in cryptography and information technology. The course will emphasize methods of proof, techniques of problem-solving, and reading and writing of advanced mathematics. Topics include divisibility, the Euclidean algorithm, prime factorization, properties of prime
numbers, congruence, the Chinese remainder theorem, and Euler’s Phi function.

**Readings in Applied & Pure Mathematics (RAP) 2nd Semester**

Prerequisite or corequisite: *AP Calculus AB* and department consent

This course will involve readings, discussion, problem solving, research papers and other projects derived from original works by Aristotle, Ptolemy, Diophantus, Newton, Gauss, Weierstrass, Cantor and other renowned mathematicians. The history of their ideas and the basis of these ideas in the work of earlier mathematicians will be emphasized. From Aristotle’s letter to Eratosthenes regarding the idea of center of gravity to Cantor’s assigning cardinal numbers to infinity, the course will examine applications of mathematics through history as well as mathematics that had no practical application when first presented (e.g. non-Euclidean geometries).
The Mathematics Course Sequences flowchart depicts the course sequences that students may follow as they advance through The Blake School’s mathematics program. Students may switch sequences with appropriate preparation and the consent of the Mathematics Department.

**THE BLAKE SCHOOL**
**MATHEMATICS COURSE SEQUENCES**
**2015-2016**

**Grade 6**
- Math 6

**Grade 7**
- Math 7 (Pre-Algebra)
  - Algebra IA
  - Algebra I
  - Honors Algebra I

**Grade 8**
- Algebra IB
- Geometry
- Honors Geometry
- Algebra II
- Pre-Calculus
- AP Calculus AB
- AP Calculus BC
- Post-AP Adv Calc w/Diff Eqns

**Grade 9**
- Functions Statistics & Trigonometry

**Grade 10**
- Geometry
- Algebra II
- Honors Algebra II
- Honors Pre-Calculus

**Grade 11**
- Algebra II
- Pre-Calculus
- AP Calculus AB
- AP Calculus BC

**Grade 12**
- Calculus
- Electives

**Electives**
- Offered Every Year
  - FST or Alg II Probability & Statistics
  - Geom & Alg II Fairness & Game Theory
  - Geom & Alg II Advanced Geometry
  - Pre-Calculus
  - AP Statistics
  - Algebra I
  - Intro to Computer Science
  - Object-Oriented Software Design
  - Intro to CS

- Offered in 2015-2016
  - Geom & Alg II Probability
    - Sem 1
  - Geom & Alg II Game Theory
    - Sem 2
  - Geom & Alg II Social Media
    - Sem 1 of 2

- Offered in 2016-2017
  - Geom & Alg II Logic
    - Sem 1 of 2
  - Geom & Alg II Discrete
    - System Theory
  - Geom & Alg II Seminar in Number Theory
  - Honors Alg II
  - Honors Geom
  - Readings in Applied & Pure Math

Actual course offerings will depend upon enrollment.
Not all paths are shown. Students may switch between course sequences after meeting departmental requirements.

*Placement by teacher recommendation based on independent problem solving, mathematical maturity, and work habits.
MODERN AND CLASSICAL LANGUAGES

DEPARTMENTAL REQUIREMENT

Satisfactory completion of level III of one language and study of that language through at least the end of sophomore year. Because language competence is increasingly required in many fields, the MCL department strongly recommends that students continue the study of language in all semesters. Most Upper School students complete four years of Modern and Classical Languages.

All rising Blake Middle School students are placed into Upper School courses according to the results of the proficiency test taken upon graduating from MS. For borderline cases, the overall performance of the student in his/her MS language study and the MS teacher’s recommendation are also taken into consideration.

New students to Blake with prior language experience will be placed in the appropriate level by decision of the department. A written placement test and oral interview in the target language are required for placement.

In order to be successful, a student enrolling in an MCL course must be proficient in preceding language concepts and skills. The course prerequisites and evidence of readiness recommendations listed in this course guide provide a way for students to demonstrate mastery of prerequisite content.

Course sequences are usually followed as outlined. Students deemed to be of exemplary motivation and who are interested in accelerating their course of language study may be approved for acceleration if they:

a) Have received a recommendation from their current teacher.
b) Have secured signed permission from the Department Chair before the first day of Spring Break prior to the fall term acceleration is desired.
c) Have completed or will have completed a qualified extra-curricular experience(s).
d) Have passed with an 85% or higher an acceleration exam in August (90% or higher to accelerate into AP).

The department recommends remedial work to those students whose language proficiency may prevent them from being successful in the next level. This is usually the case when a student has earned a C+ or below as the final grade in a course.

Students who want to begin their study of a language should note that, depending on enrollment, a level 1 class in a language may not be offered in a particular school year. Students entering Level 1 should be prepared to consider an alternate language choice or summer acceleration options; please contact PK-12 MCL Department Chair, Agnes Matheson for details.

FRENCH

French I Year Course

This course is an introduction to the French language and to our textbook series. The curriculum is context-based and addresses culture as well as the four language skills: listening, speaking, reading, and writing. By the end of the year students will have gained enough French so that they can express themselves in simple conversation on very familiar topics. The curriculum is supported by a robust online platform which allows students the flexibility to do a lot of additional practice outside of class. Please note that a minimum enrollment is needed to run this class.

French II Year Course

Prerequisite: French I

Through a variety of materials and methods, French II will continue to develop a strong foundation in listening, speaking, reading and writing. Class time will be devoted to aural/oral work with most written work done outside of class. Through film, history, discussion, and digital media, students will develop a cultural perspective of France and Francophone countries.

French III Year Course

Prerequisite: French II

In this course taught entirely in French, students continue to build their understanding of the French language. This is a year of intense study that deepens a student’s basic foundation in preparation for advanced classes that include readings, poetry, civilization, film and music. Listening, speaking, reading and writing skills are developed within the context of language usage through a variety of materials. Students learn to speak with confidence in everyday situations as well as to successfully express a variety of ideas through writing. Grammar is presented through a variety of themes, and the textbook is supported by an online platform with additional activities.

French IV Year Course

Prerequisite: French III

More interdisciplinary and content based than French III, French IV focuses on increased proficiency in language communication skills and appreciation of contemporary French and Francophone culture. An intermediate college-level text serves as a base for a review of grammar structures and vocabulary enrichment as well as developing students’ reading skills. Arranged thematically, the course allows students the opportunity to interpret authentic texts and produce language in diverse contexts. Through literary excerpts and articles, students are exposed to a variety of French cultural contexts. Time is devoted to the development of reading strategies, and student read novels in their entirety. Speaking skills improve greatly through daily discussion and attention to oral expression as all elements in class are conducted in French. Writing skills are enhanced through essays and journals that accompany all thematic units.

French V Year Course

Prerequisite: French IV

This course is designed for the advanced students who are interested in furthering their knowledge of the language and culture. Taught in French, the content of this course includes short stories, poetry, non-fiction readings, current events and cultural activities from a variety of French-speaking countries. Grammar practice will be reviewed in the context of the readings and by additional reinforcement exercises. Emphasis will be given to developing effective communication skills, and students will write compositions and make oral presentations on a regular basis. Film, TV broadcasts, and audio recordings will reinforce oral comprehension.
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<th>Course Name</th>
<th>Year Course</th>
<th>Prerequisite:</th>
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<tbody>
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<td>AP French Language and Culture</td>
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<td>French V or IV</td>
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<tr>
<td>Evidence of readiness: B in French V, or A in IV and earned a 90% or higher on placement exam.</td>
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Interdisciplinary and content based, the AP French Language and Culture course promotes both fluency and accuracy in language use while providing students an opportunity to broaden their worldview and deepen their knowledge of French and Francophone cultures through critical study and authentic materials. Students are engaged in an exploration of culture in both contemporary and historical contexts, using their knowledge of French to understand and compare cultural products, practices, and perspectives of the French and Francophone worlds with their own communities. Taught in French, the course incorporates interdisciplinary topics across the six required themes (Global Challenges, Science and Technology, Contemporary Life, Personal and Public Identities, Families and Communities, and Beauty and Aesthetics) in the AP French Language and Culture Curriculum Framework, and provides opportunities for students to demonstrate their proficiency and ability to interpret and synthesize information from authentic resources in each of the three modes of communication (Interpersonal, Interpretive, and Presentational). The use of French is required at all times and students will be given frequent presentational writing and speaking assignments. Grammar is reviewed as needed throughout the year. The course prepares students to take the Advanced Placement French Language and Culture examination in May. There is a supplemental charge to take an AP exam that will be the responsibility of the student to pay. Financial aid is available.

**Le Monde Francophone: Advanced Culture and Literature**

Prerequisite: AP French Language and Culture and/or departmental approval

This post AP elective allows French students to explore and more fully develop language while also increasing their understanding of the Francophone world. Using a variety of materials, short readings, novels, press, films, podcasts and technology, students will discover the history, literature, culture and current issues of various French-speaking countries.

