

Manlius Pebble Hill School

Upper School Course Descriptions

2023 – 2024

Advanced Placement and Advanced Studies at MPH

As announced in February 2022, MPH is transitioning beyond Advanced Placement (AP) courses and toward an advanced independent curriculum. Here are a few important points to keep in mind:

- There will be a diminishing number of AP courses offered through 2024-2025.
- Courses that carry the “AS” designation (for Advanced Studies) are MPH’s most challenging courses that are not AP courses.
- Some departments have courses categorized as “advanced” because they are part of a progression of courses or require additional preparation to enroll in them. Only courses with the AS prefix are Advanced Studies courses.

Here are the designated AS courses for 2023-2024, several of which are new for next year, and the departments that offer them:

- AS American Literature: Urban Perspectives (English, first semester)
- AS Angry Books: Literature of Protest (English, first semester)
- AS Irish Literature (English, second semester)
- AS A Funny Thing about Literature: Humor and the Literary Imagination (English, second semester)
- AS African-American Studies and the Idea of Race (English and History, second semester)
- AS World History (History, full year)
- AS The American Experience (History, full year)
- AS The Power of Ideas in 19th-Century Europe (History, first semester)
- AS Philosophy and Ethics in the Modern World (History, first semester)
- AS Imagining the Unimaginable: A Critical History of Genocide (History, second semester)
- AS Model United Nations (History, first semester)
- AS Pre-Calculus (Mathematics, full year)
- AS Biology (Science, full year)
- AS Chemistry I: Intro. to Organic and Biochemistry (Science, first semester)
- AS Chemistry II: Math-Intensive Inorganic Chemistry (Science, second semester)
- AS French Language and Literature (World Language, full year)
- AS Vergil and Caesar: The Literature of Empire (World Language, full year)
- AS Topics in Chinese Culture (World Language, full year)
- AS Spanish Language and Literature (World Language, full year)
- AS 20th-Century Spanish Literature (World Language, full year)

Additional information about this transition is available under the Academics tab of the MPH website. Visit <https://www.mphschool.org/ap-transition/>.

Computer and Information Science

The Computer and Information Science department provides students the opportunity to explore technology from all perspectives. Whether learning about software design or the development of computer-generated imagery, it is important for students to think about themselves as both media makers and theorists. Each course is designed to help students learn how to maneuver different technological landscapes and understand the power they have at their fingertips. CIS courses are rotated annually based on current trends. Every class includes at least one unit where students will explore some form of programming.

Courses for Graduation Credit

First Semester

Introduction to Programming (Grades 9 - 12)

Anyone with a passion for the creative process, who is interested in logic and problem-solving, can learn to develop games, applications, and software. Introduction to Programming is intended to ease students into the programming mindset by developing games in simpler languages like Scratch (developed by MIT) and OpenSCAD, then progress to the more difficult object-oriented languages like Java and Python. By the end of the course, students will have a foundational understanding of how programming works and will be able to create simple games and programs using different languages and design programs.

Social Media Marketing (Grades 9 - 12)

The power of social media cannot be understated. A technology that started being used only by a niche youth population has now infiltrated all generations and demographics as it plays an ever-present role in communications and commerce. Posting to Instagram, Snapchat, or TikTok can develop a brand following more quickly than any combination of billboards or television commercials. Social Media Marketing is a class that looks at the effect social media has had on culture around the world through analysis and actions. Students will work with production groups to create brands and use social media outlets to promote them. Through real-world interactions, students will become conscientious social media producers and managers.

Second Semester

Discovering Computer Science

Prerequisite: Introduction to Programming

This course is a broad introduction to a variety of fundamental topics in computer science through a contemporary theme such as robotics, the web, graphics, or gaming. Students will consider problems in the application area that can be solved with software. Using the theme of the course, students will be introduced to important areas of computer science including abstraction, computer organization, representation of information, history of computing, ethics, and the development and evaluation of algorithmic solutions using an appropriate programming environment.

Entrepreneurship (Grades 10 - 12)

Entrepreneurship is a challenging, experiential class that teaches the skills of business innovation through hands-on, technologically focused scenarios. To foster core entrepreneurial skills like planning, communication, and decision making, students will participate in experiential projects connected with small, local businesses. As a capstone project, students will also work in teams to create a product and transform it into a sustainable business or non-for-profit organization.

