TOWNSEND HARRIS HIGH SCHOOL @ QUEENS COLLEGE
Brian Condon, Principal
Veronica York, AP PPS

ELECTIVE COURSE OFFERINGS

Fall & Spring 2018-2019

ALL COURSES REQUIRE A YEAR-LONG COMMITMENT

NOTE: ALL PROGRAMS AND COURSE OFFERINGS ARE SUBJECT TO BUDGETARY LIMITATIONS AND STUDENT REQUESTS

FINE ARTS

Photography and Digital Photography **ACS11T & AJS11T**

The photography course is for students who have completed a required art class and have the foundation in the elements and principles of art. It will focus on photography as a medium of communication and a tool for self-expression. The objective is to familiarize you with the fundamentals of picture taking and darkroom skills, as well as the history and aesthetics of photography as an art form. Photography as a medium has been described as: painting with light; a tool to enhance visual perception, and a key to understand one's life and times. Our goal for this term see the visual world anew through the medium of photography.

The Digital Photography course is for students who have completed a required art class and have the foundation in the elements and principles of art. It will focus on digital photography as a medium of communication and a tool for self-expression. The objective is to familiarize you with the fundamentals of picture taking and digital photography skills, as well as the aesthetics of digital photography as an art form. The class will explore the basics of digital picture-making. Class discussion topics will focus on the contemporary use of digital photography and its use with the art world. Non-shooting assignments will help students conceptualize their own work. The final project will require student to submit a written proposal at week seven of the course calendar. There will be studio days where students are expected to bring material to work on in class.

Prerequisite: Art History or Workshop in Artistic Exploration**.**

Photojournalism (JUNIORS & SENIORS ONLY) **AYS31T-AYS32T**

Seniors who are interested in photojournalism learn all aspects of yearbook production – from designing a cover and end sheets to compiling an index – in preparation for producing the school's yearbook in the spring term. Students select both an ideological and a graphic theme to unify their book. Students also learn how to assign, write, edit and enter copy on a computer; how to take crop and upload digital photographs; choose a graphic theme for each section and to lay out all spreads; and how to transfer the page layout design to a computer program designed and used by a professional publishing company.

GUIDANCE

Student Leadership (I&II, III&IV, V&VI) & Peer Mediation **GLS11H, GLS11H3, GLS11H5**

This class gives the participant both theoretical and hands-on experience in the skills and responsibilities of democratic leadership. The students are encouraged to invite guest speakers and develop trips and projects within the community to broaden their understanding of leadership in practice. The theoretical aspect involves the study of leaders and their approaches to leadership. Members of the class are also given the privilege of representing the school at various functions. Participants should be able to attend school-wide events that may occur outside the hours of the regular school day. Executive Board Members of the Student Union are required to participate in this class as part of their duties as elected officials.

Prerequisite: Open to sophomores, juniors and seniors, (seniors only if taken before).

Teacher Assistant (seniors only) **GQS21H**

You will not recieve credit or a grade for this course, but you will recieve community service. We are interested to know who would be interested in being a Teacher Assistant through the 2018-2019 school year. We will be placing selected students in a few of our high school classrooms to help and support instruction and individual students. We are looking for students who are interested in a wonderful and rewarding opportunity. After we gauge interest, we will hold an interview process.

HUMANITIES

ENGLISH

Advanced Placement English Literature and Composition (JUNIORS) **EES85X**

The AP English Literature and Composition course engages students in the careful reading and critical analysis of imaginative literature. Through the close reading of selected texts, students deepen their understanding of the ways writers use language to provide both meaning and pleasure for their readers. As they read, students consider a work's structure, style, and themes as well as such smaller-scale elements as the use of figurative language, imagery, symbolism, and tone. The course includes intensive study of representative works from various genres and periods, concentrating on works of recognized literary merit. The pieces chosen invite and reward rereading and do not, like ephemeral works in such popular genres as detective or romance fiction, yield all (or nearly all) of their pleasures of thought and feeling the first time through. Reading in an AP course is both wide and deep. This reading necessarily builds upon the reading done in previous English courses. In their AP course, students read works from several genres and periods—from the sixteenth to the twenty-first century—but, more importantly, they get to know a few works well. They read deliberately and thoroughly, taking time to understand a work's complexity, to absorb its richness of meaning, and to analyze how that meaning is embodied in literary form. In addition to considering a work's literary artistry, students reflect on the social and historical values it reflects and embodies. Careful attention to both textual detail and historical context provides a foundation for interpretation, whatever critical perspectives are brought to bear on the literary works studied.

Note: This is a two-semester course and **cannot** be dropped mid-year. Students who score 3 or better may be awarded college credit in addition to THHS credit upon successful completion of the Advanced Placement examination in May, which is **required**. There is a $94 examination fee (which may be waived in cases of documented financial need).

Advanced Placement English Language & Composition: Women and Monsters **EES85XC**

This course is designed to foster creative and critical thinking skills through the study and application of rhetoric and feminist literary theory. There will be lively discussions about many gender related controversial issues including: feminism, the B word, #MeToo, toxic masculinity, parenting, abortion, marriage, stereotypes, Disney princesses, women's "crazy" emotions, and so much more. You will develop the skills necessary to examine different kinds of media from essays, to articles, to speeches, to advertisements, to classical literary texts like *Medea*, to recent television shows like *Key & Peele*. We will synthesize these diverse sources to come to conclusions about our culture and our common human experience. You will analyze a variety of fiction and nonfiction that is of literary, historical and cultural significance. We will examine many malicious, monstrous women like Lady Macbeth and Nurse Ratched from a feminist lens to examine the social norms depicted in the texts and the relevance and implications these texts have to our lives today. The clear communication of your ideas is essential to this class. You will improve your ability to craft sophisticated written and verbal arguments. You will closely analyze works of rhetorical genius and master the strategies modeled in the texts so that you can wield them to argue a position effectively.

Note: This is a two-semester course and **cannot** be dropped mid-year. Students who score 3 or better may be awarded college credit in addition to THHS credit upon successful completion of the Advanced Placement

examination in May, which is **required**. There is a $94 examination fee (which may be waived in cases of documented financial need).

Creative Expression Workshop **EWS21HP**

This class is designed to question the concept of creativity from something that one waits for to happen spontaneously (inspiration) to something one works for daily out of habit. The class is itself an experiment asking students to take initiative in defining class goals, project topics, grading criteria. It is a workshop class, so there will be a lot of trying, critiquing, and retrying. Each marking period will be defined by themes and specific projects that students can work on individually or in groups. No single mode of expression will be preferred in this class and no prerequisite skills are required. Different students can work be working simultaneously on different projects. Some students will be writing and editing, others may be building a website, editing photos, while others will be sketching something on the QC quad. You will always be encouraged to challenge your mode of creativity to open yourself up to other ways of expressing yourself. Students should expect regular sharing of daily/weekly products. Additionally, you will be expected to submit to various contests throughout the semester.

This class can be considered Phoenix's creative sandbox. Each week, each marking period students will submit something to the Phoenix.

During the course of the year, you should expect to read a lot. Your creativity will be rooted in practice and theory. Some of the books I'm considering are Michael Kimmelman's The Accidental Masterpiece, On the Art of Life and Vice Versa, Walt Whitman's Leaves of Grass, Zbigniew Herbert (essays, poems, and sketchbooks), Walt Whitman's poems, the New Yorker, Simon Shama's The Power of Art, Italo Calvino's Invisible Cities, essays by John Berger, and Vincent van Gogh's letters to his brother Theo. In addition to keeping a journal and sketchbook you will also require academic writing to explain the meeting of theory and practice.

Lastly, I cannot imagine teaching a class of this type without spending a considerable amount of time in some of NYC's best museums. So, get ready to travel.

If the Shoe Fits & Happily Ever After? – Psychology of Fairy Tales **ELS11HG**

Once upon a time, the fairy tale was used to entertain the audience with stories of fancy and fright, and of lands far, far away. On closer examination, however, they exposed a world that was no different from our own. In this course, students will read, see, hear, and discuss fairy tales from around the world, while paying close attention to the historical and literary backgrounds, and the cultural and societal norms, mores, and taboos that were mirrored through the characters' actions. We will explore how the land far, far away exists in our own backyard; we won't stray from the path. The course includes works by the Brothers Grimm, Hans Christian Andersen, Roald Dahl, Oscar Wilde, Walt Disney, and THHS alumnus William Steig.

