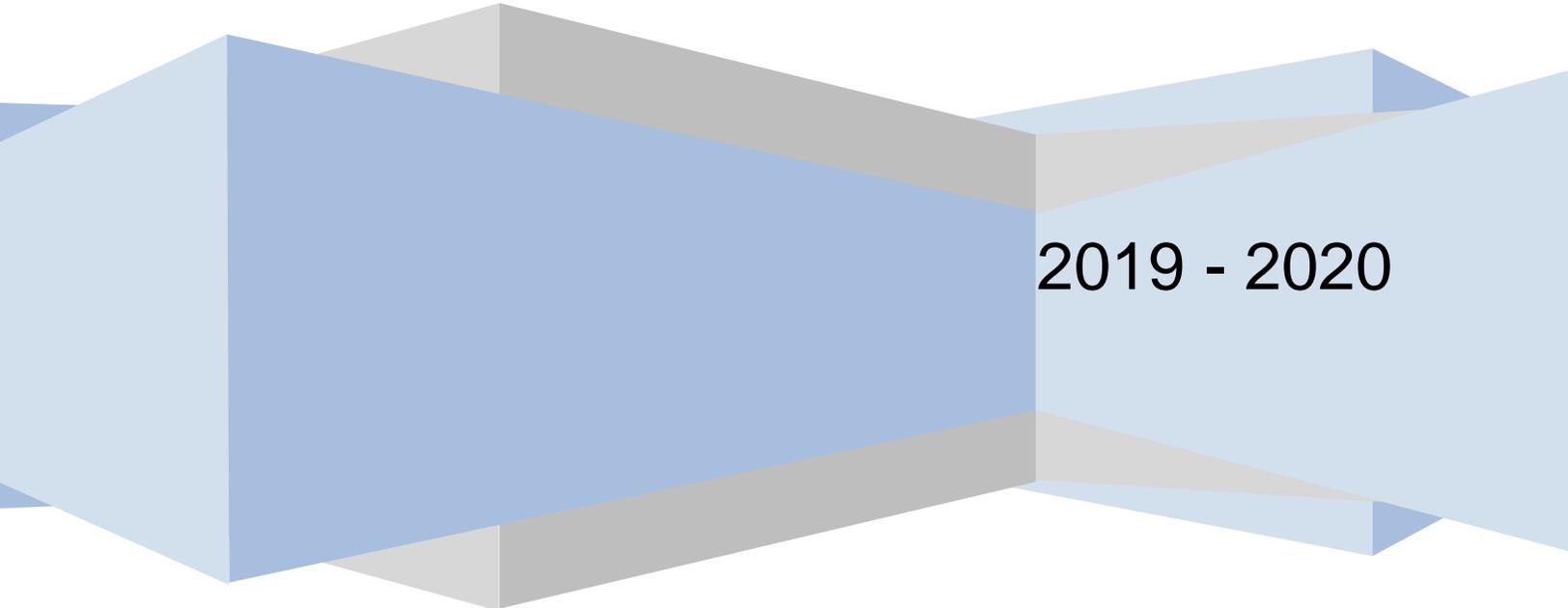


Harrisburg Academy Upper School Course Catalog



2019 - 2020

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The Harrisburg Academy Academic Program

Harrisburg Academy offers a college preparatory academic program. The Academy strives to promote in each student healthy lifestyle choices and to inspire curiosity, critical thinking, and a passion for learning that sets the foundation and provides the opportunity for a life both individually fulfilling and intrinsically valuable to the larger society. Our curriculum is sequential from kindergarten through the twelfth grade, and course offerings and content are systematically evaluated by the academic department chairpersons to ensure that the students are exposed to appropriate topics in an exceptional manner. The curriculum reflects the educational demands of the twenty-first century, as well as our sense of purpose and commitment to diversity and the growth of all learners within our community.

Academic Requirements

Students must take at least 5 majors each, physical education, and required enrichment courses each year. In addition, seniors must pass all courses taken during the second semester. Students may not take more than 6 major subjects under most circumstances. Scheduling considerations make it very difficult for a student to take more than two academic subjects in the same discipline. The Head of Upper School must approve any deviation from these academic requirements and parent approval will be sought. The minimum number of credits needed in each of the Upper School's departments in order to graduate is summarized in the table below.

Required credit courses

- 4 credits in English
- 3 credits in history, including U.S. History
- 3 credits (4 recommended) in mathematics, including Geometry and Algebra II
- 3 credits in science, including Biology, Chemistry and Physics
- 3 credits in the same foreign language (with dept. approval, 2 credits each in two languages)
- 1 credit in Art or Music
- 2 credits in physical education (including varsity sports participation)
- Grade 10 Health
- College Prep

Required non-credit courses

Physical Education each year
(Pass/Fail) Senior Internship
(Pass/Fail/Honors)
CAS each year
(Pass/Fail) Senior Speech
(Pass/Fail)

All Upper School students are required to take five full-credit courses; however, six full-credit courses is recommended. Semester and yearlong courses are available to students who have met the requirement and/or wish to take an additional course.

These requirements are based on a student's attending Harrisburg Academy all four years. Appropriate adjustments may be made for transfer students.

Senior Internship Program

The senior year culminates in an approved Senior Internship during the last weeks of the semester. At this time, each student participates in an individually-designed program allowing him or her to gain active, direct experience working and studying meaningful areas of interest. Successful completion of the Senior Internship Program is a requirement for graduation.

Creativity Action Service (CAS)

Creativity, Activity and Service are the heart of the Diploma Programme. It enables students to demonstrate attributes of the IB Learner profile in real and practical ways, to grow as unique individuals and to recognize their role in relation to others. It provides students with opportunities to explore their interests and express their passions, personalities and perspectives. CAS complements a challenging academic programme in a holistic way, providing opportunities for self-determination, collaboration, accomplishment and enjoyment.

IB diploma students complete their CAS program over an 18-month period. During this time, students will reflect on their experiences in each strand, complete a 1-month long project and produce a CAS portfolio as evidence of their engagement and growth through CAS.

