WARDLAW+HARTRIDGE SUMMER SCHOLARS ACADEMIC COURSE DESCRIPTIONS

MATHEMATICS ENRICHMENT COURSES

MATH 6 / Pre-Algebra (A) - Sections Blue & Red (gr. 6 - 7) (Enrichment / non – credit)
This course will help prepare students for sixth grade math and Pre-Algebra. Topics covered in Session A may 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. Also 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.

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

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. Other topics may be covered as time permits.

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 curriculum, 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. Other topics may be covered as time permits.

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)

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ENGLISH AND WRITING ENRICHMENT COURSES

Please Note: The courses in the English and Writing sections are independent of each other and can be taken separately or together. The descriptions are the same but, except for where indicated, each section will cover different novels or writing assignments.

THE ART OF READING 6 - 7 – Sections Blue and/or Green (gr. 6 - 7) (Enrichment / non – credit)

Two 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

THE ART OF READING 8 - 9 – Sections Blue and/or Green (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.

THE ART OF READING 10 - 11 – Sections Blue and/or Green (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.

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

This course will 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.

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

The objective of this course is to 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.

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

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.

STEM AND ROBOTICS COURSES

STEM CLASS 6-10 – Sections Blue and/or Green (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.

ROBOTICS CLASS 6-10 – Sections Red and/or Yellow (gr. 6-10) (Enrichment / non – credit)

This class will introduce you to the fundamentals of programming a robot. You will build a robot and learn to debug your code as you program your robot to move, lift objects and use sensors. No prior coding experience needed.

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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)

$750 per 3-week session (includes hot lunch from 1:00 – 1:20)
Or $275 for each individual class (includes lunch)

SESSION 1 – June 27 – July 15 1:20 – 3:00 (includes lunch at 1:00 – 1:20)

WEEK 1: GRAPHIC DESIGN (laptop needed) - June 27 – July 1 (5 days)

Interested in drawing, art, or design? This class will use your doodling skills to create design projects for local nonprofits or small businesses. You will learn how to make professional posters and art that people want to pay for, and you'll ultimately design posters and ads for real organizations with good causes

WEEK 2: CODING (laptop needed) – July 5 – July 8 (4 days)

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 3: ENTREPRENEURSHIP (laptop needed) – July 11 – July 15 (5 days)

In this class for budding entrepreneurs, you will start your own business or website! You'll work with a classmate to come up with a simple company idea, taking it as far as it will go before the class ends. You'll create a business plan, enlist friends and family, and set up everything you need to be a junior entrepreneur: a first email address, a basic app or website, and a presentation. Ultimately, you'll share your idea with friends and family, work hard to get a first customer, and present all your progress to the whole class. You'll have a ton of fun and accomplish more than you ever have before!

SESSION 2 – July 18 – August 4 1:20 – 3:00 (includes lunch at 1:00 – 1:20)

WEEK 4: GAME DESIGN (laptop needed) – July 18 – July 22 (5 days)

Ever wanted to build your own games or apps? Love Roblox or Minecraft? In this course, students will learn the skills of a coder through conceiving, designing, and creating their own mobile app games. The resulting games can be shared online and texted to friends for them to play on their phones. It's a great way to combine learning with fun with becoming a game developer. You don't need any previous experience or special software to take this: all you need is your creativity and a laptop.

WEEK 5: COOKING AROUND THE WORLD (please note food sensitivities) – July 25 – July 29 (5days)

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.

WEEK 6: ULTIMATE FRISBEE (sneakers required) – August 1 – August 4 (4 days)

Want to have fun and learn valuable social and emotional skills ? You can do that through playing Ultimate Frisbee, one of the fastest growing sports in the U.S., addition to being athletic and welcoming. Ultimate has a unique collaborative, ruleset where players help enforce the rules together that fosters cooperation and growth. Together we'll learn the game, play together and learn how to be diligent and overcome challenges through repeated tournament play.