**Latin II**

Prerequisite: Latin I

In Latin II, students will continue to study the Latin language, history and culture through more advanced readings and the analysis of more complex grammar. By the end of this course, students will have a complete understanding of Latin grammar and be able to translate mostly unedited Latin from Roman authors.

**Latin III**

Prerequisite: Latin II

In the first semester, students will advance their study of the dynamics of Latin prose. Students will compose an inductive grammar, drawing examples and conclusions about the language in selections from Livy’s *Ab urbe condita*. We will review the morphology, syntax, and metaphrasing strategies learned in Latin I and II, focusing particularly on the syntactic equivalence of dependent clauses and issues of coherence. Students will study early Roman history, the kings of Rome and the establishment of the Republic, examining foundation myths and views of Roman heroism.

In the second semester, we will study Latin poetry for the first time, building a foundation for challenges particular to neoteric and epic. We will reconstruct the lives and loves of these poets, examining their relationships to patrons, society, landscape, and literary history. The authors we read are: Martial, Catullus, and Ovid.

**Latin: Readings in Roman Biographies**

Prerequisite: Latin III

This course will be offered in rotating years. It will be offered during the 2015-2016 academic year.

This is an advanced translation course. Students will translate and analyze Latin texts about Roman men and women, both real and fictional, written by various authors in order to gain a deeper understanding of Roman history and culture. Vocabulary and grammar concepts will also be reviewed in the context of the Latin texts. Romans to be studied may include Caesar, Cicero, Lucretia, and the Emperors. In addition to translating texts, students will conduct research on a variety of topics to provide a broader context for the Romans being studied. In the final quarter, students will have the opportunity to select an author for more in-depth study.

**Latin: Readings in Roman History**

This course will be offered in rotating years. It will be offered during the 2016-2017 academic year.

This is an advanced translation course. Students will translate and analyze Latin texts from various Roman authors in order to gain a deeper understanding of Roman history, from the founding through the fall of Rome, all while solidifying their understanding of Latin grammar. Authors may include Eutropius, Cicero, Caesar, and Livy. In addition to translating texts, students will conduct research on a variety of aspects of Roman history and its lasting impact on the modern world. In the final quarter, students will have the opportunity to select an author or topic from the course for more in-depth study.
Latin: Readings in Roman Culture  
Year Course  
**Prerequisite:** Latin III

This course will be offered in rotating years. It will be offered during the 2017-2018 academic year.

This is an advanced translation course. Students will translate and analyze Latin texts from various Roman authors in order to gain a deeper understanding of Roman culture, while solidifying their understanding of Latin grammar. Topics may include religion, daily life, family life, education and slavery. In addition to translating texts, students will conduct research on a variety of aspects of Roman culture and the impact of that culture on the modern world. In the final quarter, students will have the opportunity to select an author or topic from the course for more in-depth study.

Latin: AP Vergil and Caesar  
Year Course  
**Prerequisite:** Latin III and departmental approval

Latin AP Vergil and Caesar is a year-long course devoted to the study of Vergil’s epic poem, the *Aeneid*, and Caesar’s *De bello gallico* (*Gallic War*). Over the course of the year, students translate selections from both texts, working to hone strategies specific to reading both epic poetry and prose. In addition to the Latin text, students are also expected to read selections from the *Aeneid* and the *Gallic War* in English. While this course remains an advanced translation course, students will also learn to analyze and interpret the Latin text as literature. Student-led discussions, journal entries and regular short response papers allow students to articulate and refine their evolving interpretation of each author. The course of study prepares students to take the Advanced Placement Latin Examination in May. There is a supplemental charge to take an AP exam that will be the responsibility of the student to pay. *Financial aid is available.*

Advanced Classics: The Age of Augustus and Empire  
Year Course  
**Prerequisite:** Latin: AP Vergil and/or departmental approval

This course will be offered in alternate years. It will be offered during the 2015-2016 academic year.

This is a yearlong translation course that explores the literature, history, social dynamics and architecture during the Principate of Augustus, and the emperors who followed him. Students in this course translate from authors including, but not limited to: Suetonius, Augustus, Tacitus, Pliny, Horace, Ovid and Vergil. During this course, students also write papers, prepare presentations and engage in student-led discussions covering various topics dealing with the Roman Empire.

Advanced Classics: Literature of the Roman Republic  
Year Course  
**Prerequisite:** Latin: AP Vergil and/or departmental approval

This course will be offered in alternate years. It will be offered during the 2016-2017 academic year.

This is a yearlong translation course that, in addition to translation of texts, incorporates elements of composition and dialogue about the role of a translator. During first semester, students will study Cicero primarily, and will delve into Latin prose composition. In the second semester, students will read Catullus while parsing out the role of a translator and the importance of that role. There will be various projects that will be led by students, such as preparing a text and presenting compositions.

Beginning Ancient Greek  
Year Course  
**Prerequisite:** Completion of Latin III and entering 12th grade

Beginning Ancient Greek will use the *Athenaze* book series to begin the study of this classical language. By reading about Dikaiopolis and his family, students will discover how Greek functions as well as learn about the culture of Ancient Greece. We will also read several tragedies in English translation to discuss both religious and philosophical beliefs of the ancient Greeks. *

**Please note that the school needs a minimum enrollment to run this class.**

MANDARIN CHINESE

Mandarin I  
Year Course

This is an introduction to Modern Standard Chinese (Mandarin Chinese) and to the cultures of China. With an emphasis on speaking and listening, this course also addresses reading and writing in simplified characters. Students also learn the Pinyin spelling system. Students in this course learn to talk about themselves and their families. They also use computer software programs to look up characters that share common elements, and find new words that are formed with a given character. Students will understand some common signs written in simplified Chinese, and they will also learn about Chinese holidays and festivals, and the distinctive foods associated with them. *

**Please note that we need a minimum enrollment to run this class.**

Mandarin II  
**Prerequisite:** Mandarin I

This is a continuation course for students who have completed Mandarin I, or who can demonstrate that they have acquired a knowledge of the language to the required level. Emphasis will continue to be on the spoken language. The study of Chinese characters will focus on the simplified forms. Topics include shopping, talking about past and future events, daily and leisure activities, and home and school. Students will understand brief messages and notes written in simplified Chinese characters that they have studied previously. Supplementary materials and technology will support this course.

Mandarin III  
**Prerequisite:** Mandarin II

Mandarin III is an intermediate course that is taught entirely in Chinese. Vocabulary and sentence structures from Mandarin I and II will be further developed. Topics will include home and school, going to the doctor, ordering dishes in a restaurant, getting around town and narrating a sequence of events. Students will begin to read short stories, advertisements and other authentic materials. With the use of computer software this course will offer additional practice in extended writing. Students will be working with a textbook and authentic texts in simplified characters. Other resources will include music, film, and digital media.

Mandarin IV  
**Prerequisite:** Mandarin III

In this course, taught entirely in Chinese, students will be working with a college-level textbook and authentic Chinese texts to further develop their reading and writing in simplified character,
as well as listening and speaking skills. Readings and digital media will be supplemental resources for this class.

Mandarin V
Prerequisite: Mandarin IV Year Course

This course is designed for advanced students who are interested in furthering their knowledge of the language and culture and is taught entirely in Chinese. In order to provide a content-rich environment, this course includes short stories, poetry, non-fiction readings, current events, cultural activities, digital media, films, and songs. Students are introduced to different writing styles. Grammar practice is reviewed in the context of the readings and by additional reinforcement exercises. Emphasis is given to developing effective communication skills, and students write compositions and make oral presentations on a regular basis.

Advanced Placement Chinese Language and Culture
Evidence of readiness: B in Mandarin V, or A in Mandarin IV and a score of 90% on the Advancement test. Year Course

The AP Chinese Language and Culture course deepens students’ immersion into the language and culture of the Chinese-speaking world. This course provides students with ongoing and varied opportunities to further develop their proficiencies across the full range of language skills within a cultural frame of reference reflective of the richness of Chinese language and culture. Instructional materials and activities are carefully and strategically adapted from authentic sources to support the linguistic and cultural goals of the course. The course prepares students to take the Advanced Placement Chinese Language and Culture examination in May. **There is a supplemental charge to take an AP exam that will be the responsibility of the student to pay. Financial aid is available.**

SPANISH

Spanish I Year Course

This course is an introduction to the Spanish language and to our textbook series. The curriculum is context-based and addresses culture as well as the four language skills: listening, speaking, reading, writing. By the end of the year students will have gained enough Spanish so that they can express themselves in simple conversation on very familiar topics. The curriculum is supported by a robust online platform which allows students the flexibility to do a lot of additional practice outside of class. **Please note that we need a minimum enrollment to run this class.**

Spanish II Prerequisite: Spanish I Year Course

This course is a natural progression from the beginning course. The vocabulary will be greatly expanded and the structure more advanced. Many verb tenses are studied. Working on oral skills continues to be an important aspect of class work. More attention will be paid to organizing material and language study skills. Audio and video activities are used with each chapter. Students will have daily practice homework assignments. The textbook is supported by an online platform with additional activities.

