JOHN D. O'BRYANT SCHOOL OF MATHEMATICS AND SCIENCE

COURSE DESCRIPTIONS

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COMPUTER TECHNOLOGY

C80 Exploring Computer Science
Half-Year Course

Exploring Computer Science (ESC) is designed to introduce students to the field of computer science through an exploration of engaging and accessible topics. The course is designed to focus on the conceptual ideas of computing, both hardware and software, and help students understand why certain tools or languages such as JAVA, HTML, SQL, might be utilized to solve particular problems.

The goal of Exploring Computer Science is to develop in students the computational thinking practices with the major themes of: algorithm development and their uses; problem solving and the limits our present day technology imposes; and programming and multi-media development using Adobe Photoshop and Premier. Students delve into real world computing problems that address social and ethical issues while delivering foundational computer science knowledge

C62 Computer Science A/B Honors
Full-Year Course

This course is based on the College Board's emerging Advanced Placement (AP) Computer Science Principles curriculum framework for introductory computer science. It is supported by the Mobile Computer Science Principles Project (Mobile CSP), an NSF-funded effort to provide a broad and rigorous introduction to computer science based on App Inventor, a mobile programming language for Android devices. You will learn computer science by building socially useful mobile apps.

The course will introduce students to the creative aspects of programming, i.e.: using abstractions and algorithms, working with large data sets, understanding issues of privacy and cybersecurity, and understanding the impact of computing on different populations. Students will learn to be both analytical and creative in their thinking and work collaboratively with their peers to investigate solutions to real-world issues using computing.

C5C CISCO NETWORK 1
Full-Year Course

Computer Technology is a growing field and offers numerous opportunities. The Cisco Networking 1 course emphasizes decision-making and problem-solving techniques in the application of science, mathematics, communication and social studies concepts to solve computer-networking problems. Students will learn how to install and configure Cisco switches and routers in multi-protocol networks using local and wide-area networks (LANs and WANs), provide Level 1 troubleshooting service, and improve network performance and security. Additionally, instruction and training are provided in the proper care, maintenance, and use of networking software tools and equipment, as well as all local, state, and federal safety, building, and environmental codes and regulations. Specific Learning Objectives include**:**

- Computer hardware and software, electricity, networking terminology, and protocols
- LANs and WANs, Open Systems Interconnection (OSI) model, Ethernet, and Internet Protocol (IP) addressing
- Design and documentation of a basic network and structured cabling
- Network-to-network communications
- Router user interfaces, components and configurations
- Basics of IOS versions, naming and software backup
- TCP/IP Protocol Suite and IP addressing and submitting
- Interior routing protocols—RIP, IGRP

ENGLISH

137 ENGLISH LANGUAGE ARTS
Grade 7

This foundation course uses literature to guide students in understanding the author's role as both a storyteller and a communicator of universal truths. Students are encouraged to connect fictional protagonists to concepts of courage, perseverance, justice, reconciliation and morality. This objective is met through discussion, formal written assignments, oral presentations and cooperative learning activities.
At the same time, this study informs students in analysis of the basic elements of literature and language, as well as the acquisition of new vocabulary through context, isolation of root words, and direct instruction. Students are introduced to poetry with an emphasis on the sonnet form. Grammar usage and syntax are taught in the context of writing as well as through separate units. A major comprehension objective is the ability to infer an author's intent based on tone and rhetoric.
During the year, students begin to develop research skills and will produce a research paper in which they develop a thesis and cite sources.

138 ENGLISH LANGUAGE ARTS
Grade 8

This course uses its core literature to teach students a variety of strategies that, when applied to the reading enhances understanding, enjoyment and appreciation of literature in a variety of genres and prepares them for transition to grade nine.
Students apply the basic elements of different literary genres to interpret, analyze, and evaluate the structure, language, and ideas of the literature they read. Students make connections between the readings and their own experiences to further enhance the meaning of the literature on a personal level, which enables them to develop as critical and reflective thinkers. Students learn to express what they have learned and to share ideas and perspectives on important issues in formal and informal situations in oral discussions and presentations, and in written essays.
New vocabulary is learned though context, isolation of root words, and direct instruction. Grammar is taught in the context of writing as well as through separate units.
A major comprehension objective is the ability to infer an author's intent based on tone and rhetoric. Media and technology are integrated into curriculum and instruction and students' work may include guided Internet research and PowerPoint presentations.
During the year, students continue to develop research skills and will produce a research paper in which they develop a thesis and cite sources

151 COLLEGE ENGLISH
Grade 9

The ninth grade curriculum uses various literature selections to explore the idea of facing and overcoming adversity, challenges, and other obstacles in one's attempt to achieve greater self awareness. The course teaches students a variety of reading strategies to enhance their understanding, exploration, enjoyment, and appreciation of literature in a variety of genres. They make personal connections, and use the elements of literature to interpret, analyze and evaluate the structure, language and ideas in the literature they read. They learn the characteristics of effective expository writing as they respond to literature and share their ideas and perspectives on issues in formal and informal situations. Students improve vocabulary through contextual reading, the isolation of root words, and direct instruction. Grammar is taught in the context of student writing as well as through separate units of study. Students continue to develop inference skills and understanding of tone in order to interpret author's purpose and understand theme. Media and technology are integrated into the curriculum and student work may include guided Internet research and PowerPoint presentations. The literary analysis research paper is a promotion requirement.

152 COLLEGE ENGLISH
Grade 10

Through the instruction of the grade ten English curriculum students analyze characterization techniques as well as the authors' use of figurative language, imagery, and other literary techniques in a variety of genres. The curriculum explores the themes of injustice, from the Nazi concentration camps of Europe to the impact of racism in the Jim Crow South. Students learn to compare and contrast, to draw connections, and to apply what they have learned to their own world. Students learn to delve beyond the superficialities of mere plot details, to grapple with the deeper moral and spiritual meanings of the works and finally express their ideas in a variety of ways, including writing, presentations, and cooperative learning scenarios. Vocabulary is taught in the context of the literature they read, as well as through word study units.
Grammar, is taught through student writing, as well as through separate units of study. Media and technology are integrated with the study of the literature. The literary analysis research paper is a promotion requirement.

153 COLLEGE ENGLISH
Grade 11

The English 11 course strives to prepare students for college by surveying literature that addresses the American struggle, the need to create a just society versus the need for individual freedom and personal integrity. The literature also addresses the optimism engendered by the belief in man's basic goodness versus the pessimism engendered by the reality of evil. Writing in grade eleven focuses first on the applications of the ideas found in the literature to students' own lives and thoughts. Writing at this level is persuasive and focuses on learning and perfecting skills necessary to produce a substantial research paper following MLA guidelines. These skills include reading independently, locating and using critical texts on line and in the library, note taking, developing a thesis, outlining, organizing, revising, proofreading and word processing a research paper. Vocabulary is taught in the context of the literature as well as through word study units. Media and technology are integrated with the study of literature. The eleventh grade final writing product, a persuasive argument research paper, is a promotion requirement.

154 COLLEGE ENGLISH
Grade 12

The grade twelve English curriculum focuses on the literary analysis of great literature, going beyond previously learned concepts to deeper levels of meaning and advanced literary techniques used by writers. Students use literature to explore concepts of tragedy, responsibility, growth, and decision making. Attention is paid to "close reading," focusing on diction, figurative language and philosophical assertions. They draw parallels between texts and make connections to their own lives. Vocabulary is taught in context as well as through word study units. Media and technology are integrated with the study of literature. The literary analysis research paper is a graduation requirement.