Computer Graphics (Grades 9 - 12)

Visual imagery can function on a variety of different levels. In order for an image to stand out to a viewer, or experience viral culture online, a creator must understand the process of image development, the audience that will see it, and the best method for its distribution. Computer Graphics is designed to give students an introduction to the world of graphic design and digital image creation. Throughout the semester, students will have the opportunity to create visual sculptures, visual stories, internet memes, logos, print production, and animated GIFs. Students learn the ins and outs of pixel-based and vector designs through the use of software like Adobe Photoshop and Vectr and 3D design using OpenSCAD.

Core Health

At Manlius Pebble Hill, our students' health, safety, and well-being is our priority. Instruction on health and wellness is rooted in the interactions of the various components of each individual's life: social, emotional, physical, functional, and intellectual. In these course offerings, and across our academic curriculum and co-curricular programming such as Advisory, students learn about and reflect on the many factors that influence their health and wellness, including behavior, environment, relationships, decision making, critical thinking skills, and knowledge based on current research.

Course for Graduation Credit

First or Second Semester

(The semester this course is taken is determined when schedules are created.)

Core Health Wellness (Grade 10)

This course emphasizes the consequences, both positive and negative, of personal choices, decisions, and behaviors. Students learn about the impacts of controllable factors on long-term health and wellness, and they improve their understanding of the external influences on their ideas and opinions. The study of nutrition, exercise, sleep, hydration, reproductive health (including discussion and activities related to contraceptive methods and abstinence), stress management, and healthy relationships form the core of the course. As the course progresses, students gain an appreciation of how the health of the mind, body, and spirit reinforce one another. On occasion, speakers from health-related community agencies present to and facilitate the class. Students acquire CPR/AED certification through this course.

Required Course

First Semester

Core Health Seminar (Grade 9)

Upper School Seminar centers on MPH's core values to help ninth graders feel positively about themselves and live a healthy lifestyle while learning effectively in the Upper School. In doing so, it exposes ninth graders to the strategies, skills, habits, and mindsets that can help them gain more control over their Upper School academic experience. In this course, students practice and reflect on keeping track of and prioritizing assignments; planning ahead; exercising self-awareness as learners (metacognition); asking good questions and contributing to class; independently expanding their knowledge base; and recognizing their potential for growth. In once-a-cycle class meetings, a key point of emphasis involves redefining appropriate academic goals for Upper School students by giving more attention to the process by which they go about learning and less attention to specific outcomes.

Elective Courses

Full-Year

Emergency Medical Technician (Grades 11-12; application required)

This training program requires a commitment to the course of study, and a striving for excellence on the part of the student. The intent is to produce quality pre-hospital care providers as a means of enhancing the emergency care provided in the field. The course material and examination may be different than courses you

have taken in the past. Although most material will be presented in class, it is expected that each student will spend additional time outside of class on didactic and practical skills. Students will be required to perform clinical training which includes, but not limited to, responding to 911 calls, providing patient care and transporting real patients in an ambulance. Additional requirements are detailed in the application materials. Registration for this course occurs outside of the course registration process. For more information, contact Mr. Tompkins (stompkins@mphschool.org).

Core Health Physical Fitness

The main point of emphasis of Physical Fitness in the Core Health Department is to instill healthy, lifelong fitness habits in our students. The department is committed to providing the knowledge and tools necessary for all our students to become lifelong learners in cutting edge physical fitness practices while finding physical activities that are not only age-appropriate, but activities that they actually enjoy performing and can regularly participate in well beyond graduation.

The Core Health Department wants to ensure that all Upper School students have the chance to participate in activities that interest them. The school offers a range of physical fitness options for students to choose from in order to obtain the proper Physical Education credits that are required for graduation. Students can choose from a wide variety of sports, opt for a Physical Fitness independent study, or participate in a robust dance elective. In addition, students have the choice to do a combination of these options to meet the proper credit requirements.

Graduation Requirement

Each student is required to complete one credit per year, for a total of four credits, by graduation. Students have several options to meet this criterion during each academic year.

Options

Participate on Two Athletic Teams

Traditionally, MPH offers the following sports: boys and girls alpine skiing, boys and girls basketball, boys and girls cross country, boys and girls soccer, boys and girls tennis, boys and girls track and field, boys golf, and girls volleyball. In addition, we combine with other schools to offer boys baseball, boys lacrosse, and girls softball. As with the current academic year, our 2023-2024 athletic offerings will depend on the timing and length of the competitive seasons.