Term 1 will focus on fairy tales that reinforce "coming of age" cultural traditions and the expectations attributed to each gender in the family and in the community. In addition, fairy tales will be studied as cautionary tales that exhibit the consequences of deviant behavior in society.

Term 2 will focus on the use of the fairy tale as political and religious propaganda, as well as a genre to promote a utopian society or criticize a society that has failed to provide for its citizens. Topics include Feminism, Marxism, Anti-Semitism, Transgender Identity and Racism.

Classic TV: Journalism, Social Media, and Web Series [Introduction to Journalism] **EJS21TW**

In 2014, *The Classic* launched a YouTube channel, which has experimented with hosting various kinds of content. Since then, YouTube has continued to grow as a source for news and commentary. Unique types of video productions regularly introduce viewers to aspects of American life in ways that news programs, documentary-style shows, and cable networks once exclusively did.

With newspapers in decline, there is increased demand for news organizations to report the news through original and inventive methods. This course will explore the ways new media and traditional media are blending together to create something different in journalism. While examining different forms of journalistic writing and

serving as an introduction to the basics of journalism, students will also work regularly on video production and social media promotion. It is time for *The Classic* TV to evolve into something larger, and members of this class will be in charge of producing different types of content.

We will plan, fund, and produce a line of original YouTube series (while creating new content for existing ideas *The Classic* has already produced). Students need not develop only news-related content. They can produce YouTube challenge-based series, documentaries, review shows of films/art/music, fashion advice shows, sports features, and so on. Students will produce the kinds of content that will engage, inform and entertain the audience of *The Classic*, while developing the skills necessary to produce high quality films and promote them successfully. We will also make *Classic TV* the home for live feeds and edited recordings of key school events, ensuring students have exposure to the world of communications and broadcast journalism. All of these projects will be promoted and advertised through *The Classic's* social media channels, where students will gain expertise in developing original content for places like Instagram, Snapchat, Twitter, and more. Students will develop skills that are in demand throughout the work world, while still walking away from the class with a firm foundation in the fundamentals of journalistic writing.

Drama Workshop & Shakespeare From Page To Stage **ECS11HD** & **ECS11HE**

Get out of your seat and on your feet! Register for Drama Workshop! Whether you're interested in improving your acting skills, becoming more comfortable speaking in front of others or simply trying something new, Drama Workshop is the class for you! Most of our work will be done in class, so class participation is vital. We'll be learning how to deliver monologues and how to participate in two and three character scenes. You'll learn the fundamentals of stage movement, blocking, line delivery and character exploration. We will also spend a great deal of time playing theater games and learning the essentials of improvisational theater. No prior acting experience is necessary. You'll make new friends, unleash your creativity and discover dimensions of your interior life that you never knew existed. Join us for a class you won't forget! The spring semester will primarily be an actor's approach to Shakespeare. It should meet in the auditorium. One core belief that will undergird the entire course is the notion that the stage actor knows just as much, if not more, about Shakespeare as the academic who is holed up in the library doing research. In essence, though, an actor's approach to Shakespeare's texts forces us to examine the formal features of the texts and adhere to the principles of close reading which are currently being rechampioned by the new CCSS even more intently than does a reader or audience-based approach. Studying Shakespeare is also the easiest, most student- friendly way for students to become more adept at reading poetry. This course will be of great benefit to all 10th, 11th and 12th graders. For the sophomores, the course will help them as they read a Shakespearean comedy in E4. For the juniors, the course will certainly prepare them for the three Shakespeare plays they will read in the Humanities Seminar. For the seniors, the course will further reinforce and enrich the work they have done in the seminar. It is my hope that all students will deepen their love and appreciation for Shakespeare's language.

10th Grade Selectives

This year we are starting a new experiment in 10th grade English classes called *selectives*. **Basically, they are English classes that are unified by a medium or theme. They will count as your regular English class, not as an elective.** We thought you might like topics like film, the vanishing NYC, zombies, memoirs, drama. Read the descriptions below to help you choose. If you have any questions, please feel free to talk to each teacher and also Mr. O. Happy choosing.

Lost in New York: the Literature of Candy, Chocolate, and Culture in our Backyard **EES83HC**

The AP Capstone program encourages students to "consider and evaluate multiple points of view to develop their own perspectives on complex issues and topics through inquiry and investigation." Lost in New York is the name of our class and it is the theme that will serve as the focus of our inquiry, the inspiration for the readings for our course, and the title of a research-based, student-developed book and multimedia project that members of this course will write and produce.

All students at Townsend Harris live in one of the greatest textbooks that the world has to offer: New York City. While much has been written and published about New York, there remain "endangered" pockets of the city that have far more stories to tell than have been told and are on the verge of disappearing from the city's physical and cultural landscape. Each year, students in Lost in New York will select one of these pockets to research and write about, with the full intent to publish their work professionally (in multiple formats) for wider audiences.

For its inaugural year, students will be working on bringing to life an idea for the series that is already in development through members of The Classic, and has the support of the PEN Writers program, a New York Times affiliated author/journalist, and other published writers. The idea is to research the vanishing candy stores of Manhattan, as they are replaced by chain pharmacies and fast food franchises. We have already made contact with the owners of two famed locations, one on the lower east side and one on the upper east side. In telling the stories of these holdovers, we will find not just stories of chocolate, sweets, and confections, but ones of immigration and assimilation, business and New York politics, nostalgia and childhood, and more. As a research-based AP course that doubles as your sophomore English class, you will learn the fundamentals of archival research, informational writing, creative nonfiction writing, and multimedia forms of publication. On the literary side, our readings will be centered on two overall themes, literature of New York and literature of food. We will explore everything from literary classics such as the writings of Proust, whose work famously explores how the bite of something sweet unlocks a lifetime of memories, to the essentials of children's literature that feature candies and confections as key symbols and motifs.
Note: This is a two-semester course and **cannot** be dropped mid-year. Students who score 3 or better may be awarded college credit in addition to THHS credit upon successful completion of the Advanced Placement examination in May, which is **required**. There is a $94 examination fee (which may be waived in cases of documented financial need).

The First Person: Autobiography, Memoir, Self-Portraiture, Poetry, Fiction **EES83HA**
This course will examine expressions of self in autobiography, memoir, self-portrait painting and confessional poetry, as well as works of first-person fiction. We will consider

- the practice of autobiography - the distinction between autobiography, memoir and personal essay
- fundamental philosophical notions of self - fundamental psychological notions of self, including William James from Principles of Psychology - the notion of authenticity - the roots of contemporary confessional poetry--Plath, Sexton, Lowell, etc. and their precursors - the rhetoric of the narrative "I" in fiction - stream of consciousness in literature

We will create our own personal essays, poetry and portraiture; we will examine ekphrastic description and its rhetoric, and practice it through the examination of self-portrait painting; we will research and write about contemporary expressions of self.
Note: This is a two-semester course and **cannot** be dropped mid-year. Students who score 3 or better may be awarded college credit in addition to THHS credit upon successful completion of the Advanced Placement examination in May, which is **required**. There is a $94 examination fee (which may be waived in cases of documented financial need).

Extraordinary Endurance-From Now to Zombie Apocalypse **EES83HE**
What does it take to survive? This course will explore stories of strength and survival in our world as we know it and beyond in post-apocalyptic dystopias. Students will examine characters who have been pushed to their physical and mental limits in varying degrees and will analyze the way characters respond in a crisis. Although these survivors escape with their lives, they face the dilemma of how to start anew. Students taking this course will read fiction, essays, and articles and develop their writing and research skills. They will also give presentations and improve their speaking and listening skills.