College English 12 Courses:

- British and World Literature
    - Students read classic texts such as Chaucer's *Beowulf* as well as modern works such as Hussein's *The Kite Runner* as they achieve the objectives of College English 12.
- The Mono-Myth: The Heroes' Journey

Students will study the mono-myth as delineated in Joseph Campbell's *Hero with a Thousand Faces* and apply the archetype to classic texts such as Homer's *Odyssey* as well as modern graphic novels.

171 ADVANCED PLACEMENT LANGUAGE & COMPOSITION

Grade 11
Prerequisite: See AP Protocol

The AP English Language and Composition course engages students to write in a variety of forms-narrative, exploratory, argumentative and on a variety of subjects, from personal experiences to public policies, from imaginative literataure to popular culture. Expositive analytical and argumentative writing form the basis of academic and profesional communication: personal and reflective writing foster the develoopment of writing facility in any context. The final writing project for the eleventh grade, a persuasive argument research paper, is a promotion requirement. Students are required to attend the scheduled Saturday AP test preparation workshops. **All students are required to take the AP Exam in May.**

174 Advanced Placement Seminar Course Description
Grade: 10
Prerequisite: See AP Protocol Sheet
Full-Year Course

The AP Capstone Seminar course is an inquiry-based course that aims to engage students in cross-curricular conversations that explore real-world topics and issues from multiple perspectives and lenses. Students are empowered to collect and analyze information with accuracy and precision in order to craft and communicate evidence-based arguments. One of the most exciting things about the AP Seminar course is that, while students develop and demonstrate the 21st century skills presented in the course, they get to investigate topics that are interesting and relevant to them, personally

172 ADVANCED PLACEMENT LITERATURE & COMPOSITION

Grade 12
Prerequisite: See AP Protocol

The Advanced Placement English Literature and Composition course emphasizes interpretation through analysis and the formulation of ideas in writing. This course aims to enhance students' abilities to interpret, analyze and appreciate the complexities of the English/American canon, through "close readings" of great literature. Students will participate in in-depth analyses of works by such authors as: Shakespeare, Swift, Conrad, Shelley, Ibsen, and Achebe, and major poets of British and American literature, as they study the techniques used by authors to achieve their literary purposes.
The literary analysis research paper is a graduation requirement. Students are required to attend scheduled Saturday AP test preparation workshops. **All students are required to take the AP Exam in May.**

MATHEMATICS

438 MIDDLE SCHOOL ALGEBRA
Grade 7

Grade 7 Mathematics classes at the O'Bryant will follow the Boston Public Schools Grade 8 curriculum by which students develop an understanding of important concepts, skills, procedures and ways of thinking and reasoning in number and operations, geometry, measurement, data analysis and probability and algebra. Students learn to link mathematics with other subject areas and to recognize similarities between problems and activities and their own aptitudes and interests. In the seven units of Number Sense students will learn to recognize and represent linear relationships in tables, graphs, words and symbols and solve one step linear equations,ordering and operations with fractions, decimals, integers and exponents (including order of operations) using *Thinking with Mathematical Models* as well as. In *Growing, Growing, Growing* students will learn to recognize and represent exponential growth and decay in tables, graphs, words and symbols. *In Looking for Pythagoras*, students will learn the Pythagorean Theorem, irrational numbers, connect coordinates, and about slope, distance and areas. In *Frogs, Fleas, and Painted Cubes* students will recognize and represent quadratic relationships in tables, graphs, and words. In *Say It with Symbols* students will learn equivalent expressions, solve linear equations and simple quadratic equations. In *Shapes of Algebra* students will learn how to solve linear systems and inequalities.

451 ALGEBRA 1
Grades 8 and 9

Algebra 1 is a first year course in algebra. It is designed for students who are entering high school with a substantial background in pre-algebra. Teachers design classroom experiences using an inquiry/ problem solving model of instruction that allows students to explore concepts from a variety of perspectives and representations. In each topic students learn to analyze and represent concepts numerically, algebraically, graphically, and linguistically. Students develop understanding of major topics in Algebra through a process that emphasizes communication, reasoning, and building connections between important algebraic concepts, additional strands of mathematics, and real world applications.

454 GEOMETRY
Grades 9 and 10

This is a full year, standards-based course of study in geometry with additional course work in probability. Teachers design classroom experiences using an inquiry/problem solving model of instruction that allows students to explore concepts from a variety of perspectives and representations. In each topic students learn to analyze and represent concepts numerically, algebraically, graphically, and linguistically. Students develop understanding of major topics in Geometry through a process that emphasizes

communication, reasoning, and building connections between important geometric concepts, additional strands of mathematics, and real world applications.

462 GEOMETRY HONORS
Grades 9 and 10

This is a full year, standards-based course of study in geometry. Teachers design classroom experiences using an inquiry/problem solving model of instruction that allows students to explore concepts from a variety of perspectives and representations. In each topic students learn to analyze and represent concepts numerically, algebraically, graphically, and linguistically. Students develop understanding of major topics in Geometry through a process that emphasizes communication, reasoning, and building connections between important geometric concepts, additional strands of mathematics, and real world applications. As this course is an HONORS level course, the pace will be accelerated and concepts will be explored in greater depth.

456 ADVANCED ALGEBRA
Grades 10 and 11

Advanced Algebra is a standards based course in advanced algebraic reasoning, applications, and problem solving. The course is designed to prepare students for college algebra and/or precalculus. In this course, teachers design classroom experiences using an inquiry/problem solving model of instruction that allows students to explore concepts from a variety of perspectives and representations. In each topic students learn to analyze and represent concepts numerically, algebraically, graphically, and linguistically. Students develop understanding of major topics in Algebra through a process that emphasizes communication, reasoning, and building connections between important algebraic concepts, additional strands of mathematics, and real world applications.

463 ADVANCED ALGEBRA HONORS
Grades 10 and 11

Advanced Algebra Honors is a challenging, standards based course in advanced algebraic reasoning, applications, and problem solving. The course is designed to prepare highly skilled mathematics students for calculus or precalculus honors. In this course, teachers design classroom experiences using an inquiry/problem solving model of instruction that allows students to explore concepts from a variety of perspectives and representations. In each topic students learn to analyze and represent concepts numerically, algebraically, graphically, and linguistically. Students develop understanding of major topics in algebra through a process that emphasizes communication, reasoning, and building connections between important algebraic concepts, additional strands of mathematics, and real world applications. As this course is an HONORS level course, the pace will be accelerated and concepts will be explored in greater depth.

458 PRE-CALCULUS
Grades 11 and 12

Precalculus is a challenging, standards based course in reasoning, applications, and problem solving associated with algebraic functions. The course introduces students to topics in calculus that are associated with these functions. The course is designed to prepare students for calculus and includes with an introduction to limits and continuity. In this course, teachers design classroom experiences using an inquiry/problem solving model of instruction that allows students to explore concepts from a variety of perspectives and representations. In each topic students learn to analyze and represent concepts numerically, algebraically, graphically, and linguistically. Students develop understanding of major topics in algebra through a process that emphasizes communication, reasoning, and building connections between important algebraic concepts, additional strands of mathematics, and real world applications.

464 PRE-CALCULUS HONORS
Grades 11 and 12

As this course is an HONORS level course, the concepts described in the regular Pre-Calculus course will be explored in greater depth and the pace will be accelerated.

45C DISCRETE MATHEMATICS
GRADE 12
Prerequisite: Precalculus

Discrete Mathematics is a course designed for students who have made a commitment to become skilled in the 'real life' applications of the mathematics they have learned and will approach all topics with the view of their usefulness in the world. Discrete mathematics promotes a curiosity about the mathematics used in our daily lives. There is much logic-based application and a depth of understanding without the dependence of a formula based direction. The applications of calculus will be experienced using the graphing calculator. The course has a very strong emphasis problem solving, modeling, and data analysis. Throughout the course, students develop a firm grasp of the underlying mathematical concepts while using algebra as a tool for solving real-life problems.