Participate in Dance

Students may take dance for an entire school year or for one semester when combined with another option.

Independent Study

Students can choose to pursue a physical activity or multiple activities of their choice to participate in outside of school. Examples of previous independent studies include gymnastics, martial arts, swimming, and rock climbing. Each student is required to document their physical activity with their Physical Fitness advisor throughout the course of each academic quarter.

Participate in a combination of two of the three options described above.

English

English classes at MPH combine seminar discussions, group collaborations, independent in-class writing, quiet reflection, and other sorts of experiences that allow students to explore literature creatively and analytically. Through survey courses, electives, and Advanced Studies offerings, Upper School students explore a culturally diverse range of fiction, nonfiction, drama, and poetry, as well as journalism, art, film, and music. Our students assume increasing responsibility for their learning as they design projects, work collaboratively, evaluate their work, and reflect on the connections between classroom experiences and their own lives. The English Department provides additional learning opportunities through *the Pebble*, MPH's student news and culture magazine.

Courses for Graduation Credit

Full-Year

World Literature 9

World Literature 9 builds a foundation of content and skills essential to all US English courses. In this course, students practice and refine analytical and narrative writing skills such as generating thesis statements, integrating and analyzing quotes to support an argument, organizing paragraphs, and establishing coherence and unity throughout an essay. A wide range of ancient and modern sources serve as the content and context for developing these skills. Students read texts from the two pillars of Western literature, the Biblical tradition and the Ancient Greek tradition, including stories from the Hebrew Bible and Christian scriptures, Sophocles' *Antigone* and *Oedipus Rex*, and Homer's *Odyssey*. Throughout the year, more modern readings in poetry, nonfiction, and fiction balance the older texts. This combination of readings induces students to appreciate and examine long-held ideas about character and culture, and to explore how the individual can find meaning within a larger world.

World Literature 10

In tenth grade, students encounter voices from around the world, as well as ones often left out of the canon of American and English literature, in modern short fiction, novels, plays, poetry, and essays. Some of the book length readings may include *The God of Small Things*, *Homegoing*, *Othello* and/or *Julius Caesar*. With each text, students consider the historical and cultural contexts (both the writers' and their own) that contribute to the layers of meaning available in the literature. Students practice writing in many modes – analytical, creative, descriptive, satirical, and more – often using the texts they have read as models for their own work. While exploring and experimenting with new perspectives and writing styles in World Literature 10, students think deeply and critically about these new experiences as well as their own assumptions and habits of thought.

First Semester 11th and 12th Grade Courses

Short Story

This class will focus on the short story genre, including the history of the form and how it has evolved. Key texts will be sourced from authors around the world, including Borges, Poe, Chekhov, Kipling, Kafka, Hemingway, Marquez, among others. In addition to studying form and meaning, students will have the opportunity to experiment with the elements of short stories, including dialogue, perspective, characterization, and conflict, and will produce original short stories in a workshop format.

Belief and Rhetoric in the Public Sphere

Students will read from fiction, journalism, and nonfiction as they prepare to ask the questions of how beliefs are formed and what role they play in the formation of larger communities. Why do we believe what we believe? Is it important to believe things that are verifiably true, or do our beliefs serve another purpose? How does one situation the language of belief within the rhetoric of journalists, politicians, and educators who prize empiricism and the scientific process? Should our beliefs help us create a better and more functional community, or is it enough for them to give meaning to our individual lives? This class will look at several fringe beliefs through primary and secondary documents as a way of understanding how beliefs might or might not drive our private and shared worlds.

AS American Literature: Urban Perspectives

This course will examine American literature that came out of or is representative of urban spaces throughout American history. With an emphasis on examining intersections of social, cultural, and economic groups, the voices represented would range from those who relocated as a result of the Great Migration, those who brought rise to or resulted from the modern Feminist Literary movement, and those who depict the American city as a character in its own right. Possible featured authors include Kate Chopin, F. Scott Fitzgerald, James Baldwin, Sylvia Plath, Richard Wright, and Philip Roth.