English & Film Selective Course **EES83HF**

This course is designed to foster critical thinking and reasoning skills through analyzing a variety of thematically grouped texts including: novels, essays, articles, films (both narrative and documentary), and poetry. You will also be examining film adaptations of literature to understand the considerations and conventions that apply to telling a story in different mediums. You will not be passively watching movies. You will develop the skills necessary to be not only an informed consumer of film, but also a producer of original video content that can capture your unique perspective and communicate your ideas to the world. Video is increasingly the way that we are exposed to information today, and therefore, it is a vital form of communication that you must know how to analyze and be proficient in using to share your ideas. There will be a heavy focus on traditional English class skills as well. There will be student-directed and collaborative projects that give students the freedom to research and create videos about topics they are interested in as well as provide an outlet for originality and creative expression

All the World's a Stage: Exploring Theatrical Forms Across the Globe, selective course **EES83HT**

When we think of theater today, top Broadway hits such as *Hamilton*, *The Lion King*, and *Dear Evan Hansen* come to mind. These popular shows, however, represent only a sliver of the full realm of theatrical possibilities. From *Bunraku* Theater in Japan to Theater of the Absurd in France, this course will examine varied forms of theatrical expression from around the globe to expand our understanding of the dramatic arts, all while making numerous connections to the cultures under study in other humanities courses across the curriculum. In particular, our exploration of the world's drama will focus on the stages themselves, considering how both the context of the playwright's culture and the unique theaters that first hosted their plays influence our understanding of their work. What does *A Midsummer Night's Dream* teach us about Elizabethan England? How does its use of the Globe Theater impact early receptions of its performance? How can *Death and the King's Horseman* help us understand 20th century Nigeria? In what ways did the traditions of the Yoruba folk theater influence the play? What do F-train performers teach us about living in New York City in the 2000's? How does the subway car enhance their act? As we examine the incredible diversity of global theater and its stages, we will also seek to understand why dramatic writing and performance has such a cross-cultural appeal. As an AP Capstone course, all students will be expected to select a particular culture and complete thorough research into the dramatic art forms and theaters native to that culture, which will provide them with the experience needed to successfully complete the AP Exam in May.

As this course will serve as your sophomore English course, we will focus on drama and research while still exploring other readings and genres. This will give you a broad introduction to various text types and help us see what distinguishes dramatic writing as a category. This is a theater-centric course, so students will be invited to explore acting, but it is not required. We will be bringing to life a number of productions inspired by our study, providing students with ample opportunity to discover their preferred avenue of creative expression. While this could be acting, for those more comfortable behind the scenes, this might take the form of directing, stage design, or other theater-related tasks. In addition, there will be numerous opportunities for students to develop their skills in dramatic writing, either by studying playwriting, or just using plays as a way to inspire their own work in dialogue, drama, and setting in other forms. Thus, this will be a drama course for actors, for researchers, and for creative writers.

Note: This is a two-semester course and **cannot** be dropped mid-year. Students who score 3 or better may be awarded college credit in addition to THHS credit upon successful completion of the Advanced Placement examination in May, which is **required**. There is a $94 examination fee (which may be waived in cases of documented financial need).

HISTORY

Advanced Placement US History **HUS21X**

The AP U. S. History course is designed to provide students with the analytic skills and factual knowledge necessary to deal critically with the problems and materials in U .S. history. The program prepares students for intermediate and advanced college courses by making demands upon them equivalent to those made by full-year introductory college courses. Students should learn to assess historical materials—their relevance to a given interpretive problem, reliability, and importance—and to weigh the evidence and interpretations presented in historical scholarship. An AP U .S. History course should thus develop the skills necessary to arrive at conclusions on the basis of an informed judgment and to present reasons and evidence clearly and persuasively in essay format.

Source: *http://apcentral.collegeboard.com/apc/public/repository/ap-us-history-course-description.pdf*

Note: This is a two-semester course and **cannot** be dropped mid-year. Students who score 3 or better may be awarded college credit in addition to THHS credit upon successful completion of the Advanced Placement examination in May, which is **required**. There is a $94examination fee (which may be waived in cases of documented financial need).

Advanced Placement European History (JUNIORS and SENIORS) **HRS21X**

AP European History is an elective for eleventh and twelfth graders. This is an intensive, college-level, research and document-based course in Western Civilization and History. The study of European history since 1450 introduces students to cultural, economic, political, and social developments that played a fundamental role in shaping the world in which they live. The study of this knowledge provides the context necessary to the understanding of the development of contemporary institutions, the role of continuity and change in present-day society and politics, and the evolution of current forms of artistic expression and intellectual discourse. In addition to providing a basic narrative of events and movements, the goals of AP European History are to develop (a) an understanding of some of the principal themes in modern European history, (b) an ability to analyze historical evidence and historical interpretation, and (c) an ability to express historical understanding in writing.

Note: This is a two-semester course and **cannot** be dropped mid-year. Students who score 3 or better may be awarded college credit in addition to THHS credit upon successful completion of the Advanced Placement examination in May, which is **required**. There is a $94examination fee (which may be waived in cases of documented financial need).

Introduction to Law 1(Fall); Introduction to Law 2 (Spring) **HLS21T**

Intro to Criminal and Civil Law will teach students to "think like a lawyer." The curriculum will introduce students to a wide range of legal subjects – court procedure, torts, the criminal justice system, rules of evidence, constitutional law, corporate law, property law, jurisdiction, labor and commercial law. Students will engage in law related opportunities such as mock trial and moot court competitions. Students will have the opportunity to participate in a broad range of law school organizations that are designed to enrich their education in terms of their writing, their advocacy skills and their exposure to diverse political, legal and cultural perspectives.

Advanced Placement Government and Politics and Economics (Senior) **HVS11X**

Study constitutional underpinnings, civil liberties and civil rights, political culture and socialization, citizen participation and influence, political institutions and policy making that are the foundation of modern U.S. government and politics.

Interpret classic and contemporary political writings and apply pertinent Supreme Court rulings to enduring social and political issues in this country. This course prepares students to take the AP exam in May. Students in AP Government will participate in the Election Simulation as Special Interest Groups.

Note: This is a one-semester course. In addition to Townsend Harris credit, students who score 3 or better on the **required** Advanced Placement exam in May may be awarded college credit. There is a $94 examination fee (which may be waived in cases of documented financial need).

Government & Advanced Placement Macroeconomics (Seniors) **HES11X**

This course is an introduction to economics in general and to macroeconomics in particular. Macroeconomics is the subdivision of economics dealing with the economy as a whole: aggregate national income and output, government spending and taxation, money and banking, monetary policy, and international trade. Microeconomics, in contrast, focuses on individual economic entities. Macroeconomics deals with the overall level of output, its rate of growth, and the level of prices in general. This course serves as a strong foundation for students considering studying economics, business, finance, or accounting in college.

Notes:

1. This is a one-semester course. In addition to Townsend Harris credit, students who score 3 or higher on the required Advanced Placement exam in May may be awarded college credit. There is a $94 examination fee (which may be waived in cases of documented financial need.)
2. This course substitutes for the regular senior economics class.

Advanced Placement Human Geography **HBS21X**

Have you ever wished you could look at a map and not get lost? Have you ever wished you could look at a map and immediately know something about the region and the people who lived there? Why does New York City look the way it does? How does the environment influence one's culture? These are the sorts of questions that AP Human Geography will answer. In addition, AP Human Geography will help you develop a better understanding of other courses, and it will do so over the course of a semester that is filled with numerous field exercises and fun trips throughout New York City.

Note: This is a two-semester course and **cannot** be dropped mid-year. Students who score 3 or better may be awarded college credit in addition to THHS credit upon successful completion of the Advanced Placement examination in May, which is **required**. There is a $94 examination fee (which may be waived in cases of documented financial need).

Advanced Placement Capstone:

Social Science Research, AP CAPSTONE Seminar (Sophomores, Juniors, Seniors) **HQS61XJ**

AP Seminar is a foundational course that engages students in cross-curricular conversations that explore the complexities of academic and real-world topics and issues by analyzing divergent perspectives, Using an inquiry framework, students proactive reading and analyzing articles, research studies, and foundational, literary and philosophical texts; listening and viewing speeches, broadcasts, and personal accounts; and experiences artistic works sources, develop their own perspectives in written essays and design and deliver oral and visual presentations, both individually and as part of a team. Ultimately, the course aims to equip students with the power to analyze and evaluate information with accuracy and precision in order to craft and communicate evidence-based arguments. Students will begin to develop a project for entry in the NYC History Day Competition and NYS Archives Student Awards. The theme for 2018-2019 is Triumph and Tragedy in History. Students may work in small groups. Project entries include documentary film, website, performance, or exhibit board. Class will also have a Lab component.

Social Science Research AP Capstone Research (2 year course for non-seniors): **HQS63XJ**

AP Research, the second course in the AP Capstone experience, allows student to deeply explore an academic topic, problem, issue, or idea of individual interest. Students design, plan and implement a yearlong investigation to address a research question. Through this inquiry, they further the skills they acquired in the AP Seminar course by learning research methodology, employing ethical research proactive and accessing, analyzing and synthesizing information. Students reflect on their skill development processes, and curate the artifacts of their scholarly work through a process and refection portfolio. The course culminates in an academic paper of 4,000-5,000 words (accompanied by a performance exhibit or product where applicable) and a presentation with an oral defense.