459 CALCULUS
Grade 12
Prerequisite: Precalculus

Calculus is a standards based course in the calculus of functions of one independent variable. The course is designed to assist students in completing a course of study addressing the four major concepts of calculus: limit, derivative, definite integral and indefinite integral. It is intended to prepare students for a university level calculus course. In this course, teachers design classroom experiences using an inquiry/problem solving model of instruction that allows students to explore concepts from a variety of perspectives and presentations. In each topic students learn to analyze and represent concepts numerically, algebraically, graphically, and linguistically. Students develop understanding of major topics in calculus through a process that emphasizes communication, reasoning, and building connections between important concepts in calculus and real world applications.

471 ADVANCED PLACEMENT STATISTICS
Prerequisite: See AP Protocol Sheet

Statistics is the study of data emphasizing four major themes: exploratory analysis of data, planning and conducting a study, probability and distributions, and statistical inference. This course develops students' problem solving skills, enables them to be active and critical users of statistical information in daily life, improves their mathematical understanding as it relates to statistics, and facilitates students' use of technology (both graphing calculators and computer software) as a tool to explore statistical relationships. This course will cover the content of a one-semester introductory college course in statistics. **All students are required to take the AP Statistics Exam in May. This course is an elective. Students must also take the required math course for their grade.**

472 ADVANCED PLACEMENT CALCULUS AB
Grade 12

Advanced Placement Calculus AB is a standard based course in the calculus of functions of one independent variable. The class is designed to assist students in completing a course of study addressing the major concepts of calculus: limits, derivatives, and integrals. Using an inquiry/problem solving model of instruction, the classroom is designed to allow students to explore concepts from a variety of perspectives and representations. In each topic, students learn to analyze and represent concepts numerically, algebraically, graphically, and verbally. Students develop understanding of major topics in calculus through a process that emphasizes communication, reasoning, and building connections between important concepts in calculus and real world applications. This course is intended to prepare students for the Advanced Placement Calculus AB Examination in May. This class meets daily for one period. This course is equivalent to one semester of college calculus. **All students must take the Advanced Placement Calculus AB test in May given by the College Board.**

473 ADVANCED PLACEMENT CALCULUS BC
Grade 12

Advanced Placement Calculus BC is standards based course in the calculus of functions of one independent variable. The course is designed to assist students in completing a course of study addressing the major concepts of calculus: limits, derivatives, integrals, and series. This course covers all of the same concepts as AB Calculus plus additional topics within each concept. Using an inquiry/problem solving model of instruction, the classroom is designed to allow students to explore concepts from a variety of perspectives and representations. In each topic, students learn to analyze and represent concepts numerically, algebraically, graphically, and verbally. Students develop understanding of major topics in calculus through a process that emphasizes communication, reasoning, and building connections between important concepts in calculus and real world applications. This course is intended to prepare students for the Advanced Placement Calculus BC Examination in May. This class meets daily for two periods. This course is equivalent to two semesters of college calculus. **All students must take the Advanced Placement Calculus BC test in May given by the College Board.**

Roland Hayes School of Music Course Offerings:

83F **MS Band 1:** 7th Grade

This class will introduce the flute, clarinet, trombone, trumpet, saxophone, French horn, baritone, tuba and percussion instruments to 7th grade students who have little to no prior experience studying a musical instrument. Students will learn technique, note-reading, theory, and musicianship skills associated with playing a musical instrument.

Attendance at performances occurring outside of the school day is required and will be factored into the term grade. Ample notice of the performance will be to students and parent / guardian. If a student is unable to attend a performance, a substitute assignment will be worked out between the teacher and student.

This class requires students to perform twice throughout the academic year.

83G **MS Band 2:** 8th Grade

This class is a continuation of MS Band 1.

This class requires students to perform twice throughout the academic year.

839 **MS Chorus:** 7th and 8th Grade

This course will train 7th and 8th grade students in vocal technique and production. Students will learn to develop their voice by utilizing techniques and exercises focused on tone production, posture, articulation, diction and breath support.

Attendance at performances occurring outside of the school day is required and will be factored into the term grade. Ample notice of the performance will be to students and parent / guardian. If a student is unable to attend a performance, a substitute assignment will be worked out between the teacher and student.

This class requires students to perform twice throughout the academic year.

A5U **Instrumental Performance 1 - Piano**

This class introduces students to piano performance with a concentration on reading music notation as well as understanding and executing basic rhythms by utilizing familiar selections of music.

A5V **Instrumental Performance 2 - Piano**

This class is a continuation of Piano 1 that will include more intricate music reading, understanding of complex rhythms and playing intermediate to advanced levels of piano music. Students will also be introduced to numerous genres of music. (e.g. classical, jazz, pop, rock.)

A76 **Vocal Technique 1- Choir**

This course will train students in vocal technique and production. Students will learn to develop their voice by utilizing techniques and exercises focused on tone production, posture, articulation, diction and breath support.

Attendance at performances occurring outside of the school day is required and will be factored into the term grade. Ample notice of the performance will be to students and parent / guardian. If a student is unable to attend a performance, a substitute assignment will be worked out between the teacher and student.

This class requires students to perform twice throughout the academic year.

89A **HS Concert Band – Advanced Band**

This is an advanced performing ensemble class for flute, clarinet, saxophone, trumpet, French horn, baritone, trombone, and tuba. Students will improve their musicianship skills while preparing for numerous public performances throughout the school year.

Attendance at performances occurring outside of the school day is required and will be factored into the term grade. Ample notice of the performance will be to students and parent / guardian. If a student is unable to attend a performance, a substitute assignment will be worked out between the teacher and student.

This class requires students to perform numerous times throughout the academic year.

898 **HS Band - Beginning**

This class will introduce the flute, clarinet, trombone, trumpet, saxophone, French horn, baritone, tuba, and percussion instruments to students who have little to no prior experience studying a musical instrument. Students will learn technique, note-reading, theory, and musicianship skills associated with playing a musical instrument.

89K **HS String Technique - Guitar**

This course is designed for beginning to advanced levels of guitar performance. Materials chosen for this class will be based on each student's prior experience.

Attendance at performances occurring outside of the school day is a requirement of advanced level guitar students, and will be factored into the term grade. Ample notice of the performance will be to students and parent / guardian. If a student is unable to attend a performance, a substitute assignment will be worked out between the teacher and student.

This class will require advanced level guitar students to perform numerous times throughout the academic year..

89X **HS Music Theory 1 – Music Technology**

This course is an introduction to computer-based technology as used in the professional music industry. Students will be assigned projects utilizing industry-standard music recording practice in conjunction with music software and hardware.

NAVAL SCIENCE

Navy Junior Reserve Officer Training Corps (NJROTC) is a Navy sponsored citizenship program for students in grades nine through twelve. NJROTC is an accredited course of study taught nationwide by retired officer and enlisted sailor. Instructors of the NJROTC program are not recruiters nor is there any obligation by the student to join the Navy or any other branch of the military.
NJROTC is designed to assist the student in becoming an informed citizen, to encourage citizenship by becoming active in the community and foster self-discipline in their everyday life. The O'Bryant PRIDE program is reinforced during the years the student is in the NJROTC program. If the student does desire to enter the Navy after high school, completion of three years of NJROTC allows a cadet to enlist into the Navy at the advanced rate of Seaman (E-3). If the student desires to pursue a commission in the United States Navy as an Officer, NJROTC offers pathways to either a United States Naval Academy appointment or a Navy Reserve Officer Training Corps scholarship. Additionally, the student is encouraged to attend a three-day Basic Leadership Training class. In this setting a student is taught followership skills, leadership skills, self-discipline and task management. During the summer months a Leadership Academy/Sail Training camp is offered. Cadets are taught to sail in ten days and have the opportunity to race against their peers in a sailing regatta the final two days of class. During this two week camp, etiquette, leadership, science, technology, engineering, and mathematics classes are taught as well as drill and physical fitness.