IB certificate candidates will be participating in CAS according to their years of enrollment in the upper school. These students will also be expected to document and reflect upon their CAS experiences and provide evidence of their engagement and growth through CAS.

CAS will be documented on the transcript with a pass or fail grade for at the end of academic year. A CAS guidebook is provided to every student, which has specific details applicable to their enrollment year and their status as an IB diploma candidate or IB certificate candidate.

Senior Speech

The goal of Senior Speech is for students to become more experienced and confident public speakers. This presentation is a graduation requirement, and generally lasts three to five minutes. Delivered during Combined Morning Meetings, senior speeches may address

nearly any area of interest. Upon graduation, 12th grade students receive a recorded copy of their own speech, as well as speeches delivered by their fellow classmates.

Department Overview and Course Descriptions

The following are the descriptions of all courses offered in the Upper School. The courses offered depend on enrollment, interest, and availability of faculty. All of the offerings are rigorous, college preparatory courses, the equivalent of accelerated or honors courses in most public schools. The International Baccalaureate and Advanced Placement courses are college-level courses.

While suggested guidelines are offered in most departments for the grade levels appropriate for each course, these are indeed merely guidelines, not mandatory designations. Students with special interests or talents may select and take courses outside their grade levels with the permission of the Head of Upper School, the instructor, and their parents, schedule permitting.

English Department

Harrisburg Academy high school students enrolled in Upper School benefit from an English curriculum designed to develop confident writers and critical readers. Students use writing as both a form of expression and as a means of imaginatively and critically exploring diverse works of fiction, poetry, drama, and nonfiction essays from many of the most noteworthy writers of the past centuries, to today's current authors.

By writing frequently, students refine their skills over time, graduating with the ability to write logical arguments, complex literary analyses, creative works, and produce higher level research. Students use technology to enhance and complement their efforts. Harrisburg Academy's English Department faculty follows a guided-study philosophy, challenging students to participate actively in class discussions, and encouraging self-reflection.

9th Grade English—British Literature

Year

1 credit

This course explores the evolution of culture in England through its literary heritage. Students will read works from varying time periods in order to deepen and broaden their comprehension. Students complete a variety of class activities and assessments that use multiple modalities in order to enhance creativity, innovation, collaboration, and leadership. Writing and oral presentation skills will be emphasized throughout the course.

10th Grade English—Conscience & Conflict in American Literature

Year

1 credit

Students develop an understanding of the history and cultural progress of our country through the critical study of American literature across varying time periods, ranging from Native American literature to the present. Harrisburg Academy students analyze and contextualize the evolution of American literature using a variety of critical theories and literary models, such as Historical/Biographical, Cultural, Romanticism, Modernism, and Post Modernism. Students demonstrate serious engagement with the texts through their class preparation, participation in discussions, and completion of a wide variety of assessments – written, oral, and creative.

11th & 12th Grade English—IB HL World Literature, Years 1 & 2

Year

1 credit

In the IB Higher Level Language A: Literature course, students will learn about the various manifestations of literature as a powerful mode of writing across cultures and throughout history. They will explore and develop an understanding of factors that contribute to the production and reception of literature, such as:

- The creativity of writers and readers
- The nature of the interaction with the writers' and readers' respective contexts and with literary tradition.
- The ways in which language can give rise to meaning and/or effect.
- The performative and transformative potential of literary creation and response.

Through close analysis of literary texts in a number of forms and from different times and places, students will consider their own interpretations, as well as the critical perspectives of others. In turn, this will encourage the exploration of how viewpoints are shaped by cultural belief systems and how meanings are negotiated within them. Students will be involved in processes of critical response and creative production, which will help shape their awareness of how texts work to influence the reader and how readers open up the possibilities of texts.

With its focus on literature, this course is particularly concerned with developing sensitivity to aesthetic uses of language and empowering students to consider the ways in which literature represents and constructs the world and social and cultural identities.*

**International Baccalaureate Organization © 2019*

11th and 12th Grade English—IB SL Language & Literature, Years 1 & 2

Year

1 credit

In the language A: language and literature course students will learn about the complex and dynamic nature of language and explore both its practical and aesthetic dimensions. They will explore the role language plays in communication, reflecting experience and shaping the world. Students will also learn about their own roles as producers of language and develop these skills. Through close analysis of various text types and literary forms, students will consider their own interpretations, as well as the critical perspectives of others, to explore how such positions are shaped by belief systems. Students will engage in activities to understand how text, visual and audio elements work independently or together to influence an audience. With its focus on a wide variety of communicative acts, the course emphasizes both verbal and written skills centered on three **Areas of Exploration**:

- **Readers, writers and texts**
 - Non-literary texts are chosen from a variety of sources and media to represent as wide a range of text types as possible, and literary works are chosen from a variety of literary forms. Students consider how texts themselves operate, how they are written and received.
- **Time and space**
 - Non-literary texts and literary works are chosen to reflect a range of historical and/or cultural perspectives. Students consider ways texts might both reflect and shape society. Students examine personal and cultural perspectives and the ways in which context is tied to meaning.

- **Intertextuality: connecting texts**

Their study will explore intertextual relationships among various topics, thematic concerns, conventions, modes, and literary traditions. The focus is on the development of an understanding of the complex relationships among texts.*

**International Baccalaureate Organization © 2019*

History Department

History courses offered in the Upper School are designed to stimulate intellectual thought and growth. Each course is designed to with the skills to be successful in the IB curriculum, students will find they will be challenged to develop proficiency with a variety of processing skills. Students will be taught not to accept all concepts at face value and will be encouraged to investigate and analyze a variety of documents. Applying the process of historical methodology, students will learn to evaluate the relevancy of primary sources and the reliability of secondary ones. The course work requires that each student recognize the interconnections of common themes from past to present times and learn to develop their own perspective about these relationships.

Students are challenged to offer opinions and insights in a variety of venues that include class discussions and more formal debates. Communicating effectively through the written word is an important aspect of the students' work and these courses will offer them a variety of written assignments to help their development as historical writers.