Class will also have a Lab component
Prerequisite: AP Capstone Seminar

Social Science Research AP Capstone Research (1 year course for seniors only): HQS63XJ

AP Research, the second course in the AP Capstone experience, allows student to deeply explore an academic topic, problem, issue, or idea of individual interest. Students design, plan and implement a yearlong investigation to address a research question. Through this inquiry, they further the skills they acquired in the AP Seminar course by learning research methodology, employing ethical research proactive and accessing, analyzing and synthesizing information. Students reflect on their skill development processes, and curate the artifacts of their scholarly work through a process and refection portfolio. The course culminates in an academic paper of 4,000-5,000 words (accompanied by a performance exhibit or product where applicable) and a presentation with an oral defense.
Theme for the year: Triumph and tragedy is history
Prerequisite: AP Capstone Seminar

LANGUAGES OTHER THAN ENGLISH

Classical Greek 1 & 2 (Level I) FES41H
In this course students will learn the Greek alphabet. They will also study grammar, vocabulary and simple readings about Ancient Greece. Emphasis will be placed on the contribution of Classical Greek to the English language. The importance of Ancient Greece to our society will also be studied.

Classical Greek 3 & 4 (Level II) FES43H
This course will cover advanced Classical Greek grammar and vocabulary. Students will be introduced to literary works in both Classical Greek prose and poetry.

Latin 1 & 2 (Level I) FLS41H
This course introduces students to the basic building blocks of Latin. As an inflected language Latin works like a puzzle made up of a variety of forms of nouns, adjectives, pronouns, and verbs. How to identify and manipulate these parts, forms the core of the Latin I course. At the same time there is also a focus on the predominant influence of Latin on the English language and of Roman culture on the formations of our contemporary society.

Latin 3 & 4 (Level II) FLS43H
This course pushes the envelope on mastery of Latin grammar and vocabulary and at the same time introduces students to simplified texts from representative authors of Golden and Silver Age Latin Literature: Ovid, Cicero, Catullus, and Petronius.

Advanced Placement Latin FLS21X
The course is structured to enable students to complete the entire required reading list as outlined in the *AP® Latin Course Description* which includes selections of Caesar's *De Bello Gallico* and Vergil's *Aenied* in Latin as well as large selections of each text in English translation. It will develop the students' ability not only to translate Latin poetry and prose as literally as possible and to analyze the syntactical elements of Latin grammar; it will also foster the students' ability to critically engage with the texts read in class. That is, students will demonstrate comprehension of The *Aeneid* and *De Bello Gallico* as texts and be able to place these texts in larger cultural and historical contexts.

Note: This is a two-semester course and **cannot** be dropped mid-year. In addition to Townsend Harris credit, students who score 3 or higher on the **required** AP exam in May, may be awarded college credit. There is a $94 examination fee (which may be waived in cases of documented financial need.)

Japanese 1 & 2 (Level I) **FJS61H**
In this course students will learn elementary Japanese conversation as well as some basic characters to enable them to read and write the language. They will study the culture of Japan as well as the traditions of the people.

Japanese 3 & 4 (Level II) **FJS63H**
This course is a continuation of the basic skills mastered in Level I with emphasis placed on oral and written expression. Students will be given the opportunity to study the culture of Japan as well as develop an appreciation of the contributions of the Japanese community within the United States.

Japanese 5 & 6(Level III) **FJS65H**
In addition to strengthening oral and written expression, this course will enable students to sharpen their skills in auditory and reading comprehension. Participation in the culture of the Japanese-speaking world through the arts and media will be encouraged. Students will take a three-year Regents examination upon completion of this course.

Japanese 7 & 8 (Level IV) **FJS21H**
This course will explore the Japanese language through intense practice of the four skills - listening, speaking, reading, and writing. Short stories and novels will be studied.

Advanced Placement Japanese Language and Culture: **FJS21X**
This course prepares students for the SAT II in Japanese in November and the AP Japanese exam in May. The rigorous study of the language in this course includes real-life conversation, listening comprehension of authentic materials such as public announcements and radio broadcast news. Perhaps the most exciting part of the course is the mastery of over 3000 vocabulary in Chinese characters (Kanji), which can be transferred to reading and writing of written Chinese.
Note: This is an annualized course and **cannot** be dropped mid-year. In addition to Townsend Harris credit, students who score 3 or higher on the **required** AP exam in May may be awarded college credit. There is a $94 examination fee (which may be waived in cases of documented financial need.)

Classical Mythology/Classics and Cinema **FES11HM**
This course surveys the myths of Classical Greece and Rome and then examines some of the films they inspired. The fall semester focuses on the myths themselves, including such topics as myths of creation, the Olympian family, the divine female, the pattern of hero myths, and the great tragic heroes and heroines. In the spring semester, we look at films and television series old and new that take up Classical themes. These may include *Clash of the Titans*, *Edipo Re*, *Black Orpheus*, *Hercules: The Legendary Journeys, Cleopatra*, and others. Students are encouraged to suggest their own favorites. Students will gain a deeper and broader understanding of the universality of Classical myths, especially when these are re-imagined in contemporary settings.

Spanish 1 & 2 (Level I) **FSS61H**
In this course students will be introduced to the basic skills required for comprehension, conversation, reading and writing in the Spanish language. They will also have the opportunity to explore the culture of the Spanish-speaking world.

Spanish 3 & 4 (Level II) **FSS63H**

This course is a continuation of the basic skills mastered in Level I with emphasis placed on the oral and written expressions. Students will have the opportunity to study the culture of the Spanish speaking countries as well as develop an appreciation of the contributions of the Hispanic community within the United States.

Spanish 5 & 6 (Level III) **FSS65H**

In addition to strengthening oral and written expression, this course will enable students to sharpen their skills in auditory and reading comprehension. Participation in the culture of the Spanish speaking world through the arts and media will be encouraged. Students will take a three-year Regents examination upon completion of this course.

Advanced Placement Spanish Language **FSS21X**

The AP Spanish Language and Culture course has been designed to provide advanced high school students with a rich and rigorous opportunity to study the language and culture of the Spanish-speaking world that is approximately equivalent to an upper-intermediate college or university Spanish course.
The AP course provides students with opportunities to demonstrate their proficiency orally and in written form, in each of the three modes of communication (Interpersonal, Interpretive, and Presentational), and will prepare them fully for the AP Spanish Language and Culture Examination in May.
Note: This is a two-semester course and **cannot** be dropped mid-year. In addition to Townsend Harris credit, students who score 3 or higher on the **required** AP exam in May, may be awarded college credit. There is a $94 examination fee.

Advanced Placement Spanish Literature **FSS21XA**

An AP Spanish Literature course is comparable to a third-year college introduction to Hispanic Literature course. It is based on a required reading list. The works on the list are of literary significance and represent various historical periods, literary movements, genres, geographic areas, and population groups within the Spanish-speaking world. The objective of the course is to help you interpret and analyze literature in Spanish.
Note: This is a two-semester course and **cannot** be dropped mid-year. In addition to Townsend Harris credit, students who score 3 or higher on the **required** AP exam in May, may be awarded college credit. There is a $94 examination fee.

Spanish Communication **FSS1HC**

Students will speak and understand Spanish in a conversational setting. The teacher will serve as a reference point to guide students towards correct speech by addressing their questions and helping them to express themselves fluently on any topic with lively discussions on interesting cultural and current events. Students will be building their vocabulary and their verbal skills.

French 1 & 2 (Level I) **FFS61H**

In this course students will be introduced to the basic skills required for comprehension, conversations, reading and writing in the French language. They will also have the opportunity to explore the many facets of the French speaking world, particularly those which relate to young people.

French 3 & 4 (Level II) **FFS63H**

This course is a continuation of the basic skills mastered in level I with emphasis placed on oral and written expression. Students will study the culture of French speaking countries as well as to develop an appreciation of the contributions of the French community within the United States and Canada.

French 5 & 6 (Level III) **FFS65H**

In addition to strengthening oral and written expression, this course will enable students to sharpen skills in auditory and reading comprehension. Participation in the culture of the French speaking world through the arts

and media will be encouraged. Students will take a three-year Regents examination upon completion of this course.

Advanced Placement French Language **FFS21X**

This course will prepare the student for the Advanced Placement French Language Examination through the study of literary themes, conversational topics, grammatical structures, culture, and idioms. Emphasis will be placed on developing oral and reading comprehension skills, as well as expanding written skills in the target language. This one-year course culminates in a required Advanced Placement examination. (Students may be awarded college credit in addition to course credit upon successful completion of the Advanced Placement Examination

Note: This is a two-semester course and **cannot** be dropped mid-year. In addition to Townsend Harris credit, students who score 3 or higher on the **required** AP exam in May, may be awarded college credit. There is a $94 examination fee (which may be waived in cases of documented financial need.)