Naval Science 1

Naval Science 1 is the introductory course of NJROTC. The curriculum focuses on student growth, citizenship and the American government, the U.S. Navy inventory of ships, submarines and aircraft, wellness, fitness and first aid, and geography and survival skills. The cadet is taught how and when to wear the uniform, personal hygiene, health, wellness, and is encouraged to become physically active in life.

Naval Science 2

Naval Science 2 curriculum is split into three sections, maritime history, leadership and nautical sciences. Within maritime history the student covers sea power and early civilization continuing all the way up to the year 2000 and beyond. All major periods of history are reviewed and major wars and conflicts are examined. The leadership section discusses how to be a good follower and a good leader. Leadership characteristics are presented as well as approaches to leadership and leadership skills. Since sophomores are expected to teach the freshman, leadership is a large part of the NJROTC curriculum. The final section of the NS-2 curriculum is nautical sciences. Here the student is exposed to maritime geography, oceanography, meteorology, astronomy, and the physical sciences.

Naval Science 3

Naval Science 3 curriculum is designed to further engage the student with sea power and national security, naval operations and support functions, military law, and international law and the sea. Leadership is also part of the curriculum concentrating on the philosophy and obligations of being a leader. Qualities of a good leader are reintroduced as well as techniques on how to become a good instructor. The final section of the NS-3 curriculum focuses on naval skills which include ship construction, damage control, shipboard organization and watchstanding, basic seamanship, maritime navigation, rules of the road, maneuvering board, naval weapons and aircraft.

Naval Science 4

Naval Science 4 curriculum surrounds two textbooks. An Introduction to Global Awareness introduces cultural studies to the senior cadet. Contents of the textbook include the Middle
East, Asia, Africa, Russia and the Former Soviet Republics, Latin America, and Europe. Each unit is broken down into an introduction lesson, followed by lessons on the country's infrastructure and people, and ending with a lesson on U.S. Interests and Regional Issues. The second textbook we use in the NS-4 curriculum focuses again on leadership and ethics, financial planning, and internet safety.

SCIENCE

537 UNIFIED SCIENCE 7
Grade: 7
Prerequisite: None
Course Requirement: All students are required to complete a science fair project.
Full-Year Course

This course is designed to provide an inquiry-based learning experience for students in the earth, life, and physical sciences, as well as, in the areas of technology and engineering design. Major topics include: the Diversity of Life (classification, structure and function of cells, reproduction and heredity, evolution and biodiversity, and systems of living things); Earth History (mapping the Earth, Earth's structure, and Earth's history); Force and Motion (investigation of linear motion and the fundamental forces of gravity and electromagnetism. Students acquire the most fundamental and important understanding about the interplay between force and motion.); and Technology/Engineering (students will use various tools and technologies to explore the above major topics and use the design process to solve related problems)

538 UNIFIED SCIENCE 8
Grade: 8
Prerequisite: None
Course Requirement: All students are required to complete a science fair project.
Full-Year Course

This course is designed to provide an inquiry-based learning experience for students in the earth, life, and physical sciences, as well as, in the areas of technology and engineering design. Major topics include: Populations and Ecosystems (reproduction and heredity, evolution and biodiversity, living things and their environment, and changes in ecosystems over time); Planetary Science (the Earth, Moon and Solar System); Chemical Interactions (the structure and behavior of matter, energy transfer, and energy interactions and the transformation of matter); and Technology/Engineering (students will use various tools and technologies to explore the above major topics and use the design process to solve related problems)

553 BIOLOGY I
Grade: 9
No Prerequisites
Course Requirement: All students are required to take the MCAS exam in Biology.
Full-Year Course

Biology I is an introductory course exploring the concepts and interrelated laws of the biological world. Using a variety of instructional tools, including hands-on material and inquiry-based pedagogy, students will be prepared to devise controlled, multivariable experiments as well as appreciate and apply biology principles and procedures to real life situations. Major topics include: chemistry of life, structure and function of cells, genetics, human anatomy and physiology, evolution and biodiversity, and ecology.

554 CHEMISTRY I
Grade: 10
Prerequisite: None
Course Requirement: All students are required to complete a science fair project.
Full-Year Course

Chemistry I is an introductory course that which explores matter, the variety of materials of the physical world around us, and the concepts and interrelated laws of chemistry. Using a variety of instructional tools, including hands-on materials and inquiry-based pedagogy, students will be prepared to devise experiments as well as, appreciate and apply chemistry principles/procedures to real-life situations. Major topics include: properties of matter, atomic structure, periodicity, chemical bonding, chemical reactions and stoichiometry, gases and molecular theory, solutions, acids and bases, and equilibrium and kinetics.

555 PHYSICS I
Grade: 11 and 12
Prerequisite: None
Full-Year Course

Physics I is an introductory course, which explores the basic nature of the physical world, with an emphasis on developing conceptual understanding. Using a variety of instructional tools, including hands-on materials and inquiry-based pedagogy, students will be prepared to devise experiments as well as, appreciate and apply physics principles/procedures to real-life situations. Major topics include: motion and forces, conservation of energy and momentum, heat and heat transfer, waves, electromagnetism, and electromagnetic radiation.

557 ANATOMY&PHYSIOLOGY
Grade: 11 and 12
Prerequisite: Biology I and Chemistry I
Full-Year Course

This course applies the principles and knowledge, which students learned in previous biology, health, and chemistry courses, towards a better understanding of the various functions of the human body. The course explores the relationship between anatomy and physiology and the disease process. Major topics include: human body structures, organ systems, blood, necessary life functions and survival needs, homeostasis, and the language of anatomy.

559 ENVIRONMENTAL SCIENCE
Grades: 11 and 12
Prerequisite: Biology I and Chemistry I
Full-Year Course

Environmental Science is a full-year college preparatory course for 11^{th} and 12^{th} grade students. It is designed to be the equivalent of a one-semester, introductory college course in Environmental Science presented from a scientific, not just sociological, viewpoint. The goal of the course is to provide students with the scientific principles, concepts, and methodologies required to understand the interrelationships of the natural world, to identify and analyze environmental problems both natural and human-made, to evaluate the relative risks associated with these problems, and to examine alternative solutions for resolving and/or preventing them. We aim to train students to become self-reflective, critical-thinking citizens of the earth who

can make informed decisions about human actions that can impact the environment. Laboratory work is a component of this course.

564 CHEMISTRY I Honors
Grade: 10
Prerequisite: Approval of Teachers and Science Department Chair. Students should have a record of strong performance in previous science and math classes.
Course Requirement: All students are required to complete a science fair project.
Full-Year Course

The Chemistry I Honors course covers the same topics as the Chemistry I course, but in a more in-depth manner. The honors designation indicates that students will study the concepts and topics in greater depth, with challenging and thought provoking supplemental readings. Labs will have more extensions and opportunities for students to plan their own activities. Major topics include: properties of matter, atomic structure, periodicity, chemical bonding, chemical reactions and stoichiometry, gases and molecular theory, solutions, acids and bases, and equilibrium and kinetics.

566 BIOLOGY 2
Grades: 11 and 12
Prerequisite: Biology 1
Full-Year Course

Biology 2 is a course that uses a case-study approach to explore issues related to human disease and the societal impacts of infectious diseases. Students will explore case-studies of both common and rare diseases. Students will gain a better understanding of: the causes of disease, the symptoms of different diseases, the human body defense systems, the populations most affected by certain diseases, and the public health issues surrounding infectious diseases. Students will also explore potential cures and treatments for different diseases and understand methods to help mitigate the spread of disease.