Foundations of World Religions and Civilizations (9th grade) Year 1 credit

This grade 9 survey course considers major world civilizations with special attention to belief systems, economic development, and political organizations. It emphasizes cultural diffusion by examining themes such as international trade, technology, warfare, diplomacy, and religious sects. The students learn vital writing skills like how to properly research, cite, and compose papers and essays. The students develop skills in critical reading of primary and secondary sources. In addition to standard history papers, all students complete a modified Historical Investigation that follows guidelines that are set by the IBO as a way to prepare the students for future success in our history courses. The material covered in this course will allow for the students to have a foundation of knowledge and skills that will be useful in future history courses.

The US & Its Relation to the World (10th grade) Year 1 credit

What is the role of the United States in the modern world? Starting with 18th century Enlightenment philosophies, students will explore how ideas inspired the American Revolution. This concept of revolution will be repeatedly studied as we compare and contrast subsequent conflicts – French, Russian, Chinese, and Mexican, among others – to the American model. A second major theme, revolutions in technology, will lay the groundwork for our study of imperialism. How did the United States claim an empire in the late 19th century only to frown upon neocolonialism in the 20th century? Finally, how did social revolutions in mid-20th century America reflect Gandhi's philosophies while also inspiring movements in Africa? Is the role of the United States that of world policeman, or has globalization created a shift in US global influence? This course will examine 18th-21st century US History with emphasis on how it has both impacted and been influenced by other nations.

IB History SL/HL**1 Year/2 Years****1 credit/year**

The IB History course is a world history course based on a comparative and multi-perspective approach to history. It involves the study of a variety of types of history, including political, economic, social and cultural, and provides a balance of structure and flexibility. The course emphasizes the importance of encouraging students to think historically and to develop historical skills as well as gaining factual knowledge. It puts a premium on developing the skills of critical thinking, and on developing an understanding of multiple interpretations of history. In this way, the course involves a challenging and demanding critical exploration of the past.

In the first year of IB History, both SL and HL student will cover the prescribed titles: Move to Global War, Causes and Effects of 20th Century War and Cold War Superpower tensions. In the second year of HL history, the students will complete the History of the America topics: The Great Depression and the Americas, The Second World War and the Americas 1933-1945, and The Cold War and the Americas 1945-1981.

IB Information Technology in a Global Society (ITGS) SL**Year****1 credit***(Junior or Senior)*

The Diploma Programme information technology in a global society (ITGS) course is the study and evaluation of the impact of information technology (IT) on individuals and society. It explores the advantages and disadvantages of the use of digitized information at the local and global level. ITGS provides a framework for the student to make informed judgments and decisions about the use of IT within social contexts.

(Not offered every year)

11th and 12th: Theory of Knowledge**2 Years****½ credit/year***(IB Full Diploma Students only or Juniors with 4 or more IB courses in same semester)*

The first sentence of Aristotle's *Metaphysics* states, "All men desire to understand the causes of things." If our human nature compels us to seek knowledge, then we should endeavor, through the Theory of Knowledge course, to deepen our understanding of what it is we know and how it is we know it.

Since Aristotle's description of man's thirst to understand causes, both the concept of "man" and our understanding of "knowledge" have changed. Through the expansion of technology during the last twenty years, the areas of knowledge, the ways of knowing, have grown exponentially, and as members of a global society which has experienced and been drawn together by such growth and change, each of us must examine and reexamine not only our preconceptions but the new perspectives available to us. We must not only believe, but understand why and how "other people, with their differences, can also be right."

While the 6 subject groups in the IB Diploma programme present the academic and interdisciplinary approaches to knowledge in their areas, the Theory of Knowledge course addresses the relationships between all of them, with the goal of developing "student knowers." In order to help students see connections between—and suspend possibly absolute beliefs contingent within—individual subject areas, the Theory of Knowledge course will use "linking questions," among other approaches to widen discussion, open minds, and challenge students' critical and ethical thinking. Student "knowers" in this course will come to understand that their relationship to the known is influenced by, among other things, their personal beliefs, biases, social, religious and geographical communities and that, as responsible members of a

global community, they must remain humble about claims of certain knowledge.

For the purpose of the Theory of Knowledge course, knowledge is divided into six areas—natural sciences, human sciences, history, math, arts and ethics—and each area contains problems which must be uncovered and examined in order to understand the power and the limitations of these kinds of knowing. The means of knowing—what the Theory of Knowledge course calls “ways of knowing” —similarly contain powers, problems and limitations which demand scrutiny. Studying these areas and means of knowledge, students see the links between the 6 groups of the Diploma Programme and develop a sense of belonging to a community of knowers whose ideas may be different, but whose respect for the search for knowledge brings them together.

Aims

The Theory of Knowledge course asks students to reflect on the foundations of knowledge so they can critically evaluate "knowledge claims." They will ask themselves “How do I know?” and “What do I know?” Such evaluation will include recognizing the effect of personal and ideological biases, cultural perspectives, beliefs, opinions and dogmatic assumptions. Students and teachers (the TOK instructor and other IB Group visiting instructors) will not only wrestle with age-old questions of knowledge, but also examine the global changes introduced by information and internet technology, among other modern discoveries, and determine how one may react responsibly to them. Students will learn that proper evaluation of "knowledge claims" promotes internationalism as genuine truth and that knowledge unites—rather than divides— societies and countries.

Objectives

Having completed Theory of Knowledge, students will understand both the powers and the limitations of the various Ways of Knowing and will know the basic methods used by the Areas of Knowing. They will understand how their personal views, judgments and beliefs impact their quest for knowledge and will see the interdisciplinary connections between the Areas. They will learn that much knowledge starts with knowing what questions to ask, and how to recognize different perspectives. Students will be able to demonstrate their personal understanding to their peers and to outside examiners through oral and written presentations. Finally, students will demonstrate an improved capacity to reason critically, clearly, honestly, and logically.

Department of World Languages

The Department of World Languages of Harrisburg Academy seeks to deepen students' appreciation of global cultures and to develop students' proficiency in understanding, speaking, reading and writing a foreign language. Such proficiency has become an increasingly important skill as our world community shrinks through advances in communications and transportation technologies. Those entering the Academy after their freshman year must meet with a language teacher and/or take a test to determine appropriate placement.