Classical Myth in Movies and Television (fall) & Ancient History in Movies and Television (spring)

It has often been observed that film and television have taken the place of narrative poetry in our modern world. From early silent films to the *Star Wars* saga and beyond, these have drawn on the myths and history of classical Greece and Rome. Classical themes can be analyzed and discussed regarding their effectiveness in bringing characters created thousands of years ago to life for contemporary audiences. The fall semester considers movies adapted from Greek or Roman myths, both those that depict a version of the actual myth (i.e. *Clash of the Titans, Troy, Hercules*) and those with plots of myths adapted to modern settings (i.e. *Black Orpheus, O Brother Where Art Thou?*.) In the spring, we switch to movies concerning Greek and Roman historical events and consider them for what they say about the ancient world and about the times in which they were made. (i.e. *Spartacus, Cleopatra, Gladiator*).

MUSIC

Advanced Placement Music Theory **UUS21X**

Are you serious about music? Want to know how music works? Want to compose your own songs? This rigorous class aims to cover the content of the AP Music Theory Exam with a solid foundation as a musician, including musical terms, harmonic analysis, sight singing, listening and dictating music, and composing. The class is best suited for students who have a solid experience of playing any instrument for a few years and up. In this class, music theory will be taught through playing the keyboard and singing.

Prerequisite: Ability to read music. No previous experience in playing the keyboard is required. Arrange a consultation with the instructor.

Requirement: Teacher recommendation and approval of the Department Supervisor.

Note: This is a two-semester course and **cannot** be dropped mid-year. In addition to Townsend Harris credit, students who score 3 or higher on the **required** AP exam in May, may be awarded college credit. There is an $94examination fee (which may be waived in cases of documented financial need.)

Chorus **UVS81T**

The goal of the Chorus class is to teach students 1) performance skills to sing choral music, 2) how to rehearse effectively in sections, 3) how to read choral music, 4) how to sight sing in the solfege system, 5) a basic knowledge of music theory, 6) basic keyboard playing 7) skills to discuss music and performances with appropriate musical terms, and 8) write music reviews through critical listening and thinking. The class also includes instructions ion basic piano and guitar technique for small groups of students who request. All students are expected to perform at school concerts at a minimum of twice a year.

Beginning String Ensemble Class **UAS21TE**

This course offers hands –on experience for students who have never learned to play a string instrument. Knowing how to read music is helpful, but not a requirement. Concepts are learned through sight-reading different styles of music. Music is diversified to meet student's appropriate skills. Students will learn proper care and maintenance of their chosen instrument - violin, viola, cello and bass as well as simple melodies and harmony in classical and popular music. Instruments are provided.

Intermediate Orchestra **UZS81T**

Intermediate Orchestra will be a class that is open to anyone. This class gives students the opportunity to experience music through a string instrument (Violin Viola, Cello, or Bass). Students should already know how to read music. We will focus on proper technique and playing in an ensemble. Students will learn to be aware of the sound and intonation of their instruments and others around them. Students will learn to be independent, as well as assess their playing and others. Students will utilize teamwork to help each other learn their instruments.

Prerequisite: An audition

Symphonic Orchestra **UYS81T**

The orchestra plays at the winter and spring concerts and at other school functions and consists of strings, brass, woodwinds and percussion. The focus will be on group and sectional parts of arrangements geared toward performance. The class incorporates music history and theory into the curriculum, individual advancement of technique, phrasing and a variety of musical periods, forms and styles will be experienced.

Prerequisite: An audition. Open to sophomores, juniors and seniors.

Note: Instruments will be provided by the school.

Pre AP Music Theory and Keyboarding **UUS81T**

This class is designed to teach students a basic knowledge of music theory through hands-on activities including keyboard playing and singing. Class material consists of a method book for adults, movie music, classical and popular music.

Beginning Instruments **UAS21T**

This course offers a hands-on experience for students who have never learned to play a band instrument. Knowing how to read music is helpful, but not a requirement. Students will learn proper care and maintenance of their chosen instrument as well as simple melodies and harmony in classical and popular music. The instruments we provide are flute, oboe, clarinet, bassoon, trumpet, trombone, baritone horn, tuba, French horn, bass guitar and drums. This is a non-performing group.

Intermediate Instruments **UQS41T**

This course is for students who have recently had the beginning course or have studied a band instrument for at least one year. Furthering technique, musical phrasing and full band arrangements in popular and classical music will be the focus. Knowledge of musical theory will be introduced. The choice of instruments is the same as for the beginning instrument course with the addition of saxophones: alto, tenor or baritone. This group may perform at our annual winter concert.

Prerequisite: Beginning Instruments 1, or its equivalent, and an audition.

Requirements: An audition, teacher recommendation and approval of Department Supervisor.

Jazz Ensemble **UJS81T**

This course is open to students who have completed at least one semester of Intermediate Instruments. The Jazz Ensemble performs at the winter and spring concerts and at other events. The focus will be on rehearsal of performance repertoire in a variety of jazz styles, as well as basic music theory, jazz improvisation, jazz history, and listening to classic jazz recordings. The instruments in the Jazz Ensemble are saxophone, trumpet, trombone, piano, guitar, bass, and percussion.

Prerequisite: Completion of Beginning and Intermediate Instrument courses (not needed for piano and guitar).
Requirements: An audition, teacher recommendation and approval of Department Supervisor.

Concert Band **UDS61T**

This is one of the performing groups at Townsend Harris. The Concert Band plays at the winter and spring concerts and at other school functions. The focus will be on group and sectional parts of arrangements geared toward performance. Individual advancement of technique, phrasing and a variety of musical periods, forms and styles will be experienced. The list of choices of instruments is the same as for the beginning and intermediate instruments classes.
Prerequisite: Completion of the Beginning and Intermediate Instrument courses, or equivalent. Open to sophomores (who have completed required Art), juniors and seniors.
Requirements: An audition, teacher recommendation and approval of Department Supervisor.

Chamber Strings **UCS81T**

Chamber Strings is our most advanced strings music course. This will be our performance course, and students in this course will be expected to perform in our showcases.

NOTE: INSTRUMENTS AND MATERIALS WILL BE PROVIDED BY THE SCHOOL FOR ALL MUSIC CLASSES.

MATHEMATICS, SCIENCE AND TECHNOLOGY

The course descriptions below are accompanied with criteria we believe are necessary for success in these courses. However, students who do not satisfy one, or more of the criteria, may apply for an exemption from the Assistant Principal of Math, Science and Technology.

If you wish file an appeal you must (1) print the Boolean algebraic expression that accompanied the message because it explains why you could not sign up online and (2) bring it with you to Room 639 when you speak with Ms. Brustein. This will assist us in properly evaluating your appeal.

MATHEMATICS

Students in all Mathematics classes will be using a graphing calculator. It is highly recommended that students purchase their own calculators when possible. The recommended calculator is a TI-84 or TI-84+, but the older TI-83 or TI-83+ calculators are acceptable.

Advanced Algebra (Full Year Pre-Calculus) **MQS21H**

The fall semester of this course will focus on algebraic concepts learned in Algebra II/Trigonometry including sequences and series, polynomial functions, and conic sections. In the spring term, logarithms, matrices and systems of equations as well as limits are studied. The purpose of the course is to prepare students for calculus by building their pre-requisite algebra skills. A graphing calculator will be used throughout the year.
Prerequisite: Algebra II/Trigonometry
Note: This course is designed for students whose grade in Algebra II/Trigonometry (**MRS21HC**) was less than 80%. Most students who enroll in Advanced Algebra will continue with the second half of the course in the spring term. However, students who do exceptionally well may switch into Beginning Calculus in the spring.

Pre-Calculus **MPS11H**

The US FIRST semester of this yearlong course is a continuation of the algebraic concepts learned in Algebra II/Trigonometry (**MRS21HC**) including sequences and series, polynomial functions, and conic sections, sequences and series, polynomials, and conic sections. This course covers material that is very similar to Advanced Algebra 1, but at a faster pace.
Prerequisite: Students who enroll in this class should have an overall Math average of at least 80% and received a grade of at least 80% in term 1 of Algebra II/Trigonometry (**MRS21H**).

