

The Bronx High School of Science
75 West 205 Street
Bronx, New York 10468

Valerie Reidy
Principal

Course Guide
For
School Year 2012-13

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DIRECTORY OF ADMINISTRATORS

Valerie J. Reidy	Principal	Room 135
<u>ASSISTANT PRINCIPALS ADMINISTRATION</u>		
Shun Fang Chang	Assistant Principal Pupil Personnel Services	Room 035F
Phoebe Cooper	Assistant Principal Organization	Room 135
<u>DEPARTMENT SUPERVISORS</u>		
David Colchamiro	Assistant Principal Social Studies Department	Room 307D
Jean Donahue	Assistant Principal Biology and Physical Science Departments	Room 231D
Damaris Fernandez	Assistant Principal English Department	Room 207D
Fred Levy	Assistant Principal Technology, Art and Physical Education Departments	Room 002A
RoseMarie Jahoda	Assistant Principal Mathematics Department	Room 107D
Lisa Rocchio	Assistant Principal Foreign Language and Music Departments	Room 315D

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THE ENGLISH DEPARTMENT

FRESHMAN ENGLISH CLASSES

E1 - FRESHMAN ENGLISH

(5 periods per week for 1 year – Not a Special Permission Course)

This course aims to strengthen students' fundamental skills in reading and writing through the study of basic literary elements and a sequenced list of core literary texts by Orwell and Steinbeck. Students are also expected to develop the ability to compare and contrast major themes through the analysis of literary text as well as nonfiction texts. In addition, students follow a year-long introductory course of vocabulary and grammar study.

Core Texts: *Animal Farm, The Pearl, Of Mice and Men, The Catcher in the Rye, Julius Caesar/The Taming of the Shrew, The Bad Seed/Inherit the Wind*

E1H - FRESHMAN HONORS ENGLISH

(5 periods per week for 1 year – Special Permission required)

In addition to the regular Freshman English curriculum, students in the Freshman Honors English are expected to demonstrate a greater mastery of literary analysis and a more in-depth connection between literary elements and literature. This focus culminates in the completion of projects related to themes explored in the course such as: dystopian societies, the American Dream and the role of culture in society. Admission into this class is based on entrance exam scores.

Core Texts: *Animal Farm, The Pearl, Of Mice and Men, The Catcher in the Rye, Julius Caesar/The Taming of the Shrew, The Bad Seed/Inherit the Wind*

EWS - FRESHMAN WRITING SEMINAR

(5 periods per week for 1 term – Not a Special Permission Course)

The Freshman Writing Seminar is a one semester course and is taken *in addition* to regular Freshman English. The purpose of the Freshman Writing Seminar is to develop the practical writing skills necessary for future success as a writer in and out of school. The seminar uses templates to provide students with the analytical frames necessary to generate successful expository writing. As students become more familiar with such templates, they will begin to write more confidently and fluently, all the while developing their own voice as a writer.

SOPHOMORE ENGLISH CLASSES

E3 – SOPHOMORE ENGLISH

(5 periods per week for 1 year – Not a Special Permission Course)

This course aims to consolidate students' skills of literary analysis through a study of central classics of Western Literature. In the first term, students explore the theme of man's quest for identity. In the second term, students will explore the controlling idea of man vs. society. In addition, students follow a year-long intermediate course of vocabulary and grammar study.

Core Texts: *Greek Mythology, The Odyssey, Brave New World/1984, Henry IV Part I/The Merchant of Venice, Fences/A Raisin in the Sun*

E3FH – FORENSICS

(5 periods per week for 1 year, Special Permission required)

This Sophomore English Honors course, in addition to following the Sophomore English curriculum, provides instruction in debate and public speaking. One fourth of the course will be devoted to speech and debate. Students learn how to deliver an original oratory and how to debate using logic, rhetorical language, and argumentation. No previous experience in speech and debate is necessary or preferred.

Core Texts: *Greek Mythology, The Odyssey, Brave New World/1984, Henry IV Part I/The Merchant of Venice, Fences/A Raisin in the Sun/Pygmalion*

E3OH – HONORS SOPHOMORE ENGLISH

(5 periods per week for 1 year, Special Permission required)

In addition to the sophomore curriculum, students of Sophomore Honors English are expected to demonstrate a greater mastery of literary analysis, and a greater understanding of the connection between history and literature. This focus culminates in a research paper that compares visions of society in literary works such as Orwell's *1984* and Huxley's *Brave New World*.

Core Texts: *Greek Mythology, The Odyssey, Brave New World/1984, Henry IV Part I/The Merchant of Venice, Fences/A Raisin in the Sun*

JUNIOR ENGLISH CLASSES

E5 – SURVEY OF AMERICAN LITERATURE

(5 periods per week for 1 year – Not a Special Permission Course)

This course focuses on masterpieces of American literature from pre-colonial times to the twentieth century. This class involves the study and analysis of novels, plays, poetry, short stories and nonfiction works that reflect American society, culture and values. A strong emphasis is placed on critical reading, thinking, and writing in preparation for the English Regents taken in June.

Core Texts: *The Scarlet Letter, Huckleberry Finn, The Great Gatsby, Macbeth, Death of a Salesman/A Streetcar Named Desire*

E5OH – JUNIOR HONORS ENGLISH

(5 periods per week for 1 year, Special Permission required)

In addition to the regular Junior English curriculum, students of Junior Honors English will be expected to explore and analyze the masterpieces of American literature at a deeper level. This honors course focuses on the variety of literary approaches available to the advanced student of literature including historical, feminist, and cultural criticism.

Core Texts: *The Scarlet Letter, Huckleberry Finn, The Great Gatsby, Macbeth, Death of a Salesman/A Streetcar Named Desire*

E5JH - JUNIOR HONORS JOURNALISM

(5 periods per week for 1 year, Special Permission required)

In addition to the regular Junior English curriculum, this honors course, designed for students who like all kinds of writing, teaches news and editorial writing in hands-on journalism “workshop” sessions. Important issues in print journalism are explored through critical reading and consideration of *The New York Times* and other publications. This honors course will help prepare students to assume editorial positions on *Science Survey* in the senior year, in conjunction with participation in EJ3V-Journalism Workshop (a sixth major course), which may

be taken during the junior and senior years.

Core Texts: *The Scarlet Letter, Huckleberry Finn, The Great Gatsby, Macbeth, Death of a Salesman/A Streetcar Named Desire*

E5X2 – ADVANCED PLACEMENT ENGLISH LANGUAGE AND COMPOSITION

(5 periods per week for 1 year, Special Permission required)

In addition to following the regular Junior English curriculum, this Advanced Placement Course prepares students for college writing; it is designed to help students become skilled readers of a wide variety of prose styles and to become skilled writers who compose for a variety of purposes. The main objective of the course is to enable students to read complex texts with understanding and to write prose of sufficient richness and complexity to communicate effectively with mature readers. Students in this class must take the Advanced Placement test in May.

Core Texts: *The Scarlet Letter, Huckleberry Finn, The Great Gatsby, Macbeth, Death of a Salesman/A Streetcar Named Desire*

NOTE:

STUDENTS WHO TAKE ADVANCED PLACEMENT COURSES ARE REQUIRED TO TAKE CORRESPONDING AP EXAMS IN MAY.

THE ADVANCED PLACEMENT Exam Fee is \$87 per exam.

SENIOR ENGLISH CLASSES

E7 – A SURVEY OF ENGLISH AND WORLD LITERATURE

(5 periods per week for 1 year – Not a Special Permission Course)

Senior English is a course that builds upon the students' progressive reading, writing, and communication skills developed freshman through junior years. The curriculum primarily focuses on a diversity of challenging World Literature plays and novels along with required core texts from Sophocles and Shakespeare. Students are required to respond to all literature through various writing pieces and collegiate-level critical essays. The course concludes with a culminating creative language arts project that represents the knowledge and skills obtained in English throughout their four years at Bronx Science.

Core Texts: *Antigone, Oedipus Rex, The Canterbury Tales, Hamlet/King Lear/Othello*

E7CH – HONORS CREATIVE WRITING

(5 periods per week for 1 year, Special Permission required)

In addition to the regular Senior English curriculum, the students in this honors course will explore the process and techniques of creative writing. Students will experiment with different genres including short stories, poems, plays, and personal essays. Students will be expected to write formally and informally in order to prepare for the rigor of college writing. This course culminates in a substantial writing project to illustrate proficiency in the craft.

Core Texts: *Antigone, Oedipus Rex, The Canterbury Tales, Hamlet/King Lear/Othello*

E7X1 – ADVANCED PLACEMENT LITERATURE

(5 periods per week for 1 year, Special Permission required)

In addition to following the regular senior English curriculum, this Advanced Placement course engages students in careful reading and critical analysis of works from different genres in literature. Emphasis is placed upon the mastery of the expository essay and the tasks of defining how particular elements of fiction and language elucidate theme and meaning. Students in this

class must take the Advanced Placement test in May.

Core Texts: *Antigone, Oedipus Rex, The Canterbury Tales, Hamlet/King Lear/Othello, Introduction to Reading and Writing Literature*

NOTE:

STUDENTS WHO TAKE ADVANCED PLACEMENT COURSES ARE REQUIRED TO TAKE CORRESPONDING AP EXAMS IN MAY. THE ADVANCED PLACEMENT Exam Fee is \$87 per exam.

THE FOLLOWING COURSES MAY BE TAKEN AS 5th -or 6th MAJORS:

These courses must be taken with an E5 or E7 class.

ELP1 – INNER VISIONS: POETRY AND THE CREATIVE PROCESS

(5 periods per week for 1 year – Not a Special Permission Course)

This course is designed to explore the habits and skills of writing about and analyzing poetry which are critical for success on the college level. The study of composition will be emphasized. The course will begin with the study of poems by Renaissance poet Sir Philip Sidney, William Shakespeare and the invention of the sonnet and proceed through poets of the twentieth century. Students will be introduced to the poetic tradition primarily of English and American poets with occasional excursions into poetry in translation by poets such as Rilke, Neruda and Borges. The course will introduce students to literary theory, cultural history and literary criticism as they apply to poetry. In addition, the course will feature a creative writing component; students will have the opportunity to write poems of their own and to compose mimicry poems. This course is designed to increase each student's appreciation of poetry through exposure to Canonical poets, and to strengthen critical skills necessary to understand and evaluate poetry on the college level. *This class will not count as the required English class but it will be an additional elective class which can count as a 5th or 6th major.*

ESF1 – EXPLORING SCIENCE FICTION

(5 periods per week for 1 year – Not a Special Permission Course)

This is an elective course open to juniors and seniors. The focus of this course is to trace the progression of society's fears about science and technology from Industrialization to the development of nuclear weaponry, computers, biochemical warfare, and assisted reproduction through reading a series of fictional works. Authors might include Mary Shelley, HG Wells, Jules Verne, Michael Crichton, Ray Bradbury and Kurt Vonnegut Jr. *This class will not count as the required English class but it will be an additional elective class which can count as a 5th or 6th major.*

SIXTH MAJORS IN ENGLISH

SIXTH MAJORS in English are specially designed workshop courses. Students who wish to take a sixth major in ENGLISH must also take a regular English class.

EC1* – BRONX SCIENCE FORENSICS DEBATE TEAM

(5 periods per week for 1 year - Special Permission Required - 6th major only)

This leadership course is open to officers of the Bronx Science Forensics Team. The focus of this class is to develop leadership skills which will allow the student officers to fulfill the responsibilities required for managing a "World-Class" Speech and Debate Team. Class time will be used for the head coaches and officers to discuss and review Policy and Lincoln-Douglas debate strategies as well as Individual Events techniques.

EC3* - PUBLIC SPEAKING CLASS

(5 periods per week for 1 year - 6th major only; this course may not be offered.)

The fall semester focuses in the development of skills in various types of public speaking such as original oratory, extemporaneous, informative, and persuasive speaking. In the spring semester students learn techniques of argumentation and debate. After mini-debate exercises all students participate in individual and team debates. The course culminates in a sixteen-team debate tournament.

EJ3* - JOURNALISM WORKSHOP

(5 periods per week for 1 year –Special Permission Required – 6th major only)

This leadership format class is open to juniors and seniors who will be responsible for the editing, proofreading, layout, and production of the school newspaper, *Science Survey*. The workshop will be conducted in a "newsroom" setting in which students will become proficient in the use of computers for newspaper writing. They also will have an opportunity to learn desktop publishing. The class is open to juniors and seniors interested in experiencing the demanding "real" world of writing and editing for deadlines; learning and administering the business management of a school newspaper; and being responsible for all aspects of art, photography, layout and newspaper production.

All Survey editors will be required to take this course. However, it is also open to other juniors and seniors who wish to occupy positions of leadership and serious responsibility on the school newspaper. Students taking E5JH – Junior Journalism are especially encouraged to take this course in the junior year.