The small class sizes at the Academy give students an exceptional opportunity to speak the language every day with constant feedback from one another and from the teacher. If students choose to continue their language study in college, the successful completion of the Academy's requirement will give them a solid preparation.

In the first two years of each language, basic grammar and vocabulary are stressed, and modern language classes are conducted primarily in the target language. Students are encouraged to think about the similarities and differences between their own language and culture and those they are studying. In advanced levels, students focus on more sophisticated grammatical structures while also studying literature and films, and they write progressively longer compositions. Modern language classes are conducted in the target language.

The philosophy of the department is that it is not sufficient to master the grammar of a world language. Students must internalize the grammar through daily practice of the four communication skills: listening, speaking, reading, and writing. Students with established fluency in Spanish or French must earn at least 2 credits in another foreign language.

French I **Year** **1 credit**

Students in this introductory level course build basic communication skills in French and are introduced to French culture. A strong emphasis on grammar and useful vocabulary enhances reading and writing ability, while oral and listening skills are also stressed. In addition to the textbook, many other tools such as magazine ads, cartoons, games, and simplified stories encouraged active participation. Our basic text, *C'est à toi*, is supplemented by a student workbook and accompanying video and audio materials.

French II **Year** **1 credit**

Students in Level II French will continue to build upon their knowledge of French grammar and will practice speaking, listening, writing, and reading. Our text series, *C'est à toi*, includes a student textbook, workbook, and an accompanying program of CD's featuring a variety of native French speakers. In addition, we will enjoy the popular video sequences which relate to each lesson in the text.

Supplementing the core materials will be simplified stories, poems, popular songs, and articles whenever appropriate. Such ancillary materials help students see the study of grammar not as an end in itself, but rather as an aid to real communication.

French II is a very participatory class. Games, cartoons, and unstructured conversation encourage the use of French and make learning active and enjoyable.

French III **Year** **1 credit**

Third year students increase proficiency in speaking and listening as they master more complex grammatical structures. The text series, *C'est à toi*, includes student book, workbook, audio CD's and an accompanying video program. This level of the series puts particular emphasis on the diversity of the francophone world, and thus native voices from Canada, the Antilles, and Africa are occasionally featured on recordings. In French III, students will benefit from exposure to many ancillary resources such as magazine articles, French music, poetry, and newspaper articles. A program of free reading, using the in-class library of French language books and materials, is introduced.

French IV / IB French SL, year 1 **Year** **1 credit**

French IV students have completed a general study of French grammar. At this level, they are ready to begin applying their knowledge to reading and listening to even more authentic sources. The text, *Trésors du temps*, takes students on a chronological voyage

through the highlights of French history, exposing them to samples of literature and art from each era. Essentials of grammar will be reviewed and reinforced as well. This study begins with prehistory and concludes with the dawn of the twentieth century, reached sometime after the start of the third marking period.

Toward the end of the school year, students embark upon a writing project designed to enable them to gather all their language proficiency and express themselves in creative writing and speaking.

French V / IB French SL, year 2 **Year** **1 credit**

Students taking fifth year French have mastered the grammar and listening skills necessary to move beyond the language textbook. They will read authentic works of modern French / Francophone literature which may include those of such authors as Marcel Pagnol, Albert Camus, Michèle Marineau, Françoise Sagan and Brigitte Smadja.

The class also reads and discusses works by francophone authors reflecting current issues and attitudes important throughout the French-speaking world.

Classroom discussion is conducted in French, and students are responsible for understanding and contributing to the conversation. They will view, discuss, and write about several French films and listen to popular music. A comprehensive grammar review book, *Une fois pour toutes*, will be used as a resource for reinforcing grammatical competence. A new text, *Le Monde en français*, will accustom students to IB testing methodologies and expose them to current issues and themes emphasized in the IB curriculum.

All students will participate in interactive oral activities as defined by the IB curriculum and will research a topic of interest for oral presentation.

Spanish I **Year** **1 credit**

Spanish I is an important course that establishes a solid foundation for students to continue to Spanish II. In Spanish I our focus will be to enjoy learning how to apply their knowledge as they begin to use Spanish in all skill areas: reading, writing, speaking and listening. Students will be expected to use the Spanish they are learning in the classroom to communicate with the teacher and the student's classmates. We will learn and apply basic grammar structures to communicate information that will cover a variety of topics: going to a restaurant, shopping, going to the doctors among many others. Students will be expected to meet the structural (grammar and vocabulary) and communicative (written and spoken) objectives as outlined in *En Español Uno*, the text currently being used at Harrisburg Academy.

Spanish II **Year** **1 credit**

Spanish II continues to build a foundation and create a source from which students can draw to become more proficient in Spanish. In Spanish II our focus will continue to learn grammatical concepts and thematically related vocabulary as students improve their proficiency in all skill areas – reading, writing, speaking and listening. Students will be expected to meet the structural (grammar and vocabulary) and communicative (speaking and writing) objectives as outlined in the scope and sequence of *En Español Dos*, the text currently being used at Harrisburg Academy. Students will begin with a review of basic grammatical concepts and continue to build their base of knowledge as they prepare for Spanish III.

Spanish III**Year****1 credit**

Spanish III builds on the foundation established in Spanish I and II. In Spanish III our focus will be the people and places of the Hispanic world while students continue to improve their proficiency in reading, writing, listening and speaking. Student will be expected to meet the structural (grammar and vocabulary) and communicative (written and spoken) objectives as outlined in the scope and sequence of *En Español Tres*, the Spanish text currently used at Harrisburg Academy. Students will review important grammatical concepts and continue to build their base of knowledge as they study more complex structures and concepts, thus preparing them for Spanish IV, where that knowledge is requisite.

