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COURSE CATALOG 2009

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Valerie J. Reidy, Principal,

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

Valerie Reidy
Principal

Course Guide
For
School Year 2009-09

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DIRECTORY OF ADMINISTRATORS

Valerie J. Reidy	**Principal**	**Room 135**
ASSISTANT PRINCIPALS ADMINISTRATION		
Shun Fang Chang	Assistant Principal Pupil Personnel Services	Room 035F
Stephen Kalin	Assistant Principal Management Information Systems	Room 134
Phoebe Cooper	Assistant Principal Organization	Room 135
DEPARTMENT SUPERVISORS		
David Colchamiro	Assistant Principal Social Studies Department	Room 307D
Jean Donahue	Assistant Principal Biological Science Department	Room 329D
Damaris Fernandez	Assistant Principal English Department	Room 207D
Annelisse Falzone	Assistant Principal Physical Science Department	Room 231D
Fred Levy	Assistant Principal Technology, Music and Art Departments	Room 315D
RoseMarie Jahoda	Assistant Principal Mathematics Department	Room 107D
Lisa Rocchio	Assistant Principal Foreign Language	Room 214D
Trudi Diubaldo	Department Coordinator Physical Education Department	Room 048D

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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 focuses on literature that addresses social issues consistent with the theme of growing up and values. The class involves the study and analysis of novels, short stories, poetry, and plays. The first semester includes a strong emphasis on writing through the teaching of grammar, vocabulary and different types of essays.

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 becomes 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 focuses on classical works of literature. The class involves the study and analysis of novels, short stories, poetry, and plays that include Henry IV, The Odyssey, and A Tale of Two Cities. This class also involves various types of writing assignments based on each of the literary works studied during the year.

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. Students read Henry IV Part I, A Tale of Two Cities, The Merchant of Venice and The Odyssey. 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. Admission to this class requires good grades in Freshman English, a strong recommendation from your English teacher, and a writing sample. No previous experience in speech and debate is necessary or preferred.

E3OH – HONORS SOPHOMORE ENGLISH

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

This Sophomore English Honors course provides instruction from the Sophomore English curriculum. It includes the reading of classics of world literature such as The Odyssey, and A Tale of Two Cities. Enrichment activities include an emphasis on creative responses to these

texts. Students will work collaboratively, as partners and as teams, on special projects during the year.

JUNIOR ENGLISH CLASSES

E5 – SURVEY OF AMERICAN LITERATURE

(5 periods per week for 1 year – Not a Special Permission Course)
This course focuses upon masterpieces of American literature from pre-colonial times to the twentieth century. The class involves the study and analysis of novels, plays, poetry, short stories, and nonfiction works that reflect American society, its culture and values.

E5OH - ADVANCED ENGLISH

(5 periods per week for 1 year, Special Permission required)
This honors course is a study of the development of American literature. In addition to the regular junior English curriculum, this course includes training in critical reading and thinking, and emphasizes expository writing. Opportunities to do creative writing are also part of the course work.
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E5CH - CREATIVE WRITING

(5 periods per week for 1 year, Special Permission required)
In addition to the regular year's curriculum in American literature, this course stresses the writing of original poetry, short stories, and plays. The best work of these classes is published in *DYNAMO*, the Bronx Science literary magazine. Good grades in English at our school and the strong support of your English teacher are required. Highly motivated students who are talented creative writers should apply.

E5JH - JUNIOR JOURNALISM

(5 periods per week for 1 year, Special Permission required)
In addition to exploring the regular American 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. In the spring semester, students will use the newsroom's desktop publishing technology to write, edit articles, and design newspaper pages.
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.

E5X2 – ADVANCED PLACEMENT ENGLISH LANGUAGE AND COMPOSITION

(5 periods per week for 1 year, Special Permission required)
This course stresses rhetoric, writing style, and linguistics, as well as literature in addition to following the regular junior English curriculum. Only the most talented students of proven ability in English are accepted. Students in this class must take the Advanced Placement test in May.

NOTE:
STUDENTS WHO TAKE ADVANCED PLACEMENT COURSES *ARE REQUIRED TO* TAKE CORRESPONDING AP EXAMS IN MAY.
The ADVANCED PLACEMENT Exam Fee is $86 per exam.

SENIOR ENGLISH

Seniors may take an Advanced Placement English OR a senior selective (not both).

ADVANCED PLACEMENT SENIOR ENGLISH

E7X1 – ADVANCED PLACEMENT LITERATURE

(5 periods per week for 1 year, Special Permission required)
This course is equivalent to a college level course. A high grade on the Advanced Placement Exam often entitles candidates to advanced standing in college. In addition to following the regular senior English curriculum, students read intensively and write frequent critical analyses. Only the most talented students of proven ability in English are accepted. Students in this class must take the Advanced Placement test in May. The State University at Albany accredits this course.

NOTE:
STUDENTS WHO TAKE ADVANCED PLACEMENT COURSES *ARE REQUIRED TO* TAKE CORRESPONDING AP EXAMS IN MAY.
The ADVANCED PLACEMENT Exam Fee is $86 per exam.

SENIOR SELECTIVES IN ENGLISH

(some or all selectives may not be offered next year)

What is a Selective Course? Selective courses satisfy the senior English requirement but emphasize a particular aspect of the subject area. All selectives cover the same English 7 curriculum.

Every attempt is made to place students in the "selective" of their choice; however, due to scheduling limitations, it is sometimes necessary to place students in another selective course to allow for program limitations. Courses substituted for scheduling reasons will not be changed.

E7 – A SURVEY OF ENGLISH AND WORLD LITERATURE OR REQUIRED SENIOR ENGLISH

(5 periods per week for 1 year – - Not a Special Permission Course)
This course focuses upon masterpieces of English and world literature. It includes the study of novels, plays, poetry and short stories that are more global than American in scope. Students should expect to spend time studying vocabulary, writing compositions, and learning important concepts of written expression.