571 ADVANCED PLACEMENT BIOLOGY
Grades: 11 and 12
Prerequisite: See AP Protocol Sheet
Course Requirement: All students are required to take the AP Biology Exam.
Full-Year Course

The AP Biology course is designed to offer students a solid foundation in introductory college-level biology. This course follows the standards set by the College Board for Advanced Placement Biology. The course is structured around enduring understandings, science practices, and four "Big Ideas" related to biology:

Big Idea 1: The process of evolution derives the diversity and unity of life.
Big Idea 2: Biological systems utilize free energy and molecular building blocks to grow, to reproduce and to maintain dynamic homeostasis.

Big Idea 3: Living systems store, retrieve, transmit, and respond to information essential to life processes.
Big Idea 4: Biological systems interact, and these systems and their interactions possess complex properties.),

Students will study in depth, all the major concepts and processes of biology with an emphasis on problem solving strategies and college level experiments. What we know today about biology is a result of inquiry. Science is a way of knowing. Therefore, the process of inquiry in science and developing critical thinking skills is the most important part of this course. Students will develop an appreciation for the study of life that helps them identify and understand unifying principles within a diversified biological world.

At the end of the course, students will have an awareness of the integration of other sciences in the study of biology, understand how the species to which we belong is similar to, yet different from, other species, and be knowledgeable and responsible citizens in understanding biological issues that could potentially impact their lives. and be knowledgeable and responsible citizens in understanding biological issues that could potentially impact their lives.

572 ADVANCED PLACEMENT CHEMISTRY
Grade: 11 and 12
Prerequisite: See AP Protocol Sheet
Course Requirement: All students are required to take AP Chemistry Exam.
Full-Year Course

This course follows the standards set by the College Board for Advanced Placement Chemistry. The AP Chemistry course introduces topics similar to those in a Chemistry I college level program. Students are expected to spend extensive time studying in groups and doing extensive lab work. The course aims to provide students with the framework, factual knowledge, and analytical skills necessary to deal critically with the theoretical aspects of chemistry. Students will develop facility in dealing with chemical problems and develop their ability to express their ideas clearly, with clarity and logic. The course will include the study of atomic theory and atomic structure, chemical bonding, nuclear chemistry, laws of ideal gases, kinetic molecular theory, liquids and solids, solutions, reaction types, stoichiometry, equilibrium, kinetics, thermodynamics and several descriptive aspects of chemistry.

574 ADVANCED PLACEMENT ENVIRONMENTAL SCIENCE
Grades: 11 and 12
Prerequisite: See AP Protocol Sheet
Course Requirement: All students are required to take AP Environmental Science exam.
Full-Year Course

This course follows the standards set by the College Board for Advanced Placement Environmental Science. The goal of the AP Environmental Science course is to provide students with the scientific principles, concepts, and methodologies required to understand the interrelationships of the natural world, to identify and analyze environmental problems both natural and human-made, to evaluate the relative risks associated with these problems, and to examine alternative solutions for resolving or preventing them. Environmental science is interdisciplinary; it embraces a wide variety of topics from different areas of study. Yet there are several major unifying constructs, or themes, that cut across the many topics included in the study of environmental science. The following themes provide a foundation for the structure of the AP Environmental Science course. 1. Science is a process. • Science is a method of learning more about the world. • Science constantly changes the way we understand the world. 2. Energy conversions underlie all ecological processes. • Energy cannot be created; it must come from somewhere. • As energy flows through systems, at each step more of it becomes unusable. We aim to train students to become self-reflective, critical thinking citizens of the earth who can make informed decisions about human actions that can impact the environment.

55A ADVANCED TOPICS IN SCIENCE - ROBOTICS
Grade 10 - Engineering Pathway students
Prerequisite: Principles of Engineering Course
Full-Year Course

This is the second course in a sequence of high-school, engineering courses that will prepare students for entry into a university/college engineering program. This *10th grade* course is currently only open to students participating in the Engineering Pathway program. This course will engage students in the theory and practice of building robots. Students will learn about the various mechanical electrical, control, sensor and power systems of robots. Students will be engaged in designing and building many different robots using both the LEGO Mindstorms and VEX Robotics platforms. Students will also develop skills related to computer aided design, basic hand and power tools, computer programming, and entrepreneurship. In addition, students will build on their previous year's experience and develop a more advanced pinhole camera project.

55B Big History (Listed in ASPEN as, "Off-Campus/On-Line Course: Science")
Grades: 11 and 12
Prerequisite: None
Full-Year Course

Big History is an interdisciplinary course that looks at 13.8 billion years of history – from the Big Bang to modernity – with a goal of revealing common themes and patterns that help students better understand people, civilizations, and our place in the Universe. The

course is a way for us to collaborate beyond typical history and science courses that present content separately, as well as to connect with a movement of Big Historians – scholars and teachers -- who have been developing this course at numerous other schools in the world over the last six years. It works to weave evidence and insights from many different disciplines into a single, cohesive science-based origin story. In so doing it encourages students to use different lenses to understand the past and the present, including artistic, environmental, ethical, historical, philosophical, scientific, and technological perspectives. It provides a foundation for thinking about the future and the changes that are reshaping our world. It challenges students to think critically and broadly and tries to ignite a passion for inquiry. Access to a wide variety of learning resources encourages exploration. Students practice critical reading and writing skills through investigations, projects, and activities, and gain a strong interdisciplinary foundation, which provides a useful context for understanding world events in the past and present.

55I PRINCIPLES OF ENGINEERING
Grade 9 - Engineering Pathway Students
Prerequisite: Acceptance into the Engineering Pathway Program
Full-Year Course

Principles of Engineering is the first in a sequence of high-school, engineering courses that will prepare students for entry into a university/college engineering program. This*9th grade* course is only open to students participating in the Engineering Pathway program. Students will learn engineering concepts and apply them to real-life projects through a series of hands-on, project-based experiences. Students will be engaged in designing and building the following: underwater submersibles, water bottle rockets, pin-hole cameras and several digital electronic devices. Students will also develop skills related to computer aided design, basic hand and power tools, and soldering.

57A ADVANCED PLACEMENT PHYSICS 1
Grades: 11 and 12
Prerequisite: See AP Protocol Sheet
Course Requirement: All students are required to take AP Physics 1 Exam .
Full-Year Course

Advanced Placement Physics 1 is an introductory level Physics course designed for highly motivated and engaged science students. The course follows the standards set by the College Board for Advanced Placement courses. This course is equivalent to the first semester of a first year algebra – based university level general physics class and is designed to prepare students for the AP Physics 1 exam given in May.

All objectives and topics learned in AP Physics 1 fall under the following six "Big Ideas" that articulate the foundational principles of introductory physics.

1. Objects and systems have properties such as mass and charge. Systems may have internal structure.
2. Fields existing in space can be used to explain interactions.
3. The interactions of an object with other objects can be described by forces.
4. Interactions between systems can result in changes in those systems.
5. Changes that occur as a result of interactions are constrained by conservation laws.
6. Waves can transfer energy and momentum from one location to another without the permanent transfer of mass and serve as a mathematical model for the description of other phenomena.

57B ADVANCED PLACEMENT PHYSICS 2
Grades: 11 and 12
Prerequisite: AP Physics 1 or an A/B average in Physics I
Course Requirement: All students are required to take the AP Physics 2 Exam.
Full-Year Course

This course follows the standards set by the College Board for Advanced Placement Physics 2. AP Physics 2 is an algebra-based physics course focusing on fluid dynamics, thermodynamics, electrostatics, circuits, electromagnetism, optics and modern physics. The goal of this course is to prepare the students for the AP Physics 2 exam in the May. Throughout this course students will gain a strong conceptual understanding of these topics in order to be prepared to take further physics courses in college. The course is comprised of a series of inquiry labs in order to expose students to these topics and to allow them to discover relationships between variables throughout different topics in physics.