EJ1* - YEARBOOK JOURNALISM WORKSHOP

(5 periods per week for 1 year – Special Permission Required – 6th major only)

This is a sixth major for juniors and seniors who would like to learn how to produce an award-winning publication, *The Observatory*, and are interested in creative writing, journalistic writing, and the art of photography. Students will develop marketable skills in layout and design (Adobe Creative Suite: InDesign CS 5 and PhotoShop CS5), creative and journalistic writing, editing, proofreading, photography, time management, and advertising. Students must exhibit creativity, organization, responsibility, and must have skills in photography and writing. It is extremely helpful, but not required, for students to have their own digital camera (either a point and shoot or a Single Lens Reflex (SLR) camera—no film cameras). You will be required to take photographs indoors and outdoors. Traditional photograph principles such as the art of composition; adjusting white balance, aperture, and shutter speed; and the history of photography, will be taught. All participants will be expected to work outside of class and to meet after school during certain times of the year. In addition to individual responsibilities, all participants have a duty to the entire student body and to the school to produce a yearbook of the highest quality. The yearbook journalism workshop is a very rewarding experience for students who are willing to work hard. Interested applicants should contact the Assistant Principal of the English Department (Room 207D). Staff training for the next school year's publication (for students who are selected as editors) begins during the last week of school with a journalism workshop held at Columbia University. Students are especially encouraged to join the yearbook staff during their junior year, as they are most likely to receive leadership positions during their senior year, if they make a two year commitment to the program.

THE SOCIAL STUDIES DEPARTMENT

As historians Irwin Unger and Robert R. Tomes have stated; “Americans worry about the state of education in the United States today. Recently we have been told how little students know about science, geography, mathematics, and history; we fear that our country will be unprepared to compete against the other advanced industrial societies in years to come. We are also concerned that the new generation will lack the shared civic knowledge essential for a functioning democratic system.

There is indeed reason to be dismayed by how small a stock of historical information young Americans possess. But it is important also to realize that education is not just transmission of data. It is also the fostering of critical thinking. The most encyclopedic knowledge does students little good if they cannot use it to reach valid and useful conclusions.”

It is this belief that has inspired the Social Studies Department of The Bronx High School of Science to develop courses and techniques that stimulate active and analytical learning about a great variety of subjects that encompass the social sciences. The following pages, which describe this department’s elective and required offerings, are dedicated to achieving the goals expressed above.

FRESHMEN SOCIAL STUDIES COURSES

OPEN TO INCOMING FRESHMEN

H1\$ – GLOBAL HISTORY 1

(5 periods per week for 1 year – Not a Special Permission Course)

This course is the first of a 2-year sequence that satisfies the New York State Global Studies requirement. The course covers world history from pre-historic times to 1789.

Or

H1X – ADVANCED PLACEMENT WORLD HISTORY

(5 periods per week for 1 year – placement is by an exam for incoming freshman)

This is the first of a 2-year sequence that culminates in the taking of the Advanced Placement World History exam and fulfills the New York State Regents requirement in Global Studies. It is open to highly motivated students with a strong interest in history and demonstrated superior writing and research skills. Students are expected to handle college level texts and primary sources.

SOPHOMORE SOCIAL STUDIES COURSES

H3\$ – GLOBAL HISTORY 3

(5 periods per week for 1 year – Not a Special Permission Course)

This course covers world history from 1770 to contemporary times. Some of the topics included in the first term are the revolutions of the early nineteenth century, the failure of democracy in the search for stability, economic and social changes, nationalism, imperialism, World War I, and the Russian revolution. Issues covered in the second term include fascism, World War II, the Cold War, Post- World War II economics, the Chinese Communist Revolution, Post- World War II

Africa, Post WWII South East Asia, Post- WWI Latin America, and the collapse of communism and the break-up of the Soviet Union.

H3X – ADVANCED PLACEMENT EUROPEAN HISTORY

(5 periods per week for 1 year - Special Permission Required).

The sophomore course will cover the period from 1400 to the contemporary times. It replaces Global Studies 3- 4 and uses a high level textbook and supplementary reading material. There will be supplementary primary and interpretive readings. The class will be conducted primarily in discussion fashion but may include lectures, panel discussions, and debate. Considerable attention will be paid to developing writing and interpretive skills for test essays and for research. There is a research requirement. In addition to taking the Global Studies Regents, students enrolled in this class must take the Advanced Placement exam in May.

H3X1 - ADVANCED PLACEMENT HUMAN GEOGRAPHY

(5 periods per week for 1 year - Special Permission Required)

This sophomore course replaces Global Studies 3-4 and introduces students to the systematic study of patterns and processes that have shaped human understanding, use, and alteration of the Earth's surface. As students learn about the methods and tools geographers use in their science and practice, they also learn about the historical period from 1750 to the present time as part of the Global Studies curriculum. In addition to taking the Global Studies Regents Examination in June, students enrolled in this class must take the Advanced Placement Examination in May as well.

H3X3 – ADVANCED PLACEMENT WORLD HISTORY – YEAR 2

(5 periods per week for 1 year)

This is the continuation of the two-year Advanced Placement World History (H1X) course. All freshmen currently in Advanced Placement World History must take the second year of the course. No other students may enroll in this course.

Prerequisite: H1X.

NOTE:

STUDENTS WHO TAKE ADVANCED PLACEMENT COURSES ARE REQUIRED TO TAKE CORRESPONDING AP EXAMS IN MAY. THE ADVANCED PLACEMENT Exam Fee is \$87 per exam.

JUNIOR SOCIAL STUDIES COURSES

Students may take any of the following classes to satisfy their Junior Social Studies requirement:

- U.S. History and Government
- Advanced Placement U.S. History for juniors

H5 - U.S. HISTORY AND GOVERNMENT

(5 periods per week for 1 year – Not a Special Permission Course)

This course begins with the American Revolution and ends with contemporary times. The study of the function of American Government is emphasized throughout the year.

H5X1 – JUNIOR ADVANCED PLACEMENT US HISTORY

(5 periods per week for 1 year - Special Permission Required).

This course addresses the Advanced Placement American History Program and requires that students take the AP History Examination in May. We begin with the Colonial period and continue through to contemporary times. The course prepares students for the United States History and Government Regents in June.

NOTE:

STUDENTS WHO TAKE ADVANCED PLACEMENT COURSES *ARE REQUIRED TO TAKE CORRESPONDING AP EXAMS IN MAY*. THE ADVANCED PLACEMENT Exam Fee is \$87 per exam.

SENIOR SOCIAL STUDIES COURSES

Any of the following H7 classes will fulfill the senior Social Studies requirement. Where noted, some of these classes may be taken as a 5th or 6th major.

ADVANCED PLACEMENT CLASSES

H7X3 – ADVANCED PLACEMENT UNITED STATES GOVERNMENT AND POLITICS

(5 periods per week for 1 year - Special Permission Required).

(May also be taken as a 5th or 6th major – HCX3)

This Advanced Placement course is taken in place of the regular senior H7/H8 social studies requirement. The course begins by examining the basic principles that underlie how our federal government is designed. The role of political parties and interest groups is examined. Topics such as the differences in the way that citizens of different races and gender vote and issues surrounding the relationship between the branches of government will be examined by a series of case studies. In class debates topics include campaign finance reform and its relationship to the First Amendment to the Constitution. Finally, the course will cover the Supreme Court and some of its recent decisions in the area of civil rights and civil liberties.

While this course will discuss the historical foundations of, and the theory behind, our governmental system, the emphasis will be on contemporary political issues. Students will be encouraged to form their own opinions on today's controversial issues. Whether you are a conservative, a radical, a liberal or a moderate, students interested in this subject should find the class informative, exciting, and different. Requirements for admission to this class include a minimum average of 90 in Social Studies and English and a pre-test administered by the Social Studies Department. Students who take the course must take the AP Exam in May.

H7X4 – ADVANCED PLACEMENT COMPARATIVE GOVERNMENT AND POLITICS

(5 periods per week for 1 year - Special Permission Required).

(May also be taken as a 5th or 6th major – HCX4)

The comparative politics course focuses on the governments and policies of six core countries: China, Great Britain, Mexico, Nigeria, Iran, and Russia. Throughout the course, students learn to make systematic comparisons and evaluate the different political systems involved. Students who are interested in a senior course that is explicitly focused on issues outside of the American context will find this course stimulating. Students are required to sit for the AP Exam in May.

H7X5 – ADVANCED PLACEMENT MICROECONOMICS

(5 periods per week for 1 year - Special Permission Required).

(May also be taken as a 5th or 6th major – HCX5)

This Advanced Placement course is taken in place of the regular senior H7/H8 social studies requirement. Microeconomics is the theory of the free market that focuses on how business owners and households make economic decisions. The course will also include an aspect of public policy inquiry that satisfies the requirement for Participation in Government.

H7X7 – ADVANCED PLACEMENT MACROECONOMICS

(5 periods per week for 1 year - Special Permission Required).

(May also be taken as a 5th or 6th major – HCX7)

This Advanced Placement course is taken in place of the regular senior H7/H8 social studies requirement. Macroeconomics is the theory of the free market that looks at the economy as a whole. It includes national income and price determination, economic performance measures, economic growth and international economics. Money, banking, monetary policy and inflation are important topics. The course also includes an aspect of public policy inquiry that satisfies the requirement for Participation in Government as well as enhances the economics course. This inquiry will reflect the current events of the fall term.

H7X9 – ADVANCED PLACEMENT MICRO/MACROECONOMICS

(5 periods per week for 1 year - Special Permission Required).

(May also be taken as a 5th or 6th major – HCX9)

This Advanced Placement course is taken in place of the regular senior H7/H8 social studies requirement and is an accelerated combination of both Advanced Placement Economics courses. Upon completion of this course, students will take the Advanced Placement Microeconomics *and* Macroeconomics examinations.

NOTE:

STUDENTS WHO TAKE ADVANCED PLACEMENT COURSES ARE REQUIRED TO TAKE CORRESPONDING AP EXAMS IN MAY. THE ADVANCED PLACEMENT Exam Fee is \$87 per exam.

SENIOR SOCIAL STUDIES COURSES

. The first term will be Participation in Government and the second will be Economics.

H7 – PARTICIPATION IN GOVERNMENT/ECONOMICS

(5 periods per week for 1 year – Not a Special Permission Course)

This senior course satisfies the H7/H8 graduation requirement. The Participation in Government course is taught during the fall term. The curriculum includes a study of the American system of government. The Constitution is a focal point of study and it is examined from both historical and contemporary perspectives. Students will also be involved in a “participation in government” experience. The spring term is devoted to an examination of the American economy. Basic economic institutions will be examined including banking, labor, taxation and international trade. Comparisons will be made with other economic systems.

SOCIAL STUDIES ELECTIVE MINOR:

HE1 - HOLOCAUST LEADERSHIP CLASS

(5 periods per week in class + 5 periods arranged per week for 1 year – Special Permission Required)

The Holocaust Leadership elective is one of the most unique classes found in any high school in the world. Students selected from this course become administrators in Bronx Science's internationally renowned Holocaust Museum, the only such museum in any university, college or high school. The leadership class meets one period each day and students must be willing to serve one other additional period a day (arranged hours). Interested students should see the Director of the Holocaust Museum in Room 214 or the department chairperson.

SOCIAL SCIENCE RESEARCH PROGRAM

The research program in the social sciences offers students an opportunity to do original research in all areas of social science, including but not limited to sociology, psychology, economics, political science and religious and ethnic studies. *Interested students apply for sophomore research courses in the spring of their freshman year.* Students who are accepted into the program take a three-year sequence of research courses. During this time, they develop and complete an independent research project and write a scientific paper, which they submit to Intel and other scientific competitions in their senior year. Students generally spend part of two summers working on their projects. Complementing this major research project, students also participate in a variety of problem-solving individual and team projects and skill-building activities in the classroom.

It is expected that students who enroll in the research program will complete the three-year sequence. If a student drops out of sophomore research class s/he must take a semester of technology education.

HUP1 – SOPHOMORE SOCIAL SCIENCE RESEARCH

(5 periods per week for one year –Special Permission Required) After completion of this course, students will satisfy the sophomore research requirement.

Students will find mentors at local universities working in areas of interest to them to serve as project mentors. Students will develop an individual independent research project and write a formal research proposal, which they will present and defend during the spring semester. In addition, students will participate in a variety of individual and team projects and contests that will hone their problem-solving and research skills. Students are expected to devote part of the summer between their sophomore and junior year to working on their research project.

HUP3 - JUNIOR SOCIAL SCIENCE RESEARCH

(5 periods per week for one year – Special Permission Required, elective minor)

Students continue work on their individual independent research projects. They present a research progress report during the fall semester and write a draft of their research paper in the spring semester. They continue to participate in a variety of individual and team projects and contests that will hone their problem-solving and research skills. Students are expected to devote part of the summer between their junior and senior year to working on their research project.

Corequisite: ZTEST

HUP5 – SENIOR SOCIAL SCIENCE RESEARCH

(5 periods per week for one year – Special Permission Required, elective minor)

Students complete work on their individual independent research projects. The product of the research work is the scientific research paper. Students will submit their papers to Siemens-Westinghouse, Intel, NYCSEF, NYAS, Otto Bergdorf and other contests during the fall semester. Students will present a research seminar during the spring semester and provide assistance to sophomore and junior research students.

THE MATHEMATICS DEPARTMENT

Mathematics is important to every student. Our mathematics program is designed to help students not only expand their computational skills but also develop their conceptual powers and thinking skills.