Spanish III Prerequisite: Spanish II Year Course

Spanish III is an intermediate-level course that is taught entirely in Spanish. Some time is devoted to reviewing the many structures and verb tenses introduced in Spanish II. New units will include more vocabulary topics, compound verb tenses, cultural information and longer readings. The general format of the textbook sequence continues throughout the publisher’s materials supported by a robust online platform. Daily classroom activities and conversation will reinforce the daily homework exercises. Some work will involve culture projects, music videos, television program excerpts and online assignments.

Spanish IV Prerequisite: Spanish III Year Course

This course is required as part of our language sequence for students entering the Upper School at Spanish III. This is an elective course for students who have already completed two years of Upper School Spanish study. The emphasis of this course, which is taught entirely in Spanish, is the development of cultural appreciation and effective communication skills. Grammar and vocabulary are taught in the context of the readings.

Spanish V Prerequisite: Spanish IV and department approval Year Course

This is a Pre-AP course that is taught entirely in Spanish and is designed for the advanced student who is interested in furthering his or her knowledge of the language and culture. Course content includes short stories, poetry, non-fiction readings, current events and cultural activities from a variety of Spanish speaking countries. Grammar practice will be covered in the context of the readings and by additional enrichment exercises. Emphasis will be given to developing effective communication skills, and students will write compositions and make oral presentations on a regular basis. Film, TV broadcasts and audio recordings will reinforce oral comprehension. Students will use computer technology regularly.

AP Spanish Language and Culture Prerequisite: Spanish V or Spanish IV Evidence of readiness: B in Spanish V, or A in Spanish IV and a score of 90% on the Advancement test. Year Course

The AP Spanish Language and Culture course strives to promote both fluency and accuracy in language use while providing students an opportunity to expand their exposure to and deepen their knowledge of the cultures in the Spanish-speaking world through critical study of authentic materials. Taught completely in Spanish, this course engages students in an exploration of culture in both contemporary and historical contexts. Students will work with a variety of current instructional materials, including digital media, journalistic and literary sources. Literary selections will include complete plays, poems and novels from Spain and Latin America. Readings are intended to be a catalyst for active class discussion. The use of Spanish is required at all times and students will be given frequent presentational writing and speaking assignments. An advanced grammar review will continue throughout the year. The course prepares students to take the Advanced Placement Spanish Language and Culture examination in May. **There is a supplemental charge to take an AP exam that will be the responsibility of the student to pay. Financial aid is available.**
Advanced Hispanic Culture and Literature Year Course

Prerequisite: AP Spanish Language and Culture and/or departmental approval.

This course is taught entirely in Spanish and is intended to further enrich the students' knowledge and appreciation of history and culture in the Hispanic world. Course content includes: literary selections, non-fiction readings on history, culture, and current events, in-depth analysis of feature films, music appreciation and performance. Students will demonstrate their understanding of course content through a variety of mediums, for example, dramatic presentations, analytical writing, formal presentations, creative writing, in-class discussion, and digital media. Grammar instruction is not an explicit part of the curriculum of this course. However, it is expected that students use clear and accurate language, and that they make every effort to develop and hone their language skills.
SCIENCE

DEPARTMENTAL REQUIREMENT:
Introductory Biology (grade 9) and at least one semester of chemistry and one semester of physics sometime during grades 10, 11 or 12.

The Science Department strongly recommends continued enrollment in science courses during the junior and senior year.

BIOLOGY

Introductory Biology Year Course (Grade 9)

This course provides a background in basic biological concepts, theories and vocabulary. The major topics studied include the scientific process, chemical basis of life, cells, genetics, evolution, energy and body systems. Class activities include lab experiments, simulations, presentations, projects and discussions. The focus of the laboratory experience is to allow students to investigate the basic concepts of biology and to develop skills in data collection and analysis.

Advanced Biology – Genetics First Semester Course

Prerequisites: Introductory Biology and Chemistry (any level)

How are traits inherited? How can scientists alter characteristics through genetic engineering? These questions, along with many others of high interest, are explored in this course. A variety of activities are used to study topics such as DNA structure and function, genetic variation, the chromosomal basis of inheritance, protein synthesis, recombinant DNA and DNA fingerprinting. The first portion of the course focuses on fundamental concepts while the second portion deals with the modern discoveries of molecular biology and their application to contemporary issues. Throughout the course, ethical issues related to the expanding uses of biotechnology are discussed.

Advanced Biology: Human Anatomy & Physiology Second Semester Course

Prerequisites: Introductory Biology and Chemistry (any level)

Human Anatomy and Physiology covers the structure and function of the human body. The course begins with an introduction to the human body and the key chemistry concepts needed to understand its processes. Body systems will be covered in detail and an understanding of how these systems coordinate with one another will be developed. Emphasis will be placed on the structure and function of organs. Lab work including dissection will be a core part of the course.

CHEMISTRY

Chemistry Year Course

Prerequisite: Introductory Biology

In this college preparatory course, topics covered will include the study of matter, atomic structure, periodic table, bonding, stoichiometry, chemical reactions, gas laws and thermochemistry. Laboratory experiences will be an important part of the course. This is a year-long course and cannot be taken for only one semester.

Honors Chemistry Year Course

Prerequisites: Minimum grade of B in Introductory Biology, and completion of Honors Algebra II or department approval.

Honors Chemistry is a rigorous, year-long course designed for those students who have demonstrated an interest and aptitude in science and are willing to commit themselves to the study of chemistry at a very high level. The course will deal with the usual topics of chemistry in a manner emphasizing strong problem solving skills and should give the student an extensive preparation for further study of chemistry or related sciences in college. Laboratory experiments play an important role in the development of the concepts studied. This course is a prerequisite for AP Chemistry.

Advanced Chemistry: Forensic Science First or Second Semester Courses

Prerequisites: Chemistry or Honors Chemistry

This course builds on topics introduced during the first year chemistry course as well as introduces new topics that are outside of the scope of Introductory Chemistry. The discipline of Forensics is the use of science and technology to investigate and establish facts in criminal or civil courts of law. This course will explore different facets of forensics including DNA testing, organic chemistry, redox chemistry, chemical equilibrium, nuclear chemistry and kinetics. Skills that will be incorporated into the course that are not Chemistry-specific will include: non-routine problem solving, analytical thinking and the concise and precise communication of scientific information. We will be utilizing case studies and lab analyses as a means of exploring forensic science.

PHYSICS

Physics: Mechanics First Semester Course

Prerequisites: Introductory Biology and Chemistry or department approval

NOTE: While Physics: Mechanics satisfies the one semester graduation requirement, students are strongly encouraged to register for the second semester of the two-semester series, Physics: Electricity and Magnetism. Class activities in both courses include laboratory investigations, concept development through small-group collaborative work, and real world problem solving. The pace is that of a typical college-preparatory course.

Physics: Mechanics is a lab-centered course that focuses on building graphical and mathematical models to better understand relationships among forces, motion, energy, and momentum. The course routinely incorporates technology, using probes with computer interfaces to collect data, and software to analyze it. The emphasis of each unit is on the co-construction of physics principles based on experimental evidence. Subsequent activities focus on concept development and problem solving. The course has a significant semester project that integrates data analysis with models of Newtonian mechanics.
Physics: Electricity & Magnetism

**Second Semester Course**

**Prerequisite:** Physics: Mechanics or department approval  
**Physics:** Electricity & Magnetism focuses on developing conceptual models and reasoning skills to understand life in the Electric Age. Topics include electric charge behavior, D.C. electric circuits, behaviors of permanent and ferromagnetic materials, electromagnetism in speakers and motors, physical waves, light, color, and mirror and lens optics. Much of the lab work involves using observation to construct qualitative models. Students apply models to solve quantitative problems, as well. The course includes a semester project in which students use principles developed during the term to detail how a modern electrical device works.

**ADVANCED PLACEMENT SCIENCE**

Juniors and seniors who have demonstrated both interest and excellence in science have the opportunity to take Advanced Placement courses in biology, chemistry and physics. Students taking these courses will meet the objectives of an introductory-level college course and, by taking the AP Exam in the spring, may have the opportunity to receive college credit for their work. Students interested in AP Science courses should confer with the teachers of these courses prior to registration. Students in AP Science courses are expected to sit for the AP Exam for that course in May. **There is a supplemental charge to take an AP Exam that will be the responsibility of the student to pay. Financial aid is available.**

**AP Biology**

Year Course  
**Prerequisites:** Completion of either Honors Chemistry or Honors Physics with a minimum grade of B, or departmental approval.

This college-level course explores fundamental biological principles at various levels of organization, from molecules to ecosystems. Laboratory work involves demonstrations and the collection and analysis of experimental data. This course will require occasional laboratory work outside the normal class times throughout the year.

**AP Chemistry**

Year Course  
**Prerequisites:** A minimum grade of B in Honors Chemistry or department approval.

