WARDLAW+HARTRIDGE SUMMER SCHOLARS ACADEMIC COURSE DESCRIPTIONS

MATHEMATICS ENRICHMENT COURSES

Please note: Blue and Red sections cover the same material. Green and Yellow are the 2nd half of the Blue and Red classes.

MATH 6 (A)- Sections Blue & Red (gr. 6 - 7) (Enrichment / non – credit)
This course will help prepare students for sixth grade math. Topics covered in Session A include graphing and the best way to represent data sets, place value and problem solving with large numbers and exponents, introductory concepts in Algebra, including variables and variable expressions and evaluating and solving equations. Other topics may be covered as time permits.

MATH 6 (B)– Sections Green & Yellow (gr. 6 - 7) (Enrichment / non – credit)
This course will help prepare students for sixth grade. Topics covered in Session B include integers and the coordinate plane, operations with fractions and mixed numbers, operations with decimals and introductory concepts in Geometry. Other topics may be covered as time permits.

PRE-ALGEBRA (A) - Sections Blue & Red (gr. 6 - 7) (Enrichment / non – credit)
This course will reinforce key math concepts and operations and explore important new concepts in Algebra. Topics covered in Session A include comparing, ordering and operations with integers, order of operations, the distributive property and the coordinate system, exponents and scientific notation and creating algebraic equations and solving single and two-step equations. Other topics will be covered if time permits.

PRE-ALGEBRA (B) – Sections Green & Yellow (gr. 6 - 7) (Enrichment / non – credit)
This course will reinforce key math concepts and operations and explore important new concepts in Algebra. Topics covered in Session B include introduction to linear equations and inequalities, graphing two function relationships, calculating slope and using x/y intercepts, solving systems of equations and graphing inequalities, problem solving using rations, proportions and percent. Other topics may be covered if time permits.

ALGEBRA 1 (A) – Sections Blue & Red (gr. 8 - 9) (Enrichment / non – credit)
This course will introduce and explore the fundamental elements of the Algebra I curriculum. Topics covered in Session A include algebraic expressions and functions, integers, rational and real numbers, solving one, two and multi-step equations and equations with variables on both sides, formulas and functions, ratios, proportions and percent, plotting points in a coordinate plane, graphing linear equations and slope, rate of change, graphing using the slope-intercept form, direct variation and writing linear equations in slope-intercept form, point-slope form and standard form.

ALGEBRA 1 (B) – Sections Green & Yellow (gr. 8 – 9) (Enrichment / non – credit)
This course will introduce and explore the fundamental elements of the Algebra I striving for mastery of the material. Topics covered in Session B include solving one-step and multi-step linear inequalities, solving linear systems by graphing, substitution and linear combinations, properties of exponents, scientific notation, solving quadratic equations by finding square roots and by the quadratic formula, simplifying radicals and applications of the discriminant, adding, subtracting and multiplying polynomials and factoring.

ALGEBRA 2 (A) – Sections Blue & Red (gr. 9+) (Enrichment / non – credit)
This course, intended for students who have completed a full course in Algebra I, will introduce students to concepts in Algebra II. Topics covered in Session A include quadratics and various ways to solve them (square root method, factoring, completing the square, the quadratic formula), the vertex form and graphing, polynomials (operations, describing end behavior of graphs, finding zeros, graphing), rationales (operations, graphing by finding intercepts and asymptotes and solving rational equations), and square roots (solving square root equations, graphing square roots). The course will emphasize mastery of the material covered.

ALGEBRA 2 (B) - Sections Green & Yellow (gr. 9+) (Enrichment / non – credit)
This course, intended for students who have completed a full course in Algebra I, will introduce students to concepts in Algebra II. Topics covered in Session B include (1) exponential and logs properties of logs, solving exponential and log equations and log word problems), (2) trigonometry (sine, cosine and tangent of an angle, trig word problems, angle of elevation and depression, inverse trig, solving special right triangles, radians, unit circle, reference angles, radian applications) and (3) functions (vertical line test, evaluating functions, operations on functions, composition, pricewise functions, graphing). The course will emphasize mastery of the material covered.