The Mathematics Department of the Bronx High School of Science builds directly on the curriculum standards set forth by the National Council of Teachers of Mathematics. These standards present a balance among conceptual understanding, procedural skills and problem solving.

The following four standards are the important conceptual areas of mathematics:

- Number and Operation Concepts
- Geometry and Measurement Concepts
- Function and Algebra Concepts
- Statistics and Probability Concepts

Bronx Science students will be able to apply these concepts in multiple ways using numbers, graphs, symbols, diagrams, and words.

Complementing the conceptual standards are the following four standards*:

- Problem Solving and Reasoning
- Mathematical Skills and Tools
- Mathematical Computation
- Mathematics Applications

*Adapted from the first edition of the New York City Performance Standards in Mathematics.

REQUIRED MATHEMATICS COURSES

Algebra I	M1, M2
Geometry	M3, M4
Algebra II & Trigonometry	M5, M6
Precalculus	M7, M8

Note: Certain courses have an "H" (Honors) designation AFTER the course code. The additional "letter" does not affect the course requirement.

ELECTIVE COURSES IN MATH

MA1/2 - CALCULUS

(5 periods per week for 1 year)

This course covers the scope of a first year college calculus course. It is designed for students who have completed Precalculus and are not taking Advanced Placement Calculus.

Prerequisite: Precalculus (M7/M7H)

MA3/4 - CALCULUS WITH PRECALCULUS

(5 periods per week for 1 year – Special Permission Required) Seniors only

This course will provide students with an overview of common precalculus topics with emphasis placed on a graphing approach to analyzing functions. Fundamentals of graph analysis using the tools of calculus will follow which will incorporate several applications including optimization and related rates. Students will be shown how the fundamental theorem of calculus links the two branches of differential calculus and integral calculus. This course culminates with an exploration of the properties of transcendental functions using integrals.

Prerequisite: Precalculus (M7/M7H)

ADVANCED PLACEMENT MATH CLASSES

MAX1/2 - ADVANCED PLACEMENT MATHEMATICS - CALCULUS AB

(5 periods per week for 1 year – Special Permission and a Qualifying Test Required)

MBX1/2 - ADVANCED PLACEMENT MATHEMATICS - CALCULUS BC

(6 periods per week for 1 year – Special Permission and a Qualifying Test Required)

Calculus AB and Calculus BC are college-level courses offered to students who have completed four years of high school mathematics or the equivalent. Calculus BC is more extensive and more intensive than Calculus AB. Students may receive college credit and/or advanced standing in college placement depending upon the mark received on the required College Board Advanced Placement exam given in May.

Prerequisite: Precalculus (M7/M7H). Advanced Placement Calculus cannot be taken in addition to MA1 – Calculus or Calculus with Precalculus (MA3).

MCX3/4 - ADVANCED PLACEMENT COMPUTER SCIENCE - JAVA

(5 periods per week for 1 year – Special Permission Required)

The AP Computer Science course is the equivalent of an introductory computer science course offered at colleges and universities. Students will learn object-oriented programming through a number of structured projects in the Java programming language. Topics include basic programming concepts, such as basic program design, variable declaration, method design, loops, control structures, and recursion, as well as classes and data structures.

Prerequisite: Introduction to Computer Science (MICS).

MEX1/2 - ADVANCED PLACEMENT STATISTICS

(5 periods per week for 1 year – Special Permission Required)

The AP Statistics course is the equivalent of an introductory statistics course offered in colleges and universities. The course deals with the statistical methodology used in research, data analysis, and the theoretical basis for these statistical techniques. It includes probability distributions, hypothesis testing and linear regression. Students interested in mathematics, engineering, business, or the biological or social sciences, and who have shown evidence of mathematical proficiency, are excellent candidates for this course. The material covered is extremely valuable to those planning to engage in research in science, mathematics or the social sciences. The course may be taken in junior or senior year. Students may receive college credit and/or placement depending upon the mark received on the required College Board Advanced Placement exam given in May.

ADVANCED MATHEMATICS CLASSES

MEM1/2 – MULTIVARIABLE CALCULUS & PARTIAL DIFFERENTIAL EQUATIONS

(5 periods per week for 1 year – Special Permission Required)

This course extends the limit, differentiation, and integration concepts of first year calculus to functions of more than one independent variable. Some of the topics covered are the geometry of space, vectors, partial derivatives, partial differential equations, and multiple integrals. Students will solve problems by methods of traditional analysis and through use of the graphing calculator. The applications of the concepts are made visual and concrete as possible.

Prerequisite: AP Calculus AB (MAX1) or Corequisite: AP Calculus BC (MBX1).

MLD1/2 – LINEAR ALGEBRA AND DIFFERENTIAL EQUATIONS

(5 periods per week for 1 year – Special Permission Required)

Students will gain experience using differential equations to explore various phenomena such as electric fields, forensic evidence, drug metabolism, predator-prey interactions, electrical circuits, chemical reactions, and chaotic motion. Students will be taught to solve systems of linear equations using matrices leading to the development of vector spaces. Solutions to first and second order differential equations will be explored by analytic methods as well as interactive computer software and graphing calculators. Students interested in pursuing careers in math, physics, engineering (electrical, civil, aerospace, chemical) as well as medical research would benefit greatly from taking this course.

Prerequisite or corequisite: AP Calculus AB (MAX1) or AP Calculus BC (MBX1).

MNA1/2 – NUMERICAL ANALYSIS

(Up to 5 periods per week for 1 year – Special Permission Required)

Applications of mathematics and computer science to real world problems with an emphasis on problem definition, research, solution, and written report presentation will be covered. Programming skills will be used to implement algorithms of numerical analysis. Numerical analysis topics covered will include computer simulations, computational methods for advanced techniques of applied statistics, nonlinear equations, linear systems, data fitting, integration, and differential equations.

MCN1/2 – COMBINATORICS AND NUMBER THEORY

(5 periods per week for 1 year)

Term 1: INTRODUCTION TO COMBINATORICS WITH APPLICATIONS AND ALGORITHMS

The course provides an overview of combinatorics with an emphasis on applications and algorithms. Students will investigate basic counting, existing and optimization problems of combinatorics. Topics included are set theory, logic, mathematical induction, basic counting methods, function generation, recurrence relations, graph theory, Eulerian and Hamiltonian cycles, four-color problem, and their applications and algorithms.

Term 2: INTRODUCTION TO NUMBER THEORY AND CRYPTOGRAPHY

The course provides an overview of elementary number theory with an emphasis on applications and algorithms. It is a course that closely investigates some fundamental theories of numbers. Students will apply what they have learned in the first term to further investigate properties of the number system and their applications, particularly in cryptography. Topics included are the greatest common divisors, Euclidean algorithm, unique factorization, linear and non-linear Diophantine equations, linear congruences, Chinese Remainder Theorem, divisibility test, Euler's theorem and some basics of cryptanalysis.

Prerequisite or corequisite: Honors Precalculus (M7H) or any level of calculus.

MS1/2 – STATISTICS AND DATA ANALYSIS

(5 periods per week for 1 year)

This course will introduce students to the fundamentals of data analysis using a project-based approach. No prior coursework in calculus or statistics is expected. Topics to be covered include: descriptive statistics, inferential statistics (including t , F , chi-square and regression), hypothesis testing, and graphical representation. Students will also be introduced to SPSS, a statistical computing program commonly used in research and industry by practicing statisticians. The course will be designed around a theme selected by the instructor to give continuity to data analysis assignments. This course is ideal for students who want an introduction to statistics that is less formulaic and computational than that offered by AP Statistics. A willingness to read journal articles that apply statistical methods and to write statistical reports will be necessary for success in this course.

Prerequisite or corequisite: Precalculus (M7)

THE MATHEMATICS DEPARTMENT ENRICHMENT PROGRAM

MNT1/2 – FRESHMAN MATH TEAM

MNT3/4 - SOPHOMORE MATH TEAM

MNT5/6 – JUNIOR/SENIOR MATH TEAM

(Up to 5 periods per week for 1 year – Elective Minor – Final team selection is determined by a qualifying exam – taken in lieu of lunch)

The sophomore, junior and senior math teams are designed for sophomores, juniors, and seniors who are interested in mathematics competitions. Students will be taught interesting mathematics and advanced problem solving techniques. The teams enter several local and international competitions such as NYML, NYCIML, and A&P. These teams meet during a lunch period and students are permitted to eat lunch in class. Note: Math Team enrollment is based upon a qualifying examination.

MER1/2 – SOPHOMORE MATH RESEARCH

(Up to 5 periods per week for 1 year – Special Permission Required) After completion of this course, students will satisfy the sophomore research requirement.

Students will do original research in areas of fundamental and applied mathematics, and computational mathematics as well as applied statistics and computational statistics. Students will select research topics, find research project mentors, and write a research proposal. Students will learn numerical modeling techniques in Excel and Matlab. Students will use a wide range of quantitative research techniques and mathematical modeling.

MER3/4 – MATH RESEARCH

(Up to 5 periods per week for 1 year – Elective Minor - Special Permission Required)

Students continue work on their individual independent research projects. They present progress report during the fall semester and write a draft of their research paper in the spring semester.

Corequisite: ZTEST

MER5/6 – MATH RESEARCH

(Up to 5 periods per week for 1 year – Elective Minor - Special Permission Required)

Students complete work on their individual independent research projects in the form of a

scientific research paper which they will submit to Siemens, Intel, NYCSEF, NYAS and other contests during the fall semester. Students will present at a research seminar during the spring semester and provide assistance to sophomore and junior research students.

MCS1/2 – COMPUTER SCIENCE PROJECTS

(5 periods per week for 1 year. Special permission required.) After completion of this course, students will satisfy the research requirement and be eligible to apply for Computer Science Research and/or AP Computer Science (Java) (MCX3/4) for their junior year.

Term 1: ALICE AND MEDIA COMPUTATION WITH JAVA

The first term of Introduction to Computer Science (MCS) is a project-based course, designed to introduce students to the study of computer science. Students will utilize Alice, an interactive programming environment, in which they will learn the basics of object-oriented and procedural programming, by creating animations. Students will also learn how to write code segments in the Java programming language to manipulate picture backgrounds, and implement chromakey (aka “the green-screen effect”). The term will culminate in the creation of a movie, using Alice and Java.

Term 2: APPLICATIONS OF JAVA THROUGH ROBOTICS

In the second term, students will apply the knowledge learned in the first semester to program a robot (the IntelliBrain-Bot), using the Java programming language. Students will program the robot to perform such actions as play songs, maneuver through a maze, or avoid obstacles in an obstacle course. Java concepts will be reinforced in preparation for the Advanced Placement Computer Science (AP Java) course. Interested students will develop a Computer Science Research Intel Project Proposal.

MROB1/2 - POST-AP ROBOTICS

(5 periods per week for 1 year)

Students will apply their knowledge of Computer Science concepts to robotics and programming. Students will complete projects in the fields of microcontrollers, electronic circuits, sensing, feedback, communications, and programming in C. Students will ultimately design and create a robotics prototype to solve an application problem.

Prerequisite: Advanced Placement Computer Science course (MCX3).

MRPM1/2 – ROBOTICS PROJECT MANAGEMENT

(5 periods per week for 1 year) (Robotics Team Senior Members Only)

Students will learn project management and leadership skills necessary for successfully competing in the FIRST Robotics Competition. Topics will include organizing the team, creating project timelines, budgeting, making a business plan, communicating effectively, delegating tasks, fundraising, and problem solving.

MGP1/2 – GAME PROGRAMMING

(5 periods per week for 1 year)

Students will apply their knowledge of Computer Science concepts to game design and programming. The concepts that will be discussed include artificial intelligence, collision detection, matrices, high-level event handling, game state management. Cohesive storyline development will also be discussed. Student will utilize concepts covered to develop a game for a major gaming console by the end of the course.

Prerequisite: Advanced Placement Computer Science course (MCX3).

THE BIOLOGY DEPARTMENT

Our primary goal is to teach students to think scientifically. The foundational courses are Research Literacy and Regents (or Honors) Biology. Students have the opportunity to explore their interests through the many advanced electives offered. Those interested in immersing themselves in the research process and performing an original scientific investigation with the guidance of a university mentor are encouraged to apply to the Research Program.

All students take Research Literacy as freshman. (It is a one semester course which flips with Writing Seminar). Regents-level Biology, Chemistry and Physics must be completed by the end of junior year. Students generally take biology freshman year, chemistry sophomore year, and physics junior year. Students who have taken biology and passed The Living Environment Regents in middle school take chemistry freshman year, AP Biology or another biology elective sophomore year, and physics junior year. Students who take Honors Chemistry freshman year but have not taken biology and passed The Living Environment Regents in middle school, take biology sophomore year, unless they qualify for and elect to take Honors Sophomore Physics. They then take biology or AP Biology junior year. All students must take Health. All students must take an additional lab science elective their senior year. Students may elect to take additional science courses their junior and senior years in addition to those that are required.

Students are encouraged to explore their interests and may take any combination of electives that they choose. If they wish to concentrate in a particular area, they can consider taking electives in the following cluster areas. Please note, if you wish to take a post AP course in your senior year, you must have taken the AP prerequisite in your junior year.