Contemporary Drama

This course looks at the elements—formal, cultural, and historical—that make up great contemporary drama. Students will use both primary texts and nonfiction to get a sense of the movements that have defined and driven theater throughout the past century. Students will consider the opinions of writers from Aristotle to Peter Brook as they try to define the unique artistic challenges and opportunities theater offers to writers, performers, and viewers. In addition to writing about theater as literature, they will stage their own short performances as they try to discover and articulate what makes a play successful. Possible texts include *The Wolves* by Sarah DeLappe, *Sweat* by Lynn Nottage, *The Humans* by Stephen Karam, *The Goat, or Who is Sylvia?* by Edward Albee, and *Take Me Out* by Richard Greenburg.

Truth and Testimony I: Creative Non-fiction and Digital Storytelling

In this class we will study some of the best essays ever written including those by George Orwell, Martin Luther King, Jr., Joan Didion, and Susan Sontag; contemporary writers like David Sedaris, Anne Lamott, Eula Biss, Hilton Als, Anthony Bourdain, Ross Gay, and Roxanne Gay; as well as emerging writers. In addition to engaging in spirited intellectual discussions and analysis of structure, theme, and voice, we will use the model essays to launch original creative non-fiction in various storytelling modalities, including the written essay, podcasts, and video.

AS Angry Books: Literature of Protest

What do you do when life seems outrageously unfair, unjust, or frightening? The authors in this class chose to respond to these feelings by writing fiction. This course examines the novel as a means of articulating and enacting protests against governments, cultures, and sometimes life itself. Does literature of protest afford authors or readers a wider range of moral or emotional expression than nonfiction, journalism, or activism? Is literature an effective way of enacting change in the world? Or does writing or creating art about injustice address a human need entirely separate from its ability to inspire social change? This class will acquaint students with the long line of texts that use art as a way of registering displeasure, disapproval, or resistance. Possible texts include *The Handmaid's Tale* by Margaret Atwood, *The Trees* by Percival Everett, *The Things They Carried* by Tim O'Brien, *The Plague* by Albert Camus, and *The Trial* by Franz Kafka.

Second Semester 11th and 12th Grade Courses

AS Irish Literature

This class will serve as a survey of Irish Literature, including drama, poetry, and short stories. Featured authors will include Joyce, Yeats, Kavanagh, Heaney, Synge, and Lady Gregory. The class will examine the early mythology and storytelling specific to Ireland to provide context for Irish literature. Much of the course will focus on the Irish Literary Revival and its impact on contemporary literature.

American Literature: Wide Open Spaces

This course will examine American literature that came out of places that exist between. We will examine the perspectives of the pioneers and their belief in Manifest Destiny, of the voices that are representative of the traumatic legacy of slavery, the relationship between people and land, and the mythologies about open spaces that persist in American consciousness. Possible featured authors include Marilynne Robinson, William Faulkner, Toni Morrison, Louise Erdrich, Truman Capote, Willa Cather, Larry McMurtry, and Flannery O'Connor.

AS A Funny Thing about Literature: Humor and the Literary Imagination

How has literature used humor to make larger points about history, politics and social justice throughout different historical periods? Students will read novels, short stories, plays, and poetry from across historical periods to assess the practice of humor as a way of establishing themes and as an end in itself. By reading widely from primary texts, students will try to draw conclusions and connections about humor and its use in literature. Can you teach 'funny'? Or does humor change from time period to time period? Is humor the spoonful of sugar that helps the medicine of literature go down, or is getting a laugh an art unto itself? How can we use humor to understand the taboos and the traditions of a particular place and time? And is humor well-suited towards making certain thematic, emotional, or political points instead of others? Possible texts include selections from Aristophanes, Gogol, Melville, Vonnegut, and Moore; *Catch-22* by Joseph Heller; *The Adventures of Huckleberry Finn* by Mark Twain; and *The Good Lord Bird* by James McBride.

Truth and Testimony II: Creative Non-fiction and Digital Storytelling

In this class we will study some of the best essays ever written including those by George Orwell, Martin Luther King, Jr., Joan Didion, and Susan Sontag; contemporary writers like David Sedaris, Anne Lamott, Eula Biss, Hilton Als, Anthony Bourdain, Ross Gay, and Roxanne Gay; as well as emerging writers. In addition to engaging in spirited intellectual discussions and analysis of structure, theme, and voice, we will use the model essays to launch original creative non-fiction in various storytelling modalities, including the written essay, podcasts, and video.