Spanish IV / IB Spanish SL, year 1**Year****1 credit**

Spanish IV is an advanced Spanish class which will draw on each student's source of grammar and vocabulary, a base of knowledge built during Spanish I, II and III. Students will navigate a survey of art and modern literature of the Hispanic world, providing a solid foundation for further study in Spanish V. Students will continue to sharpen all skill areas – reading, writing, listening and speaking – as they review and apply more complex grammatical structures. The course objectives primarily focus on reading and writing with a strong emphasis on discussion in the target language. Students will be expected to meet the objectives as set forth in *Galeria de arte y vida*, the text used in Spanish IV at Harrisburg Academy. J Spanish IV students are expected to be able to speak and write in the target language about the works they will be studying.

Spanish V / IB Spanish SL, year 2**Year****1 credit**

This course represents the most advanced level offered at the Academy. Open to advanced students, at the discretion of the instructor, this level of Spanish will primarily involve intensive reading of advanced literature as well as a review of complex grammar structures.

IB Spanish Ab Initio SL, year 1 (via Pamoja)**Year****1 credit****IB Spanish Ab Initio SL, year 2 (via Pamoja)****Year****1 credit**

Learning a foreign language is much more than learning a number of sentences, a certain amount of vocabulary or a number of grammatical rules. It means being able to interact in a new cultural context that will enable us to function in a society different from our original one. It not only expands our possibilities for work, entertainment or travel, but it expands our awareness of the world as we know it today—a world that has shrunk due to international flights, the Internet, and a general understanding that cultural diversity is what makes us human.

It is within this context that the language *ab initio* course was designed. It is an opportunity for students to further their linguistic skills by taking up a second foreign language, or for students to learn a foreign language for the first time. In accordance with the international and multicultural ethos of the Diploma Program, all candidates are expected to learn at least one foreign language. Although the International Baccalaureate Organization does not subscribe to one particular approach to the teaching of foreign languages, both the aims and assessment of language *ab initio* focus on communication through the use of the target language.

The Spanish *ab initio* course is a language learning course for beginners, designed to be followed over two years by students who have no previous experience of learning the target language. The main focus of the courses is on the acquisition of language required for purposes and situations usual in everyday social interaction. The Spanish *ab initio* course is only available at the standard level.

Mathematics Department

The emphasis of the Academy's Mathematics Department is on developing good problem-solving and analytical thinking skills while reinforcing computational skills learned in the Lower and Middle Schools. Students are expected to be familiar with standard mathematical vocabulary and symbols, the structure and properties of the various number systems, and basic geometric properties. Through the lessons in class and the completion of daily homework assignments, students extend their computational skills, appreciate the structure of mathematics, and demonstrate valid logic. Assignments which reinforce problem-solving skills are essential to the IB curriculum, as well as Pre-Calculus and Calculus, and require students to demonstrate analytical thought and use of appropriate mathematical vocabulary.

Technology

Students in all Harrisburg Academy Upper School mathematics classes must have access to a graphic display calculator (GDC). The department recommends and instructs using the TI-84 Plus.

Course Alignment

Freshmen and sophomores extend their mathematical skills with courses in Algebra II and then Geometry. Algebra II emphasizes equation-solving skills, graphing, and applications including a variety of word problems. Geometry emphasizes application of geometric concepts as well as algebraic applications and deductive reasoning.

Juniors may study IB Analysis and Approaches Standard Level (SL) I or IB Applications and Interpretations SL I, as part of the IB Diploma or in pursuit of IB certification. Another option available to juniors is Pre-Calculus I with Trigonometry. These courses further develop algebra skills and focus on the concept of functions, with increasing emphasis on graphing and modeling.

Seniors who have successfully completed the first year of an IB Math course should continue in the second year of that same course, IB Analysis and Approaches SL II or IB Applications and Interpretations SL II. IB Analysis and Approaches SL 2 includes a thorough investigations of limits, derivatives, integrals, and their applications. IB Applications and Interpretations SL 2 focuses on topics in statistics and trigonometry.

These Mathematics courses provide a sound basis for college, reinforce computational and analytical thinking skills, and instill in students an appreciation for mathematics and its applications to related topics in science and the humanities.

Graduation Credits **required:** 3 years including Algebra II and Geometry;
Department **recommendation:** 4 years

Algebra II (Freshmen through Juniors—required)
Prerequisite: Successful completion of Algebra I.

Year Course **1 credit**

Algebra II provides a review and thorough extension of Algebra I, followed by a study of advanced algebraic topics including polynomials, exponents, logarithms, and solving systems of equations. Strong emphasis is placed on concept development, and on connections among topics. An increased emphasis is placed on analytical thinking skills, and students are expected to demonstrate their understanding of the various topics by completion of projects. Evaluation is

based on performance on daily assignments (both in class and homework), quizzes, tests, and projects.

Text: *Prentice Hall Algebra II* Hall and Fabricant

Geometry with Trigonometry (Sophomores - required) **Year Course** **1 credit**

Prerequisite: Successful completion of Algebra II or Intermediate Algebra.

Geometry is the formal study of lines, arcs, and circles in planes and space. The course begins with the introduction to geometric figures, such as points, line, angles, and planes. Triangles are classified by the various types and then congruency postulates are developed. At this point there is a heavy emphasis on deductive reasoning. Parallel lines and quadrilateral are then introduced, and the topics are expanded to other polygons. The focus returns to triangles with the study of similarity and the Theorem of Pythagoras. Circles round out the geometric topics covered. An introduction to trigonometry includes definitions of trigonometric ratios and solving triangles using Law of Sines and Law of Cosines. The end of the course is a review and expansion on area, surface area, and volume applying concepts developed throughout the course. Students are expected to relate the concepts studied to solve algebra problems, as well as to write formal proofs, and are given daily assignments to reinforce lessons learned in class. This course is valuable for sophomores in its emphasis on adequate understanding and retention of geometric concepts for the PSATs and the SATs. Evaluation is based on performance on classwork, homework, quizzes, tests, and projects.

Text: *Geometry for Enjoyment and Challenge* Rhoad et al.

IB Analysis and Approaches SL (Junior & Senior Year) **2 Year Course** **1 cr/year**

Prerequisite: Completion of both Geometry and Algebra II with a grade of B or better.