1. Area: Medicine
 - AP Biology
 - Organic Chemistry (Physical Sciences Department)
 - Microbiology
 - Epidemiology (also consider AP Statistics, Math Department)
 - Post-AP Genetics (*prerequisite: AP Biology*)
 - Biology Research Program
 - Spanish for Professions (*prerequisite: regent-level Spanish, Foreign Language Department*)
2. Area: Pharmacy
 - AP Biology
 - AP Chemistry
 - Organic Chemistry
3. Area: Environmental Studies:
 - AP Environmental Sciences
 - Post- AP Environmental Science
 - Horticulture
 - Marine Biology
 - Biology Research Program
4. Area: Organism-level Biology

- Animal Behavior
- Marine Biology
- Horticulture
- AP Biology
- Biology Research Program
- 5. Area: Molecular and Cellular-level Biology
 - Microbiology
 - Organic Chemistry (Physical Science Department)
 - AP Biology
 - Post-AP Genetics
 - Biology Research Program
- 6. Area: Forensic Science
 - AP Chemistry (Physical Science Department)
 - Forensic Science
 - Post-AP Quantitative Analysis (*prerequisite: AP Chemistry, Physical Science Department*)
- 7. Area: Healthy Living
 - Nutritional Science
 - Exercise Physiology
- 8. Area: Psychology
 - AP Psychology
 - Post-AP Child Psychology / Abnormal Behavior (*prerequisite: AP Psychology*)
 - Animal Behavior
 - Biology or Social Science Research Program

REQUIRED COURSES

GUP - RESEARCH LITERACY

(5 periods per week for 1 semester. Offered jointly with the Physical Science Department.)

Research Literacy is a skills-based one semester freshman course designed to train students in scientific investigation and scientific writing. Students will learn library research skills; design and carry out their own experiments; learn to organize, analyze and apply statistics to their data; and learn to effectively communicate their results orally and in writing. The course culminates in writing a scientific paper.

SB1 - REGENTS BIOLOGY

(7 periods per week for 1 year – Not a Special Permission Course)

This is a general introductory biology course encompassing the New York State Regents Syllabus in the Living Environment. Emphasis is placed on developing concepts through the scientific method and laboratory exercises are stressed. The Living Environment Regents is taken in June.

SB1I/SB1J – HONORS REGENTS BIOLOGY

(10 periods per week one year - Special Permission Required, taken instead of Regents Biology)

While encompassing the New York State Regents Syllabus in the Living Environment, this course differs from Regents Biology by being more extensive and more intensive. Additional topics and labs are covered and students carry out an original laboratory investigation. The

Living Environment Regents is taken in June.

PH3 – HEALTH

(5 periods per week for 1 semester – Not a Special Permission Course)

Health is a required course. Topics covered include physical fitness, diseases, nutrition, mental and emotional health, relationships, and sexual health.

ADVANCED COURSES

BIOLOGY RESEARCH PROGRAM

The research program in the biology department offers students an opportunity to do original research in all areas of biology, ranging from the impact of molecular changes on the functioning of cells to the impact of global changes on living things in our environment. *Interested students apply for sophomore research courses in the spring of their freshman year.* Students who are accepted into the program take a three-year sequence of research courses. During this time, they develop and complete an independent research project and write a scientific paper, which they submit to Intel and other scientific competitions in their senior year. Students are expected to commit two summers working on their projects as volunteers, usually with an outside mentor at a local university. Complementing this major research project, students also participate in a variety of problem-solving individual and team projects and skill-building activities in the classroom.

It is expected that students who enroll in the research program will complete the three-year sequence.

SBP1 – SOPHOMORE BIOLOGY/PHYSICAL SCIENCE RESEARCH

(5 periods per week for 1 year – Special Permission Required) After completion of this course, students will satisfy the sophomore research requirement.

Students will find scientists at local university laboratories working in areas of interest to them to serve as project mentors. Students will develop an individual independent research project and write a formal research proposal, which they will present and defend during the spring semester. In addition, students will participate in a variety of individual and team projects, contests, and lab activities that will hone their problem-solving and research skills. Students are expected to devote the summer between their sophomore and junior year to working full-time as a volunteer on their research project.

SBP3 - JUNIOR BIOLOGY RESEARCH

(2 periods per week in the fall; 3 periods per week in the Spring– Special Permission Required – *elective minor*)

Students continue work on their individual independent research projects. They present a research progress report during the fall semester and an updated proposal in the spring. They continue to participate in a variety of individual and team projects, contests, and lab activities that will hone their problem-solving and research skills. Students are expected to devote the summer between their junior and senior year to working full-time as a volunteer on their research project, and to complete a draft of their research paper by the end of the

summer.

Corequisite: ZTEST

SBP5 – SENIOR BIOLOGY RESEARCH

(3 periods per week in the fall; 2 periods per week in the Spring – Special Permission Required – *elective minor*)

Students complete work on their individual independent research projects. The product of the research work is the scientific research paper. Students will submit their papers to Siemens-Westinghouse, Intel, NYCSEF, NYAS, Otto Bergdorf and other contests during the fall semester. Students will present a research seminar during the spring semester and provide assistance to sophomore and junior research students.

POST-AP COURSES

SBG1 – POST AP GENETICS

(5 periods per week – Special Permission - Fulfills the Lab Science Requirement for seniors – 3rd, 4th, 5th or 6th major, Prerequisite: AP Biology).

This course follows the sequence of genetic discoveries. It begins with the “dance of the chromosomes” during mitosis and meiosis. A natural progression is made from meiosis to the identification of Mendel’s unit characters, the genes. Correlating genes with chromosomes leads to the construction of genetic maps. A discussion of chromosome mutations shed light on how map accuracy has been improved. Chromosome and gene mutations will be studied with special emphasis on human applications. Laboratory experiences involve breeding mutant *Drosophila* in order to discover Mendel’s classic laws of inheritance. The course will then apply the principles of classic Mendelian genetics to current molecular genetics and techniques. The molecular nature of the gene and gene regulation will be studied in detail. In a genetic engineering lab, students will isolate, transform DNA from bacterial cells. Students will analyze transgenic animals to localize gene expression and protein function. Finally, students will isolate and analyze chromosome structure. State of the art advances will be introduced through field trips and guest speakers.

SBL1 – POST-AP PSYCHOLOGY

(5 periods a week for 1 year – Special Permission – 4th, 5th or 6th major but NOT A LAB SCIENCE- This course does not fulfill the “Lab Science” requirement for seniors; Prerequisite: AP Psychology)

Term One: ABNORMAL PSYCHOLOGY

This course will focus on the symptoms, etiology, and treatments of a variety of mental illnesses. The course will begin with a discussion of the research techniques used in the study of abnormal psychology. Mental disorders such as anxiety disorders, stress disorders, somatoform disorders, dissociative disorders, mood disorders, sexual disorders, personality disorders and schizophrenia will be examined. The conditions will be analyzed through a variety of theoretical and historical perspectives.

Term Two: CHILD DEVELOPMENT

This course will explore human development from conception to adolescence. Emphasis will be placed on investigating the physical, social, emotional and genetic factors involved in a child's growth. The importance of research methodology for studying child development will be stressed. Theories of development and applications to real world problems will be used to enhance understanding of child development.

SBV1 - POST-AP ENVIRONMENTAL SCIENCE: A CLOSE LOOK AT PRESSING AND TIMELY ISSUES

(5 periods per week for 1 year: 1 single recitation period, 2 double laboratory periods. – Special Permission - Fulfills the Lab Science Requirement for seniors – 3rd, 4th, 5th or 6th major, Prerequisite: AP Environmental Science)

This course will take a close look at the primary literature of fast changing environmental issues such as climate change, non-conventional fuels (oil shale and tar sands that could make the US and Canada the new Saudi Arabias of oil), and the toxicology of substances such as endocrine disruptors, which are changing the reproductive biology and behavior of wildlife and humans alike. Other issues will be examined as they occur in the news and according to the interests of the participants. Speakers who are experts and participants in the field will be invited to speak to the class. Class debates on selected topics will be held.

ADVANCED PLACEMENT COURSES

SBX1 - ADVANCED PLACEMENT BIOLOGY

(10 periods per week for 1 year– Special Permission Required – Fulfills the Lab Science Requirement for seniors – 3rd, 4th, 5th or 6th major. Open to sophomores who completed chemistry as freshman and have passed the Living Environment Regents.).

This course is equivalent to introductory Biology courses taught in colleges and universities. Fundamental concepts applicable to both plants and animals are selected. In lecture, biochemistry and molecular biology lay the groundwork for understanding all aspects of modern biology, from the cell through the ecosystem. In laboratory work, evolution is the integrating theme that focuses on the relationship of organisms to their environments. Students must have completed at least 1 year of biology and 1 year of chemistry. Students are required to take the Advanced Placement examination in May.

SBX3 – ADVANCED PLACEMENT ENVIRONMENTAL SCIENCE

(10 periods per week for 1 year: – 5 double periods – Special Permission Required – Fulfills the Lab Science Requirement for seniors – 3rd, 4th, 5th, or 6th major).

This course follows an introductory-level college syllabus. It provides 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 man-made, and to evaluate alternative solutions for resolving them. Students have the opportunity to work on individual and group research projects, use computer technology and Internet resources, and visit natural areas in New York City parks. Laboratory investigations, debates, and simulations are included in the course activities. The course can be taken for college credit and/or Advanced Placement credit. Students are required to take the Advanced Placement examination in May.

SBX5-ADVANCED PLACEMENT PSYCHOLOGY

(5 periods a week for 1 year – 4th, 5th or 6th major but NOT A LAB SCIENCE- Special Permission Required. This course does not fulfill the “Lab Science” requirement for seniors)

Topics studied include neuroscience and behavior, child development, adolescence and adulthood, sensation, perception, states of consciousness, learning, memory, thinking and language, intelligence, motivation, emotion, personality, psychological disorders, therapy, stress

and health, social psychology and statistical reasoning. Students are required to take the Advanced Placement examination in May.

NOTE:

STUDENTS WHO TAKE ADVANCED PLACEMENT COURSES ARE REQUIRED TO TAKE CORRESPONDING AP EXAMS IN MAY. THE ADVANCED PLACEMENT Exam Fee is \$87 per exam.

COURSES WITH COLLEGE CREDIT AVAILABLE

SBM1 - MICROBIOLOGY

(5 periods per week for 1 year: 1 single recitation period, 2 double laboratory periods. Not a Special Permission Course. Fulfills the Lab Science Requirement for seniors – 3rd, 4th, 5th, or 6th major).

Are 95% of all bacteria harmless or even useful? Are microbes involved in making beer? Bread? Cheese? Yogurt? Pickles? Sauerkraut? Yes! Study microbiology and discover the incredible world of microscopic life! This college level introduction to microbiology will examine bacteria, algae, fungi, protozoa and viruses and their relationship with humans. The anatomy, growth, nutrition, mechanisms of metabolism and energy conversion, and genetics of microorganisms will be discussed. Viruses, their methods of multiplication and their effects on cells will be included. Since 5% of bacteria are pathogenic the challenges of infectious diseases and bio-terror will be a major focus and will include the study SARS, AIDS, malaria, tuberculosis, anthrax, and smallpox. Host-parasite relationships, types of diseases, the principles of immunology, antibiotics and other forms of microbial control will be discussed. Genetic engineering of microbes for engineering for agriculture, industrial production, and environmental remediation will be introduced. Laboratory procedures include: use of different types of media, staining methods, microscopic identification of organisms, biochemical markers, food and water quality testing, bacterial transformation and the use of specialized apparatus and equipment.

Upon satisfactory completion of the course, 3 college credits may be granted from the State University of New York at Albany. SUNY Albany will charge a fee (TBD).

SBN1 - NUTRITIONAL SCIENCE

(5 periods per week for 1 year: 3 single recitation periods, 1 double laboratory period - Fulfills the Lab Science Requirement for seniors – 3rd, 4th, 5th, or 6th major - Not a Special Permission Course).

This course explores topics in nutrition and food science. The study of food and nutrients includes discussion of their sources, chemistry, and metabolism. The effects of cooking on food are examined in the laboratory sessions in which basic culinary skills are learned along with "kitchen chemistry." Student interest leads to further investigation of special topics such as the mechanism of hunger, the development of new food products, the management of diet in health and disease, and the global problem of world food shortages. Each student does a personal diet evaluation, and enjoys sharing food projects with classmates.

NOTE: This is the only laboratory science in which you eat your experiments! ;-)

Upon satisfactory completion of the course, 3 college credits may be granted from The State University of New York at Albany. SUNY Albany will charge a fee (TBD).

SBF5 - FORENSIC SCIENCE

(5 periods per week for 1 year: 3 single recitation periods, 1 double laboratory period - Fulfills the Lab Science Requirement for seniors – 3rd, 4th, 5th, or 6th major - Not a Special Permission Course.)