AS African American Studies and the Idea of Race

The idea of race and the experiences of African Americans have shaped the development and character of the United States. By examining cultural, historical, and philosophical aspects of African American life since the sixteenth century, students in this course will develop an understanding of race as a social and political force in the United States. Three essential questions organize this course: Why has skin color mattered so much in the United States? Does the experience of freedom depend on restricting access to it? How has African American culture influenced American political activity? To explore these themes and questions, students will read and study the works of important writers, artists, and thinkers, including W. E. B. Du Bois, Zora Neale Hurston, James Baldwin, Jacob Lawrence, Betye Saar, Claudia Rankine, Jordan Peele, Jesmyn Ward, John Locke, Thomas Hobbes, Mary Wollstonecraft, Karl Marx, and Michel Foucault.

Literature of Dungeons & Dragons

This course looks at the various literary traditions that inform the "world's greatest role-playing game" and the ways D&D taps into dramatic and narrative instincts more ancient and powerful than an archlich. Primarily, this is a course about *genre*—how a particular type of story develops and/or deconstructs familiar forms

conventions to make new meanings. Students will examine the genre of fantasy and how it combines and/or comments on other genres and subcultures, including those of the epic, noir, science fiction, and gaming. What particular preoccupations and obsessions—positive or negative—does fantasy allow readers to indulge, explore, or interrogate? Students will read widely from literature that has inspired the creators of *D&D*, and will look critically at some *D&D* material as well, both through reading and playing. Familiarity with *Dungeons & Dragons* is not a prerequisite. Possible texts include *A Wizard of Earthsea* by Ursula K. LeGuin, *Beowulf*, *Sir Gawain and the Green Knight*, and *Perdido Street Station* by China Mieville.

Doom and Gloom: Literature from the Bad Future

Literature can inspire and enable us to imagine a better world. Sometimes it does this by imagining a worse one. The works explored in this class make powerful statements about life, politics, and culture by transforming their commentary into frightening visions of dystopian futures. What do these dystopian texts have in common? Do such novels lend themselves to certain types of political critique? Is imagining the “bad future” an effective way to critique the present? Or do readers and writers have other psychological motivations for craving dystopian or apocalyptic narratives? Possible texts include *1984* by George Orwell, *Brave New World* by Aldous Huxley, *Oryx and Crake* by Margaret Atwood, *The Resisters* by Celeste Ng, and short stories by Ursula K. LeGuin, Octavia Butler, Ray Bradbury, and George Saunders.

History

The History Department prepares students to critically examine the human condition from pre-history to the contemporary world. We foster empathy and citizenship in our students, exploring individual and group identities through a myriad of views. A particular emphasis is placed on doing the work of a historian: research, analysis, criticism, perspective, narrative, and argument. To clearly articulate our understanding, we emphasize clear, concise historical writing, all to better understand contemporary socio-political issues. MPH History students engaged in the historical process, marked by an atmosphere of respect, become informed global citizens.

Courses for Graduation Credit

History 9 - Comparative Civics and Government

In an increasingly interconnected world, the social contract between citizen and government has become under increasing scrutiny, where protests, activism, and civic engagement have become part of our international experience. This course provides a historical examination of various governmental systems, how those systems have changed and evolved, and the role of the citizen within these systems. Beginning with an in-depth examination of democratic governments, students will study the development of democracies in the past (e.g. Ancient Athens, Roman Republic, Iroquois Confederacy), ultimately spending time examining the US democratic system. Students will explore the ideological origins of the US political system, the shifts and changes of the system across history, and the strengths and limitations of the system today. Students will also examine the role of the individual citizen in the US system, the centrality of voting, the influence of lobbying, and the role of the media in modern US democracy. Students will also examine other modern structures of government, including the parliamentary system (UK), communist system (China), and theocratic systems (Iran). The major forms of assessment are quarterly projects that focus on a specific historical skill (research, historical writing, textual source analysis especially primary sources). These major assignments are supplemented with smaller writing projects, note-taking exercises, and oral presentations. Later in the year, students will take their conceptual understanding of government and apply it to their own independent research of a political leader, allowing them to apply the historical research, writing and critical thinking skills developed throughout the year to an in-depth research project. The goal of this course is to provide students with an enhanced understanding of civics and government, helping shape them into engaged and informed civic actors, as well as provide opportunities to develop the historical skills necessary for success throughout the Upper School.