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SOCIAL STUDIES

History and Social Studies Department Course Descriptions (2014 – 2015)

Course Sequence:

Grade 7:	World Geography
Grade 8:	Civics
Grade 9:	United States and World History I
Grade 10:	United States and World History II

Grade 11: United States and World History III
or
Advanced Placement United States History

Grades 11 & 12: Electives (seniors given priority)

Required Courses:

237 World Geography

Students will study the physical geography of the world outside of the United States and North America and its impact on the lives of people throughout the world. Students will acquire the skills and utilize the tools of geographers as they learn how to conduct geographic inquiry. In doing so, they will learn how to ask geographic questions, acquire geographic information, organize geographic information, analyze geographic information…and then answer the geographic questions they have posed, always supporting their answers with substantial geographic evidence.

The following concepts are at the heart of each section of the World Geography course:

- The World in Spatial Terms
- Places and Regions
- Physical Systems
- Human Systems
- Environment and Society
- The Uses of Geography

238 Civics in Action

The focus of the course is on:

- building students' mastery of challenging subject matter in civics and government
- preparing students for responsible citizenship; and
- involving students in civic action projects that promote and demonstrate good citizenship, community service, and personal responsibility.

The content is focused on developing and practicing essential citizenship skills (e.g., critical reading, discussion, debate, writing, collaboration, and decision-making) through the active exploration of a range of issues and ideas that are important to our local and national community and interesting to students. Major topics of study will include: Citizenship, Voting, The Constitution, The Bill of Rights, Civil Rights, Foreign Policy and Criminology

251 United States and World History I

United States and World History I is a study of major world events between the 15th and the 19th Century, with special emphasis on the creation of the United States. During the first semester, students will understand the causes and impacts of European colonization of the Americas. Topics will include the global economy before 1492, encounters between Europeans and Native Americans, the growth of slavery and the slave trade, and the Protestant Reformation and the settling of the thirteen British colonies in North America. The second semester will focus on the theme of government and revolution. Major topics of study will include the Enlightenment and the American Revolution, the creation of the U.S. Constitution and the slavery contradiction, and the comparison of revolutions in France, Latin America, and Haiti.

252 United States and World History II

United States and World History II investigates key aspects of 19th century industrialization and imperialism, the creation of the United States, its similarities and differences with other nation-states, and the role of the United States in the world by the turn of the 20th century. The course uses central themes in United States and world history as organizing principles: creation of communities, development of states and/or empires, evolution of belief systems, expansion of technology, extension of constitutional theories, and globalization of exchange and contact. Case studies from different regions of the world will be used to illustrate a particular theme in different historical periods and demonstrate connections, comparisons, and conflicts in the world. Examples will be used to understand events from multiple perspectives by using primary and secondary source materials.

Major topics of study will include: Brief review of early 19th century US, 1st Industrial Revolution, Growth of Western Democracies, US Westward Expansion, Social Reforms in the Antebellum Period 1848 Revolutions in Europe, US Sectionalism & Civil War, European Nationalism, US Reconstruction, The Gilded Age, Immigration, 2nd Industrial Revolution, US and European Imperialism

253 United States and World History III

U.S. and World History III focuses on the development of the United States in the 20th century and its similarities and differences with other nation-states in Africa, Asia, Europe and the Americas. Major topics of study will include, but are not limited to: the World Wars and the Cold War, the Russian and Chinese Revolutions, the 1920's and the Great Depression, post WWII social and economic trends, civil rights and student movements, the technological revolution, globalization and the world since the fall of communism and 9/11. In each case students will examine and understand events from multiple perspectives using both primary and secondary source materials.

Electives:

271 Advanced Placement United States History

Prerequisite: See *AP Protocol Sheet*

Advanced Placement U.S. History is a college level survey of United States History from European colonization to the present. The course uses both a chronological and thematic approach to the study of United States history with emphasis on political, social and economic history. Goals of the class include familiarizing students with all aspects of United States history, developing their analytical, organizational and writing skills and preparing the class for the Advanced Placement exam which is administered in May

A variety of instructional strategies will be employed throughout the year. Teaching and learning will be both teacher and student centered. Class assignments will include discussion and note taking, maps, graphic organizers, timelines, readings with discussion and/or questions, individual and group projects, student presentations, art observation and analysis, videos, music and guest presentations. In addition, field trips to sites directly related to the curriculum will highlight and support student understanding. Community resources will be employed to take the learning experience outside the classroom. In addition, technology is infused throughout the curriculum through use of software prepared specifically for the course, www.turnitin.com and the College Board web site.

Due to the large amount of content covered throughout the year, a great deal of independent work is required for success in this course. It is virtually impossible to cover all of the content in depth during class time. As a result, students will require a great deal of self-discipline to make sure they stay on top of reading assignments, outlines and projects. This will help students prepare for the AP exam, and also expose them to the type of learning they will experience at the university or college level. Students are encouraged to seek extra help on a regular basis and to supplement required readings on their own.

All students enrolled in this course are required to take the Advanced Placement Exam in May.

272 Advanced Placement European History

Prerequisite: See *AP Protocol Sheet*

Advanced Placement European History is a college level survey of European History from 1450 to the present. The course uses both a chronological and thematic approach to the study of European history from the Renaissance to the European Union with emphasis on intellectual, cultural, political, social and economic history. Goals of the class include familiarizing students with all aspects of European history, developing their analytical, organizational, writing and technology. A variety of instruction is employed including lecture and discussion, primary source reading, observations and analysis, group work, projects and presentations. In addition, art, media and technology are infused throughout the curriculum .Students interested in enrolling in the course should have a strong background in United States and world history, good reading and writing skills and an interest in art and using technology to support teaching and learning.

All students enrolled in this course are required to take the Advanced Placement Exam in May.

273 Advanced Placement United States Government and Politics

Prerequisite: See *AP Protocol Sheet*

This course explores the political theory and practice that direct the daily operation of our

government and shape our public policies. The course is taught on a college level and requires a substantial amount of reading and preparation for every class. The objectives of this course go beyond a basic analysis of how our government "works." Students will develop a critical understanding of the strengths and weaknesses of the United States' political system, as well as their rights and responsibilities as citizens. In order to have a better understanding of the United States system, students will also gain insights into other governmental systems. In so doing students will have a deeper understanding of United States government by having the opportunity to compare the United States government to the governments of other nation-states. Since this course will be taught during an entire school year instead of a semester, as it suggested by the College Board, these comparative elements will allow students to understand the United States government and politics within a global framework.