E7L – "FROM A RIB OF ADAM" – WOMEN IN LITERATURE

(5 periods per week for 1 year – - Not a Special Permission Course; this course may not be offered.)
Do you hold the Old Testament belief that Eve was created from a rib of Adam? The main thrust

of this course will be that the role of women in this and other societies cannot be fully understood unless we explore the sex roles of both men and women. The cultural and societal expectations that shape our roles as men and women often trap us into behaviors and a status that seem sometimes to be beyond our control and definitely beyond our making. Join us in a search for what literature reveals the roles of men and women have been in the past and what they might become in the future. This course is open to serious students of literature who are interested in learning more about authors such as Strindberg, Sophocles, Kate Chopin, Ibsen, Morrison, Hong, and members of the Feminist Movement.

E7B – A STUDY IN EVIL

(5 periods per week for 1 year – - Not a Special Permission Course; this course may not be offered.)
This course will examine the question of what evil is, how it is manifested in society and in the individual, and how it has been portrayed in literature. Readings will explore the great literary villains, including Shakespeare's Iago and Richard III, Marlowe's Doctor Faustus, and Conrad's Kurtz. In addition, contemporary authors will be examined in order to understand evil as it operates in the twentieth century.

E7M – LITERATURE AND FILM – Like Writing with Lightning*

(5 periods per week for 1 year - Not a Special Permission Course; this course may not be offered.)
Students read literary works from the senior curriculum (novels, plays, short stories, poems), and examine filmed versions of these stories. The course emphasizes writing about literary themes and styles, and studying how cinema attempts to convey these ideas. Films will *not* be screened in class; students are expected to view the videos on their own, or attend after-school screenings periodically. The course is intended for the student who is serious about writing about literature and film.

*A paraphrase of President Woodrow Wilson's reaction after watching his first movie.

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.

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.

EP1* – BASIC ACTING – IMPROVISATION AND PERFORMANCE

(5 periods per week for 1 year - Not a Special Permission Course – 6th major only)
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.

EP3* – ADVANCED ACTING: PLAY PRODUCTION

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

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 WORKSHOP

(10 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*. Students will develop marketable skills in design and layout, writing, editing, proofreading, photography, management, and advertising. Students must exhibit creativity, organization, responsibility, and have skills in photography and writing. It is helpful, but not required, for students to have their own camera (either digital, or Single Lens Reflex cameras (not point and shoot)). All participants will be expected to work outside of class and to meet after school during certain times of the year. In addition to the 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 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 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 the senior year.

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 – Summer Prerequisite Required)
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

(7 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.

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.

JUNIOR SOCIAL STUDIES COURSES

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

- U.S. History and Government
- Two Year Advanced Placement U.S. History for juniors
- One Year Advanced Placement U.S. History for juniors
- Mock Trial

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.

H5OT MOCK TRIAL - UNITED STATES HISTORY & GOVERNMENT

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

Do you enjoy courtroom drama on television and in the movies? Can you picture yourself as a witness or as a lawyer performing in a courtroom trial? This course combines the traditional H5 curriculum with material and skills needed to conduct a court case. Juniors may take this course in lieu of the traditional United States History and Government course. In Mock Trial, students will prepare for the United States History and Government Regents by studying concepts such as separation of powers, checks and balances, the elastic clause, judicial review along with the personalities that shaped our history such as Thomas Jefferson, Alexander Hamilton, Andrew Jackson, and Theodore Roosevelt.

With the assistance of an attorney from the law firm of Akin, Gump, Strauss, Hauer, and Feld, students will learn how to make opening and closing statements, raise objections, and how to conduct direct and cross examinations. Students will gain a wealth of educational advantages, from learning how to read complex materials to experience in developing analytical abilities and making public presentations. The course will demystify and humanize the legal system through interaction with attorneys, visits to law firms and courtrooms, and participation in the New York State Mock Trial Competition.

The centerpiece of Mock Trial will be the participation of twelve students from the class in the New York State Mock Trial Competition. Team members will travel by subway to law firms to practice. The actual rounds of competition will be held at the U.S. Federal Courthouse, 500 Pearl Street in Manhattan. A student who recently took the course stated:
"I just want you to know that I found Mock Trial to be an amazing experience. I have never been part of a team before, and I certainly learned a lot. To tell you the truth, I never worked so hard on something in my life, and I never .. enjoyed something that I worked hard at so much."

JUNIOR ADVANCED PLACEMENT COURSES

H5X1 – JUNIOR ADVANCED PLACEMENT US HISTORY (ONE YEAR)

(5 periods per week for 1 year - Special Permission Required).
This course addresses the Advanced Placement American History Program over a one-year period 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.

H5X2 – JUNIOR ADVANCED PLACEMENT US HISTORY – (TWO YEARS)

(5 periods per week for 1 year - Special Permission Required).
This is the first half of the Bronx Science two-year Advanced Placement American History program. (The second half is H7X). It encompasses American History from colonial times through the Civil War, and it includes U. S. Government. There is emphasis given to social history and to historical interpretation. Selection is based upon previous grades in English and Social Studies, and teacher recommendation. This course requires a two-year commitment. Students must take the Regents exam in January of the senior year and the Advanced Placement exam in May of their senior year.

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

H7X – SENIOR ADVANCED PLACEMENT US HISTORY – YEAR 2

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

This is the continuation of the two-year Advanced Placement US History (H5X2) course. All seniors currently in Junior Advanced Placement US History must take the second year of the course. No other students may enroll in this course.

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 – HGX1)

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 – HGX4)

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 – HFX5)
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 – HFX7)
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 – HFX9)
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.

NON-AP SOCIAL STUDIES COURSES / SENIOR SELECTIVES

Selective units will be taught during the last six weeks of the spring term. The first term will be Participation in Government and the second will be Economics. The last six weeks of the second term is devoted to any one of the following selective topics

IMPORTANT NOTE ABOUT SELECTIVE COURSES:

- All selective courses cover the same material until the last six weeks of the term, at that time selective classes begin to learn material specific to the course title.
- The Program Committee will try to honor student requests for selective courses however another selective course may be substituted for a selective at the discretion of school personnel due to scheduling difficulties or class size limitations
- Some or all of the selectives may not run.

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.