History 10 - World History Survey

World History Survey provides students with a solid background and context for understanding today's world. The course will begin with the foundations of civilization and the role of world religions in developing civilization. The major themes examined in the course include the themes of class, government, trade, cultural development, and conflict. Through a chronological approach, the goal of this class is to gain an understanding of human processes that dictate world development. Throughout the course, students will work on synthesizing commonalities between civilizations, warfare, and cultures; evaluate current situations in historical terms; write thesis papers; and complete two long-term projects. In addition to traditional assessments, class discussions and mini-projects will occur frequently.

AS World History (10th Grade)

Making the connection between history and identity, this course surveys the human condition from the post-classical era to the present. Broadly, this college-level course examines the patterns that develop across historical periods, continuities and changes within periods, and the causal effects of major historical developments on future events. Thematically, the course explores the development and transformation of social structures, state-building, and conflict; the interaction between humans and the environment; the intersection between cultures;

and the development of economic systems both in theory and practice. Additionally, the course focuses on developing the historical thinking skills of perspective and context, periodization, argumentation, analysis, and synthesis. Although this course uses standard forms of assessment, students will also engage in class discussions and debates, write lengthy, college-level research papers, and explore history creatively through projects and multimedia presentations. The end of the year is marked by a student-interest research project and presentation.

History 11 - US History Survey through Primary Sources

This course examines the narrative of our national history through the lens of American primary sources, emphasizing key moments in US history. Examining US history through the rich collection of historical documents not only grounds the student in an understanding of the narrative history of the country, but the examination of these texts develops critical thinking that inspires the student to question and historical moments they are studying. From the Iroquois' Great Law of Peace, to the Federalist papers, to the Emancipation Proclamation, these seminal documents will help students navigate through the story of our nation, addressing topics such as: fundamental American political principles, the development of an American identity, the institution of slavery, growth of business, and America's role in the world during the 20th and 21st centuries. As well as textual analysis, students are expected to complete written papers of varying lengths which focus on both thesis and narrative aspect of historical writing. Additionally, students are expected to participate in class discussions, debates, and complete oral presentations.

AS The American Experience (11th Grade)

Operating under the premise that the "language of the United States is protest," from its revolutionary origins to the modern fight for civil rights, this course provides students with an opportunity to navigate US history through social-cultural lenses. While this interdisciplinary course will investigate the social, political, economic, and cultural trajectory of the US over time, it will do so using voices that have often been marginalized in the national story, such as women, enslaved Americans, Native Americans, and immigrants. It will also examine the moments of social and political change throughout the nation's history, looking at how the founding ideals of the nation were incorporated into protest movements and expanding inclusion into the American identity. The readings for this course will include modern historical scholarship and primary sources, which will be supplemented with American novels, poetry, photography, and film. Students will have the opportunity to produce research-based historical writing, oral presentations, and documentary filmmaking, as well as engage in college seminar-style discussions of the texts.

Electives

First Semester

AS The Power of Ideas in 19th-Century Europe

19th-century Europe was a tumultuous period of history, sometimes referred to as the "long century," that shaped our current understanding of modernity. Beginning with the French Revolution, students will dive deeply into the political ideologies that continue to influence social conflicts, from feminism, liberalism, and socialism to Marxism and nationalism. Students will particularly explore the destructive impact of nationalism and its role in the next century's world wars. Additionally, we will examine the cultural changes that occurred as a result of the Industrial Revolution. The course will run like a thoughtful and reflective college seminar relying on a multitude of primary sources and scholarly articles. Students will write college-level papers and complete projects using various technologies.

Model United Nations (9th and 10th Grades)

AS Model United Nations (11th and 12th Grades)

Model United Nations is a class available first semester to any high school student and may be taken for multiple years. Students routinely enroll in MUN for all four years of Upper School. This course allows students to

represent assigned countries at Model United Nations conferences. Students are required to attend a specified number of local or regional conferences. The long-term goal of the course is to produce students who are prepared to go out into the world with intellectual, psycho-social-emotional, and communicative skill sets necessary to be change agents in their communities and the world. These skills are developed as students conduct in-depth research, write position papers and resolutions from different perspectives, negotiate policy, and agree on resolutions. Students learn about a host of world issues, such as international economics, nuclear proliferation, the weaponization of space, biopiracy, and the trafficking of women and children. During conferences, after being assigned a UN committee, students adopt the perspective of a country and must maintain this perspective while formulating their arguments and creating solutions to global issues. During the research process, students are challenged to verbalize and communicate what they are learning through debate and public speaking. MPHMUN students learn the importance of being informed global citizens.