IB Analysis SL is a two-year course following the curriculum outlined by the International Baccalaureate Diploma Programme. These courses are offered to capable students who have demonstrated proficiency and analytical ability in mathematics and will provide them with skills to be successful in Calculus. Students should have a strong algebraic background and familiarity with appropriate mathematical terms and abbreviations as well as a strong interest in furthering their mathematical background in preparation for university courses such as mathematics, engineering, chemistry, physics, business, and economics.

Students will be encouraged to develop an appreciation of the global nature of mathematics and the contributions that have been made by persons from a variety of cultures. In addition, students will learn vocabulary and notation from other cultures, as well as historical anecdotes about specific topics.

The first year of the Analysis SL course begins with a review of topics from Algebra related to linear and quadratic functions, followed by trigonometric functions, exponential and logarithmic functions, sequences and series. The course ends the first year with a study of probability and statistics and an introduction to derivatives. Analysis of the graphs of these functions will be a major focus of the courses. During the second year, the Analysis SL students will learn differential and integral calculus and expand their knowledge of topics related to vectors, kinematics, and set theory. Throughout the two years students will be expected to use appropriate mathematics vocabulary and to demonstrate the ability to apply what they have

learned by solving real-world application problems including algebraic, geometric, verbal, and graphical interpretation of the topics.

There is an internal and external IB assessment for this course. The internal assessment is a mathematical exploration. The emphasis is on mathematical communication, and the intention is to provide students with opportunities to increase their understanding of mathematical concepts and processes while developing a wider appreciation of mathematics. It is marked using IBO standards and criteria and may be submitted to the IBO. In May of the second year, students will complete the external assessment which is two exams, one using a graphic display calculator and one without, both prepared and marked by the IBO.

Text: *PreCalculus (9th Ed.)* Sullivan
Understandable Statistics Brase/Brase
Calculus - Early Transcendentals Anton, Bivens
Calculus - Graphical, Numerical, Algebraic Finney
Oxford Mathematics Higher Level Fensom, et al
Mathematics SL Haese and Harris

IB Applications and Interpretations SL (Junior & Senior Year) **2 Yr Course** **1 cr/yr**
Prerequisite: Successful completion of both Geometry and Intermediate Algebra or Algebra II.

IB Applications and Interpretations SL course is a two-year course following the curriculum outlined by the International Baccalaureate Diploma Programme. It is intended for students who have demonstrated proficiency in mathematics but whose academic pursuits do not include college studies requiring rigorous mathematical study. In Applications, although students will broaden and expand their understanding of the concepts from algebra and geometry, the emphasis will shift towards the critical thinking skills necessary to analyze and interpret data as it occurs in real world applications.

The first year of Applications focuses on algebra topics. The students will become comfortable with different types of functions and learn to analyze the nature of the functions by their graphs. Other topics included in the first year of study are surface area and volume of geometric figures and an introduction to derivatives. The second year will focus on probability and statistics, including ways of collecting, managing, analyzing and interpreting data, and trigonometry. Capable students will be familiar with appropriate mathematical terminology and notation and will expand on them and be expected to use them consistently and appropriately. Students will learn how to formulate mathematical arguments and strengthen them with accurate tables and/or graphs.

An important aspect of this course is to show the cohesive nature of the study of math. Not only does each new concept depend on an understanding of previous work, but each new development in our history has required and allowed for new courses of study in math. Over the duration of this course, we will explore the global nature and historical context that are essential elements in the study of math. Students will learn that all regions of the world have played and continue to play a vital role in the development of math.

There is an internal and external IB assessment for this course. The internal assessment is a mathematical exploration. It is marked using IBO standards and criteria and may be submitted to the IBO. In May of the second year, students will complete the external assessment which is two exams, both prepared and marked by the IBO.

Texts: *Mathematical Studies SL* Haese and Harris
College Algebra Sullivan
Understandable Statistics Brase/Brase

Science Department

The Science Department sees several major objectives in its programs and courses. One is to prepare the students for the further study of science in college. A second goal is to make the students aware of the crucial role of science and technology in our modern world to help them to understand the impact of science on society, and to help them make wise choices in their daily lives, future educational plans and career choices.

To these ends, the department provides a balanced selection of courses that feature not only rigorous and detailed instruction, but also discussion and laboratory work. In addition to traditional classroom instruction, computers, library work and outside sources may be used. In active lab programs, the students discover on their own many of the major principles of Science and see examples and applications of the material taught in the classroom. They are also learning the principles of safe laboratory work they will need for their future study of Science. The testing program stresses not only the recall of specific facts, but also the ability to use scientific facts, principles, and procedures to analyze and solve problems, and to express ideas in a coherent, orderly manner.

The department works closely with the other departments in The Academy to insure that the students have the math and language skills they will need in their study of science, and that common subject matter is taught in a coordinated manner.

The department is constantly considering subject matter, content, and sequence of the courses to make sure that our students are receiving the best science education possible.

The minimum graduation requirement for science is a one-year course in each of the 3 major science disciplines. The recommended sequence is; Chemistry in ninth grade, Physics in tenth grade, and Biology (either as a one year course or as the first year of the 2 year HL IB Biology class) in eleventh grade. Other IB science courses will be offered on a rotating basis if enrollment in each course is sufficient.

Chemistry

Year

1 credit

Pre-requisite or co-requisite: Algebra I.

This is the first course in the required sequence. The course builds on the math and science background developed in the Middle School. In many cases, this course gives a more thorough explanation of phenomena and processes that students may have previously studied.

The course covers the major topics of traditional high school chemistry such as the atomic theory of matter, the periodic table, chemical reactions, mass–mass and volume-volume relations in chemical reactions, acids and bases, and the kinetic theory of matter. The mathematical aspects of these topics are constantly stressed. The lab work consists of hands-on experiments using the major tools of the chemistry lab, and is a major part of the course work. Lab safety is stressed in all procedures. Students will usually work in pairs, and with a minimum of direction to develop their ability to work safely and independently in the lab. Class discussions, frequent quizzes and periodic tests help the students and instructor monitor understanding and progress.