H7J – INTRODUCTION TO PSYCHOLOGY

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

This senior course satisfies the H7/H8 graduation requirement. Intended as an introduction to the basic ideas of psychology, this course will show how these concepts apply to individual behavior. It will then explore the role psychology has played in the shaping of American life in the 20th century. Among the areas under consideration for investigation are advertising, politics, ethnicity, consumer decisions, health care, the stock market, television programming and other areas of our culture. Students will be required to complete and present a FINAL RESEARCH PROJECT to the class.

H7B - INTRODUCTION TO BUSINESS AND FINANCE

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

This senior course satisfies the H7/H8 graduation requirement. The economics component is modeled on graduate level MBA programs and is designed to provide the student with an introduction to the world of business, finance and investment. This selective will provide students with a foundation for college level courses in economics, accounting, marketing and business. The course is intended to give students a deep understanding of economic theories and practices; public policy, investment modalities –the stock market and alternative investment opportunities; and principles of taxation, accounting and business finance. Consistent with MBA programs, students will read and analyze case studies and research corporations and their practices. They will also be involved in a year long stock market/investment simulation program.

H7E - ENVIRONMENTAL HISTORY AND DECISION MAKING

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

This senior course satisfies the H7/H8 graduation requirement This course looks at history, politics and economics through an environmental lens. This course will examine issues such as animal rights, global warming, and the ecological footprint on the planet. Students in the course will study and evaluate the environmental choices that are made by international organizations, governments and by individuals. The course will look at America's relationship with nature starting with the Native American perspective, the transcendentalists, up to the present.

This course will also be infused with art and philosophy as we work toward an appreciation of the natural environment. Students will be participate in environmental projects, simulations, outdoor learning and field trips.

H7U - COLLEGE POLITICAL SCIENCE

(5 periods per week for 1 year – Not a Special Permission Course)
(May also be taken as a 5th or 6th major with an AP Economics class or H7X – HFP1).

This senior course will be a college-level survey of political science, designed for students who have a strong interest in political science and the ability and desire to engage in challenging material.

Students who take this course are eligible for *six credits* from SUNY Albany. The Fall Term is devoted to American Government, and will include a study of the institutions, functions, and policies of the Untied States. Primary sources and college-level textbooks will be used, along

with classroom exercises, simulations, debates, and discussions. The Spring Term is equivalent to SUNY Albany's "Introduction to Political Science" and will focus on how different countries solve problems of governance and public policy. Units will include comparative public policy, political methodology, and international relations, and globalization. While the course will include hands-on manipulation of political data, no prior experience is assumed. Students who are taking additional senior social studies classes, such as AP Economics or AP American History, will find that this course complements that experience. Students may not enroll for AP American Politics (H7X3) and this class.

The Fall and Spring semesters are each accredited as three-credit courses at SUNY Albany. Each course is approximately $120, and discounts are available for students who have demonstrated financial need.

THE FOLLOWING SOCIAL STUDIES COURSE MAY ONLY BE TAKEN AS EITHER FIFTH OR SIXTH MAJOR:

HWX1 - ADVANCED PLACEMENT WORLD HISTORY

(5 periods per week for 1 year - Special Permission Required; 5th or 6th major only)
This college level history course provides students with the opportunity to enhance their understanding of world history. Students will read a college textbook, supplemented with primary sources, in order to explore key issues and themes of social studies and history. Moreover, students will write comprehensive essays and research papers that demonstrate their understanding of change over time and point of view. Classroom activities will include debates as well as group and individual presentations. This is an ideal course for students who enjoyed Global Studies. Students are required to sit for the AP Exam in May.

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 013 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 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. If a student drops out of sophomore research class s/he must take a semester of technology education.

HUP* – SOPHOMORE SOCIAL SCIENCE RESEARCH

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

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. Technical drawing and statistics, which will help students develop skills useful in presenting their projects and verifying their findings, are incorporated in the course. 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.

Co-requisite: 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 Math 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
- Putting Mathematics to Work

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

REQUIRED MATHEMATICS COURSES

Elementary Algebra:……M1, M2
Plane Geometry: ……M3, M4
Intermediate Algebra and Trigonometry: ..... M$5, M$6
Precalculus……(for students with advanced standing) MQ7, MQ8
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

MQ7 – PRECALCULUS

(5 periods per week for 1 year – Not a Special Permission Course)
This course is viewed as the fourth year of high school mathematics, a preparation for calculus and other college-level mathematics courses. The course covers diverse topics including: relations and functions, polynomial equations, conic sections, complex numbers, polar coordinates, sequences and series and mathematical models for real world applications.

Students will make extensive use of the graphing calculator to explore advanced topics. This course is also a pre-requisite or a co-requisite for all other advanced courses in mathematics.

MA1 - CALCULUS

(5 periods per week for 1 year – Not a Special Permission Course)
This course covers the scope of a first year college calculus course. It is designed for students who have completed Advanced Mathematical Concepts and are not taking Advanced Placement Calculus.

MA3 – CALCULUS WITH PRE-CALCULUS

(5 periods per week for 1 year –Special Permission Required)
This course will provide students with an overview of common pre-calculus 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. The course will culminate with exploring the properties of transcendental functions using integrals.

MICS – INTRODUCTION TO COMPUTER SCIENCE

(5 periods per week for 1 year) Students who select this course will also be placed into a one-semester Technical Drawing (TTD) class. Students who successfully complete TTD and MICS will have satisfied their Technology Education requirement, and will also be eligible to apply for AP Java (MCX3/4) for their junior year.
Introduction to Computer Science (MICS) is a one-semester, project-based course, designed to introduce students to the study of computer science. Students will utilize an interactive software program that is designed to introduce object-oriented and procedural programming. Students will learn how to develop functional computer programs in the Java programming language.

MCB1 – COMPUTER PROGRAMMING IN VISUAL BASIC AND JAVA

(5 periods per week for 1 year)
This course is divided into two - one term courses.
Term 1 (VISUAL BASIC) – Students will learn how to develop Microsoft Windows programs using the Visual Basic programming language. Students will develop Windows applications using forms, controls, and event-driven programs, while learning about basic programming concepts, such as variable declaration, procedure design, loops, and control structures. Students will also design numerous projects which will enable them to apply the concepts learned, as well as demonstrate their creativity.