Forensic Science is focused upon the application of scientific methods and the techniques to crime and law. Recent advances in scientific methods and principles have had an enormous impact upon law enforcement and the entire criminal justice system. This course is intended to provide an introduction to understanding the science behind crime detection. Scientific methods specifically relevant to crime detection and analysis will be presented with emphasis placed upon techniques used in evaluating physical evidence. Topics and laboratory investigations included are : crime scene investigations, fingerprinting, document and handwriting analysis, ballistics, serology, hair and fiber examination, botany, organic and inorganic evidence analysis, entomology, the role of the medical examiner, the forensic autopsy, anthropology, germ warfare, DNA analysis, psychology and profiling, toxicology, paint analysis, glass comparisons and fragmentation, arson investigations, tire and foot impressions and casts. A case study and a current events approach will be used extensively. Guest speakers, videotapes, mock trials, and field trips are used

Students may receive 4 college credits through Syracuse University for a tuition charge of approximately \$450. Tuition assistance is available for eligible students who are unable to manage the costs.

OTHER ADVANCED COURSES

SBA1 - ANIMAL BEHAVIOR

(meets 5 periods per week: 2 double periods, and 1 single period – Not a Special Permission Course - Fulfills the Lab Science Requirement for seniors – 3rd, 4th, 5th or 6th major).

This course develops the thesis that behavior in all animals has evolved as an adaptation of survival of species. Behaviors that are universal among all animal species, including humans, are stressed and the mechanisms that species use to carry out the behaviors common to all are observed. The Bronx Zoo is used as a laboratory. Students develop individual projects. This course is scheduled at the end of the day to allow for field trips.

SBC1 - HORTICULTURE

(meets 5 periods per week: 2 double periods, and 1 single period – Not a Special Permission Course - Fulfills the Lab Science Requirement for seniors – 3rd, 4th, 5th or 6th major).

Using plants grown from seeds and cuttings in our greenhouse, students will examine plant life cycles, structures, characteristics, requirements and general care. Soil structure, propagation methods, plant diseases and treatments will be discussed. Students participate in planning, planting and caring for an outdoor garden, and learn how to make ornamental arrangements. Modern techniques such as cloning and hydroponics will be introduced. An appreciation for the need for conservation practices is developed in the classroom and on field trips.

SBJ1- EPIDEMIOLOGY

(6 periods per week, including one double-period lab – Fulfills the “Lab Science” requirement for seniors – May be taken as a 3rd, 4th, 5th or 6th Major – Not a Special Permission Course)

This course is designed to introduce students to the field of epidemiology. The course will

focus on approaches and activities that are used to study disease distributions (from infectious disease outbreaks to chronic disease surveillance). Students will explore the characteristics of a range of specific disease agents (HIV, Ebola, Cancer, etc.), compare their impact on populations and examine national and global efforts to monitor and control disease. Computer simulations are included.

SBY1- EXERCISE PHYSIOLOGY

(5 periods per week, 3 single periods and 1 double period lab – Fulfills the “Lab Science” requirement for seniors – May be taken as a 3rd, 4th, 5th or 6th Major – Not a Special Permission Course. This course is offered jointly with the Physical Education Department)

This course is designed to be an introduction to the physiological responses associated with training and participating in strength and endurance activities. This course will cover the acute responses and chronic adaptations to exercise. This includes neuromuscular, metabolic, cardiovascular, hormonal, and respiratory systems as they respond to acute and chronic exercise.

SBO1 - MARINE BIOLOGY

(6 periods per week, including one double-period lab – Fulfills the “Lab Science” requirement for seniors – May be taken as a 3rd, 4th, 5th or 6th Major – Not a Special Permission Course.)

Topics covered in this activity and lab centered course include basic oceanography, adaptations of various organisms (microorganisms, invertebrates, fish, marine birds, reptiles, and mammals) to marine life, marine ecosystems, and the human impact on the oceans.

THE PHYSICAL SCIENCE DEPARTMENT

Our primary goal is to teach students to think scientifically. The foundational courses are Research Literacy and Regents (or Honors) Chemistry and Regents (or Honors) Physics. Students have the opportunity to explore their interests through the advanced electives offered. Those interested in immersing themselves in the research process and performing an original scientific investigation with the guidance of a university mentor are encouraged to apply to the Research Program.

Regents level Biology, Chemistry and Physics must be completed by the end of the junior year. Students generally take biology freshman year, chemistry sophomore year, and physics junior year. Students who have taken biology and passed the Living Environment Regents in middle school take chemistry freshman year. Physics may not be taken until Intermediate Algebra and Trigonometry courses have been completed; hence physics is generally taken junior year, unless a student has satisfied the math requirement and qualifies for Sophomore Honors Physics. Therefore, students who have passed the Living Environment Regents in middle school and taken chemistry during their freshman year generally take AP Biology, another advanced biology course, AP Chemistry, or another advanced physical science course during their sophomore year.

Students are encouraged to explore their interests and may take any combination of electives that they choose. If they wish to concentrate in a particular area, they can consider taking electives in the following cluster areas. Please note, if you wish to take a post AP course in your senior year, you must take the AP pre-requisite in your junior year).

1. Area: Chemistry
 - AP Chemistry
 - Post-AP Quantitative Analysis (*pre-requisite: AP Chemistry*)
 - Introduction to Organic Chemistry
 - Physical Science Research Program
2. Area: Physics
 - AP Physics B
 - AP Physics C
 - Modern Optics, Lasers, and Photonics
 - Astronomy and Astrophysics
 - Electronics
 - Calculus (Math Department)
 - Physical Science Research Program
3. Area: Engineering
 - Introduction to Engineering
 - AP Physics B or AP Physics C (All areas of Engineering)
 - AP Chemistry (if interested in Chemical Engineering)
 - AP Environmental Science (if interested in Environmental Engineering; Biology Department.)
 - AP Biology (if interested in Biomedical Engineering; Biology Department)
 - Modern Optics, Lasers, and Photonics
 - Electronics (if interested in Electrical Engineering)
 - Calculus (Math Department)
 - Physical Science Research Program

4. Area: Pharmacy
AP Biology (Biology Department)
AP Chemistry
Organic Chemistry
5. Area: Forensic Science
AP Chemistry
Forensic Science (Biology)
Post-AP Quantitative Analysis (*pre-requisite: AP Chemistry*)

REQUIRED COURSES

GUP- RESEARCH LITERACY

(5 periods per week for 1 semester. Offered jointly with the Biology Science Department.)

Research Literacy is a skills-based one semester freshman course designed to train students in scientific investigation and scientific writing. Students will learn library research skills; design and carry out their own experiments; learn to organize, analyze and apply statistics to their data; and learn to effectively communicate their results orally and in writing. The course culminates in writing a scientific paper.

SC1- REGENTS CHEMISTRY

(7 periods per week for 1 year – Not a Special Permission Course)

This is a general introductory chemistry course encompassing the New York State Regents syllabus in Chemistry: The Physical Setting. Emphasis is placed on developing concepts through the scientific method and laboratory exercises are stressed. The Chemistry Regents is taken in June.

SC1I/J- HONORS REGENTS CHEMISTRY

(10 periods per week one year - Special Permission Required, taken instead of Regents Chemistry)

While encompassing the New York State Regents Syllabus in Chemistry: The Physical Setting, this course differs from Regents Chemistry by being more extensive and more intensive. Additional topics and labs are covered and students carry out an original laboratory investigation. The Chemistry Regents is taken in June.

SP1C- REGENTS PHYSICS

(7 periods per week for 1 year; pre-requisite: Intermediate Algebra and Trigonometry)

This is a general introductory chemistry course encompassing the New York State Regents syllabus in Physics: The Physical Setting. Emphasis is placed on developing concepts through the scientific method and laboratory exercises are stressed. The Physics Regents is taken in June.

SP1J- SOPHOMORE HONORS PHYSICS

(10 periods per week for 1 year; special permission required; taken instead of Regents Physics)

While encompassing the New York State Regents Syllabus in Physics: The Physical Setting, this course differs from Regents Physics by being more extensive and more intensive. Additional topics and labs are covered and students carry out an original laboratory investigation. The Physics Regents is taken in June.

SP1K- JUNIOR HONORS PHYSICS

(7 periods per week for 1 year; special permission required; taken instead of Regents Physics)

While encompassing the New York State Regents Syllabus in Physics: The Physical Setting, this course differs from Regents Physics by being more extensive and more intensive. Additional topics and labs are covered. The Physics Regents is taken in June.

ADVANCED COURSES

PHYSICAL SCIENCE RESEARCH PROGRAM

The research program in the Physical Science department offers students an opportunity to do original research in all areas of physical science such as material science, engineering, computer science, earth science, chemistry, physics, and astrophysics. *Interested students apply for sophomore research courses in the spring of their freshman year.* Students who are accepted into the program take a three-year sequence of research courses. During this time, they develop and complete an independent research project and write a scientific paper, which they submit to Intel and other scientific competitions in their senior year. Students generally spend two summers working on their projects as volunteers, usually with an outside mentor at a local university. Complementing this major research project, students also participate in a variety of problem-solving individual and team projects and skill-building activities in the classroom.

It is expected that students who enroll in the research program will complete the three-year sequence. Technical Drawing is incorporated into the sophomore research classes, and satisfactory completion of a sophomore research class satisfies the graduation requirement for Technical Drawing. Students who do not continue to Junior Research classes are required to take STL as juniors. Students who do not satisfactorily complete senior research classes are required to take STL.

SBP1 – SOPHOMORE BIOLOGY/PHYSICAL SCIENCE RESEARCH

(5 periods per week for 1 year – Special Permission Required) After completion of this course, students will satisfy the sophomore research requirement.

Students will find scientists at local university laboratories working in areas of interest to them to serve as project mentors. Students will develop an individual independent research project and write a formal research proposal, which they will present and defend during the spring semester. In addition, students will participate in a variety of individual and team projects, contests, and lab activities that will hone their problem-solving and research skills. Students are expected to devote the summer between their sophomore and junior year to working full-time as a volunteer on their research project.

SPP3 - JUNIOR PHYSICAL SCIENCE RESEARCH

(Up to 5 periods per week for 1 year – Special Permission Required – *elective minor*)

Students continue work on their individual independent research projects. They present a research progress report during the fall semester and write a draft of their research paper in the spring semester. They continue to participate in a variety of individual and team projects, contests, and lab activities that will hone their problem-solving and research skills. Students are expected to devote the summer between their junior and senior year to working full-time as a volunteer on their research project.

Corequisite: ZTEST

SPP5 – SENIOR PHYSICAL SCIENCE RESEARCH

(Up to 5 periods per week for 1 year – Special Permission Required – *elective minor*)

Students complete work on their individual independent research projects. The product of the research work is the scientific research paper. Students will submit their papers to Siemens-Westinghouse, Intel, NYCSEF, NYAS, and other contests during the fall semester. Students will present a research seminar during the spring semester and provide assistance to sophomore and junior research students. SENIOR ELECTIVES IN PHYSICAL SCIENCE

- All electives are Lab Sciences
- All electives are open to seniors and, if room permits, to qualified juniors.

POST-AP COURSE

SCQ1 – POST-AP CHEMISTRY: QUANTITATIVE ANALYSIS

(6 periods per week, including lab – Special Permission; application not required – fulfills the Lab Science requirement for Seniors – May be taken as a 3rd, 4th, 5th or 6th Major. Prerequisite: AP Chemistry)

This course emphasizes analytical techniques used in the scientific field. Students interested in medicine, environmental engineering/science, chemistry, biochemistry, pharmacy and forensic science are strongly encouraged to take this course. Students will be introduced to wet methods including titration and instrumental methods of analysis. Students will learn how statistical analysis plays a role in the laboratory collection of experimental data.

ADVANCED PLACEMENT COURSES

SCX1 - ADVANCED PLACEMENT CHEMISTRY

(10 periods per week; 5 double periods, including lab –one year - fulfills the “Lab Science” requirement for Seniors – May be taken as a 3rd, 4th, 5th or 6th Major – Special Permission Required)

This is a course in chemical concepts and their applications. The syllabus is geared toward outstanding students planning careers in medicine, science, and engineering. It will provide invaluable adjustments to the rigors and sophistication of university work through a laboratory and problem-solving program, with individual attention. During recitation, students have the opportunity to ask questions, interact, and examine concepts in more detail than would be possible in a crowded lecture hall in college.

Successful completion of this course may enable students to claim credit for an entire year of college chemistry.

Prerequisite: Grade of 90 or better in Regents Chemistry and Mathematics

SPX1-ADVANCED PLACEMENT PHYSICS WITHOUT CALCULUS (B)

(10 periods per week; 5 double periods, including lab –one year - fulfills the “Lab Science” requirement for Seniors – May be taken as a 3rd, 4th, 5th or 6th Major – Special Permission Required)

This is a course in General Physics. Topics covered will be mechanics, thermodynamics, waves, electricity, magnetism, optics, modern physics, and nuclear physics. The course will emphasize a qualitative and quantitative understanding of the laws of physics, and their applications. The level of instruction is based on knowledge of algebra, geometry, and trigonometry.

The course is designed for outstanding students seeking careers in biology, medicine, engineering, and science. Through individual attention and group work based on cooperative learning, experience will be gained in problem solving and laboratory techniques, thus providing invaluable help in making the adjustment to the sophistication of university work. Successful completion of this course will enable students to acquire up to four credits of college university Physics.