Text: *Modern Chemistry* Davis, Frey, et.al., (Holt, Reinhart, & Winston)

Physics

Year

1 credit

The second course in the required science curriculum builds on and summarizes the material of the earlier science courses, giving a fuller, more complete explanation of many of the previously studied topics as well as introducing the major areas unique to this subject. As in all of the science courses taught at The Academy, the goal is to give the students an understanding of the subject, how it relates to their daily lives, and the ability and desire for further study in science.

The course covers the topics of traditional high school physics courses such as classical mechanics, forces and energy (heat, sound, light, electrical), and new discoveries and theories. Topics are introduced and learned first by studying concepts. These topics are expanded utilizing mathematical applications and explanations. In the lab work, through a variety of hands on activities, the students will discover, study, and see illustrated many of the major underlying principles of the physical sciences. Lab safety and independent work are stressed.

Text: *Conceptual Physics* Hewitt

Biology/ IB Biology HL Y1

Year

1 credit

Dual enrolled with Harrisburg University Biology 101 and Biology Lab 102

One year of Biology is required for all students. This course is a combination of General Biology students and year 1 HL Biology students. The courses are co-seated which is possible, because only the IB SL (standard level) biology topics are addressed. Building on the background developed in the lower grades, the course will give the students a comprehensive background in biology, prepare the student for the future study of biology at college, help the student understand the place of humans in the living world and help the student gain an understanding of the importance of the biological sciences in everyday life.

This course will cover the major topics of high school biology such as Ecology, Biochemistry, Cells and Cellular Energetics, Evolution and Biodiversity, Cell division, Genetics, Anatomy & Physiology. Lab work includes quadrat sampling, enzyme action, osmosis, and virtual lab on cladistics.

Text: *Kognity HL Biology (optional text Miller & Levin Biology or Pearson IB HL Biology)*

IB Biology HL Y2

Year

1 credit

Pre-requisite IB HL Biology Y1

This course addresses all the requirements for HL Biology and the IB exam preparation. It is a continuation of IB HL Biology Y1 and covers the HL topics from that course. Students also produce their Individual Investigation/ Assessment (or I.A.) during the winter. Major topics include, Anatomy & Physiology, Plant biology, in addition to advanced coverage of DNA, RNA, genetics, cellular respiration and photosynthesis. Students are asked to further develop their knowledge base and their critical thinking as it applies to life science.

Text: *Kognity HL Biology (optional text Pearson IB HL Biology)*

IB Chemistry SL

Year

1 credit

Pre-requisite: a one-year course in chemistry.

This course is the equivalent of a first-year college course in general chemistry. Students enrolled in this course are committed to taking the IB Exam in the spring. The course topics include quantitative chemistry, atomic structure and periodicity, bonding, energetics, kinetics, equilibrium,

acids and bases, and oxidation and reduction. Additionally, the course includes units on organic chemistry, medicine and drugs, and food chemistry. An active laboratory program is an integral part of this course. Students will learn to plan, observe, measure, record, analyze, and report chemical data. Lab Reports will be written according to IB guideline for IB Internal Assessments. (Offered approximately every other year)

Text: *Kognity SL Chemistry* supplemented by *IB Chemistry (3rd ed.)* Green and Damji

IB Physics HL (year 1 and year 2)

2 Years

1 credit/year

This course covers all of the material included in IB Physics SL. In most cases, those topics are expanded to include more depth and challenge. In addition, HL Physics covers electromagnetic induction, quantum mechanics and wave phenomena. The class chooses one optional topic to cover. The options for that topic are relativity, engineering physics, imaging, or astrophysics. Topics are reinforced through hands on lab activities. An extended lab internal assessment is designed and completed by the student during year 2.

Text: Kognity online text

Computer Science (optional)

Year

1 credit

In this survey course, students are introduced to a broad range of computer science aspects. Topics include computer hardware, data representation, networking, security, problem solving and programming. Emphasis is given to how technology affects daily life for their peer group and society in general. The programming section is an extended exploration of language differentiation, coding practices, design and algorithmic thinking.

IB Computer Science HL

2 Years

1 credit/year

This course follows the IB course outline, covering computer system fundamentals, software design/implementation, networking, computational thinking and programming at the SL level. HL content adds additional programming topics including abstract data structures and resource management. Students also explore the IB optional topics of Object-Oriented Programming and database management. Students are required to write many programs, including a comprehensive internal assessment project. Additionally, IB provides one case study that students must research delving into current trends or issues in the Information Technology landscape.

Fine and Performing Arts Department

Visual Arts / IB Visual Arts SL & HL

Year

1 credit

This course will give the students the opportunity for practice and exploration of various media and the acquisition of studio techniques and experiences. It is intended to be an introduction of basic art concepts that build up to the development of a personal artistic portfolio of work. Students will be shown ways of extending research into practical work that they create both in and out of the studio experience. The course will also be an introduction to the practice of art criticism and critical analysis. Students will gain an understanding of relating art to the world's socio-cultural and historical content.

Candidates who have completed the Higher Level (HL), Standard Level Option A (SLA) or Standard Level Option B (SLB) course will be expected to demonstrate growth and commitment through the study of art along with an interrelationship between their reach and their artistic production.

IB Music SL or HL Year 1**Year 1 credit****IB Music SL or HL Year 2****Year 1 credit**

Prerequisites: Film Scoring, and participation in at least one Academy music ensemble (Concert Band, Orchestra or Chorus).

IB Music is a study of music that fosters curiosity and openness to both familiar and unfamiliar musical worlds. Through such a study of music we learn to hear relationships of pitch in sound, pattern in rhythm and explore the similarities, differences and links in music from within our own culture and that of others across time. Students will explore in greater detail multiple aspects of a work and seek the components that create a musical style. Students will complete a musical links investigation which will demonstrate a wider understanding of music in relation to time, place and cultures.

SL (standard level) students in IB Music are required to choose one of the three options:

- SL creating (SLC) – required to present two compositions
- SL solo performing (SLS) – required to present a 15 minute public recital
- SL group performing (SLG) – performance with an Academy ensemble

HL (higher level) students in IB Music are required to present all 3 of the SL categories, creating, solo performing and group performing.