GEOMETRY (A) - Sections Blue & Red (gr 9+) (Enrichment / non – credit)

This course explores selected topics that are fundamental in a traditional Geometry course. Topics covered in Session A include basics of Geometry: points, lines, planes, distance and midpoint, angles and measurement, segment and angle bisectors, angle pair relationships, parallel and perpendiculars (transversals and angle relationships, writing parallel and perpendicular lines), triangles (classification, finding angles in triangles, congruency), quadrilaterals (Defining polygons, solving quadrilateral angles, classification, trapezoids and kites, area of triangles and quadrilaterals) and transformations (reflections, rotations, translations, and compositions).

GEOMETRY (B) – Sections Green & Yellow (Enrichment / non – credit)

This course explores selected topics that are fundamental in a traditional Geometry course. Topics covered in Session B include similarity (ratios and proportions, similar polygons and triangles, frieze patterns), circles (properties, writing equations and graphing, arcs and chords, inscribed angles, finding angles with tangents and chords, segment length in circles), surface area and volume (perimeter, circumference, area, defining three dimensional shapes, surface area and volume), and trigonometry (sine, cosine and tangent of an angle, trig word problems, angle of elevation and depression, inverse trig, solving special right triangles)

READING AND WRITING ENRICHMENT COURSES

Please Note: The content in the Reading /Writing Blue and Red sections are the same. The content in the Green and Yellow sections are the same but are different from the Blue and Red.

READING/ WRITING EXCELLENCE 6 - 7 – Sections Blue / Red (gr. 6 - 7) (Enrichment / non – credit)

The goals of the class will be to increase students' enjoyment of reading and to prepare them for more difficult Middle School assignments. Students will read and analyze various forms of literature, including a significant novel. The focus of the class will be on comprehension, and literary concepts such as theme, characterization, irony, and metaphor. Also analyzing literature and various forms of informational writing and dissect a variety of literary genres. This course will also expose students to a variety of core tools for the development of strong writing skills. With an emphasis on writing style, clarity, and analysis, students will also practice sentence construction, quotations and dialogue, similes and metaphors, and other writing conventions. We will also focus on brainstorming, idea generation, organization techniques, grammar, compositional risk, vocabulary development and style.

READING/ WRITING EXCELLENCE 8 - 9 – Sections Blue / Red (gr. 8 - 9) (Enrichment / non – credit)

This course is intended to enhance the student's understanding, comprehension and enjoyment of literature. They will become more adept at identifying themes and interpreting characterization and figurative language. Readings may include a significant novel, poetry, short stories, drama, and analytical essays. Students will write several papers based on the works of literature they are reading, and time will be devoted to exploring essay structure and developing a strong academic voice. Also, they will learn and polish the skills needed to write high quality analytical essays of the type assigned in English and History classes in high school and beyond. Skills to be addressed include composing effective thesis statements and paragraphs, organizing the essay, acquiring, and using supporting evidence and arguments, and editing/rewriting techniques. Although not a primary focus of in-class instruction, grammar and usage problems will be addressed.

READING/ WRITING EXCELLENCE 10 - 11 – Sections Blue / Red (gr. 10 - 11) (Enrichment / non – credit)

This course is designed to instill the higher-level reading comprehension skills students are tasked with in high school, university, and beyond. They will build on the skills of theme, characterization and analysis begun in the lower grades as they begin to deeply critique classical and contemporary works of literature, including novels, poetry, short stories and non-fiction essays and memoirs. This study will incorporate both academic discussions and debates with peers as well as the composition of essays and papers written with an eye to critical academic discourse. In this course, students will develop and refine the skills needed for effective writing at the high school level and beyond. These skills include organizing the written work, stating and defending a thesis, analyzing and using supporting evidence, and successful editing and rewriting. The essentials of grammar and usage will be reviewed and reinforced as needed. Students will work on analytical, research, persuasive, and creative pieces of writing. Additionally, students will brainstorm, draft and revise a personal essay that they may use as part of a college admission application.

READING/ WRITING EXCELLENCE 6 - 7 – – Sections Green and Yellow (gr. 6 - 7) (Enrichment / non – credit)

These sections will cover similar concepts as in the Blue and Red sections (see above for description) but the novels and assignments are different and can be taken as a continuation of the Blue and Red sections.