Prerequisite: Grade of 90 or better in Regents Physics and Mathematics

Prerequisite: Algebra II and Trigonometry

SPX3 - ADVANCED PLACEMENT PHYSICS WITH CALCULUS (C)

(10 periods per week: 5 double periods, including lab – one year - fulfills the “Lab Science” requirement for Seniors – May be taken as a 3rd, 4th, 5th or 6th Major – Special Permission Required)

This course covers two major areas for freshman college physics: “mechanics” (forces, energy, etc.) and “electricity and magnetism” as well as “thermodynamics” and other selected topics. Those planning a future in the physical sciences or engineering should apply for this course.

Prerequisite: Grades of 90 or better in Regents Physics and Mathematics Pre or Corequisite: Calculus

NOTE:

STUDENTS WHO TAKE ADVANCED PLACEMENT COURSES ARE REQUIRED TO TAKE CORRESPONDING AP EXAMS IN MAY.

THE ADVANCED PLACEMENT Exam Fee is \$87 per exam.

COURSE WITH COLLEGE CREDIT AVAILABLE

SPA1-ASTRONOMY AND ASTROPHYSICS

(6 periods per week: 1 double laboratory period, 4 single recitation periods fulfills the Lab Science requirement for Seniors – May be taken as a 3rd, 4th, 5th or 6th Major – Not a Special Permission Course)

This is a college level introduction to astronomy, stressing changing ideas of the universe and humanity's place in it. It provides a clear example of the growth and use of THEORY in science. The first term of the course deals with the history of our knowledge of the solar system-Sun, Moon, Earth, and the other planets-from the earliest watchers and simple fables to the magnificent success of Newton's gravitational theory. The second term is an introduction to the stellar astronomy: nature of light and matter, characteristics of stars, birth, evolution and death of stars, neutron stars, black holes, galaxies, the Big Bang, and cosmology and the principles of Einstein's theory of relativity. The school planetarium is used to demonstrate the observed phenomena that any theory of the universe must explain. Students will be able to identify seasonal star patterns and locate planets.

Upon satisfactory completion of this yearlong course, 3 college credits may be granted from the New York State University at Albany. A fee is required for college credit.

Prerequisite or Co-requisite: Regents Physics

OTHER ADVANCED COURSES

SPS1-INTRODUCTION TO ENGINEERING

(5 periods per week for 1 year – satisfies Sophomore Research Requirement)

This academically challenging course provides an introduction to electrical and mechanical engineering, and emphasizes principles of and applications in circuitry, pneumatics, kinematics, and robotics. Students interested in doing an independent research project in engineering will be helped to find mentors and develop proposals. They will then be eligible to continue in Junior Physical Science Research.

SCR1-INTRODUCTION TO ORGANIC CHEMISTRY

(6 periods per week, including lab – fulfills the Lab Science requirement for Seniors – May be taken as a 3rd, 4th, 5th or 6th Major – Not a Special Permission Course)

Basic principles of organic chemistry, with applications to medical sciences and engineering, will be discussed. Laboratories will include distillation, extraction, thin layer chromatography, column chromatography, recrystallization, and synthesis of an ester.

Prerequisite: Regents Chemistry

SPE1 – ELECTRONICS

(5 single periods per week, including lab for one-year - fulfills the “Lab Science” requirement for Seniors – May be taken as a 3rd, 4th, 5th or 6th Major – Not a Special Permission Course)

This course is for seniors and juniors. The first term covers analog electronics. Electronic components such as resistors, capacitors, diodes, and transistors are studied. Important circuit groupings studied include amplifiers, timing circuits, rectifiers, and oscillators. These are groupings that occur in practically all-modern electronic devices. Familiarity with multi-meters and oscilloscopes is developed. The second term is devoted to digital electronics so important in this computer age. Boolean algebra, logic circuits, and timing diagrams are studied. Students will build simple counters and clocks. The emphasis for both terms is on developing practical skills in building circuits.

Prerequisite or Corequisite: Regents Physics

SPO1 – MODERN OPTICS, LASERS AND PHOTONICS

(6 periods per week, including lab for one-year - fulfills the “Lab Science” requirement for Seniors – May be taken as a 3rd, 4th, 5th or 6th Major – Special Permission Course.)

Learn how lasers work, create a hologram, and explore other fascinating topics in optics. Theories of optics from historical, multicultural and mathematical perspectives will be discussed. Students will perform labs involving designing and building optical systems, diffraction, building interferometers, coupling optical fibers, creating a hologram, and optical vortices. The creation and upkeep of a website learning blog will be incorporated.

Prerequisite (or Corequisite): Precalculus

THE FOREIGN LANGUAGE DEPARTMENT

Language is our connection to our community and to the world. Through language, we identify the world around us, express our concerns and dreams, and share our experiences and ideas.

The ability to communicate in a second language increases the opportunities to interact with other peoples and to understand other cultures. As the world becomes increasingly interdependent, it is important for every person to acquire the skills for communication with others and for cross-cultural understanding.

In addition to the practical application of communication skills, the benefits derived from the study of a second language are many. Empirical findings indicate that second language study is an asset to many careers and to professional advancement in the Sciences as well as the Humanities. Second language study:

- prepares students for a world in which nations and peoples are increasingly interdependent
- fosters a sense of humanity and friendship
- increases students' adaptability to different environments and modes of acting and thinking
- furnishes the key to thinking patterns, cultures and social institutions of other peoples
- provides insights into the human mind and language itself
- develops the skills and habits essential to the learning process, creative inquiry and critical thinking
- helps students to increase their sensitivity to and understanding of the language, values, customs and traditions of others
- leads students to discover and examine their own personal values and civic responsibilities
- provides insight into America's values and an appreciation of national responsibilities in the world community

*The above findings appear in the New York State Syllabus: MODERN LANGUAGES FOR COMMUNICATION

In light of these benefits, the study of a second language should be an integral part of every student's educational experience. Bronx High School of Science's Language Department offers students more enrichment opportunities to study other languages than any other secondary school in the country. Our students are best prepared as informed and productive citizens in an increasingly multi-diverse and inter-dependent world.

Any Language Class may be taken as a 5th (elective 2) or 6th Major for all students who have completed their Regents requirement (2 years of foreign language at Bronx Science and passing a Regents exam).

FOREIGN LANGUAGE BASIC COURSES

FC1 - FIRST YEAR CHINESE

FF1 - FIRST YEAR FRENCH

FE1H - FIRST YEAR INTENSIVE MODERN GREEK

FJ1 - FIRST YEAR JAPANESE

FL1 - FIRST YEAR LATIN

FS1 - FIRST YEAR SPANISH

FT1 - FIRST YEAR ITALIAN

(5 single periods per week for one year – May be taken as a 5th or 6th Major)

Students who have native/heritage background may NOT enroll in these courses. Level one courses are designed for students with no prior background in the language. Students with native background must declare this fact during the Elective period.

FC3 - SECOND YEAR CHINESE

FE3H - SECOND YEAR INTENSIVE MODERN GREEK

FF3 - SECOND YEAR FRENCH

FH3 - SECOND YEAR HEBREW

FJ3 - SECOND YEAR JAPANESE

FK3 - SECOND YEAR KOREAN

FL3 - SECOND YEAR LATIN

FS3 - SECOND YEAR SPANISH

FT3 - SECOND YEAR ITALIAN

(5 single periods per week for one year – May be taken as a 5th or 6th Major)

Students who have taken a minimum of two years of the language in junior high school and who have received an average grade of 85 qualify. A Proficiency examination is preferable when available but it is not mandatory. Native/heritage speakers can be placed in this level after taking a departmental examination.

Prerequisite: First Year of the language at Bronx Science or the equivalent from junior high.

FC5- REGENTS LEVEL CHINESE

FE5H – REGENTS LEVEL INTENSIVE MODERN GREEK

FF5- REGENTS LEVEL FRENCH

FH5 – ADVANCED LEVEL HEBREW

FJ5 – REGENTS LEVEL JAPANESE

FK5 – ADVANCED LEVEL KOREAN

FL5- REGENTS LEVEL LATIN

FS5- REGENTS LEVEL SPANISH

FT5 – REGENTS LEVEL ITALIAN

(5 single periods per week for one year – May be taken as a 5th or 6th Major)

Native/heritage speakers can be placed in this level after taking a departmental examination.

Prerequisite: First and Second Year of the language at Bronx Science or the equivalent from another school.

FS5H – HONORS REGENTS SPANISH

(5 single periods per week for one year – May be taken as a 5th or 6th Major Special Permission Required)

95 average in FS3, teacher recommendation, excellent attendance and participation required.

This course is taught as an Advanced Placement preparatory course.

FOREIGN LANGUAGE ADVANCED COURSES

FSX9 - ADVANCED PLACEMENT SPANISH LITERATURE

(5 single periods per week for one year - May be taken as a 5th or 6th Major – Special Permission Required)

AP Spanish Literature is open to juniors and seniors who have earned a grade of at least 93 percent in the third or fourth year of language. These are college level courses and a grade of 4 or 5 on the exam may give students an opportunity to receive college credit or advanced placement status. Students must submit a writing sample and complete an interview with instructor prior to admission into the course. Recommended prerequisites are Advanced Placement Language courses.

These literature courses prepare students to:

- Understand a lecture in the foreign language and participate in discussion on a literary topic.
- Read literary works in all genres of the language.
- Critically analyze outstanding literary works.

FCX1 - ADVANCED PLACEMENT CHINESE

FJX1 - ADVANCED PLACEMENT JAPANESE

FFX1 - ADVANCED PLACEMENT FRENCH LANGUAGE

FSX1 - ADVANCED PLACEMENT SPANISH LANGUAGE

FTX1 - ADVANCED PLACEMENT ITALIAN LANGUAGE AND CULTURE

(5 single periods per week for one year - May be taken as a 5th or 6th Major – Special Permission Required)

The Advanced Placement Chinese, Spanish, French, Italian and Japanese Language courses are open to juniors and seniors who have earned a grade of at least 93 in the third or fourth year of language. They are intended for responsible, highly motivated students who wish to complete studies in secondary school comparable in difficulty to advanced-level college courses

in Composition and Conversation. Students who enroll should already have a basic knowledge of the language and culture and should have attained a reasonable proficiency in listening comprehension, speaking, reading and writing. Extensive training in aural/oral skill, reading comprehension, grammar, organization, and writing of compositions, and essays are an integral part of these courses. Students must submit a writing sample and complete an interview with the instructor prior to admission.

NOTE:

STUDENTS WHO TAKE ADVANCED PLACEMENT COURSES *ARE REQUIRED TO TAKE CORRESPONDING AP EXAMS IN MAY*. THE ADVANCED PLACEMENT Exam Fee is \$87 per exam.

FSP1 SPANISH FOR PROFESSIONS:

(5 single periods per week for one year – May be taken as a 5th or 6th Major – minimum average of 85 in Spanish – Special Permission Required)

This course is designed for motivated students of Spanish who have completed a Regents sequence. Students will study Spanish for practical, professional use in four general fields: business, finance, medicine and social services. Internship placements will be sought for all students. This course will focus on all four skills of Spanish study – listening, reading, speaking and writing. Students should expect a rigorous course load as this course can prepare students for Advanced Placement Spanish Language. Students will be expected to complete an interview with instructor prior to admission into the course.

FSN1 - SPANISH NARRATIVE & FILM

(5 single periods per week for one year – May be taken as a 5th or 6th Major – minimum average of 85 in Spanish – Special Permission Required)

This course is designed for motivated students of Spanish who have completed a Regents sequence. The main purpose of the course is to enhance oral and written skills in Spanish while increasing their familiarity with Hispanic cultures through their manifestation in cinema based on literature. Grammar exercises and essay writing related to the content of the literature and films will be combined with oral discussion. This course can prepare students for Advanced Placement Spanish Language and/or Literature. Students will be expected to complete an interview with instructor prior to admission into the course.

FFC7 - ADVANCED FOURTH-YEAR FRENCH CONVERSATION

FT7 - ADVANCED FOURTH-YEAR ITALIAN CONVERSATION

FSC7 - ADVANCED FOURTH-YEAR SPANISH CONVERSATION

(5 single periods per week for one year - May be taken as a 5th or 6th Major – Special Permission Course)

These courses are designed to help students maintain and improve their conversational reading and writing skills developed in the first three years. Emphasis is placed on the active use of the spoken language. Extensive use of a variety of texts, newspaper articles, and web-based materials will provide the basis for lively class discussions, dramatizations, and original presentations. A minimum average of 85 is highly recommended. Students will be expected to complete an interview with instructor prior to admission into the course.

FLX1 - ADVANCED PLACEMENT LATIN: VERGIL

(5 single periods per week for one year - May be taken as a 5th or 6th Major – Special Permission Required)

This course will follow the syllabus for the Latin Literature: Vergil as outlined by The College

Board. The aim of this course is in general conformity with college Latin studies in the fourth through sixth semesters and will allow students to apply virtually all of his/her prior studies of Latin morphology, syntax, vocabulary, culture, and word study. The specific objectives of this course, closely related to the AP Curriculum goals, include:

- Develop a highly advanced Latin vocabulary
- Translate literally and poetically continuous passages of original Latin
- Analyze and evaluate original Latin texts
- Appreciate and evaluate original Latin texts within the Western literary tradition
- Study original Latin texts in their specific literary and historic contexts
- Understand and identify rhetorical and literary devices
- Identify and scan the meter of original Latin passages
- Compare and contrast modern translations of Latin texts

NOTE:

STUDENTS WHO TAKE ADVANCED PLACEMENT COURSES *ARE REQUIRED TO TAKE CORRESPONDING AP EXAMS IN MAY*. THE ADVANCED PLACEMENT Exam Fee is \$87 per exam.