*Private study on an instrument/voice is strongly recommended.

- HL creating (HLC) – required to present three compositions
- HL solo performing (HLS) – required to present a 20 minute public recital
- HL group performing (HLG) – performance with an Academy ensemble

*Private study on an instrument or voice is strongly recommended.

Stagecraft**Year****1 credit**

Stagecraft is a survey of Technical theater skills and technology needed for production. Students will learn rudiments of scenic, property, costume, makeup, sound, lighting and graphic design. Using the US school musical and MS musical as a laboratory, students will have the hands-on experience of taking a production from conception through to reality using skills learned and introduced in this course. Achievement and evaluation will take place through group projects and individual assignments. Students enrolled in Stagecraft are still eligible to audition and act as part of the school productions.

Concert Band**Semester (Fall & Spring)****1/4 credit/semester**

Concert Band is an ensemble for woodwind, brass, and percussion players who wish to advance their skills and knowledge in the area of instrumental music performance. The class will explore a variety of band literature ranging from Renaissance to modern including rock, Latin and swing. Evaluation is based on attendance, participation and performance.

Chamber Choir (Auditioned Gr. 6 – 12) Semester (Fall & Spring)**1/4 credit/semester**

Chamber Choir is a class for students interested in developing their skill and knowledge in the area of vocal music. The group will rehearse and perform music in a variety of styles in order to develop a high level of proficiency in part singing. Evaluation is based on attendance, participation, and performance.

Orchestra**Semester (Fall & Spring)****1/4 credit/semester**

Orchestra is a select class for string players who wish to perform advanced orchestral

music. The group will explore the specific skills and styles of string music literature and advance the artistry and knowledge of the individual musician. Grades will be determined on the basis of attendance, participation, and performance.

Piano Ensemble

Semester

1/4 credit/semester

Piano Ensemble is a course for developing pianists to hone their craft and develop basic ensemble skills needed to perform with fellow musicians. The ensemble uses music from standard repertoire, video game themes, and film and television themes to help students refine and develop their rhythm, tempos, notes, and expression to form an effective performance. Students are expected to be taking private piano lessons in addition to this ensemble. Grades are determined based upon preparation, attendance and performance.

Enrichment Courses

College Prep (Juniors required)

Semester ¼ credit

Students will review information about colleges and the college search process, create a computerized personal record and college search lists, and work on applications and essays. Students will receive a note-binder containing sections on Academy Policies for transcripts, recommendations, and mailing of applications; standardized tests (SAT, ACT) and when each should be taken; comparison of colleges according to selectivity and other criteria; information to be used for the counselor recommendation; and financial aid materials including a calendar and glossary of financial aid terms. Parents are urged to attend College Night in the fall and the College Fair in the spring. In addition, each student must experience a practice interview and attend workshops in interview techniques and college essay writing, often during the 4th quarter. All of the information and material generated during this course will be of use in the mandatory, individual Family College Conference which takes place in April or May.

10th Grade Health & Wellness (Sophomores required)

Semester ¼ credit

Harrisburg Academy's 10th grade Health and Wellness is a Semester course and will be a blended learning model. Monday, Tuesday, and Friday students will report to the MSUS library and log into ON. During this time, students are to complete posted course work, including participating in discussion boards. Each Thursday students will meet in person for classroom instruction during the extended block. This course is pass/fail. Grading will be a culmination of in class participation, online participation, and completion of projects and daily assignments. There will be no daily homework in this class, along with no tests and quizzes. Learning will be demonstrated through discussions (online and in person) and projects. Topics covered in this course include: the Wellness Wheel, Stress – it's effects on the body and ways to manage it, Sleep, Personal Finance, Smoking/Vaping, Alcohol/Drugs, and Sexual Health & Reproduction/Sexually Transmitted Infections.

Extended Essay (IB FDC - Required)

The extended essay is an in-depth study of a focused topic chosen from the list of approved Diploma Program subjects—normally one of the student's six chosen subjects for the IB diploma. It is intended to promote high-level research and writing skills, intellectual discovery and creativity. It provides students with an opportunity to engage in personal research in a topic of their own choice, under the guidance of a supervisor (a teacher in the school). This leads to a major piece of formally presented, structured writing, in which ideas and findings are communicated in a reasoned and coherent manner, appropriate to the subject chosen. It is

recommended that completion of the written essay is followed by a short, concluding interview, or viva voce, with the supervisor.

The extended essay is assessed against common criteria, interpreted in ways appropriate to each subject. The extended essay is:

- compulsory for all Diploma Programme students
- externally assessed and, in combination with the grade for theory of knowledge, contributes up to three points to the total score for the IB diploma
- a piece of independent research/investigation on a topic chosen by the student in cooperation with a supervisor in the school
- chosen from the list of approved Diploma Programme subjects, published in the Vade Mecum
- presented as a formal piece of scholarship containing no more than 4,000 words
- the result of approximately 40 hours of work by the student
- concluded with a short interview, or viva voce, with the supervising teacher (recommended).

In the Diploma Program, the extended essay is the prime example of a piece of work where the student has the opportunity to show knowledge, understanding and enthusiasm about a topic of his or her choice. In those countries where it is the norm for interviews to be required prior to acceptance for employment or for a place at university, the extended essay has often proved to be a valuable stimulus for discussion.

Physical Education

Year

Pass/Fail

Upper school Physical Education (Grades 9-12) will continue to allow for the refinement of complex skills, mature motor patterns, and selected isolated manipulative skills. Students will perform variations of skills and combinations in increasingly dynamic and complex environments that encompass a variety of lifetime sports activities. . Students will continue to use teacher feedback to improve skills, and work with peers in cooperative settings.

Students will identify the purposes for and follow activity-specific safe practices, rules, procedures, and etiquette. They continue to develop cooperative interpersonal skills to enable completion of a common goal while working with a partner or in small groups and teams. Team and lifetime sports activities will be the major emphasis of this course. Most students will have PE two days out of a seven-day cycle.