This college course in introductory chemistry presents a critical approach to macroscopic properties, origins of atomic theory and stoichiometry, kinetics, chemical equilibrium, oxidation and reduction, electronic structure and bonding. Students are expected to carry out some summer work in advance of the fall semester, basically in the form of reviewing some chemistry topics.

**AP Physics I**

(Formerly Honors Physics; this is an Advanced Placement option)  
**Prerequisites:** Honors Chemistry and completion of, or concurrent enrollment in Honors Pre-Calculus, or department approval

This rigorous yearlong Advanced Placement course has replaced Honors Physics as the introduction to physics for juniors who both have high interest in science and math, and are very academically motivated. The course addresses topics in Newtonian mechanics including kinematics, dynamics, conservation of energy and momentum, rotation, simple harmonic motion, physical waves, sound, charge behavior, and electric circuits. The lab component requires good functionality in a laboratory environment, and focuses on developing skills to analyze experimental data graphically and mathematically. Each unit has at least one associated lab experiment. In addition, there is a strong emphasis on problem solving at the pre-calculus level that requires a high comfort level with mathematics. Most topics are treated with significantly more rigor than a typical high school course. The pace is that of a college freshman non-calculus-based introductory physics course. Students are expected to sit for the AP Physics I exam in May, basically in the form of reviewing some chemistry topics.

**AP Physics II: Modern Physics**

First Semester Course  
**Prerequisite:** Honors Physics or Physics (Mechanics and E&M) with a minimum grade of B, or departmental approval

Modern Physics is the first semester of a two-semester sequence. It is an Advanced Placement algebra-based course designed for students who would like to take a second year of physics, but due to their math level, would best be served by a non-calculus-based physics course. The curriculum covers a broad range of topics and prepares students for further work in sciences in college. The primary objectives of Modern Physics are: (1) to introduce the ideas and concepts of modern physics, (2) to provide an historical perspective on the development of key scientific ideas, and (3) to further develop scientific reasoning skills. Students will be introduced to the major experimental findings that led to the development of current theories of light and matter. The course will include selected topics on special and general relativity, the quantization of energy, particle-wave duality, theories of the atom, fundamental particles and interactions, selected applications of modern physics theories, and an overview of the most recent theories that have been proposed to account for the nature and existence of matter.

**AP Physics II: Electricity & Magnetism, Thermodynamics, and Fluids**

Second Semester Course  
**Prerequisites:** Modern Physics with a minimum grade of B or departmental approval

Electricity & Magnetism, Thermodynamics, and Fluids is an Advanced Placement algebra-based course that builds upon the work students have done in their first year of physics and AP Physics II: Modern Physics. The focus of this course is on electrostatics (including fields and potentials), electromagnetism, geometrical and physical optics, thermodynamics, and fluid dynamics. Student will develop problem-solving techniques for approaching comprehensive problems in physics, and use laboratory work to further their understanding of theoretical content. The college equivalent of this course is normally taken by a wide range of students including pre-med students and those interested in careers in the biological sciences. The course is also an excellent preparation for students who wish to enter engineering fields, but have not yet taken calculus.

**AP Physics (C Level)**

Year Course  
**Prerequisites:** A minimum grade of a B+ in AP Physics I and concurrent enrollment in BC Calculus, or AB Calculus with departmental approval.

AP Physics C is a calculus-based second year physics course that examines principles and problem solving at a significantly more sophisticated level than AP Physics I. The course is divided into two parts: Mechanics, and E&M (Electricity and Magnetism).
Mechanics topics are finished by winter break, and E&M topics are completed by mid-April. Late April and May are used for review and practice exams leading up to the AP exam. Students are expected to have a high level of comfort with mathematics, as both differential and integral calculus are used extensively from the beginning of the AP Physics C curriculum. As well, there is an ambitious lab component to the course that includes a quarter-long independent laboratory research project.

Note: Only capable students who are strongly motivated and highly self-disciplined with a history of successful independent work are encouraged to enroll in this course.

ADDITIONAL SCIENCE ELECTIVES

**Astronomy**

First Semester Course

Prerequisites: Both semesters of Physics, Honors Physics or departmental approval.

This course takes a hands-on, multimedia approach to a subject that asks some of the most basic and profound questions about the cosmos. What explains the apparent motions of the moon, sun, stars and planets? Why do stars shine, and what happens when they die? Why do astronomers say that we are made of “star stuff”? What is the ultimate fate of the universe? Videos, computer activities, observation projects and hands-on inquiry labs supplement traditional textbook study. If weather permits, numerous “sky watching” nights are also scheduled. Learn the constellations, look at objects through a large telescope and witness various astronomical current events; students who would like to participate in such activities are especially encouraged to enroll.

**Contemporary Topics in Science**

Second Semester Course

Prerequisites: Three years of Upper School Science

This course is designed for students interested in pursuing science topics that go beyond our core science curriculum. Students will perform research that explores topics related to their everyday lives and the limits of the human body. They will use published research from academic journals to support their work, and go on to study topics that may have previously been thought of as just science fiction, such as teleportation, invisibility, time travel, or telekinesis. Students will investigate the true line between things that are impossible, and things that are just simply difficult.

**Engineering**

Second Semester Course

Engineering will introduce students to a variety of different fields that fall under the wide umbrella of engineering through class activities, projects, design challenges, field studies, and class speakers. Most importantly, students will engage in the engineering process to gain vital experience in problem solving, design, prototyping, and implementation. Along the way, students will learn about and apply mechanics principles, coding, CAD, budget proposals, and project bidding.

**Environmental Science**

First and/or Second Semester Courses

Prerequisites: Introductory Biology and Chemistry

Environmental Science is divided into two semester-long courses, and students may enroll for either or both semesters. The goal of these interdisciplinary courses is to provide students with the scientific principles, concepts, methods and experiences required to understand the interrelationships of the natural world. Students will identify and analyze environmental problems both natural and human-made, evaluate the relative risks associated with these problems, and examine alternative solutions for resolving and/or preventing them. An overarching focus will be the human influence on the environment, coupled with the exploration of basic ecological concepts. In addition, the courses will concentrate on the “real science” behind environmental problems and issues. Classroom, laboratory, and field study will include the following topics.

**Environmental Science: Understanding the Earth**

First Semester Course

Topics included: Ecosystems, matter and energy in living systems, atmosphere and weather, geology, soil, water, population dynamics, human populations, local field work.

**Environmental Science: People and the Planet**

Second Semester Course

Topics included: Ecosystems review, biodiversity, climate and global warming, pollution, solid waste, food, energy, ozone depletion, urbanization, local field work.

**Science Writing Seminar**

First Semester Course

Prerequisites: Introductory Biology, Chemistry (any level) and department approval.

In this course, students who had participated in a Summer Research Experience Program or another approved research program have an opportunity to write a paper, prepare a presentation and submit their work for consideration at a Regional or National Competition. Key components of this work include reading relevant journal articles, continued work on an on-going project, and peer review of each other’s work. Each student will present his or her work to US Science Faculty and students at a Science Research Symposium. Students will be required to attend several off-campus presentations given by the local science community such as: Gustavus Adolphus Nobel Conference, Tate Lectures at the University of Minnesota, Malmstrom Lecture in Physics, Hamline University, etc. Additional trips could include visiting National Labs such as: Fermi Lab in Batavia, Ill, MINOS in Soudan, MN, or “virtually” through the Howard Hughes Medical Institute Lectures.

**Advanced Science Research Seminar**

Second Semester Course

Prerequisites: Introductory Biology, Chemistry (any level) and department approval.

In this course, students will have an opportunity to participate in an on-going research or engineering program on campus. Interested students should complete an application for admission to the course, detailing their proposed research project that could include one of our current projects: QuarkNet, Robotics, or propose one of their own design. Key components of this work include reading journal articles, continued work on an on-going project, peer review of each other’s work and each student will present their work to US Science Faculty and students at a Science Research Symposium in the spring. Applications can be found on Moodle under the US Course Registration tab, and should be completed by spring break. See Ms. Phillips with questions.
SOCIAL STUDIES

DEPARTMENTAL REQUIREMENT Classes 2016 and 2017:
World Cultures (grade 9), U.S. History (grade 10), and at least two semesters of social studies electives (grades 11 and 12). Students must take at least one United States/Social Science course and one International course during grades 11 and 12.

DEPARTMENTAL REQUIREMENT Classes 2018 and 2019:
Core Course (grade 9), 2 semesters U.S. History (grade 10), and at least two semesters of social studies electives (grades 11 and 12). Students must take at least one Social Studies Elective course and one Global Elective course during grades 11 and 12.

GRADE 9 Core Course

World Cultures: Modern World History Year Course (Grade 9)

This course prepares students to analyze world events and their historical and contemporary causes through targeted practice in reading, thinking and writing like an historian. Students engage deeply with a selected set of historical turning points and core concepts from 1500 to the present. Students will also investigate a world history topic of their own choosing during the research-intensive quarter. This course is coordinated with the ninth grade English course, World Literature.