Term 2 (JAVA) – Students will apply the logic used in Term 1 to the Java programming language. A transition is made from procedural programming to object-oriented programming. Programs are constructed with an emphasis placed on the concepts introduced, and the logic used in the previous course. Reusability, readability, and documentation are also stressed.

This course is a prerequisite for the Advanced Placement Computer Science course (MCX3).

ADVANCED PLACEMENT MATH CLASSES

MAX1 - ADVANCED PLACEMENT MATHEMATICS - CALCULUS AB

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

MBX1 - 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: Advanced Mathematical Concepts.

MCX3 - 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: Computer Programming in Visual Basic and Java (MCB1) or Introduction to Computer Science (MICS).

MS1 – STATISTICS AND DATA ANALYSIS

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

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 Co-requisite): Precalculus (MQ7)

MEX1 - 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.

NOTE:
STUDENTS WHO TAKE ADVANCED PLACEMENT COURSES *ARE REQUIRED TO* TAKE CORRESPONDING AP EXAMS IN MAY.
THE ADVANCED PLACEMENT Exam Fee is $86 per exam.

ADVANCED MATHEMATICS CLASSES

MEM1 – MULTIVARIABLE CALCULUS

(5 periods per week for 1 year – Special Permission Required)
This course is designed for students who have completed any level of Calculus or who will be taking AP Calculus as a co-requisite. The 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 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.

MLD1 – LINEAR ALGEBRA AND DIFFERENTIAL EQUATIONS

(5 periods per week for 1 year – Special Permission Required)
This course is designed for students who have completed any level of Pre-Calculus or who will be taking Honors Pre-Calculus (as a co-requisite). 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. Various uses of Linear Transformations will be explored, including Computer Graphics applications. Solutions to first and second order Differential Equations will be explored by analytic methods as well as interactive Computer Software and Graphing Calculators. The course will culminate in the exploration of solutions to nonlinear systems of Differential Equations by using Linearization techniques. 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.

THE MATHEMATICS DEPARTMENT ENRICHMENT PROGRAM

MNT1/2 – FRESHMAN MATH TEAM
MNT3/4 - SOPHOMORE MATH TEAM
MNT5/6 – JUNIOR/SENIOR MATH TEAM

(5 periods per week for 1 year – Elective Minor - Not a Special Permission Course – 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.

MER* – SOPHOMORE MATH RESEARCH

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

Students who are interested in doing independent research in mathematics are encouraged to enroll in the math projects class. Most students enter this program at the beginning of sophomore year. This class stimulates students to think in creative ways. Students explore interesting topics outside the traditional mathematics curriculum and receive guidance in selecting a topic and completing a project. These projects may be entered in the Math Fair, New York Academy of Sciences Expo and other contests. Students will continue their research and, in senior year, will enter the Intel Science Talent Search, Siemens-Westinghouse and other contests. Students will continue to work on their projects through senior year. Students who drop sophomore research will need one term of technology education.

MER 3 – MATH RESEARCH

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

Students continue to work on their individual independent research projects. Students will attend regularly scheduled classes and will also meet individually with their projects teacher/advisor. As needed, students will work with outside mentors. In addition, students will be expected to enter their projects in a variety of different appropriate contests. Students enrolled in this course are committed to completing Math Projects through senior year.

Co-requisite: ZTEST

MER 5 – MATH RESEARCH

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

Students finalize their work on their individual independent research projects. Students will attend regularly scheduled classes and will also meet individually with their projects teacher/advisor. As needed, students will continue to work with outside mentors. In addition, students will be expected to enter their projects in the Intel Science Talent Search, Siemens-Westinghouse and other contests.

THE BIOLOGICAL SCIENCE DEPARTMENT

In a world of rapid technological advances educated young people need to acquire not only knowledge of “cutting edge” technology, but also how to apply this technology to solving every day problems. They also need skills that will enable them to logically and clearly analyze the data that technology presents.

Through hands-on experience in science and by becoming more sophisticated in conducting investigations and explaining their findings students will accumulate a set of concrete experiences on which they can draw. At the same time, conclusions presented to students (in books and in class) about how scientists explain phenomena are augmented by information on how the science community arrived at those conclusions. Indeed, as students move through school, they should repeatedly be encouraged to ask, "How do we know this is true?"

Scientific Inquiry is at the foundation of all our studies in the Biology Department. Our philosophy is that if students actively participate in scientific investigations that progressively approximate good science, the picture they come away with will be reasonably accurate.

The nature and importance of prediction in science is emphasized in all courses. We stress the use of statistics, probability, and modeling in making scientific predictions about complex phenomena found in biological systems.

By the end of the 12th grade, students should know the following:

- Investigations are conducted for different reasons, including exploring new phenomena, to check on previous results, to test how well a theory predicts, and to compare different theories.
- Hypotheses are widely used in science for choosing what data to pay attention to and what additional data to seek, and for guiding the interpretation of the data (both new and previously available).
- Sometimes scientists can control conditions in order to obtain evidence. When that is not feasible, for practical or ethical reasons, they try to observe as wide a range of natural occurrences as possible in order to discern patterns.
- There are different traditions in science about what is investigated and how, but they all have in common certain basic beliefs about the value of evidence, logic, and good arguments. There should be agreement that progress in all fields of science depends on intelligence, hard work, imagination, and even chance.
- Scientists in any one research group tend to see things alike, so even groups of scientists may have trouble being entirely objective about their methods and findings. For that reason, scientific teams are expected to seek out the possible sources of bias in the design of their investigations and in their data analysis. Checking each other's results and explanations helps, but that is no guarantee against bias.
- In the short run, new ideas that do not mesh well with mainstream ideas in science often encounter vigorous criticism. In the long run, theories are judged by how they fit

with other theories, the range of observations they explain, how well they explain observations, and how effective they are in predicting new findings.

- New ideas in science are limited by the context in which they are conceived, are often rejected by the scientific establishment, sometimes spring from unexpected findings, and usually grow slowly, through contributions from many investigators.

(Citation: Project 2061- The American Association for the Advancement of Science)

FRESHMAN BIOLOGY

Open To Incoming Freshmen

SB1 - FRESHMAN REGENTS BIOLOGY

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

The course of study encompasses the Regents Biology curriculum, with special emphasis on learning the scientific process.