Note: Most students who begin the year in Pre-Calculus will continue into Beginning Calculus in the spring before enrolling in AP Calculus (AB or BC) next year. Some students may opt to take a second semester of Pre-Calculus in our Advanced Algebra class (**MQS21H**), before continuing on to study Calculus Applications for Business and the Social Sciences, Advanced Placement Calculus AB, or AP Statistics, in their senior year.

Math Team (all grades) **MQS61HT**

This course will run on a four-year cycle so that students may take the course for four consecutive years without repeating topics. Students may enter the cycle on any year as each course will be a stand-alone course. Students will also work on mathematics contest problems and prepare for New York Math League contests and the AMC mathematics contests. The course is an extension of the standards for high school mathematics. During the three years of this program, students will learn elements of higher-level mathematics.

Advanced Placement Statistics **MSS21X**

Statistics is the branch of applied mathematics that is concerned with the collection and interpretation of data. This is an ideal course for students planning to pursue the study of Science, Economics, Political Science, Psychology, Sociology, Engineering or Mathematics in college. This course includes analyzing data, planning a statistical study, determining the appropriate method for data collection, producing models using probability theory and simulation, and statistical inference. Graphing calculators and statistical software will be used to explore data: organizing, interpreting and analyzing the data to draw conclusions. Students will learn how to describe data with both numerical and graphical summaries. Linear regression will be studied and logarithms will be used in conjunction with linear regression to analyze non-linear data sets. Topics in Probability will include random variables, the binomial distribution (Bernoulli formula), and the geometric distribution. Probability will be used as the foundation for Inferential Statistics: students will learn how to make conclusions about the whole population based only on sample data. The curriculum for this one-year course includes all of the material taught in a one-term college Statistics course along with some additional topics, such as confidence intervals, t-tests, and the Chi-Square distribution, and will prepare students to take the Advanced Placement Exam in Statistics in May.

Prerequisites and Requirements:

- Students must have a minimum grade of 85% in their last two mathematics classes. 2nd Marking Period grades will be used in lieu of a final grade for spring semester classes. A minimum grade of 80% on the Algebra 2/Trigonometry Regents is also required.
- Completion of Pre-Calculus (**MPS11H**) is recommended, current Algebra II Trigonometry (**MRS21HC**) students with a math average of 90% and a second marking period grade of 90% may simultaneously enroll in this class and Pre-Calculus.

Requirement: Approval of the AP, Math, Science and Technology is required.

Note: This is a two-semester course and **cannot** be dropped mid-year. In addition to Townsend Harris credit, students who score 3 or better on the **required** Advanced Placement exam in May may be awarded college credit. There is a $94 examination fee (which may be partially waived in cases of documented financial need.)

CALCULUS Options

Calculus is the mathematics of change and has applications in the natural sciences, social sciences, economics, and business. Most colleges will require students to complete a one-year course in Calculus. We offer three different one-year Calculus-based courses. Choose the course that best suits your mathematical abilities.

Calculus Applications for Business, Economics and Finance **MCS21H**

Calculus Applications is designed for Humanities majors and will explore two main topics – differentiation and integration. These will be applied to problem solving with special emphasis on application in business, and in the Social Sciences. This course is designed for students who want to get a "head start" on calculus before going to college and want to take a slower-paced course than AP Calculus.

Prerequisites and Requirements

- Math Average ≥ 65%
- Advanced Algebra 2 (**MQS21H**) or Beginning Calculus (**MPS11HB**) or AP Statistics (**MSS21X**)

Advanced Placement Calculus (AB) **MCS41X**

This course provides an in-depth study of single variable differential and integral calculus, including the study of functions, graphs, and limits, derivatives, applications of derivatives and of integrals, the fundamental theorem of calculus, antidifferentiation, applications of the antiderivative, and slope fields. Students who successfully complete this course will be prepared for the Calculus AB Advanced Placement exam in May. Students will be using a TI 89 Titanium graphing calculator.

Prerequisites and Requirements

- Math Average ≥ 88%
- Algebra 2/Trigonometry Regents ≥ 88%
- Pre-Calculus grade ≥ 90%
- Beginning Calculus grade (marking period 2) ≥88%

Requirement: Approval of the AP, Math, Science and Technology is required.

Note: This is a two-semester course and **cannot** be dropped mid-year. In addition to Townsend Harris credit, students who score 3 or better on the **required** Advanced Placement exam in May may be awarded college credit. There is a $94 examination fee (which may be partially waived in cases of documented financial need). Approval of the AP, Math, Science and Technology is required.

Advanced Placement Calculus (BC) **MCS43X**

This course is designed for students with strong mathematical skills whose plans include continuing their education in mathematics as either a math or science major. It covers the material for the Calculus BC Advanced Placement exam. This course is more theoretical than Calculus AB and includes the additional topic of series. It is an in-depth study of single variable differential and integral calculus, including the study of functions, graphs, and limits, derivatives, applications of derivatives, integrals, application of integrals, the fundamental theorem of calculus, antidifferentiation, applications of the antiderivative, slope fields, logistic growth model, polar curves, parametric equations, polynomial approximations and infinite series. Students will be using a TI 89 Titanium graphing calculator.

Prerequisites and Requirements

- Math Average ≥ 93%
- Algebra 2/Trigonometry Regents ≥ 93%
- Pre-Calculus (**MPS11H**) grade ≥ 93%
- Beginning Calculus (**MPS11HB**) grade (marking period 2) ≥90%

Requirement: Approval of the AP, Math, Science and Technology is required.

Note: This is a two-semester course and **cannot** be dropped mid-year. In addition to Townsend Harris credit, students who score 3 or better on the **required** Advanced Placement exam in May may be awarded college credit. There is a $94 examination fee (which may be partially waived in cases of documented financial need). Approval of the AP, Math, Science and Technology is required.

COMPUTER SCIENCE

AP Computer Science A **MKS21X**

AP Computer Science A is equivalent to a first-semester, college level course in computer science. The course introduces students to computer science with fundamental topics that include problem solving, design strategies and methodologies, organization of data (data structures), approaches to processing data (algorithms), analysis of potential solutions, and the ethical and social implications of computing. The course emphasizes both object-oriented and imperative problem solving and design using Java language. These techniques represent proven approaches for developing solutions that can scale up from small, simple problems to large, complex problems.

Lab Requirement: The AP Computer Science A course must include a minimum of 20 hours of hands-on structured lab experiences to engage students in individual or group problem solving. During the laboratory component students will design solutions to problems, express their solutions precisely (e.g., in the Java programming language), test their solutions, identify and correct errors (when mistakes occur), and compare possible solutions. Computer Language The AP Computer Science A course requires that solutions of problems be written in the Java programming language. Because the Java programming language is extensive with far more features than could be covered in a single introductory course, the AP Computer Science A Exam covers a subset of Java. The AP Computer Science A course curriculum is compatible with many CS1 courses in colleges and universities.

Note: This is a full year course, and **cannot** be dropped mid-year. In addition to earning Townsend Harris credit, students scoring 3 or higher on the **required** Advanced Placement exam in May may be awarded college credit. There is a $94examination fee (which may be partially waived in cases of documented financial need). There are several routes through which students can enroll in Advanced Placement Computer Science A

Pre-requisites:

1. Earning an 85% in the Introduction to Computer Science (MKS21HC) or
2. For students who have not taken MKS21HC must meet one of the following criteria:
    a. Students must have successfully completed Common Core Algebra I with a grade of at least 90% in the course and on the Regents, or
    b. Students must have successfully completed Common Core Geometry with a grade of at least 88% in the course and on the Regents, or
    c. Students must have successfully completed Algebra II -Trigonometry with a grade of at least 85% in the course and on the Regents

Note: The students who have completed MKS21HC-MKS22HC will be given preferential placement in this course.

AP Computer Science Principles **MKS21XQK**

AP Computer Science Principles is a new computer science course designed to give students foundational computing skills, an understanding of the real-world impact of computing applications, and programming literacy. Leading computer scientists and educators, supported by the National Science Foundation (NSF), agreed that such a course was needed to increase the number of students interested in and prepared for success in computer science and other STEM fields.

AP Computer Science Principles is designed to introduce a wider range of students to the central tenets of computer science. The course was developed and piloted in collaboration with leading high school and higher education computer science educators to reflect the latest scholarship in the field.

SCIENCE ELECTIVES

Elective courses cannot be taken in lieu of Regents Biology, Chemistry or Physics.