World Cultures: Big History Year Course (Grade 9)

Big History looks at the history of the Universe, from the Big Bang to modernity, and explores common themes and patterns that can help us better understand people, civilizations, and the world in which we live. This course is blended learning through Global Online Academy. For example, in 2014-2015, our Blake students engaged in collaborative projects with independent schools in Columbus, Ohio and Amman, Jordan. Students in Big History share similar learning standards and expectations as students in Modern World History.

GRADE 10 U.S. History

U.S. History electives are a collegiate-style, semester-long investigation of major themes in U.S. History. They provide the foundational knowledge of a more traditional survey course and also provide students an engaging, rigorous investigation of major themes in U.S. History.

U.S. History: The American West First Semester Course

The myths and realities of the American West are deeply inscribed in our nation’s history. In this course, we will explore multiple and contested meanings of “the frontier,” how government policies shaped human geography, and socio-cultural implications of land ownership. Students will investigate the American West through various lenses including conservation, public policy, race and gender.

U.S. History: Environmentalism & Conservation First Semester Course

In this course we will study how citizens, groups and governments have advocated for their vision of human interaction with nature throughout U.S. history. Our investigation will include efforts to live “off the grid,” create a sustainable system of national parks and wilderness areas, and shape social behavior over the last several centuries.

U.S. History: Innovation and Technology Second Semester Course

How did key inventions of the past shape and change the United States? We will explore the historical origins and radiating consequences of major innovations throughout American History. With a lens of technology, we will investigate the past and debate the future of our country.

U.S. History: Movement and Peoples Second Semester Course

Movement has been a unifying theme throughout the array of personal experiences in the United States. Students will investigate a variety of immigrant stories and explore internal migrations, like the Trail of Tears, Great Migration, and post-WWII suburbanization. Using local resources and agencies, students will consider both the historical realities of migration and the modern forms that it has taken.

Advanced Placement U.S. History Year Course

This college-level course surveys U.S. history chronologically from the pre-colonial era to the recent past. Not all eras of U.S. history will be studied in the same depth; however, by the end of the course, students will have knowledge of the major events and themes of U.S. history and will have enhanced their historical-thinking skills. The course is designed to prepare students for the A.P. U.S. History exam in May, and accordingly it will entail extensive reading assignments, which will begin over the summer, in the textbook and other secondary sources as well as primary sources. Students will also complete several research and writing assignments and are expected to start the course with proficient to mastery-level skills in historical research and writing. Students are expected to sit for the AP U.S. History exam in May. There is a supplemental charge to take an AP exam that will be the responsibility of the student to pay. Financial aid is available.

GRADES 11 AND 12: Social Studies Electives
(Classes 2016 and 2017)

Students must take AT LEAST ONE course from each of the following categories during grades 11 and 12.

U.S. / Social Science International

AP US Government and Politics AP European History
Class and Race in the U.S. Constitutional Studies Economic Systems
Economics CIS Global Community
Gender Studies Global Theories, Local Realities
Minnesota History History of the Ancient World
Moral Issues World Religions
Social Psychology
The Colleges in the Schools (CIS) course is taught in conjunction with the University of Minnesota. by registering with the U of M at, or prior to, the beginning of the course, students who successfully complete these courses will receive U of M credit. **Students who choose to register for U of M credit will be billed a tuition fee.** (Financial aid is available.) To be eligible for this course, students who are current juniors must be in the top half of their class and students who are current sophomores must be in the top quarter of their class or be recommended by their U.S. History teacher.

Students who would like to register for this CIS course who have not met the eligibility requirements should consult with their current teacher and the department chair regarding their interest.

**Economics CIS**  
*First Semester Course*

How does Apple decide what to charge for an iPhone? Why do baseball players earn more money than high-school teachers? Should you stay to the end of a movie you’re not enjoying in order to get your money’s worth out of the ticket you bought? Explore the answers to these and many other questions in this advanced-level economics course. Economics CIS is the equivalent of the University of Minnesota’s introductory course on microeconomics. The course introduces students to the principles of microeconomics and includes such topics as supply and demand, market mechanisms and competition, taxation and income distribution.

**FIRST SEMESTER IN 2015-2016**  
*U.S. Constitutional Law*  
*First Semester Course*

Students will learn about significant historical and current constitutional topics. The first part of the course will focus on the philosophical and historical foundations of the constitution, the criminal justice system, [including the rights of the accused], trial procedure, and the court system. Students will participate in Mock Trials. The second part of the course will take a broader look at contemporary constitutional issues, focusing on the Supreme Court. Students will also prepare and present briefs in preparation for an appeals case (Moot Court experience) and explore many of the landmark decisions of the Supreme Court over the past two hundred years.

This rigorous and writing intensive course is intended for strong social studies students. The course examines major political, cultural and social trends in European history from the fall of Rome to the French Revolution. The course explores the medieval social order, the rise of nation states and the transition to a modern capitalist economy, the achievements of the Renaissance, the bloody conflicts of the Reformation, the discoveries and conquests of the age of exploration, the study of the new ways of perceiving the world created by the scientific revolution and the Enlightenment and the triumphs and tragedies of the French Revolution. Students will engage with these topics through a variety of highly challenging projects, readings and activities. **There is a supplemental charge to take an AP Exam that will be the responsibility of the student to pay. Financial aid is available.**

**Gender Studies**  
*First Semester Course*

In this course, we will examine three key questions: 1) How is gender constructed? 2) How does gender intersect with race, class, sexuality, nationality and ethnicity? 3) How do power structures maintain gendered realities? Topics of exploration will include the role of gender as it relates to work, the media, school, reproductive rights, and violence. Through investigation of perspectives espoused in both academia and popular culture and sharing of personal experience, students will build an understanding of the role that gender has played in shaping their lives and the opportunities available to them. Students will take part in thought-provoking discussions and will write integrative essays about their views on the topics we study. Students will also craft an inquiry project on an issue of their choice.

**Global Community: Life on the Edge**  
*First Semester Course*

Divided territories have shaped numerous contemporary global conflicts. Using border disputes as a common thread, this course will engage in a rigorous examination of current international issues and events. Through an ongoing United Nations simulation, we will study the development of international boundaries, current controversies and efforts to resolve these disputes. We will focus our attention on the experiences of the tens of millions who have been unsettled by conflict across the globe, including Kurdistan, Crimea, Korea, Kashmir and Ireland.

**Global Theories, Local Realities**  
*First or Second Semester Course*

The students in this course will undertake a critical and comparative analysis of several theories of global citizenship. Students will then apply theory to practice through hands-on field experiences, case studies and social action projects. The course will include action-oriented research and collaboration with local organizations that have developed innovative responses to challenging global issues (e.g. poverty, education for all, environmental sustainability, human rights, terrorism, disease, cultural conflicts, gender inequality, etc.). As many solutions to complex issues are multi-faceted, context dependent, and interdisciplinary, students will consider multiple perspectives, engage with others from different cultural backgrounds, and draw on expertise from other academic disciplines. Students should expect to spend working time outside of class connecting and collaborating with local entities. At the end of the course, students
will present their research findings and recommended solution-oriented responses.

**Historical Research and Field Study: Topics in Minnesota History**  
First Semester Course

Minnesota is more than hot dishes, lakes, and hockey games. Students in this class will engage in field work, multiple forms of research, and seek authentic voices to gain historical understanding of the state in which they live and its connections to global current events. Students will complete a series of projects based on different themes in Minnesota history focusing on the interpretation of primary sources, critical analysis of secondary work, and historical research and thinking.

**Social Psychology**  
First Semester Course

This course focuses on the relationship between the individual and society. To what degree can individuals determine the direction of their own lives? Concepts from both sociology and psychology are used to examine topics relevant to these questions: social stratification, socialization, human development, mental illness and racism. Students will complete a research project using the methodologies of psychology or sociology.

**World Religions: Faith and Society**  
First Semester Course

This course delves into the seminal ideas, practices, and relationships that define Hinduism, Buddhism, Judaism, Christianity, and Islam. Students are asked to deepen their understanding of each religion with openness to their own traditions and curiosity about others. We will explore the powerful impact of religion on our lives as citizens of the United States and the world, using a religious pluralism framework that is informed by The Pluralism Project at Harvard [www.pluralism.org]. Current events are incorporated into the course on a regular basis and speakers from a variety of religious backgrounds will share their perspectives. Students will engage in a three-week final inquiry project investigating a tradition or problem of their choice.

**SECOND SEMESTER IN 2015-2016**

**Class and Race in the U. S.**  
Second Semester Course

Which is more influential in our society – class or race? Students will investigate this question by using theoretical lenses to examine the origin, development, and contemporary manifestations of race and class as categories in the United States. We will combine history and current issues to study how race and class have become interconnected with education, migration, and employment practices. The course will integrate readings, discussions, experiential activities, speakers, film and research to help students examine the power of class and race in contemporary America and our own personal development. Students will craft an inquiry project on an issue of their choice.