SB1I –HONORS REGENTS BIOLOGY

(10 periods per week one year - Special Permission Required).

The course of study encompasses the Regents Biology curriculum, with special emphasis on learning the scientific process by doing extended open-ended laboratory experiments including original investigations. Many important skills are developed, including how to identify a research problem, how to use crucial library resources and information technology to develop an idea, how to interpret and evaluate data using statistical methods, and hands-on experiences with many techniques used in laboratories.

GUP – RESEARCH LITERACY

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

Research Literacy is a one semester course designed to introduce freshman to scientific thinking, reading and writing. The course reinforces prior knowledge of scientific method and experimental design. Students design their own experiments, work in groups to carry out hands on experiments, and learn to organize, analyze and apply statistics to their data. The course ends with a final project on a current research topic that the students research and then write using the proper laboratory format. The skills the students learn in this course will prepare them for college courses and to function as adults in an increasingly more technical world.

THE BIOLOGICAL SCIENCES DEPARTMENT RESEARCH PROGRAM

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 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. If a student drops out of Intel during sophomore year s/he must take a term of technology education.

SBP* – SOPHOMORE BIOLOGY/PHYSICAL SCIENCE RESEARCH

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

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

(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 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.

Co-requisite: ZTEST

SBP5 – SENIOR BIOLOGY RESEARCH

(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, 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.

BIOLOGY ELECTIVES

The following electives:

- Do not fulfill the "Lab Science" (3rd major) requirement for seniors.
- May be taken as a 4th, 5th, or 6th major.

SBH/SBE – THE HISTORY OF SCIENCE/BIOETHICS

(A one-year sequence of two one-semester courses. 5 periods a week for 1 year – 4th, 5th or 6th major but NOT A LAB SCIENCE- Not a Special Permission Course This course does not fulfill the "Lab Science" requirement for seniors)

Term One: THE HISTORY OF SCIENCE

How has the study of the natural world changed over time? Who are those people in the mural? This semester-long course will examine the work of major scientists in order to learn about how science has changed through the course of history. In addition to gaining an overview of the development of science, the course will also include a case study on evolution. The idea of biological change will be traced through the ages, from Plato, through Lamarck, Darwin, and the debate about punctuated equilibrium. Examinations of court cases involving evolution education will be studied in order to gain insight into the diffusion of scientific knowledge in the public sphere. Students will look into the history of Bronx Science, and discover how their school fits into the story of science.

Term Two: BIOETHICS

This course is an introductory seminar into the problems posed by the union of modern science and technology. Students are given the opportunity to explore issues, analyze evidence, hypothesize outcomes, exercise judgment, draw conclusions, and develop their viewpoints into coherent, factually based, and debate-tested positions. Regular class activities are supplemented with role-playing exercises, public service announcements, letter writing to the editors of newspapers regarding important bioethical issues, debates, movies, current periodicals, guest speakers, and attending lectures with renowned scientists. Discussions are open-ended and organized around the ethical issues of a series of topics. The topics can include abortion, genetic testing, organ transplantation, euthanasia, and the health care system.

SBX5-ADVANCED PLACEMENT PSYCHOLOGY

(5 periods a week for 1 year – Special Permission Required – 4th, 5th or 6th major but NOT A LAB SCIENCE- 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.

THE FOLLOWING ELECTIVE COURSES SATISFY THE SENIOR REQUIREMENT FOR A LABORATORY SCIENCE (3rd Major). THEY MAY ALSO BE TAKEN AS A ELECTIVE 1 (4th major), ELECTIVE 2 (5th major) or 6th MAJOR.

SBX1 - ADVANCED PLACEMENT BIOLOGY

(10 periods per week for 1 year: 6 lecture periods and 2 double laboratory periods – Special Permission Required – Fills the Lab Science Requirement for seniors – 3rd, 4th, 5th or 6th major).

This course is typical of 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 should complete at least 1 year of biology, 1 year of chemistry, and 3 years of mathematics before taking this course. Students are required to take the Advanced Placement examination in May.

SBX3 – ADVANCED PLACEMENT ENVIRONMENTAL SCIENCE

(6 periods per week for 1 year: 6 lecture periods per week – 4 single periods + 1 double period lab – Special Permission Required – Fills the Lab Science Requirement for seniors – 3rd, 4th, 5th, or 6th major).

This course follows an entry-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.

SBA/SBC - ANIMAL BEHAVIOR/HORTICULTURE

(A one-year sequence of two one-semester courses. Animal Behavior meets 5 periods per week: 2 double periods, and 1 single period. Horticulture meets 5 periods per week: 2 double period labs, 1 period recitation – Not a Special Permission Course - Fills the Lab Science Requirement for seniors – 3rd, 4th, 5th or 6th major). (Note: There may be time conflicts with students involved in sports team practice.)

Term One - ANIMAL BEHAVIOR

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.

Term Two - HORTICULTURE

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.

SBG1 – POST AP GENETICS

(5 periods per week – Special Permission Course - Fills the Lab Science Requirement for seniors – 3rd, 4th, 5th or 6th major, Pre-requisite: 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.

SBM1 - MICROBIOLOGY

(5 periods per week for 1 year: 1 single recitation period, 2 double laboratory periods. Not a Special Permission Course. Fills 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).

SBJ/SBY – EPIDEMIOLOGY/PHYSIOLOGY

(A one-year sequence of two one-semester courses. 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)

Term One - EPIDEMIOLOGY

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.

Term Two - PHYSIOLOGY

Physiology is the study of how organisms function. Studying the normal functioning of an organism (maintenance of homeostasis) is essential to the study of clinical medicine or disease states. This course is designed for students interested in pursuing careers in the health field (such as nursing, physician assistant and medicine). This course will require students to use information drawn from other disciplines such as general biology and chemistry. It will also require that you learn some basic biochemistry and histology (the

microscopic study of different cell types and their organization in different tissues). Students will learn about processes at a variety of levels progressing from basic molecules and intracellular organelles to differentiated cell types comprising tissues, organs, and organ systems.