FT9 – COLLEGE-LEVEL ITALIAN

(5 single periods per week for one year - May be taken as a 5th or 6th Major –Special Permission Required)

This course is designed to enhance students' ability in spoken and written Italian. The class will survey selected modern Italian readings and articles from authentic Italian sources. Award-winning Italian films will be shown to provide the basis for lively class discussions. Audio recordings and Italian music will also be utilized for a complete presentation of Italian dialects and regional accents.

ONASSIS PROGRAM IN HELLENIC STUDIES

The following courses are privately funded by the Alexander S. Onassis Public Benefit Foundation:

FE7H / FE9H - HONORS MODERN GREEK LANGUAGE AND LITERATURE

FUE1 / FUE 3- COLLEGE LEVEL GREEK

(5 single periods per week for one year - May be taken as a 5th or 6th Major – Special Permission Required)

This advanced honors course is open to all students who already speak, read, and write Modern Greek. Students will have the opportunity to study the Greek language through literature, the arts, and the media. Some of the enrichment activities will include field trips, guest speakers, participation in contests, and collaboration with cultural organizations in the Greek community. This course is part of the three-year language sequence requirement for the new advanced Regents diploma. At the completion of this course, students may also take the Greek Regents exam, thus fulfilling the foreign language Regents requirement at Bronx Science.

FE1H - INTENSIVE MODERN GREEK FOR BEGINNERS

(5 single periods per week for one year - May be taken as a 5th or 6th Major – Special Permission required)
This intensive introductory course is open to all students who have already completed a three-year sequence in another language and who have taken and passed a language Regents exam. Students may also take this course as a sixth major.

The goals of this class are:

- To develop basic oral and written skills in Modern Greek through the use of texts, videotapes, audio recordings, and computer software
- To build an appreciation and understanding of Hellenic history and culture
- To enhance student performance on standardized exams through the study of word derivations

Some enrichment activities will include field trips, guest speakers, and collaboration with cultural organizations in the Greek community.

FE3H - FE5H - INTERMEDIATE HONORS MODERN GREEK FOR BEGINNERS

(5 single periods per week for one year - May be taken as a 5th or 6th Major – Special Permission required)
This intensive introductory course is a continuation for students who have already taken beginning Modern Greek (FE1H/2H) or the equivalent of one or two years of high school Greek. It can also be a 5th or 6th major for students who have already completed a three-year sequence in another foreign language including in a Regents exam.

FH3 - HEBREW

(5 single periods per week for one year - May be taken as a 5th or 6th Major – Not a Special Permission Class)
This intermediate level course is designed for students with written, spoken and aural proficiency in the Hebrew language. Students who have already completed AND PASSED a Regents sequence in another foreign language are able to take this course as a fifth or sixth major.

FH5 - HEBREW

(5 single periods per week for one year - May be taken as a 5th or 6th Major – Not a Special Permission class)
This advanced level course is designed for students with written, spoken and aural proficiency in the Hebrew language. Students who have already completed AND PASSED a Regents sequence in another foreign language are able to take this course as a fifth or sixth major.

FK3 - KOREAN

(5 single periods per week for one year - May be taken as a 5th or 6th Major – Not a Special Permission Class)
This intermediate level course is designed for students with written, spoken and aural proficiency in the Korean language. Students who have already completed AND PASSED a Regents sequence in another foreign language are able to take this course as a fifth or sixth major. Students will study the language, culture and literature of Korea.

FK5 - KOREAN

(5 single periods per week for one year - May be taken as a 5th or 6th Major – Not a Special Permission class)
This advanced level course is designed for students with written, spoken and aural proficiency in the Korean language. Students who have already completed AND PASSED a Regents sequence in another foreign language are able to take this course as a fifth or sixth major. Students will study the language, culture and literature of Korea.

FLC1: CLASSICS IN TRANSLATION

(5 single periods per week for one year – May be taken as a 5th or 6th Major)

This course is designed for students who would like to experience a survey of Classical Greek and Roman literature in translation. No knowledge of Greek or Latin is necessary, only an interest and curiosity in the Greco-Roman civilization and literature! Specifically, in this course, students will examine ancient literature in translation from mythology by Hesiod and Ovid to the love poems of Catullus to the complex familial relationships of ancient tragedy by Seneca and Euripides. Further texts to be studied will range from Platonic philosophy to ancient medical texts by Hippocrates and Aristotle. In order to further illuminate the reading of the texts, students will view related movie excerpts. Every effort will be made to take at least one trip to a modern stage representation. Through dramatic readings and literary critiques, texts will be examined topically and the curriculum will be tailored to student interest. Students will be expected to write essays on a regular basis.

NOTE:

STUDENTS WHO TAKE ADVANCED PLACEMENT COURSES *ARE REQUIRED TO TAKE CORRESPONDING AP EXAMS IN MAY*. THE ADVANCED PLACEMENT Exam Fee is \$87 per exam.

TECHNOLOGY DEPARTMENT

Technology students benefit from the application and reinforcement of science, engineering, and math as provided in these courses. The department supports the mission of The Bronx High School of Science by engaging students in project-based problem solving instruction and opportunity in preparation for the challenges of science and engineering.

TAS1 - APPLIED SCIENCE

(5 periods per week for 1 year – Satisfies the Sophomore Research Requirement. All students not enrolled in Sophomore Research are required to complete Applied Science.)

Students will work in teams to apply scientific and engineering principles to design, build, test, analyze, redesign and present solutions to various challenges. Such challenges may include the creation of model bridges and energy efficient residences. Students will employ technologies including CAD (technical drawing computer software), computer graphics and hand-built models as part of their work on class projects. Students will be required to submit their projects to the in-house Math, Science and Technology Expo.

TECHNOLOGY EDUCATION ELECTIVES:

The following courses may be taken as a 5th major (2nd elective) or 6th major.

Technology Electives for sophomores, juniors, and seniors are described below.

TCA1 - COMPUTER TECHNOLOGY

(5 single periods for 1 year - May be taken as either a 5th or a 6th major)

Build your own Personal Computer in this challenging and innovative class. With readily available components, students will custom build microcomputers of their own design. Students will learn digital electronics, mechanical assembly, troubleshooting, diagnostics, and will become proficient in maintaining their machines. The completed systems may be housed in custom-made desktop consoles also designed and built by the students. Students will obtain training and experience similar to the industry-standard “A+”. *Students are responsible for all expenses related to the assembly and completion of their computer (a minimum of \$250 not including the monitor).*

TCG1 - COMPUTER GRAPHICS

(5 periods per week for 1 year - May be taken as either a 5th or a 6th major)

Computer-generated graphics and imagery is among the most creative areas of computer science. Fine arts, publishing, business, advertising, television and film production are areas increasingly in need of people with a scientific background coupled with graphics expertise. Students will have hands-on experience in our modern graphics lab in creating, capturing, modifying, and then printing original work. Outstanding work will be displayed in exhibits and shows, or on the “web”.

TDA1 - ARCHITECTURAL DRAFTING

(5 periods per week for 1 year - May be taken as either a 5th or a 6th major)

This one-year course is recommended for future architects, civil engineers, and other students interested in the exploration and design of various structures such as homes, utility buildings, industrial facilities, and public spaces. Students prepare original design solutions for the various problems encountered when planning private houses, apartments, schools, and

municipal buildings. The class combines Computer Assisted Design, electronic presentation, manual drawing and model construction techniques to prepare presentation quality solutions.

THE ARTS

Any of the following courses satisfy the arts requirements needed for graduation.

Drama

APT1 – BASIC ACTING – IMPROVISATION AND PERFORMANCE

(5 periods per week for 1 year - Not a Special Permission Course – 6th major only, satisfies the arts requirement)

This course is an introduction to acting techniques, staging, and performance. The course begins with theater games and exercises, followed by work on improvisation, which will include evolving student-generated ideas. Students will be encouraged to develop their acting skills through techniques stressing relaxation, focus, sensory recall, mime, and improvisation. Scene study from professional plays will be included, as well as elements of Readers' Theatre. The basics of stage makeup will be demonstrated.

APT3 – ADVANCED ACTING: PLAY PRODUCTION

(5 periods per week for 1 year - Special Permission Required – 6th major only, satisfies the arts requirement)

Do you have a yearning to be a star? Although we can't guarantee Broadway, this class may be for you. Students rehearse, stage, and perform a full-length drama. They also write, rehearse, and direct original one-act plays. Successful completion of Basic Acting (EPT1) is a requirement for admission. Admission by audition only.

Fine Arts

Our program of fine arts and visual communication is designed to help students develop their creative ability and talent while simultaneously understanding those factors in our culture that add beauty, stimulation, and enrichment to our lives. The arts engage a student's imagination, ideas, and abilities, and inspire them to more richly appreciate the world around them.

A101 – STUDIO IN ART

(5 periods per week for 1 year)

Students develop an appreciation of visual art through experimentation with a variety of media, in both two-and three-dimensional forms. They are exposed to the rewards of seeing the elements and principles of Art evolve into an attractive and creative finished product.

ACP1 – PHOTOGRAPHY

(5 periods per week for 1 year - May be a 5th or 6th major)

The emphasis of this class is on digital image capture, editing and manipulation. Students are given creative assignments inspired by the work of well-known photographers. They use professional software to improve, modify or combine the work with other pieces. The elements and principles of art are explored through the preparation of "electronic" images. Completed projects may become part of Gallery exhibits or other public displays. Access to a personal digital camera is recommended.

ADD1 – STUDIO IN DRAWING AND DESIGN

(5 periods per week for 1 year - May be a 5th or 6th major)

Students will prepare artwork to acquire fundamental drawing and painting skills, which will allow them to communicate their ideas visually. By exploring the expressive possibilities of different materials and techniques, students will gain an understanding of the creative process, an appreciation of art, and develop their own problem-solving skills. A list of required art supplies will be provided at the start of the course.

APP1 – STUDIO IN PAINTING

(5 periods per week for 1 year - May be a 5th or 6th major)

This course will help students find their own unique approach for artistic expression through the use of paint. Students will also develop a vocabulary for intelligently discussing and critiquing art. Through various projects students will develop painting techniques, improve their visual perception, and learn about their own work in the context of art history. Students will experiment with a variety of styles and paint from both life experience and imagination. This course will also assist in the development of a high quality art portfolio.

ADVANCED PLACEMENT COURSES

AUX1 – ADVANCED PLACEMENT STUDIO ART

(5 periods per week for 1 year – Special Permission Required - May be a 5th or 6th major)

The Advanced Placement Program in Studio Art is for talented and highly motivated students interested in the study of art technique and/or the pursuit of a career in art. Students will be called upon to devote considerable time and maximum effort, far beyond a typical high school course, in the quest to produce works of the highest aesthetic quality. Students must leave sufficient time for independent study, outside of school. Students will be required to develop a portfolio of twenty four pieces of original art work to be evaluated by the College Board. Determination of AP credit will follow standard College Board evaluation procedures.

Prerequisite: One Year of Visual Art Study.

AUX3 - ADVANCED PLACEMENT ART HISTORY

(5 periods per week for 1 year – Special Permission Required – May be a 5th or 6th major)

Students will study fine works of art in relation to the period in which the works were produced. It is important that the student is interested in college-level study and is willing to devote maximum time and effort to the study of art history. The production of written analyses and research papers, as well as visits to museums and galleries will be required. Determination of AP credit will follow standard College Board evaluation procedures.

NOTE:

STUDENTS WHO TAKE ADVANCED PLACEMENT COURSES ARE REQUIRED TO TAKE CORRESPONDING AP EXAMS IN MAY. THE ADVANCED PLACEMENT Exam Fee is \$87 per exam.

Music

U1R1 - MUSIC SURVEY

(5 periods per week for 1 year)

This course explores the value of music for the individual as an educated member of society. Students survey the history of music and learn how to listen to outstanding and significant musical styles, periods, and composers. Students are taught to analyze various works, both objectively and subjectively, while common threads and interrelationships are developed. Students will also compose original digital music in a composition unit.

UMD1 - DIGITAL MUSIC LAB

(5 periods per week for one year – May be a 5th or 6th major)

This course will provide the student with an in-depth knowledge of operating a digital audio workstation (DAW) through the use of industry standard applications including Pro Tools 7.3 LE, Ableton Live 6, Reason 4, Finale 2012, and Garage Band. Students will write and record their own compositions by studying the three main aspects of music production: recording, mixing, and mastering. Topics include basic acoustics, analog vs. digital sound, loop-based recording, sampling, MIDI control surfaces, virtual instruments, effects processing, microphone techniques, and studio monitoring.