**Economic Systems: Power, Wealth, Politics**  
Second Semester Course

This course includes a survey of various types of economic institutions and decision-making systems. We will explore capitalism, socialism, and contemporary economic systems among indigenous peoples including how they developed and where they exist today. A major focus will be on the historical rise of the market system and economic systems in transition. We will also discuss evolving definitions of wealth and economic well-being, including the debate over how much economic freedom societies should have. This course will incorporate a variety of materials and activities including simulations, discussions, public policy forums, and a student-directed inquiry project.

**Global Theories, Local Realities**  
Second Semester Course

See description under first semester courses

**History of the Ancient World**  
Second Semester Course

This course will compare and contrast the development of Greece and Rome and the impact of both on the Ancient World. Students will trace the development of durable social, economic, political, religious and artistic paradigms in these societies. In addition to understanding the consolidation of power and the development of empire, this course also seeks to examine the lives of all members of Greek and Roman societies through the examination of art, literature and primary sources.

**Moral Issues**  
Second Semester Course

This course is an experience designed to help you determine who you are, what you believe and how you want to live out your values. We will read great philosophers from John Stuart Mill to Immanuel Kant, who will inform our consideration of controversial topics such as war, abortion and the death penalty. A final project will explore current events topics of students’ choosing. Other paper topics will include: “What are my values?”; “How ought we act?”; “What is the meaning of my life?”; and “When is it acceptable to take a life?” This is a discussion-based course in which we will learn to disagree both vigorously and respectfully. Heavy emphasis will be placed on refining discussion and writing skills.

**Advanced Placement U.S. Government and Politics**  
Second Semester Course

What is the proper role of government in U.S. society? Students in Political Science CIS will consider how the government institutions and electoral systems promote and limit equality and freedom. Using current domestic and international realities, students will engage in practical politics to understand how to attain change at the local and national level. Students will examine the development of the U.S. system of democracy and assess the interplay between the legislative, executive and judicial branches of the federal government. Along with learning about how political leaders fashion public policy, students will learn how individuals and groups develop attitudes about political life. With no incumbent running we will closely follow the Presidential nomination process this spring. Students are expected to sit for the AP US Government and Politics exam in May. There is a supplemental charge to take an AP exam that will be the responsibility of the student to pay. Financial aid is available.
INDEPENDENT STUDY

An independent study program is an opportunity for a student to explore an area of study that is not offered in our curriculum. It is open primarily to seniors, but sophomores and juniors may apply. An Independent Study program should be a rigorous course of study that adheres to high academic standards.

Students must apply by the middle of the quarter prior to the beginning of the proposed independent study program. A proposal form is submitted to the supervising faculty member, the department head and the Grade Dean for approval. They will review the proposal along with the student’s entire academic program, and if they support the proposal, it will be submitted to the US Director for approval. If approved, meeting times between the student and the advisor will be determined, but they should occur for at least two hours per week.

Student will maintain a minimum course load (five classes) in addition to an independent study program. An independent study program may not satisfy a departmental requirement. A student is permitted to pursue only one independent study program at a time. The pass/fail option is available for independent study programs under the same guidelines as other courses.

NINTH GRADE SEMINAR

Ninth Grade Seminar is a course that meets during the first three weeks of a student's Upper School experience. The seminar is lead collaboratively by members of the ISS department, the Office of Equity and Community Engagement and the grade dean.

The focus of our Ninth Grade Seminar is empowering individual students to build safe, supportive community both in the digital space and in their daily face-to-face interactions with each other. Students learn practical tools like how to write a clear, effective email and how to make an iMovie. They also learn relationship-building strategies such as when to text, when to call, and when to find a peer or a faculty member in order to solve a problem or find support.

The Blake Board has asserted that a diverse, inclusive Blake community is essential for academic excellence, and building that community requires intention, vigilance, and courage. Our Ninth Grade Seminar offers students language and basic frameworks to help them communicate and work effectively across differences. It also sends a clear message that building a diverse, inclusive community is work that everyone can and must engage in throughout their four years at Upper School.

To that end, Ninth Grade Seminar offers a safe, challenging, and welcoming environment. No grades are given and no homework is assigned; however individual students may choose to do optional activities to enhance their experience.

P.S.E.O. (Post-Secondary Education Option)

The State of Minnesota’s Post Secondary Education Option Program (PSEO) enables high school juniors and seniors who have exhausted the curriculum of their schools an opportunity to take college courses for high school credit. As Blake reserves the right to define its own graduation requirements and academic standards, juniors and seniors are eligible to participate in PSEO under the following conditions:

• The course is not offered in The Blake School curriculum.
• A student must remain enrolled in at least four full credit courses each semester at Blake.
• Participation must have the approval of the Grade Dean, the College Counseling Office and the Director of the Upper School.
• Students interested in participating in a PSEO program must inform the Grade Dean at least two months prior to the proposed enrollment date.
• Students are solely responsible for contacting the prospective colleges to get information about the application process for the PSEO program.

Note: Deadlines for the PSEO program vary from college to college and admission into these programs is very competitive. We recommend that students who are interested in these programs inquire early.
Global Online Academy is a consortium of top national and international independent schools offering students rigorous courses taught by a member school faculty. Class size is limited to 18; no more than two students from each school may enroll in a given course. Coursework takes place asynchronously—via blog posts, voice streams and independent projects—and students also engage in real-time discussions with teachers and classmates via Skype and other technologies.

The academic experience is collaborative, creative, and demanding; therefore, Blake students who wish to enroll in a GOA course should consider it as a replacement for a Blake course, not as an addition to a full course of study. Juniors and seniors are eligible to enroll; occasionally, sophomores with a strong history of successful, self-directed academic work may also be eligible.

Blake students will earn graduation credit for GOA courses (0.5 credits per course) as they would for a semester-length Blake course; GOA courses do not, however, satisfy Blake's departmental graduation requirements. GOA courses will appear on students' transcripts, and the final grades will be included in their Blake Grade Point Averages. Students may not enroll in a GOA course that replicates an existing Blake course (e.g. Comparative Religion), except in the very rare instance that a scheduling conflict prohibited them from enrolling in that Blake course; students are eligible for all GOA courses listed below.

Students may indicate their interest for these courses via online registration, but they will need to contact Blake's GOA Site Director, Jim Mahoney, to formally enroll.

Please see [www.globalonlineacademy.org](http://www.globalonlineacademy.org) for additional information about the program.

### Year-Long Courses

| Art, Media, and Design         | Digital Journalism |
| Intercultural Studies         | Arabic Language and Culture
|                               | Japanese Language and Culture |

### Mathematics And Technology

| Multivariable Calculus | Computer Programming I: Java |

### Philosophy, Politics, and Economics

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<th>9/11 in a Global Context</th>
<th>Applying Philosophy to Modern Global Issues</th>
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### Fall 2015 Courses

| Art, Media, and Design         | Digital Photography
|                               | Graphic Design |

| Health and Medicine            | Introduction to Psychology
|                               | Medical Problem Solving
|                               | Global Health |

### Philosophy, Politics, and Economics

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<th>Comparative Politics</th>
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### Spring 2016 Courses

| Art, Media, and Design         | Architecture |
| Health and Medicine            | Introduction to Psychology
| Medical Problem Solving         | Abnormal Psychology
| Bioethics                       | Biostatistics |
| Medical Problem Solving II      | Neuropsychology |
| Organic Chemistry in Modern Life|

| Mathematics and Technology     | Computer Programming II: Advanced Java
| Computer Programming II: Analyzing Data with Python |
| Computer Programming II: IOS App Development |

| Philosophy, Politics, and Economics |
| Advocacy |
| Energy |

| Seminars |
| Advocacy |
| Energy |

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ART, MEDIA, AND DESIGN
Art, Media, and Design courses focus on developing students' creative and practical skills in fields such as graphic design, architecture, and digital photography.

Digital Journalism Year-Long Course
Students learn fundamentals of reporting as they generate news stories for publication in The Atlas, the news blog of Global Online Academy. Practical topics such as budget lines, leads, article structure, layout, and publication rights are addressed, as are journalistic ethics and the historical arc of the field. The first semester focuses primarily on text as a medium, while the second expands to include photo essays, video, and infographics. Students interact through discussion forums, Skype, and other digital tools, giving peer feedback and frequently teaming up to report and create news items collaboratively. Each student has a role to play on an editing and production team. While school newspapers write for a school community, stories in The Atlas are geared toward a global audience with stories as pertinent to students in Jakarta as they are to those in Minneapolis. Students who have completed Digital Journalism are eligible to continue writing for The Atlas while they attend GOA member schools.

Digital Photography First Semester Course
Photography can be a powerful and persuasive tool. This course is designed for students to learn how to give an emotional context to social, political, environmental, and global issues through photography. Students will learn how to prepare for and execute specific types of photographs, as well as the technical elements of digital editing. While students work on photo-based projects they will simultaneously engage in discussions about topics such as the appropriate use of Photoshop, or the ethics of digital advertising. Students will be given opportunities to interpret specific global issues through their own photographs. In addition to taking photographs, students will write descriptions and reflections, and give constructive feedback on their peers' work. Note: Students enrolled in Digital Photography must have access to a digital camera.