Major topics will include: The Role and Kind of Governments, the Expectations of Democracy, and the Potential for Human Rights, Constitutional Underpinnings of United States Government, Political Beliefs and Behaviors, Political Parties, Interest Groups, and Mass Media, Institutions of National Government, Public Policy, Civil Liberties and Civil Rights, Inquiry Project: Simulation at Tufts University's Institute for Global Leadership. After the AP exam. students will have the opportunity to choose a topic in a civic engagement project: school, city, state, national, international level.
All students enrolled in this course are required to take the Advanced Placement Exam in May

274 Advanced Placement Microeconomics

Prerequisite: See *AP Protocol Sheet*

Advanced Placement Microeconomics is a college level survey course of the principal concepts and theories of microeconomics. At the beginning of the year, students will examine what economics is and what questions it attempts to answer. Students will analyze the development of key economic systems and the role they have played historically and in the current world. We will study the dawn of the modern market system and the ideas of key economic philosopher Adam Smith. Students will learn to think like economists by understanding how decisions are made and how markets and the government can impact our lives. Students will learn important foundational concepts such as scarcity, tradeoffs, and opportunity cost. We will apply these concepts to learn about economic models related to trade. From there, students will study the model of supply and demand and apply this model to additional concepts like price controls, elasticity, and taxes. Students will then move to gain an understanding of how consumers make decisions that will maximize their happiness and how producers make decisions about how to maximize their profit using marginal analysis. Students will learn about how a market's structure impacts individual firm's decision-making and how the role of other firms in a market affects price and quantity. Later, students will examine how the impact of another person's actions can inadvertently affect our own lives, the types of goods that are available in society, and how the government plays a role in the economy. Finally, students will also review the benefits and costs of international trade. Significant time will be spent on creating and analyzing graphical models. Some basic math skills

are necessary for this purpose; however, no calculators are permitted on the AP exam in May. Students will demonstrate their learning through daily "Do Now's," class participation, homework assignments, quizzes, and end of unit exams. Students will strengthen their analytical skills in order to prepare them for future learning at the collegiate level.

Major topics will include: Scarcity, tradeoffs, and opportunity cost, Economic models: Circular flow and PPF, Trade: comparative & absolute advantage Product markets: supply and demand , Consumer choice theory, Production and costs of the firm, Firm behavior and market structure, Factor markets, Market failure & the role of government, International trade

All students enrolled in this course are required to take the Advanced Placement Exam in May

25A World Cultures (a/k/a "We and They – Globalization and the Human Condition via Service Learning & Critical Dialogue)

This course focuses on issues of class, race, gender, social inequalities and globalization in the world and how our choices as a nation (government, military, corporations, political parties, non-governmental agencies, social classes and individuals impact the lives of different social groups across the globe: past and present. Some of the major topics will include race relations and the connection between race and poverty in the United States, the Caribbean and Brazil, what and who causes terrorism and the connection between "Itoys" (IPhones, IPods, etc…) demand in the United States and the poor working conditions in China and whether demand or supply is a more powerful voice in terms of dictating our own morals.

This course attempts to break the imaginary lines (borders) that divide our globalized, but divided world into nation-sates and establish the "we" vs. "them" attitude and stereotypes which lead to great indifference, such as the lack of mobilization in the United States against the brutal chemical attacks that took place in Syria and the sad an unnecessary murder of young black men and the fact that the United States leads the world in prison population.

This course requires college-level writing and has a mandatory community service component.

55B Big History

Big History is an interdisciplinary course that looks at 13.8 billion years of history – from the Big Bang to modernity – with a goal of revealing common themes and patterns that help students better understand people, civilizations, and our place in the Universe. The course is a way for us to collaborate beyond typical history and science courses that present content separately, as well as to connect with a movement of Big Historians – scholars and teachers -- who have been developing this course at numerous other schools in the world over the last six years. It works to weave evidence and insights from many different disciplines into a single, cohesive science-based origin story. In so doing it encourages students to use different lenses to understand the past and the present, including artistic, environmental, ethical, historical, philosophical, scientific, and technological perspectives. It provides a foundation for thinking about the future and the changes that are reshaping our world. It challenges students to think critically and broadly and tries to ignite a passion for inquiry. Access to a wide variety of learning resources encourages exploration. Students practice critical reading and writing skills through investigations, projects, and activities, and gain a strong interdisciplinary foundation, which provides a useful context for understanding world events in the past and present.

Elective Course Offered in Past Years

25B Introduction to Law

Full Year Course

The primary objective of this course is to expose students to a broad range of legal issues, including those that are applicable to their everyday lives. At the conclusion of this course, students should have an understanding of their legal rights and responsibilities, a working knowledge of common legal issues and concepts, and have the ability to analyze, evaluate, and, in some situations, resolve legal disputes.

Major topics include: 1) Introduction to Law and the Legal System; 2) Criminal Law and Juvenile Justice; 3) Torts (Civil Law); 4) Consumer, Corporate and Housing Law; 5) Family Law; 6) Constitutional Law (individual rights and liberties)

25D Law II / Mock Trial

Full Year Course

The primary objective of this course is to develop the reading, writing, critical thinking and oral advocacy skills of students through case/issue analysis (with an emphasis on Constitutional Law) and their participation in various debates, discussions and mock trials, including the Massachusetts Bar Association's annual interscholastic mock trial competition.

Major topics include: 1) Kinds of Laws; 2) Trial Techniques 3) Mock Trials (Historical and MBA Trials); 4) Constitutional Law/Rights in the Community (Freedom of Speech/Press/Religion, Due Process, Right to Privacy, Discrimination, Rights/Responsibilities in the workplace); 5) Moot Court/Debates.

25K Economics

Full Year Course and Semester/Half Year Course

Economics is designed to allow students to gain an understanding and working knowledge of the U.S. market society and how it functions. The students construct a model of a market society. They study consumers and business, and their interaction. Government is added to the model to examine its function in a market system. The students learn how to graph economic information. Each Federal Reserve board meeting is evaluated to determine how the federal policies affect the market. The class participates in a 10-week stock market competition sponsored by the Boston Globe. Students invest competition dollars based on their economic evaluation of the existing market conditions. Investment knowledge is applied to the real estate market.

25N Sociology

Full Year Course and Semester/Half Year Course

Sociology is the scientific study of social structure (human social behavior). In this course, students will examine the principles concepts and methods that comprise the scientific study of sociology. Major topics will include the various forms of social structure, the role of cultural diversity in a society; the role of the economy and politics in society; the role of education and religion in society; the changing family structure, and the importance of how the individual works within societal groupings.

25P Contemporary Global Issues, 1968-Present

Semester/Half Year Course

This course will investigate contemporary issues by looking at cases in Africa, the Americas, Asia, and Europe and focus on peoples' attempts to have control in their communities. We will consider changing definition of communities as people see to solve problems relating to access to adequate food, health care, and other life's necessities and to overcome unfair systems that have led to injustice, overpopulations, and political corruption. Major topics include: the revolutions of 1968 and the creation of both local and global communities, the globalization of the economy, revolutions of 1989, a comparison of life in capitalist and post-communist societies, the mal distribution of resources at the beginning of the 21st century, and the relationship between Christian

and Islamic societies. Students will participate in a Model United Nations simulation as a culminating activity.

257 African American History

Full Year Course and Semester/Half Year Course

In this course, students will examine the history of African-Americans from the earliest beginnings in Africa to the current status of African Americans in the United States. Emphasis will be placed on the political, economic and cultural contributions of African-Americans in America. Topics will include Africa's history, geography and culture, tribalism, the slave trade, slave revolts and abolitionism, the Civil War and its aftermath, Reconstruction, segregation, the struggle for a "dream", and the legacies of African-American leaders politics, society, and culture.

259 Latin American History

Semester/Half Year Course

This course will investigate Latin American history, from ancient civilizations to the present. Students will decide on topics to be studied in a global context, with a strong focus on research, analysis and writing skills. Discussions, debates, and simulations will be major learning methods in this class. Major topics: the growth, evolution and collapse of indigenous civilizations; the arrival of European explorers and the notion of "discovery"; European conquest and colonization; slavery; world economics; revolutions, independence and nation building; imperialism; the "Banana" Republics, Latin American culture and society, and contemporary issues and challenges in the 21st century.

WORLD LANGUAGES

SPANISH COURSES

Students will explore the fascinating world of Spanish speaking countries through the acquisition of the language. Students will communicate in order to survive and thrive in a non-English environment. An atmosphere of risk-taking will be evident and encouraged as students develop language expression. Technology will play an intricate part as a learning tool in accessing the real world of Spanish-speaking countries. Students entering the course with previous exposure to the Spanish language, as well as novice learners will benefit from each other and expand their knowledge of Spanish language and culture.