READING/ WRITING EXCELLENCE 8 - 9 - Sections Green and Yellow (gr. 8 - 9) (Enrichment / non – credit)

These sections will cover similar concepts as in the Blue and Red sections (see above for description) but the novels and assignments are different and can be taken as a continuation of the Blue and Red sections.

READING/ WRITING EXCELLENCE 10-11 – Sections Green and Yellow (gr. 10-11) (Enrichment / non – credit)

These sections will cover similar concepts as in the Blue and Red sections (see above for description) but the novels and assignments are different and can be taken as a continuation of the Blue and Red sections.

SCIENCE COURSES

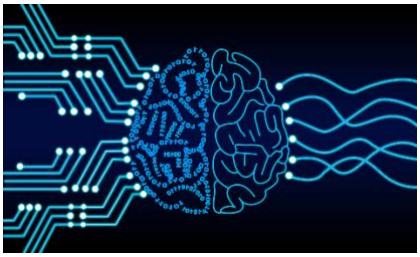
STEM AND ROBOTICS (FOR GRADES 6-10) – All sections (gr. 6-10) (Enrichment / non – credit)

This class is a hands-on experience for those who love to experiment and investigate new things. We will be working on defining problems, thinking up solutions and testing designs while analyzing data. There will be no letter grades for this class but a three-week comment will be given.

Inspirit AI offers an interdisciplinary, project-based artificial intelligence education taught by Stanford, MIT, and top university graduates

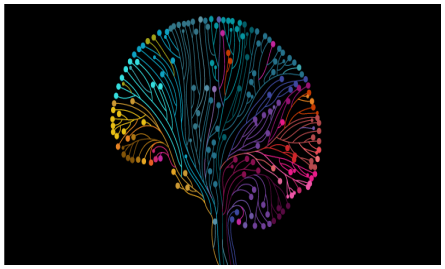
Laptops are required. Class is conducted online but in person with in-person support. Students will work independently and collaboratively on these projects.

ARTIFICIAL INTELLENGENCE PIONEERS PROJECT BUILDING (FOR GRADES 6-8) Sections Blue or Green



In AI Pioneers, our emerging engineers will learn how to create projects for social good with Python programming language. Through hands-on coding, students will learn how computers can use data to solve complex problems like natural language processing and computer vision. Led by Stanford, MIT, and top university graduates, students will explore the ways they can meaningfully use AI to predict heart disease, create social robots, assist with disaster relief, and navigate autonomous vehicles. In our curriculum, we emphasize ethical responsibility, career paths in artificial intelligence, and interdisciplinary applications! From beginner to advanced coders, we envision a future where students of all backgrounds can contribute towards a bright future of inclusivity and technological advancement.

ARTIFICIAL INTELLENGENCE SCHOLARS PROJECT BUILDING (FOR GRADES 9-12) Sections Red or Yellow



What do self-driving cars, Alexa, and iPhone's face recognition technology have in common? They are driven by modern advances in artificial intelligence. Whether you're interested in law, healthcare, art, or economics, AI is poised to transform every discipline and industry in the future. AI is already all around us today, and by the end of the program, students will understand the underlying concepts and motivations behind technology such as computer vision, natural language processing, and neural networks.
In this course, we will explore the foundations of machine learning and explore different applications of machine learning models. In the first half of the course, students learn AI's core technologies including applications, foundational concepts, and programming tools through live online lectures and coding labs. Students will not only learn about different types of machine learning models, but also apply those models to real data sets. In the second half of the course, students will complete an instructor-led group project applying AI to the discipline of their choice (e.g., music, healthcare, astrophysics, finance, etc.), utilizing the programming skills they developed in the first half.

MATHEMATICS CREDIT COURSES

ALGEBRA II (CREDIT COURSE) – Section Orange

This course covers the study of functions-linear, quadratic, inverse, trigonometric, discrete and recursive. These functions will be solved and graphed with and without the graphing calculator. The real number system will be extended to include rational exponents and complex numbers. (Prerequisite: Algebra I)

GEOMETRY (CREDIT COURSE) – Section Orange

This course is a study of the properties of points, lines, angles, plane figures and solids. Topics to be covered will include congruence, constructions, parallelism, similarity, perpendicularity, areas, and volumes. Emphasis is placed on deductive reasoning, mathematical proof and the postulates and theorems. Also, the elements of coordinate geometry and right triangle trigonometry will be introduced.