ADVANCED PLACEMENT COURSES IN MUSIC

UTX1 – AP MUSIC THEORY

(5 periods per week for 1 year. Special Permission Required. – May be taken as a 5th or 6th major)

This advanced placement class in music theory is intended for talented and highly motivated students interested in the intense study of music and possibly the pursuit of Music education beyond high school. The curriculum includes theory, dictation and sight singing. Students must take and pass a placement test to qualify for this course.

NOTE:

STUDENTS WHO TAKE ADVANCED PLACEMENT COURSES *ARE REQUIRED TO TAKE CORRESPONDING AP EXAMS IN MAY*. THE ADVANCED PLACEMENT Exam Fee is \$87 per exam.

PERFORMING MUSIC COURSES

All students may apply for admission to Performing Music classes.

IMPORTANT NOTES:

- **AUDITIONS ARE REQUIRED**
- These courses satisfy the music requirement for graduation.
- Students may remain in performing music for four years.
- These courses are elective minors. They may be taken as an extra class.
- Students enrolled in performing music courses will be required to pay an annual \$25.00 rental/instrument/supply fee.
- Students may be dropped from performance groups if their privileges do not remain active.

Performances may include music assemblies, winter and spring concerts, graduation and festival appearances that often take place after school and possibly on weekends or evenings.

UDC1 - CONCERT BAND

(5 periods per week for 1 year. Audition Required. Elective Minor – NOT a 5th Major)

This group, a major showcase group, consists of full band instrumentation and has a large repertoire. The Concert Band has a full sound that must be heard to be believed. Their repertoire may include classical, popular, rock, movie, TV, holiday marches, and show tunes. Audition and performance commitments are required.

UDT1 - JAZZ BAND

(5 periods per week for 1 year. Audition Required. Elective Minor – NOT a 5th Major)

Jazz, the distinctly American musical idiom, in its many forms and varieties, is the essential element in Stage Band performance. This band plays selections from the 30s, 40s and 50s "Big Band" era right through the present time. Audition and performance commitments are required.

UMR1 – ORCHESTRA

(5 periods per week for 1 year. Audition Required. Elective Minor – NOT a 5th Major)

This is the basic instrumental program for students who desire the experience of learning and performing symphonic music. Open to all students by audition. Members consist of the most talented string, wind, and percussion players in the City of New York.

UVE1 – CHORUS

(5 periods per week for 1 year. Audition Required. Elective Minor – NOT a 5th Major)

Chorus is for students with the interest and ability to sing. The joys and personal satisfaction of trained group singing are available to all students who have the desire to sing. The Bronx Science Chorus studies and performs classical, jazz gospel and popular selections and stages many fine performances which include a full range of musical selections. Performance commitments, audition, and approval of choral director are required.

THE PHYSICAL EDUCATION DEPARTMENT

The Physical Education department provides a wide range of instruction in sports and team activities, making it possible for our students to develop healthy, life-long physical and athletic ability.

Our department's goal is to provide the necessary opportunities to establish and maintain physical fitness and good personal health. These goals are addressed to support both the social enjoyment of organized sports and to provide a competitive atmosphere that will benefit all students.

As part of our physical education curriculum, we offer the following units:

Aerobics	Handball	Team Handball
Badminton	Pickleball	Ultimate Frisbee
Basketball	Project Adventure	Volleyball
Fitness	Soccer	Weight Training
Flag Football	Softball	Yoga
Floor Hockey	Step Bench	

We encourage the selection of a wide variety of Varsity and Jr. Varsity sports that are available throughout the year.

Students may join the following athletic teams available at Bronx Science:

Baseball Varsity & Jr. Varsity	Handball (Boys & Girls)
Basketball Varsity & Jr. Varsity (Boys & Girls)	Indoor Track (Boys & Girls)
Bowling (Boys & Girls)	Soccer (Boys & Girls)
Crew Coed	Swimming (Boys & Girls)
Cricket	Tennis (Boys & Girls)
Cross Country (Boys & Girls)	Volleyball Varsity (Boys)
Fencing (Boys & Girls)	Volleyball Varsity and Jr. Varsity (Girls)
Golf (Boys & Girls)	Softball Girls Varsity & Jr. Varsity
Outdoor Track (Boys & Girls)	Wrestling
Gymnastics (Boys & Girls)	

GUIDANCE DEPARTMENT

ZTEST - PSAT PREP CLASS

(Period 11, two days a week)

This course is designed to help Juniors who will be sitting for the high-stakes National Merit Scholarship Test (PSAT) in October, 2012. Class will run for four two-hour sessions starting September 27, 2012. A \$30 fee to cover testing materials is required.

All students who opt for this course must attend each class as regular class attendance rules will apply. Once registered, students will not be allowed to drop.

GRADUATION REQUIREMENTS

STUDENTS MUST TAKE AND PASS 5 MAJORS EACH TERM.

The minimum requirements are listed below. Students may take additional courses.

English	every term at Bronx Science
Social Studies	every term at Bronx Science
Laboratory Science	every term at Bronx Science (Every student must take at least one biology laboratory course at Bronx Science. If a student took biology Living Environment) in Junior HS/MS, s/he must take a biology lab science course prior to graduation.
Mathematics	six terms at Bronx Science
Foreign Language	six terms (four terms at Bronx Science)
Sophomore Research* Applied Science	two terms
Fine Arts Requirement**	two terms
Health	one term
Physical Education	eight terms
Elective 1	two terms (Science or Math)
Elective 2	two terms (Any 5 th major)

Regents must be passed in English, Global History, U.S. History, Biology, Chemistry, Physics, Algebra, Geometry, Algebra II/Trig and Foreign Language.

Starting with the class of 2015, every student must take and pass at least one advanced placement class.

TRANSCRIPT CHECK: Students should check that all exams and appropriate course credit are recorded on their transcript.

Students, who fail any subject must pass the course in the following school year. You cannot receive credit for an academic class twice.

* Sophomore research can be satisfied by the following courses: Sophomore Social Science Research (HUP1), Sophomore Biology/Physical Science Research (SBP1), Sophomore Math Research (MER1), Computer Science Projects (MSC1), Introduction to Engineering (SPS1)

** Fine Arts Requirement can be satisfied by any class in the music and/or art department including (but not limited to) drama, performing music and Photography.

COURSE SELECTION INFORMATION
for
SPECIAL PERMISSION CLASSES

Students who meet the criteria for special permission courses will be able to select these courses from the drop down menu in Naviance. There will no longer be an application process. All criteria for special permission classes will be on the department page of the Bronx Science Website. Students who do not meet those criteria may apply directly to the appropriate assistant principal. Information will be on the department webpage. This appeal must be done before Naviance closes.

Students with privileges suspended will not be eligible for special permission classes.

Acceptance to special permission classes may be contingent upon final grades, Regents' Exam results and student status in June.

PROGRAM PLANNING GUIDELINES

	<u>Freshman Program</u>	
	<u>Fall</u>	<u>Spring</u>
1	English	English
2	Social Studies	Social Studies
3	Mathematics	Mathematics
4	Lab Science (usually biology)	Lab Science (usually biology)
5	Foreign Language	Foreign Language
6	Physical Education	Physical Education
7	Research Literacy or Writing Workshop	Research Literacy or Writing Workshop
8	Lunch	Lunch

	<u>Sophomore Program</u>	
	<u>Fall</u>	<u>Spring</u>
1	English	English
2	Social Studies	Social Studies
3	Mathematics	Mathematics
4	Lab Science (usually Chemistry)	Lab Science (usually Chemistry)
5	Foreign Language	Foreign Language
6	ONE of: Applied Science or Sophomore Research	ONE of: Applied Science or Sophomore Research
7	Arts*	Arts*
8	Physical Education	Physical Education
9	Lunch	Lunch
10	6 TH Major (optional)	6 TH Major (optional)

* The arts requirement can be satisfied by two terms of any art, music or drama class.

**6th major is optional if all requirements have been met (make-up classes are not 6th majors). Requests for a sixth major will be added to your program only if the budget permits and subject to your attendance and cut records

The following classes are NOT fifth majors:

- Yearbook
- Journalism
- Debate
- Advanced Acting and Play Production
- Drama Workshop
- Musical Group
- any course listed as a “sixth major only” or “elective minor”

	<u>Junior Program</u>	
	<u>Fall</u>	<u>Spring</u>
1	English	English
2	Social Studies	Social Studies
3	Mathematics	Mathematics
4	Lab Science (usually Physics)	Lab Science (usually Physics)
5	Foreign Language or any 5 th major elective	Foreign Language or any 5 th major elective
6	Health (one term) OR	Health (one term)
7	Physical Education	Physical Education
8	Lunch	Lunch
9	6 TH Major (optional)*	6 TH Major (optional)*

	<u>Senior Program</u>	
	<u>Fall</u>	<u>Spring</u>
1	English	English
2	Social Studies	Social Studies
3	Lab Science	Lab Science
4	Science or Mathematics (Elective 1),	Science or Mathematics (Elective 1)
5	Fifth Major (Elective 2)	Fifth Major (Elective 2)
6	Physical Education	Physical Education
7	Lunch	Lunch
8	6 TH Major (optional)*	6 TH Major (optional)*

*6th major is optional if all requirements have been met (make-up classes are not 6th majors). Requests for a sixth major will be added to your program only if the budget permits and subject to your attendance and cut records.

The following classes are NOT fifth majors:

- Yearbook
- Journalism
- Debate
- Advanced Acting and Play Production
- Drama Workshop
- Musical Group
- any course listed as a “sixth major only” or “elective minor”

NOTE:

1. Students who have not passed E1, 2, 3, & 4 AND H1, 2, 3, & 4 will not be promoted into grade 11.
2. Students may advance in Art, Music, and Health in Bronx Science summer school. No other academic summer school courses are offered including for failed classes.
3. Requests for a sixth major will be added to your program only if the budget permits and subject to your attendance and cut records.
4. Accelerated course grades, Regents grades, and proficiency exam grades should appear on your transcript. If they do not, please see your Guidance Counselor.
5. Seniors' 1st elective choice must be a science or math course.
6. Seniors' 2nd elective choice may be any academic course including, Advanced Placement courses or any other course that is NOT designated as either a "sixth major only" or as an "elective minor."
7. Students who failed a major class MUST take six majors the following year (the make-up class does NOT count as one of the five majors). You must discuss your following year's program with your guidance counselor.
8. If a student passed a second language proficiency exam by the end of eighth grade and earned two high school credits, the student may continue with the same language at Bronx Science at the second year level. In this instance, the student needs two years of language and must pass the Regents examination.
9. You must meet with your guidance counselor as least once a year to review your transcript and to confirm that you are fulfilling your graduation requirements in a timely manner.

GRADUATION PLANNING SHEET

The chart below will help you to plan next term's schedule. Check those courses that you have already passed. In the appropriate column, write the codes for the courses that you are planning to take next year. Cross out all those courses that do not apply to you. Make sure that all graduation requirements will be met by the end of your senior year. Remember that you must take at least 5 majors per term. If you have any questions, see the department supervisor or your guidance counselor. Not all students will need every course listed in the first column. NOTE: Seniors must have one "elective 1" and one "elective 2". A "+" indicates year a course is usually taken.

Courses needed to Graduate	Already Passed	Freshman Year	Sophomore Year	Junior Year	Senior Year	Summer School
English 1 / 2		+				
English 3 / 4			+			
English 5 / 6				+		
English 7 / 8					+	
Global History 1 / 2		+				
Global History 3 / 4			+			
History 5 / 6				+		
History 7 / 8					+	
Biology		+				
Chemistry			+			
Physics				+		
Senior LAB SCIENCE					+	
Language 1 / 2		+				
Language 3 / 4		+	+			
Language 5/6			+	+		
Advanced Language (May Be Used As Elective 2)				+	+	
Math Year 1		+				
Math Year 2		+	+			
Math Year 3			+	+		
Elective 1					+	
Elective 2					+	
Technology Education Or Research			+			
Music/Art			+	+	+	+
Research Literacy		+				
Physical Education (Gym)1/2		+				
Physical Education (Gym)3/4			+			
Physical Education (Gym)5/6				+		
Physical Education (Gym)7/8					+	
Health Education				+		
Writing Workshop		+				

Fill in the form below to prepare for elective day and Naviance course registration.

Name _____ Official Class _____

ID# _ _ _ _ _

Counselor _____

NOTES

Special Permission courses I'd like to take: (Be sure to sign up!)

Courses to visit on Elective Day (Note room numbers)

_____ _____
_____ _____
_____ _____

My Five majors (1st choice)

My Five majors (1st Alternate)

1. _____
2. _____
3. _____
4. _____
5. _____

My Five majors (2nd Alternate)

My Five majors (3rd Alternate)

1. _____
2. _____
3. _____
4. _____
5. _____

Sixth major, extra course (if necessary) or elective minor

6. _____
7. _____

ON-LINE ELECTRONIC COURSE GUIDE

An electronic copy of the Course GUIDE has been posted on The Bronx Science World Wide Web page, www.bxscience.edu.

Questions related to the Course GUIDE on the Internet should be directed to the appropriate department or Ms. Chang, Coordinator of Pupil Personnel Services via surface mail or via E-Mail to chang1@bxscience.edu.

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The Parents Association
Of
The Bronx High School of Science
75 West 205th Street
Bronx, NY 10468
718-817-7739