Graphic Design First Semester Course
This course will explore the relationship between information and influence from a graphic design perspective. What makes a message persuasive and compelling? What helps audiences and viewers sort and make sense of information? Using an integrated case study and design-based approach, this course aims to deepen students’ design, visual, and information literacies. Students will be empowered to design and prototype communication projects they are passionate about. Topics addressed include: principles of design & visual communication; infographics; digital search skills; networks and social media; persuasion and storytelling with multimedia; and social activism on the internet. Student work will include individual and collaborative group projects, graphic design, content curation, some analytical and creative writing, peer review and critiques, and online presentations.

Architecture Second Semester Course
In this course students will explore the architecture, engineering, and construction of some of the most important buildings from human history. Students will study buildings like the Pyramids of Giza in Egypt, Stonehenge in England, the Parthenon in Athens, the Roman Aqueduct of Pont du Gard in France, the Hagia Sophia in Istanbul, the Alhambra in Spain, and the Gothic cathedral at Reims, to develop an understanding of the evolution of architecture through time. Students will be encouraged to build models of elements of these structures to better understand the construction and engineering behind their design. In the final portion of the course, students will have the opportunity to investigate and build a structure of their choice based on their new understanding of architecture, construction, and engineering. Students will be encouraged to use graphic programs like Adobe Illustrator or Inkscape to help create their designs.

HEALTH AND MEDICINE
Health and Medicine courses focus on understanding the natural world from both biological and sociological perspectives.

Introduction to Psychology First or Second Semester Course
This course is anchored in scientific exploration, evolving methods of inquiry and interdisciplinary application. Students will explore, and eventually integrate, content through research, critical and creative writing, analysis and reflection. Students will examine the biological bases of behavior, lifespan development, learning and personality theories, psychological disorders and social processes.

Medical Problem Solving I First or Second Semester Course
In this course, students will collaboratively solve medical mystery cases, similar to the approach used in many medical schools. Students enhance their critical thinking skills as they examine data, draw conclusions, diagnose, and treat patients. Students will use problem-solving techniques in order to understand and appreciate relevant medical/biological facts as they confront the principles and practices of medicine. Students will explore anatomy and physiology pertaining to medical scenarios and gain an understanding of the disease process, demographics of disease, and pharmacology. Additional learning experiences will include studying current issues in health and medicine, building a community-service action plan, interviewing a patient, and creating a new mystery case.

Global Health First Semester Course
What makes people sick? What social and political factors lead to the health disparities we see both within our own community and on a global scale? What are the biggest challenges in global health and how might they be met? Using an interdisciplinary approach to address these two questions, this course hopes to improve students' health literacy through an examination of the most significant public-health challenges facing today's global population. Topics addressed will be the biology of infectious disease (specifically HIV and Malaria); the statistics and quantitative measures associated with health issues; the social determinants of health; and the role of organizations (public and private) in shaping the landscape of global health policy. Students will use illness as a lens through which to examine critically such social issues as poverty, gender, and race.
**Bioethics** Second Semester Course

Ethics is the study of what one should do as an individual and as a member of society. In this course students will evaluate ethical issues related to medicine and the life sciences. During the semester, students will explore real-life ethical issues, including vaccination policies, organ transplantation, genetic testing, human experimentation, and animal research. Through reading, writing, and discussion, students will be introduced to basic concepts and skills in the field of bioethics, will deepen their understanding of biological concepts, will strengthen their critical-reasoning skills, and will learn to engage in respectful dialogue with people whose views may differ from their own. In addition to journal articles and position papers, students will be required to read Rebecca Skloot's *The Immortal Life of Henrietta Lacks.*

**Biostatistics** Second Semester Course

Based around case studies and diagnostics tests in medicine and health, biotechnology, and environmental science, this course allows students to display and communicate statistical data to draw conclusions about current events. Students in this course will receive instruction in biostatistical analysis and research design and will be expected to apply data to answer diagnostics questions. Specific topics discussed will include descriptive statistics, estimation and hypothesis testing, linear and logistic regression, contingency tables, life tables and experimental design. Prerequisite: completion of Algebra 2 or the equivalent.

**Medical Problem Solving II** Second Semester Course

This course is an extension of the problem-based learning done in Medical Problem Solving I. While collaborative examination of medical case studies will remain the core work of the course, students will tackle more complex cases and explore new topics in medical science, such as the growing field of bioinformatics. Students in MPS II will also have opportunities to design cases based on personal interests, discuss current topics in medicine, and apply their learning to issues in their local communities. Prerequisite: completion of Medical Problem Solving I.

**Neuropsychology** Second Semester Course

This course is an exploration of the neurological basis of behavior. It will cover basic brain anatomy and function as well as cognitive and behavioral disorders from a neurobiological perspective. Examples of illnesses to be covered include: Alzheimer's disease, traumatic brain injury, and stroke. Diagnostic and treatment issues (including behavioral and pharmaceutical management) will be addressed. Additional topics include: professional standards and the code of ethics governing all psychologists; psychometrics; and the history of neuropsychology. This course can be taken as a continuation of Introduction to Psychology, although it is not required.

**Organic Chemistry in Modern Society** Second Semester Course

This course is designed with two goals in mind; one pragmatic, and one philosophical. Pragmatically, it will provide a few foundational blocks for further studies in the organic chemistry field, giving students a small window on future, more traditional organic courses. Philosophically, it aims to open an infinite world of discovery of complex molecules, their properties and reactions and applications, that hold the keys to confronting and solving the world's most challenging, future scientific problems. The emphasis of the course is on stimulating interest in organic chemistry through an exploration of the molecules relevant to modern life. Students can use this course as a springboard for further learning, as the beginning of a longer journey.

**INTERCULTURAL STUDIES**

Intercultural Studies courses focus on the study of cultural perspectives, religion, and world languages.

**Arabic I: Language through Culture** Year Course

This full-year course will highlight Modern Standard Arabic, and some of the spoken dialect of the Levant. With an emphasis on Arabic culture, students will learn commonly used expressions and phrases from the Levant area. Students will develop their skills in listening, reading, writing, forming grammatically correct structured sentences, and most importantly, conversation. This will be accomplished through podcasts, videos, culture circles discussions, web conferencing, and collaborations in group projects. In addition, students will have direct conversations with native speakers of Arabic, through a virtual club called “Shu Fe Maa Fe,” where students are required to meet online with their assigned partner and learn about a certain cultural topic every week, such as traditional food, greetings, gestures, values, history and more. Since Arabic is becoming one of the most functional languages in the world, especially in the areas of commerce, business, and trade, students participating in this course can avail themselves of the opportunity to learn the language in a highly stimulating and rich cultural context.

**Japanese I: Language through Culture** Year Course

This full-year course is a unique combination of Japanese culture and language, weaving cultural comparison with the study of basic Japanese language and grammar. While examining various cultural topics such as literature, art, lifestyle and economy, students will learn the basics of the Japanese writing system (Hiragana and Katakana), grammar and vocabulary. Through varied synchronous and asynchronous assignments, including hands-on projects and face-to-face communications, students will develop their speaking, listening, reading and writing skills. The cultural study and discussion will be conducted in English, with topics alternating every two to three weeks. The ultimate goal of this course is to raise awareness and appreciation of different cultures through learning the basics of the Japanese language. The focus of this course will be 60 percent on language and 40 percent on culture. This course is appropriate for beginner-level students.

**Genocide and Human Rights** First Semester Course

Students in this course study several of the major genocides of the 20th century (Armenian, the Holocaust, Cambodian, and Rwandan), analyze the role of the international community in responding to and preventing further genocides with particular attention to the Nuremberg Tribunals, and examine current human rights crises
around the world. Students will read primary and secondary sources, participate in both synchronous and asynchronous discussions with classmates, write brief papers, read short novels, watch documentaries and develop a human rights report card web site about a nation of their choice in the world.

**MATHEMATICS AND TECHNOLOGY**

Mathematics and Technology courses are focused on the application of quantitative reasoning, logic, and associated skills.

**Multivariable Calculus**  
Year-Long Course

Multivariable Calculus will extend the principles and techniques of a first course in calculus to higher dimensions. Students will study vector algebra and functions, matrices, curves in space, arc length and curvature, and velocity and acceleration. This course is meant for students who successfully completed a first year AP (or equivalent) calculus course. Students must be comfortable using or learning to use new technology.

**Computer Programming I: Java**  
Year Long Course

This course teaches students how to write programs in the Java programming language. Students will develop problem solving and computational thinking skills framed by the questions: How do computers store information? How do they make intelligent decisions? How can they efficiently process large tasks? Students will learn the major syntactical elements of the Java language though objected oriented design. The emphasis in the course will be on creating intelligent systems though the fundamentals of Computer Science. Students will write working programs through short lab assignments and more extended projects that incorporate graphics and animation. No previous computer programming knowledge is necessary.