PRE-CALCULUS & TRIGONMETRY (CREDIT COURSE) – Section Orange

This course expands the concepts of Algebra II and includes further study of functions and their graphs. The additional functions include polynomial, exponential and logarithmic, sequences, series, and limits. The six trigonometric functions which will be studied includes functions of special and quadrant angles, fundamental identities, graphs, inverse trig functions, applications and trigonometry and trig equations. Parametric equations and polar graphing will be included.

AFTERNOON ELECTIVES

PURPLE section

Afternoon recreation are for those who want to stay for some additional fun classes
Must be enrolled in an afternoon scholar's class to participate (Red or Yellow)

Lunch : 1:00pm - 1:20pm Class: 1:20pm - 3:00pm (Cost of each session includes hot lunch)

WEEK 1 & 2: DUNGEONS AND DRAGONS with Mrs. Sari for grades 6-8 (2-week class) $500

June 26 – July 7

Looking for adventure? Ready to face off with villains and fight for the common good? If so, then you have what it takes to join our camp.
Tabletop role playing games are cooperative storytelling games in which your kids are the heroes of the story. Together they work towards a goal, solve puzzles and defeat baddies, all while having a blast. It is an interactive choose-your-own-adventure, full of collaboration and fun. Participants will create and develop their own characters, role play in game, and build those bonds that turn strangers into friends. No experience with Dungeons & Dragons necessary.

WEEK 2: SOCCER & SWIM (sneakers, swimsuit and towel needed) $300

June 26 – June 30

An option for week one to relax in the afternoon with lunch, some soccer play and a refreshing free swim in our indoor pool

WEEK 2: PHOTOGRAPHY (smartphone, iPad, or camera needed) (4-day class) $260

July 3 – July 7 (no July 4)

Have you ever wanted to be a Photographer? In this afternoon class, we'll learn the basics of photography. We'll learn about composition, lighting, and other core strategies that allow professionals to take incredible photos. We'll also get to take pictures of the campus, go on nature tours, and even create creations for local businesses!

WEEK 3: CODING (laptop needed) (5-day class) $325

July 10 – July 14

Have you ever wanted to make your own websites and apps? In this hands-on coding and tech club, you'll learn the skills of a coder and the mindset of an entrepreneur through building apps - your own app and also an app for local nonprofits. You'll build apps and games every week in the course and work on real iOS apps.

WEEK 4: CHESS (5-day class) $325

July 17 – July 21

Have In this class, you will learn the basics of chess, openings, strategies and several chess-variant games like zombie chess and two-time chess. Beginning with free play to evaluate familiarity and comfort level, we will layer in skills and work to learn to apply them to game play. Next, variant games are a great way to keep learners interested, and chess extra fun. Throughout this week, we will connect chess concepts to they internalize the game's rules and overarching framework. Beginners will have a blast without chess experience. Advanced chess wizards will develop a deeper understanding of the game.

WEEK 5: GRAPHIC DESIGN (laptop needed) (5-day week) $325

July 24 – July 28

Interested in drawing, art, or design? In this class., you'll learn how to use your skills for real by designing projects for non-profits or small businesses. You will learn how to make professional posters and art. You will ultimately design posters and ads for real organizations with good causes.

WEEK 6: COOKING (4-day class) $260

July 31 – August 3

In this unique cooking class, students learn all about food: how to make it, how to make it safely, and how to use it for good! You'll learn about food safety and cook some (oven-less) recipes from all 6 inhabited continents. Everything you cook will be easy to make: including "easy pizza", Japanese Onigiri (Rice Balls), and other finger-foods from Africa, Asia, and South America. During sessions, you and your friends will play fun cooking games, learn about math through the process of measurement, and donate food you make to local charities in order to give back to others. At the end of class, you'll have a whole recipe book to bring home.