SBN1 - NUTRITIONAL SCIENCE

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

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.

NOTE:
STUDENTS WHO TAKE ADVANCED PLACEMENT COURSES *ARE REQUIRED TO* TAKE CORRESPONDING AP EXAMS IN MAY.
The ADVANCED PLACEMENT Exam Fee is $86 per exam.

THE PHYSICAL SCIENCE DEPARTMENT

High school science should create citizens who understand science in ways that will enable them to participate intelligently in critical thinking, problem solving and decision making about how science and technology are used to change society.

Our courses emphasize the importance of first hand laboratory experience. An important aspect of the basic Physics and Chemistry courses is the weekly laboratory exercise. All of the electives provide the opportunity to work in the lab. Students have hands on experience in designing electronic devices in our Electronics course. Astronomy students utilize the facilities of Lehman College and our own planetarium. Students use the Internet and programs to access data used in the real world. Organic Chemistry students are learning the processes of synthesizing and analyzing compounds with the use of technology.

In addition to their academic studies at Bronx Science, students are encouraged to expand their horizons while becoming involved in research, attending lectures and workshops and participating in contests and competitions, which enable them to share their knowledge with others.

Computers are used to collect and interpret real time data, access the Internet and use simulation software in the Physical Science Computer Laboratory to help understand abstract scientific concepts.

Computers in our Physical Science Research Center enable students to access information that will be used in their research projects. Many students are involved in research for competitions such as Intel Science Talent Search, NYC Expo and the International Bridge Building Contest. Some students are involved in the Toshiba/Exploravision Competition, for which students must create a vision of a technology of the future.

Students have the opportunity to earn college credit by enrolling in the Advanced Placement Chemistry and Physics courses. Astronomy and Astrophysics provides students with college credit through the State University of New York at Albany.

The opportunity to be involved in science study and research is not limited to the classroom and does not end in June. Students are encouraged to apply to a variety of programs being offered at locations in the metropolitan area and sites across the nation during the summer. Information about special opportunities is disseminated in the Physical Science Department Announcements, which is posted in each of the science classrooms and on the school's website every week. Students should visit the Physical Science Department Office, Room 231D and the school's website often to browse through the information available on display and obtain applications.

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.

SBP* – SOPHOMORE BIOLOGY/PHYSICAL SCIENCE RESEARCH

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

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. Technical Drawing, which will help students develop skills useful in presenting their projects, is incorporated in the course. 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

(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.

Co-requisite: ZTEST

SPP5 – SENIOR PHYSICAL SCIENCE RESEARCH

(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.

REQUIRED PHYSICAL SCIENCE COURSES:

Regents Chemistry – usually taken in the sophomore year
Regents Physics - usually taken in the junior year.

SC1 – SOPHOMORE CHEMISTRY

(7 periods per week including 1 double period lecture and 1 double period laboratory - Required)
This course covers the New York State Regents Syllabus in Chemistry.

SP1C – JUNIOR PHYSICS

(7 periods per week including 1 double period lecture and 1 double period laboratory - Required)
This course covers the New York State Regents Syllabus in Physics.

PHYSICAL SCIENCE HONORS COURSES

The following courses may be taken in lieu of the regular Regents Physics/Regents Chemistry courses:

SC1I – FRESHMAN HONORS CHEMISTRY

(10 periods per week including 1 double period laboratory – Special Permission Required)
This course covers the New York State Regents Syllabus in Chemistry in greater detail than the non-honors courses. Students are required to participate in national and international project competitions. Additional topics will also be covered that are not included in the Regents Syllabus but are appropriate for the SAT II examination in Chemistry
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SC1J - SOPHOMORE HONORS CHEMISTRY

(10 periods per week including 1 double period laboratory – Special Permission Required)
This course covers the New York State Regents Syllabus in Chemistry in greater detail than the non-honors courses. Students are required to participate in national and international project competitions. Additional topics will also be covered that are not included in the Regents Syllabus but are appropriate for the SAT II examination in Chemistry.

SC1K - JUNIOR HONORS CHEMISTRY

(7 periods per week including one double period laboratory - Special Permission Required)
This course covers the New York State Regents Syllabus in Chemistry in greater detail than the non-honors courses. Students are required to participate in national and international project competitions. Additional topics will also be covered that are not included in the Regents Syllabus but are appropriate for the SAT II examination in Chemistry.

SPIJ - SOPHOMORE HONORS PHYSICS

(10 periods per week including 1 double period laboratory – Special Permission Required)
This course covers the New York State Regents Syllabus in Physics in greater detail than the non-honors courses. Students are selected from Freshman Honors Chemistry to participate in this course. Preference is given to students who exhibit strong mathematical skills. Applicants should already have taken algebra and trigonometry. The focus will be on more challenging problems with a greater emphasis on higher-level mathematical computation. Additional topics will also be covered that are not included in the Regents Syllabus but are appropriate for the SAT II examination in Physics.

SP1K - JUNIOR HONORS PHYSICS

(7 periods per week including 1 double period laboratory – Special Permission Required)

This course covers the New York State Regents Syllabus in Physics in greater detail than the non-honors courses. The focus will be on more challenging problems with a greater emphasis on higher-level mathematical computation. Additional topics will also be covered that are not included in the Regents Syllabus but are appropriate for the SAT II examination in Physics.

SENIOR ELECTIVES IN PHYSICAL SCIENCE

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

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)

Students interested in medicine, environmental law, environmental science, biology, chemistry, biochemistry, pharmacy and health sciences are strongly encouraged to take this course. Organic chemistry is a second year pre-medical course needed for entry into medical school.

The course introduces instrumentation techniques used in organic chemistry, which are used in the identification and structural analysis of organic compounds. Students will also be introduced to classic laboratory methods used in purification/separation and identification of organic compounds; distillations, extractions, thin layer chromatography, column chromatography, and recrystallization methods of impure substances. This course will also cover important organic topics like mechanisms and sterioisomerism that will certainly enhance the level of preparation for any college freshman entering a pre-medical program and will provide an excellent foundation for college-level biology and chemistry courses.

Prerequisite: Regents Chemistry

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.