351: SPANISH I:

In alignment with the Massachusetts World Languages Framework and the city of Boston World Languages Learning Standards, the Spanish 1 course is designed to allow students to complete stage 1 strands in the six areas of culture, connecting, listening, speaking, reading and writing.

352: SPANISH II:

In alignment with the Massachusetts World Languages Framework and the city of Boston World Languages Learning Standards, the Spanish 2 course is designed to allow students to complete stage 2 strands in the six areas of culture, connecting, listening, speaking, reading and writing.

353: SPANISH III:

This course is a proficiency-assessed, communicative-based class designed for students who are studying Spanish for the third year. In alignment with the Massachusetts World Languages Framework and the city of Boston World Languages Learning Standards, the Spanish 3 course is designed to allow students to complete stage 3 strands in the six areas of culture, connecting, listening, speaking, reading and writing.

Advanced vocabulary and syntax are taught and the cultures of various groups of Spanish speakers are explored in depth. The emphasis is on communicative competency.

356: SPANISH FOR NATIVE SPEAKERS I:
357: SPANISH FOR NATIVE SPEAKERS II:
358: SPANISH FOR NATIVE SPEAKERS III:
These courses are content-based programs, for students who are native Spanish speakers. Typically, these students' strengths lie in listening and speaking, but they need reinforcement in grammar, writing and reading. This course will use the content areas –Social Studies, Latin American History, and Literature – to build on those skills. Our curriculum will comply with the City of Boston Learning Standards as well as the Massachusetts Foreign Languages Frameworks.

373: ADVANCED PLACEMENT SPANISH LANGUAGE:
Advanced Placement Spanish Language is an intensive course for highly motivated students who have already learned Spanish grammar and have developed proficiency in all four language skills: writing, reading, speaking and understanding Spanish. It is designed to help the learner perfect and enhance these skills. Students will continue to increase their understanding of Hispanic cultures and will be encouraged to pursue the study of Spanish in college. Our curriculum complies with the City of Boston Learning Standards, the Massachusetts Foreign Languages Frameworks and the College Board for Advanced Placement course certification. All students are required to take the AP Exam in May. Those earning qualifying scores (3, 4 and 5 on a 5 point scale), may be eligible for college credit.

FRENCH COURSES

Students will explore the fascinating world of French speaking countries through the acquisition of the language. Students will learn to communicate in order to survive and thrive in a non-English environment. An atmosphere of risk-taking will be evident and encouraged as students develop language expression. Technology will play an intricate part as a learning tool in accessing the real world of French- speaking countries. Students entering the course with previous exposure to the French language, as well as novice learners will benefit from each other and expand their knowledge of French language and culture.

35F: FRENCH I:
In alignment with the Massachusetts World Languages Framework and the City of Boston World Languages Learning Standards, the French 1 course is designed to allow students to complete stage 1 strands in the six areas of culture, connecting, listening, speaking, reading and writing.

35G: FRENCH II:
In alignment with the Massachusetts World Languages Framework and the City of Boston World Languages Learning Standards, the French 2 course is designed to allow students to complete stage 2 strands in the six areas of culture, connecting, listening, speaking, reading and writing.

35H: FRENCH III
This course is a proficiency-assessed, communicative-based class designed for students who are studying Spanish for the third year. In alignment with the Massachusetts World Languages Framework and the city of Boston World Languages Learning Standards, the French 3 course is designed to allow students to complete stage 3 strands in the six areas of culture, connecting, listening, speaking, reading and writing. Advanced vocabulary and syntax are taught and the cultures of various groups of French speakers are explored in depth. The emphasis is on communicative competency.

371: ADVANCED PLACEMENT FRENCH LANGUAGE:
Advanced Placement French Language is an intensive course for highly motivated students who have already learned French grammar and have developed proficiency in all four language skills: writing, reading, speaking and understanding French. It is designed to help the learner perfect and enhance these skills. Students will continue to increase their understanding of the French culture and will be encouraged to pursue the study of French in college. Our curriculum complies with the City of Boston Learning Standards, the Massachusetts Foreign Languages Frameworks and the College Board for Advanced Placement course certification. All
students are required to take the AP Exam in May. Those earning qualifying scores (3, 4 and 5 on a 5 point scale), may be eligible for college credit.

CHINESE COURSES

The study of Chinese will develop communicative skills in Mandarin. Additionally, as they learn the language, students will discover the rich culture and history of the people of China. Students will develop a mastery of the four language skills: speaking, listening, reading and writing. Students will learn Hanyu pinyin, radicals, word usages, sentence patterns, basic dialogues and short sentences for use in real life situations. Students will engage in conversations and provide appropriate responses in culturally authentic ways.

35A: CHINESE I:
This beginning Chinese class will cover topics in the following areas: Pinyin (phonetic system), tone marks (pitch of sound), pictographs (picture writing), radicals (basic elements of Chinese writing), dictionary skills (number and order of strokes), characters (reading and writing), grammar (basic structures), communicative competence (application of knowledge in listening, speaking, reading, and writing), and art and culture (exploring and appreciating the Chinese way).

35B: CHINESE II
This second year Chinese course will continue to develop students' communicative skills in listening, speaking, reading and writing. Extensive practice will ensure students' fluent pronunciation and accurate tone pitch. There is an increased focus on reading and writing

Chinese characters. Additional studies of Chinese history and culture will also be explored in order to bring the language and culture alive.

35C: CHINESE III
This third-year Chinese course will continue to develop students' communicative skills in listening, speaking, reading and writing. More complicated sentence patterns and grammar will be included. Students will be expected to write short compositions using characters. Classroom instructions will be in the target language. Additional studies of the history and culture will also be implemented in order to bring the language and culture alive.

37A: ACCELERATED AP CHINESE/Honors:
Accelerated AP Chinese/Honors is a full-year hybrid course with multiple components: summer sessions, online and face to face instruction. The course, intended for advanced students who have attained a high level of fluency. The course is designed to provide students with varied opportunities to further develop their proficiencies across the three communicative modes: interpersonal (speaking, listening, reading and writing skills), interpretive (listening and reading skills), and presentational (speaking and writing skills); and the five goal areas (communication, cultures, connections, comparisons, and communities) as outlined in the Standards for Foreign Language Learning for the 21st Century. **(Class meets in a none-schools hours)**

Physical Education

Physical Education participation educates students to acquire knowledge, skills, and motivation to engage in a lifetime of physical activity and other healthy practices. Students who engage I quality physical education become physically educated individual who:

- Demonstrate competency in many forms and proficiency in a few movement forms.
- Applies movement concepts and principles to the learning and improvement of motor skills
- Achieves and maintains a physically active and health-enhancing lifestyle.
- Will be provided with opportunities for integrated and interdisciplinary learning
- Develops and achieves personal living skills and acquires values that demonstrate responsible personal and social behavior.
- Will provide with n opportunity for enjoyment, challenge, self-expression, reflection and social interaction
- Personal Living includes: fitness, risk-taking, safety, initiative, leadership/fellowship, trust, and respect.

Major Topics: Physical Fitness, Teamwork, Cooperation, Pedometers, Written and Performance tests, Fall, Winter sport skills, Games Situation Play, Rules of the Sports, Life Time Sports and Team Sports, Cooperative Games.

Instructional strategies: Visual, auditory and kinesthetic input methods will be used to access student learning styles.

Teacher lecture will be used to introduce topics and encourage active learning. Student presentations, cooperative group presentations, and technological research will be assessed in each grading session. Through reading, writing, observation, discussion, and actions students learn to locate information and assess its reliability. Students will make reasoned decisions based on accurate information, and apply their knowledge to their own health, safety, and wellness.