Advanced Placement Biology (Juniors and Seniors) **SBS21X**

The learning objectives of this full-year, double period Advanced Placement course are designed to be equivalent to the concepts and skills learned in a college introductory biology course for biology majors. It aims to provide students with the factual knowledge, conceptual framework, and analytical skills necessary to understand the rapidly changing science of biology. Inquiry-based labs and class activities will foster the development of these concepts as well as scientific reasoning skills.

The new AP Biology framework is built around 4 cornerstone principles or "big ideas" which include:
1- The process of evolution drives the diversity and unity of life.
2- Biological systems utilize free energy and molecular building blocks to grow, to reproduce, and to maintain

dynamic homeostasis
3- Living systems store, retrieve, transmit, and respond to information essential to life processes.
4- Biological systems interact, and these systems and their interactions possess complex properties.

The skills and information learned in this class will be useful to any student interested in medicine, research, forensics, genetics, evolution, and any other science fields that require a lab course as a prerequisite at the collegiate level.

Pre-requisites and Requirements:

Prerequisites for the course include Biology and Chemistry with a minimum 3rd marking period grade of 93% and a minimum Regents grade of 88% in both courses. Genetics and Anatomy and Physiology are recommended pre-requisites or co-requisites. These courses help students to grasp and manage the immense amount of material required for the AP Biology curriculum with success.

Note: This class may be scheduled during bands 0-1. This is a full year course, and **cannot** be dropped mid-year. In addition to earning Townsend Harris credit, students scoring 3 or higher on the **required** Advanced Placement exam in May may be awarded college credit. There is a $94 examination fee (which may be partially waived in cases of documented financial need).

Advanced Placement Environmental Science (Juniors and Seniors only) SDS21X

The goal of this college-level course is to provide highly motivated students with the scientific concepts, principles, and methodologies necessary to understand the interrelationships between the biotic and the abiotic factors in the natural world. Students will not only identify and analyze natural environmental problems but also problems caused by man. The potential risks associated with these problems will be evaluated, and students will propose ideas to either solve or prevent them. Classwork will be supplemented by laboratory experiments and field trips. Interested students may have the opportunity to devise and carry out independent research projects in conjunction with the School of Environmental Sciences at Queens College. This may lead to entrance into various competitions (Intel, St. John's Symposium, NYC Expo) and scholarship opportunities.

Pre-Requisites: Regents Biology and Chemistry.

Requirements:

1. Candidates who have completed Physics should have an overall average ≥ 85%.
2. Candidates who will be taking this course in addition to Physics should have earned a grade of ≥89% in Chemistry 1 and have an overall average of ≥ 89%.
3. Approval of the AP, Math, Science and Technology is required.

Note: Students taking this course will also take a weekly lab during their lunch period. This is a full year course, and **cannot** be dropped mid-year. In addition to earning Townsend Harris credit, students scoring 3 or higher on the **required** Advanced Placement exam in May may be awarded college credit. There is a $94 examination fee (which may be partially waived in cases of documented financial need).

Advanced Placement Physics I (Juniors and Seniors only) SPS21XB

This full year course is the equivalent of one semester of college physics—four credits worth of pure, unadulterated knowledge. The curriculum covers a variety of topics such as Newtonian mechanics, electric force and fields, power and energy, waves, and harmonic motion. This is a rigorous course that will challenge students to develop their powers of reasoning and problem solving to the fullest. We will meet seven bands a week to allow for adequate time to fully master the material. If you're into developing your mind and pursuing a career in engineering or the sciences, then this is what you're looking for.

Prerequisites: 90+ in Physics, 90+ on the Physics Regents, a healthy dollop of insanity

Note: Students taking this course will also meet at least two zero bands for lab. This is a full year course, and **cannot** be dropped mid-year. In addition to earning Townsend Harris credit, students scoring 3 or higher on the **required** Advanced Placement exam in May may be awarded college credit. There is a $94 examination fee (which may be partially waived in cases of documented financial need).

Advanced Placement Psychology (Juniors and Seniors only) **SQS21X**

This college-level course intended for highly motivated students will include the biological basis of behavior; sensation and perception; cognition; states of consciousness; learning; intelligence; motivation and emotion; developmental psychology; personality theory and social psychology; abnormal psychology; and the treatment of psychological disorders. Interested students may have the opportunity to devise and carry out independent research projects that might lead to entrance into various competitions (Intel, Junior Science and Humanities Symposium), and scholarship opportunities.

Pre-Requisites: Regents Biology and Chemistry.

Requirements:

1. Candidates who have completed Physics should have an overall average ≥ 90%.
2. Candidates who will be taking this course in addition to Physics should have earned a grade of ≥90% in Chemistry 1 and have an overall average of ≥ 91%.
3. Approval of the AP, Math, Science and Technology is required.

Note: This is full year course, and **cannot** be dropped mid-year. In addition to earning Townsend Harris credit, students scoring 3 or higher on the **required** Advanced Placement exam may be awarded college credit. There is a $94 examination fee (which may be waived in cases of documented financial need).

Anatomy and Physiology & Genetics (JUNIORS AND SENIORS ONLY) **SB1HA & SBS11TG**

Students will learn the details of how the parts of their body work to allow them to function. The components of various body systems, their individual functions and the combined effect will all be examined through classroom and laboratory activities. The lab activities will allow the students to view the anatomical details studied in class and will enable students to see the connections that hold everything together and allow for the proper functioning of the body. Diseases and problems associated with the different systems of the body will also be covered in this class. In the spring this college-level course will cover a broad range of topics including the discovery of DNA, chromosomes and gene mapping, recombinant DNA technology and Genomics/Proteomics. Upon successful completion of this course students will be conversant with most areas of genetics and have sufficient basic knowledge to master advanced topics in genetics. The laboratory portion of the class will include topics ranging from Mendelian genetics to recent breakthroughs in genetic analysis. Students will have the opportunity to work with state-of-the-art biotechnology equipment, including electrophoresis apparatus and Polymerase Chain Reaction machines.

Pre-Requisites: Regents Biology, Chemistry, and Physics, which may be taken as a co-requisite.

Requirements: Candidates should have an overall minimum overall and science average of 90%, and/or the permission of the Department Supervisor

Astronomy **SRS21H**

This full-year course introduces students to the study of astronomy, including its history and development, basic scientific laws of motion and gravity, the concepts of modern astronomy, and the methods used by astronomers to learn more about the universe. Additional topics include planetary systems and our solar system, the search for habitable worlds, stellar evolution, Einstein's theories of special and general relativity, the Milky Way and other galaxies, and black holes. This course will be taught through a combination of recitation, demonstrations, class discussions, in-class readings, video presentations, simulations, hands-on lab activities, and field trips. Lab is incorporated into the regular class schedule (no additional lab bands).Pre-Requisites: Regents Chemistry and Common Core Geometry. Pre/Co-Requisites: Common Core Algebra II, Regents Physics

Organic Chemistry (Juniors and Seniors only) **SCS21HC**

Organic Chemistry is devoted to the study of hydrocarbon compounds. The primary emphasis of the US FIRST term of this course will be on the nomenclature, properties, and reaction mechanisms of alkanes and alkenes. In term two the stereochemistry of molecules will be explored. Reactions of aromatic hydrocarbons and both nucleophilic substitution and elimination reactions will be the major topics studied. This course is designed for students who have completed Regents Chemistry and possess a basic understanding of chemical principles. This course will provide a good introduction to college-level Organic Chemistry and will provide an excellent

foundation for advanced biology and chemistry courses. Taught with a combination of recitation, demonstrations, and class discussions of outside reading, the course is geared to those students who are planning to be chemistry, pharmacy or pre-med majors in college.
Pre-Requisites: Regents Biology and Chemistry.
Requirements: Students should have an average of 90% or greater in Chemistry or the approval of the Department Supervisor. Students who are "doubling-up" Physics and Organic Chemistry must also have an overall average of 89% or greater.

ROBOTICS PROGRAM

Our Robotics Program is designed to integrate math, science with technology content and skills, and emphasizes meaningful problem-based learning through hands-on learning in cooperative groups. Robotics engages students in complex, strategic problem-solving and higher-order thinking necessary to align robot hardware and software to achieve a goal; robotic movements are a link between the physical and logical. The Robotics sequence includes instruction on control systems, movement, machine perception, systems engineering and cognition and reasoning. Hands-on courses will focus on designing, building and programming robots.
Prerequisite: Honors Regents Biology
Co-Requisite: Honors Regents Chemistry and/or Honors Regents Physics.
Notes:

1. Continuing in the sequence of courses is dependent on the successful completion of the prior year's curriculum.
2. This course does not fulfill the basic science requirement (Biology, Chemistry or Physics).
3. Students who have participated on the Robotics Team may be eligible for advanced placement in this sequence of courses.
    a. Please see Mr. Heitman to discuss the appropriate entry point for you prior to registering.
    b. If granted advanced standing, **register for CAD,** and bring a note from Mr. Heitman to Ms. Brustein specifying your placement. You will not be able register online for the advanced course.