Students may contract to receive honors credit contingent upon permission of the teacher and the completion of advanced projects for the course.
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

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 Co requisite: Regents Physics

SPE3 -- PHYSICS OF ENGINEERING

(10 periods per week, 5 Lectures, 5 Laboratory Periods per Week - **FULFILLS THE "LAB SCIENCE" REQUIREMENT FOR SENIORS AND SECOND ELECTIVE REQUIREMENT**– Will be considered 3rd and 5th Major – Not a Special Permission Course) **This will be a 2-credit class.** This class will be taught both by Physics and Technology Instructors.
This course will help students understand the major concepts presented in the study of engineering. Topics to be covered include digital electronic engineering, engineering design, computer integrated manufacturing, civil and architectural engineering skills. Students will be introduced to the various fields of the engineering discipline and explore various technology systems and manufacturing processes. The course teaches problem-solving skills using a design developmental approach. Students will learn how advances in engineering affect society and technological change. This course combines mathematics, physics, and technology in a comprehensive manner. Students will hone their problem-solving skills to solve real world problems by participating in engineering competitions, which include Society of Plastics Engineers, Junior Engineering technology Society, Bridge Building Competition, and the Robotics Competition. This exciting and innovative course will be a particular asset to those students intending to pursue a major or career in the field of engineering. This course will present an interdisciplinary approach to physics, engineering and technology.
Prerequisites: Regents Physics and Regents Chemistry

PHYSICAL SCIENCE ADVANCED PLACEMENT COURSES

Departmental Approval Required

AP Chemistry and AP Physics are one-year courses given 10 periods per week. Selected interested and outstanding students are permitted to undertake these advanced placement courses. Successful completion of these courses entitles students to claim credit for first year chemistry or physics in the colleges participating in the program. The courses are college level

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

Pre or Co requisite: Advanced Mathematical Concepts

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 Advanced Mathematical Concepts. Pre or Co requisite: Calculus

NOTE:

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

THE ADVANCED PLACEMENT Exam Fee is $86 per exam.

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
FR1 - FIRST YEAR RUSSIAN
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
FF3 - SECOND YEAR FRENCH
FE3H - SECOND YEAR INTENSIVE MODERN GREEK
FJ3 - SECOND YEAR JAPANESE
FK3 - SECOND YEAR KOREAN
FL3 - SECOND YEAR LATIN
FR3 - SECOND YEAR RUSSIAN
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. 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
FF5- REGENTS LEVEL FRENCH
FE5H – REGENTS LEVEL INTENSIVE MODERN GREEK
FJ5 – REGENTS LEVEL JAPANESE
FK5 – ADVANCED LEVEL KOREAN
FL5- REGENTS LEVEL LATIN
FR5 – REGENTS LEVEL RUSSIAN
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.

Pre-requisite: 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

FFX9 - ADVANCED PLACEMENT FRENCH LITERATURE

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

(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, 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.

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, videotapes, and audio recordings 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.

FUR7/ FUR9 - COLLEGE RUSSIAN

(5 single periods per week for one year - May be taken as a 5th or 6th Major – Not a Special Permission Course)

Students should have at least an 85 average in Level III Russian or demonstrate native fluency in order to qualify for admission to this college-level course which focuses on an in-depth study of outstanding literary works in Russian.

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

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.

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 – Not a Special Permission class)
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.
A grade of 80 % in a language is required for admission.

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 – Not a Special Permission Class)
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.

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 $86 per exam.

TECHNOLOGY EDUCATION

All students are required to complete one year of Technology Education. Sophomore year students take Technical Drawing and Applied Science. 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.

Sophomore year students take Technical Drawing (except students in Sophomore Research Projects**) You must select "Technical Drawing" when you '*Naviance*' your sophomore course requests.**

REQUIRED TECHNOLOGY COURSES

TTD - TECHNICAL DRAWING

(5 periods per week for 1 term – Required)

Technical drawing (TTD) is the universal language of science and industry. Technical Drawings are prepared with Computer-Assisted Design (CAD) software and may include the use of manual drafting instruments, when necessary, to complete accurate, professional quality drawings and graphics. Students prepare quality drawings of objects, buildings and machines, and will learn how *any* presentation can be enhanced with computer generated illustrations.

TAS - APPLIED SCIENCE/SCIENCE TECHNIQUES LABORATORY

(5 periods per week for 1 term – Required)

The applied science requirement is satisfied by taking the Applied Science (TAS) class, or through participation in the INTEL Research Program. Research courses may be taken in Biological Science, Physical Science, Mathematics and Social Science. Students who select *research* must complete a one year course in research and complete an Intel Project. Students who do not complete INTEL Research are required to fulfill this requirement by completing the Applied Science course. If you are interested in INTEL you are ***strongly advised*** to research thoroughly and fully understand the INTEL requirements and commitments. *Consult directly with the department in which you are planning your INTEL for complete and accurate information.*

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.*

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.

VISUAL 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.

ELECTIVE ART COURSES

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. 35 mm film cameras may also be used in conjunction with a scanner. 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.

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.

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 in ART

IMPORTANT NOTE: STUDENTS WHO TAKE ADVANCED PLACEMENT (AP) COURSES

ARE REQUIRED TO TAKE CORRESPONDING AP EXAMS IN MAY. Payment of the AP Exam Fee is mandatory.

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 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.

MUSIC

Music instruction is divided into three categories: Academic Music, AP Music and Performing Music. Offerings for each category are described below.

ACADEMIC MUSIC

U1R1 - MUSIC APPRECIATION

(5 periods per week for 1 year)

The course in MUSIC APPRECIATION, 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.

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, Abelton Live 6, Reason 4, Finale 2009, 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

IMPORTANT NOTE: STUDENTS WHO TAKE ADVANCED PLACEMENT (AP) COURSES *ARE REQUIRED TO* TAKE CORRESPONDING AP EXAMS IN MAY. Payment of the AP Exam Fee is mandatory.

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.

Please see Mr. Levy, AP of the Music Department, with any questions. All students in this class are required to take the AP exam associated with this class.

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.

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 90s. 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.

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.