**Computer Programming II: Advanced Java**  
Second Semester Course

This intensive course uses Java programming language to study programming methodology, algorithms, data structures, procedural and data abstraction, and object orientation. Advanced models for reasoning and solving problems are explored. Topics include number systems, Boolean operations, Control Flow, Looping, Classes and Methods, Arrays, ArrayLists, Recursion, Inheritance and Searching and Sorting. Emphasis is placed on the design, creation, and verification of proper algorithms and programs; on programming methodology, algorithms, and problem solving, providing students with a hands-on, end-to-end experience of structured, object-oriented programming. Prerequisite: Completion of an introductory Java course OR permission from the instructor.

**Computer Programming II: Analyzing Data with Python**  
Second Semester Course

In this course, students will utilize the Python programming language to read, manipulate and analyze data. The course emphasizes using real world datasets, which are often large, messy, and inconsistent. The prerequisite for this course is familiarity with and hands-on experience using some high-order programming language, such as Java, C++, VisualBasic, or Python itself. Because of the powerful data structures and clear syntax of Python, it is one of the most widely used programming languages in scientific computing. There are a multitude of practical applications of Python in fields like biology, engineering, and statistics. Prerequisites: Completion of an introductory programming course OR permission from the instructor.

**Computer Programming II: IOS App Design**  
Second Semester Course

Learn how to build apps for the iPod, iPhone, and iPad and publish them in the App Store. Students will work much like a small startup: collaborating as a team, sharing code, and learning to communicate with each other throughout the course. Students will learn the valuable skills of creativity, collaboration, and communication, as they create something incredibly cool, challenging, and worthwhile. Note: For this course, it is required that students have access to a device that can run apps (iPod Touch, iPhone, or iPad) is also highly recommended. Prerequisites: Completion of an introductory programming course OR permission from the instructor.

**PHILOSOPHY, POLITICS, AND ECONOMICS**

Politics, Philosophy, and Economics courses focus on questions of human decision-making in today’s global societies.

**9/11 in a Global Context**  
First Semester Course

September 11, 2001 was a tragic day that changed the world in profound ways. In this course students will explore the causes of 9/11, the events of the day itself, and its aftermath locally, nationally, and around the world. In place of a standard chronological framework, students instead will view these events through a series of separate lenses. Each lens will represent a different way to view the attacks and will allow students to understand 9/11 as an event with complex and interrelated causes and outcomes. Using a variety of technologies and activities, students will work individually and with peers to evaluate each lens. They will then explore the post-9/11 world and conclude the course by planning their own 9/11 memorial.

**Applying Philosophy to Modern Global Issues**  
First Semester Course

This is an applied philosophy course that connects pressing contemporary issues with broad-range philosophical ideas and controversies, drawn from multiple traditions and many centuries. Students will use ideas from influential philosophers to shed light on recent political events such as the global economic downturn and the sweeping revolutions of the Arab Spring, as well as new developments in fields as diverse as biology, cognitive science, and political theory. In addition to introducing students to the work of philosophers as diverse as Confucius and Martin Heidegger, this course also aims to be richly interdisciplinary, incorporating models and methods from diverse fields including history, journalism, literary criticism, and media studies.

**Comparative Politics**  
Second Semester Course

In 2012, the Economist issued a report entitled “Democracy at a Standstill.” This course uses the comparative model to ask students to consider whether democracy is in fact at a standstill, but more importantly, if and why we should care? By looking at current events, reading scholarly research, analyzing data, conducting personal interviews and engaging in a series of debates, students will constantly re-evaluate their own beliefs and understandings about how power should be distributed and utilized.
Macroeconomics  Second Semester Course

In this course students will study macroeconomic theory as it relates to domestic and global policies on employment, national income, government spending, and the impact of foreign spending on domestic economies and foreign exchange markets. Students will use real world events and data as case studies in order to develop a better understanding of the driving forces behind domestic and international macroeconomic markets. In the final portion of the course, students will have the opportunity to develop their own solutions to a local/global issue of their choice (such as poverty, environmental pollution, and limited access to education) based on their new understanding of macroeconomic theory.

SEMINARS

Seminar courses examine single issues through multiple disciplines and lenses.

Advocacy  Second Semester Course

This skills-based course will explore the creativity, effort, and diversity of techniques required to change people's minds and motivate them to act. Students will learn how to craft persuasive arguments in a variety of formats (written, oral, and multimedia) by developing a campaign for change around an issue about which they care deeply. We will explore a number of relevant case studies and examples as we craft our campaigns. Units will include persuasive writing, social media, public speaking, informational graphics, and more. The culminating project will be a multimedia presentation delivered and recorded before a live audience.

Energy  Second Semester Course

Students will develop a keen ability to analyze global energy issues. A historical and scientific exploration of fossil fuels gives students the foundation to tackle economic and environmental concerns related to traditional and alternative energy. Students do technical analyses of the rates of depletion of the reserves of major oil-producing countries, and investigate the motivations for an oil-producing nation to become member of OPEC. Students will take sides in major energy debates on topics like “fracking” or the international movement of energy supplies. In their final project, students present to their peers on all key aspects of an alternative energy source, including technical and economic viability and environmental sustainability.
SUMMER COURSES FOR UPPER SCHOOL GRADUATION CREDIT

The Blake School is excited to offer summer courses for academic credit. Students successfully completing a course described below will earn a semester credit that can be applied to departmental requirements or elective credits. Consistent, regular attendance is essential to earning credit due to the intensive nature of the courses; please review our website for attendance policies prior to registering. Students can register for summer classes with their other 2015-16 selections. Payments for the courses are made online at http://www.blakeschool.org/summer. *Students entering 9th grade must seek approval from the Art Department at The Blake School. Please complete form found at www.blakeschool.org/summer.

Health

This co-ed course will explore topics aimed at promoting healthy behaviors, increasing responsible decision-making and encouraging healthful living. Studies and discussions focus on physical, mental, chemical and sexual health, where students will gain an understanding of how to make positive lifestyle choices based on their personal values. Overarching themes of this course include accessing reliable wellness resources and healthy decision making that will reduce the risk of future health concerns. This course fulfills the Blake health requirement.

For: ages 14 – 18, entering grades 9 – 12
Dates: June 15 – July 2 (no class July 3)
Time: 9:00 a.m. – 2:30 p.m. (includes lunch break)
Homework Expectation: 1 – 1.5 hours/day
Location: Hopkins campus, Middle School
Cost: $1,880 per student
Min/Max Students: 5/16

Media Arts: Generative Art

Students will learn how to work with emerging software to extend creative abilities in patterns, compositions, textures and color selections. In the art world, this unique human-technology partnership is called Generative Art, something that extends the human reach in making posters, animations, interactive designs and even creations for 3D printing. Explore the tremendous potential of this medium that is underrepresented at the high school level, but largely present in the fields of science, design, advertising, marketing, packaging, jewelry and architecture. This course fulfills an arts requirement for Blake students. Additionally, Generative Art will fulfill a prerequisite for Media Arts 2, a new course for spring of 2016.

For: ages 15 – 18, entering grades 9* – 12
Dates: June 15 – June 26
Time: 9:00 a.m. – 4:00 p.m. (includes lunch break)
Homework Expectation: .5 – 1 hour/day (design tasks)
Location: Hopkins campus, Middle School
Cost: $1,880 per student
Min/Max Students: 5/15

Woodworking I

This intensive, shop-based course will engage artists in the design and craft of wood sculpture and furniture. The physical properties of wood and its potential as an expressive medium will be explored. Students will be introduced to power and hand tools used for woodworking and will develop an understanding of the social and environmental implications of materials used for furniture design and production. This course fulfills an arts requirement for Blake students.

For: ages 14 – 18, entering grades 9* – 12
Dates: June 15 – June 26
Time: 9:00 a.m. – 4:00 p.m. (includes lunch break)
Homework Expectation: .5 – 1 hour/day (design tasks)
Location: Hopkins campus, Middle School
Cost: $1,880 per student
Min/Max Students: 5/15

*Students entering 9th grade must seek approval from the Art Department at The Blake School. Please complete form found at www.blakeschool.org/summer.
THE BLAKE SCHOOL
COURSE PLANNING WORKSHEET

• The recommended course load is six classes, including an arts class, each semester. The minimum required course load is five classes each semester (5 total credits per year).
• Write course names on the appropriate department lines. Use elective lines for additional courses in a department. Each grade has different required courses and those should be included as you plan your registration.
• **Arts and Senior English Courses, as well as Math, Science and Social Studies semester electives:** It is imperative that you choose one alternate course for each of these selections.

### Semester One Courses

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<tr>
<th>Department</th>
<th>Course</th>
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<tbody>
<tr>
<td>Art</td>
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<tr>
<td>English</td>
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<td>Alt: (for grade 12)</td>
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<tr>
<td>Modern and Classical Language</td>
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<tr>
<td>Math</td>
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<td>Alt: (if choosing an elective)</td>
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<tr>
<td>Science</td>
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<tr>
<td>Social Studies</td>
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<td>Elective(s)</td>
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### Semester Two Courses

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