Students will be introduced to Computer Aided Design (CAD) This course is designed to give a computer approach to mechanical drawing however students will begin with the background needed for all other drafting courses, with an emphasis on proper techniques and terminology then transitioning to 3D modeling.

Introduction to Computer Assisted Design (CAD) **SKS61TK**
Students will to use their knowledge of CAD from Term1, to design a working 3D rendering in Solidworks™ of various mechanical components. Using Solidworks™ software, students will test their 3D renderings against functionality (how well the model stays within the necessary tolerances) and assembly (the extent to which the model fits together with other components).

Pre-Engineering Electrical and Mechanical Systems **SKS63TK**
In this course students are introduced to various drive chassis and learn to evaluate the effectiveness of each of the chassis designs for specific objectives. The entire class will collaborate on building one chassis based their evaluation.
In term 2 of this course, students will be exposed to thermal conductivity of circuits through soldering. Proper soldering techniques for the hook, pierced, and turret terminal will be covered. In addition, students will learn to use Kirschoff's Law to calculate potential difference in a circuit, and to understand what causes electrostatic discharge.

Applied Engineering **SKS65TK**

Building a Functioning Robot is the capstone course of this program.
During Term 1, Teams of 4-7 students will design and construct both a chassis and a circuit board. Students will develop the Java coding necessary to control their circuit board and evaluate the appropriate gear ratios for their chassis to achieve a specified goal.
In term 2 of this course, students will participate in work-based learning with our corporate partner, Magellan Aerospace as they design via CAD, robot parts to address fabrication issues to meet the challenges set forth by US First Robotic FRC challenge. Students who meet Magellan's knowledge standards will work at the Magellan Corporate Headquarters in Corona, Queens side-by-side with a engineer-mentor on designing and producing parts for Magellan's clients.

SCIENCE RESEARCH

Science Research 1 (Sophomores Only) **SQS61TJ**

This course is open to students who will be in 10th grade and have completed Regents Biology. Students will learn to formulate their own questions and use the scientific method to solve problems and reach conclusions. Learning laboratory techniques and conducting both guided and independent experimentation are major components of this course. Students planning to continue in the Science Research program will be guided in their search to find an outside mentor for their research project. This is the US FIRST course in a three-year sequence designed to prepare students for participation in Intel, Siemens and other science-related competitions.
Note: This is a full year course and may not be dropped midyear. The recommendation of your current Biology or Chemistry teacher and at least a 90% average in science or the approval of the AP of Math, Science and Technology is required to enroll in this elective.

Science Research 3 (Juniors Only) **SQS63TJ**

This course is open to those students who have completed one year of Science Research (**SQS61TJ)** and **SQS62TJ**), or students who have the special permission of the AP of Math, Science and Technology. Placement preference will be given to students continuing on in this sequence. Students will meet frequently with their teacher/advisor to discuss their ongoing research projects. Laboratory and library time will also be provided. Students will be guided in their search to find an outside mentor for their research project.
Requirement: Approval of the AP of Math, Science and Technology.
Notes:

1. Continuation into the 2nd semester of the course (**SQS64TJ**) is dependent on the student's finding placement in a research facility and committing to complete an Intel project for submission the following November.
2. All students must submit their research completed either in their sophomore year or in the summer preceding their junior year to NYCSEF.
3. Students may be dropped at the discretion of the AP of Math, Science and Technology at the end of this course.

Science Research 5 (Seniors Only) **SQS65TJ**

This course is open only to seniors currently working on an independent science research project. Students who enroll in Science Research 5 must commit to continuing to work on their individual research project during the summer following 11th grade. Research projects are submitted as early as the US FIRST week in October (Siemens) of the senior year therefore, students and their parents must understand the seriousness of the commitment involved. Students will be taught how to write a scientific research paper and are required to submit their research projects to all applicable contests including, but not limited to the Intel Science Talent Search, The New York Academy - Junior Science and Humanities Symposium, NYCSEF, and Siemens-

Westinghouse Competitions. Students meet frequently with their teacher/advisor to discuss their ongoing project and to prepare their paper, display boards and oral presentation of their research.
Requirement: Approval of the AP of Math, Science and Technology.
Note: This class may be taken either in addition to your regular senior elective, or in lieu of that course.

PHYSICAL EDUCATION

SENIOR PHYSICAL EDUCATION COURSES
Fitness, Physical Conditioning, Tennis, Weight Training

SOPHOMORE AND JUNIOR PHYSICAL EDUCATION COURSES
Aerobics, Volleyball, Basketball, Fitness, Soccer, Tennis, Weight Training

Aerobics **PFS11QUA**
The entire semester will be devoted to aerobics. Students will use aerobic steps to learn and practice step aerobics. Students will be required to develop their own routines. No prior aerobic experience is necessary and priority will be given to students who have not taken this class before. Appropriate physical fitness exercises will be a part of this course.

Volleyball **PTS11QV**
The semester will be devoted to both volleyball. Students will learn all aspects of both sports and be involved in tournament competition. Appropriate physical fitness exercises will be a part of this course.

Basketball **PTS11QB**
The semester will be devoted to both basketball. Students will learn all aspects of both sports and be involved in tournament competition. Appropriate physical fitness exercises will be a part of this course.

Fitness **PFS11QUF**
Students will participate in specific fitness exercises, which will help enhance their cardiovascular performance, overall muscle fitness and flexibility. Students will participate in jogging/running, interval training, circuit training and other activities that target each of the main components of physical fitness.

Physical Conditioning (Seniors Only) **PFS11QGC**
The objective of this class is to further appreciate the benefits of maintaining a healthy body and to use the various weight training and cardiovascular equipment properly and safely. The equipment available at Fitzgerald Gym includes treadmills, bicycles, cable weight training machines, dumb bells and barbells. Come train for your sport; it'll be a blast!

Soccer **PTS11QUS**
Students will learn all aspects of soccer and will be involved in tournament competition. Students will also participate in sport specific fitness exercises that will help enhance their performance.

Team Gym **PTS11**
This class is only open for students that are on a PSAL team roster for THREE SEASONS, Fall, Winter & Spring seasons. Full participation in team practices, meetings, competitions, and games is the criteria for the grade given in this class. Team rosters will be verified before a student is approved for this class. If the coach indicates that there are attendance issues, the student will be given a regular PE class mid-semester instead of team gym.

Tennis **PFS11QUT**

The entire semester will be devoted to tennis. This class meets twice a week on the Queens College tennis courts for approximately 1 1/2 hours. It is designed for students who wish to learn how to play tennis. Basic strokes, rules and scoring will be emphasized. Students will learn all aspects of tennis and be involved in tournament competition. Participants in this course must provide their own racquets and tennis balls.

Weight Training **PFS11QUW**

The class stresses the increase of strength in all body parts, such as, shoulders, chest, back, legs, biceps and triceps. Symmetry and proper form are required in all lifts, which are closely supervised. Aerobic activity is done once a week to burn unnecessary body fat and increase cardiovascular fitness.

Yoga **PYS11Q**

This Yoga/Dance elective offers students the opportunity to get in tuned with their bodies by way of navigating through a series of physical movements, holding of poses and engaging in deep breathing techniques all to the sounds of smooth relaxing music. There are many scientific studies that provide evidence of the many benefits of doing Yoga in a school setting. Improved ability to focus, increase in energy, alleviation of stress and anxiety and an increase in flexibility and core strength. In addition to experiencing and gaining a familiarity with Yoga, students will have an opportunity to move their bodies in a multitude of ways by participating in dance forms that will be introduced in the class. Dances that originate from a range of ethnicities, cultures and time periods will be introduced and learned by all students. Even if students have "two left feet," they will come out of class having had a good cardio sweat, learned something new and an opportunity to have some fun. Some of the dances that will be taught range from Hip-Hop, the plethora of Latin dances, Zumba, and many more. Come experience this brand new class that will take place on the stage, in the auditorium, where amazing and magical things happen. Who knows where it could lead.