URW1, URB1, URS1 - INTERMEDIATE INSTRUMENTAL MUSIC

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

Students who audition for the Orchestra, Stage Band, Concert Band, Chorus or Small Ensemble performance classes that show intermediate playing abilities and musicianship may be placed in a Brass, Woodwind, or String class. This class will enhance the student's skills and provide further instruction for re-audition and possible acceptance in future Performing Classes. Open to Freshmen only.

THE HEALTH AND PHYSICAL EDUCATION DEPARTMENT

It is through movement that we as humans are connected to our environment. Our physical bodies are what enable us to fulfill our dreams and attain our goals. It is therefore our obligation to maintain the highest level of physical fitness possible.

It is apparent that we are living in a society that does not provide for adequate physical activity and thus it is our duty to lead our students in preparation for life-long physical activities and good physical and emotional health. By establishing a program that provides a wide range of activities, we are making it possible for our youth to incorporate some of these fun activities into a future of lifetime exercise.

Our department's goal is to provide the necessary knowledge and skills to establish and maintain physical fitness, active participation in physical activity, and maintain good personal health. These goals will be imparted in ways that promote enjoyment as well as provide for a competitive atmosphere that will benefit all students.

We also offer an extensive, all-inclusive course in health education. Emphasis is placed on physical and mental health, sex education and human reproduction, drugs, tobacco and alcohol, communicable and non-communicable diseases.

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

Aerobics
Acrobatics
Basketball
Fitness
Flag Football
Floor Hockey
Handball
In-Line Skating
Pickleball
Soccer
Softball
Speedball
Step Bench
Team Handball
Ultimate Frisbee
Volleyball
Weight Training
Yoga

When we are able to give students their first choices we do, we know that they are more receptive, more successful and will also enjoy themselves. We encourage the selection of various course offerings along with 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
Basketball Varsity & Jr. Varsity (Boys & Girls)
Bowling Coed
Crew Coed
Cross Country Boys and Girls
Fencing Coed
Golf Boys & Girls
Outdoor Track Boys and Girls
Gymnastics Boys & Girls
Handball Boys & Girls
Indoor Track Boys & Girls
Soccer Boys and Girls
Swimming Boys and Girls
Tennis Boys and Girls
Volleyball Varsity Boys
Volleyball Varsity and Jr. Varsity Girls
Softball Girls Varsity & Jr. Varsity
Wrestling

GUIDANCE DEPARTMENT

ELECTIVE MINOR IN GUIDANCE

GL7-Methods in Conflict Resolution—Fight or Flight: Are Either Ever Right?

(5 periods per week for one year—Special Permission Required - Elective Minor--not a 5th major.)

Do you want to be an agent of change? This course is designed to develop students' leadership qualities, hone their communication skills, deepen their understanding of themselves and others and acquire and practice mediation skills so that they can become informed and active "peace-makers" in the Bronx Science community.

ZTEST - PSAT PREP CLASS

(Period 10, 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, 2009. Trained teachers will be working closely with students to refine their skills in both the math and verbal components of this test. Class will be run for six weeks starting in September 2009, and run until the PSAT is administered in mid October.

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 course at Bronx Science. If a student took biology in Junior HS, s/he must take a biology course in junior year.)
Mathematics	six terms at Bronx Science
Foreign Language	six terms (four terms at Bronx Science)
Technology Education or Sophomore Research or Introduction to Comp. Sci.	two terms
Art Appreciation*	one term
Music Appreciation*	one term
Health	one term
Physical Education	eight terms
Elective 1	two terms (Science or Math)
Elective 2	two terms (Any 5th major)

Regents must be passed in English, Global History, U.S. History, Biology, Chemistry, Physics, Math A and Math B and Foreign Language.

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

Students, who fail History 7, History 8 or any term of English must repeat each term failed. Students who fail either the first or second term of any subject must attend summer school. You cannot receive credit for an academic class twice.

* Students are exempt from Art Appreciation or Music Appreciation if a student takes a one year art class (such as AP Art History, Studio Art or Photography) or one year performing music class (such as Chorus or Band).

COURSE SELECTION INFORMATION
for
STUDENTS ENTERING THE SENIOR CLASS

Every student entering the senior class must enroll in the following courses for their senior year:

- English
- Social Studies
- Lab Science
- Elective 1- A science or a math course
- Elective 2 - Any fifth major **See below for elaboration.
- Physical Education

****The following classes are NOT fifth majors:**

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

PROGRAM PLANNING GUIDELINES

	Freshman Program	
	Fall	**Spring**
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

	Sophomore Program	
	Fall	**Spring**
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: Technical Drawing or Sophomore Research or Introduction to Computer Science (research counts as a 6th major.)	ONE of: Technical Drawing or Sophomore Research or Introduction to Computer Science or Applied Science (research counts as a 6th major.)
7	Arts*	Arts*
8	Physical Education	Physical Education
9	Lunch	Lunch
10	6TH Major (optional)** You may not take a 6th major if you're taking Sophomore Research.	6TH Major (optional)** You may not take a 6th major if you're taking Sophomore Research.

* The arts requirement can be satisfied by two terms of any art, music or drama class; such classes are coded with an "A" or "U" in the first place.

**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

	Junior Program	
	Fall	**Spring**
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 5th major elective	Foreign Language or any 5th major elective
6	Health (one term) OR	Health (one term)
7	Physical Education	Physical Education
8	Lunch	Lunch
9	6TH Major (optional)*	6TH Major (optional)*

	Senior Program	
	Fall	**Spring**
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	6TH Major (optional)*	6TH 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.

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.

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 (4th major) must be a science or math course.

6. Seniors' 2nd elective choice (5th major) 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).

8. Entering sophomores: If you did not take a basic science (Bio, Chemistry or Physics) as a freshman you must take this class in senior year. This science will fulfill both the 2nd elective and basic science requirement. All students also must take a lab science (Elective 1). If you must also complete a three-year language sequence you must also schedule that course.

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. "++" = the year a course is often 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					+	
Economics 8					+	
History 4th Year					+	
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 Or Introduction to Computer Science			+			
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 Course Selection Day

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. _____ _____

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NOTES:

ON-LINE ELECTRONIC COURSE CATALOG

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

Questions related to the Course Catalog 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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