Ethnic Studies (Grades 9 - 12)

The class will expose students to the diversity of cultures in the United States. It examines the experiences of the different communities and encourages a critical examination of diverse communities in our democratic system against the systems of power. Students are encouraged to explore their own diversity. This course aims to increase empathy and understanding of all cultures and cultivate thoughtful, informed citizens through class discussions and written assignments.

AS Philosophy and Ethics in the Modern World

Is it ok to lie to protect yourself? Is anyone inherently good or evil? Is a society better served with an individualist ideology or a social contract? This course is designed to explore the intersections between philosophy, ethics, morality, and popular culture in the modern world. Students will examine how philosophers across history have been inspired by and influenced the human condition, and how interpretations of human nature impacts society, politics, and culture. Serving largely as an introduction to philosophy, this course also looks at how philosophical concepts, theories (e.g., postmodernism) and movements (e.g., the Enlightenment) influence both individuals and society, as well as inspire popular culture. While the reading of primary texts of philosophers is a necessity, these philosophical ideas and concepts are often communicated through movies, TV shows, music, and other forms of media, which will also be used to gain a better understanding of these concepts. Students will examine the major ideas and arguments of leading philosophers and ethical theorists, including but not limited to, Aristotle, Laozi, Rousseau, Descartes, Hume, Wollstonecraft, Nietzsche, Mill, and Foucault. Topics covered in this course include metaphysics, epistemology, ethics (in science, medicine, and business), political philosophy, philosophy of language, and aesthetics. As an Advanced Studies course, this class will use college-level texts, discussing the material and the “big questions” in seminar-style classes. Students will reflect on the topics through various writing assignments, and will ultimately have an opportunity to do some extensive research on a particular philosophical question, topic, field or individual that inspires them.

Second Semester

Global Citizenship: Through the Female Lens (Grades 9 - 12)

In the twenty-first century, networks of trade, information, and migration crisscross the globe. As a result, people make everyday choices that stem from and impact the lives of others in distant territories. Although national governments are responsible for official political decisions, globalization has politicized a host of choices that stretch beyond the recognized borders of nation-states. This course examines the roles and responsibilities of the average woman as a citizen of the world in the twenty-first century. Students will learn to inform themselves about global issues by using a variety of traditional and non-traditional media, and they will produce a diverse array of scholarship to convey their mastery of the course’s skills and contents.

AS Imagining the Unimaginable: A Critical History of Genocide

This course critically examines the causes, implementation, and response to the major genocides of the 20th century. Key among them are the Armenian Genocide, the Holocaust, and the Rwandan genocide. Students in the course will identify the patterns and conditions that create a suitable environment for genocide to occur. Additionally, students will debate the definition of genocide using the examples of the treatment of Native Americans and the African slave trade. Finally, students will study current examples of what could be defined as genocide. Run like a college seminar, students are expected to participate frequently in discussion and debate, produce academic papers, and complete projects oriented towards the future prevention of this black stain on humanity.

“Dealers in Hope”: The Psychology of Leadership

Napoleon Bonaparte called a leader “a dealer in hope,” someone who not only provides vision, clarity, and direction in their decisions, but someone who is able to inspire and energize those they lead. How is it that effective oratory, delivered in a speech, can mobilize millions? How important is charisma in leadership, and why does it motivate those around them? Why do some leaders project authority and others empathy, with equal impact on their supporters? While this course will focus on leadership in all areas of life, it will examine them through the lens of psychology, in order to better understand the psychological conditions of the relationship between leaders and their supporters. This course will serve as both an introduction to psychological theory as well as an examination of notable leaders and leadership theory. Topics covered in this course include: cognitive, behavioral, developmental, occupational and social psychology, as well as spending time extensively studying political psychology and the psychology of leadership. Once students have established a foundational understanding of the theory, they will research leaders they revere or find inspiring. This is a course designed for students interested in psychology, political science, and inspired by leadership.

AS African American Studies and the Idea of Race

The idea of race and the experiences of African Americans have shaped the development and character of the United States. By examining cultural, historical, and philosophical aspects of African American life since the sixteenth century, students in this course will develop an understanding of race as a social and political force in the United States. Three essential questions organize this course: Why has skin color mattered so much in the United States? Does the experience of freedom depend on restricting access to it? How has African American culture influenced American political activity? To explore these themes and questions, students will read and study the works of important writers, artists, and thinkers, including W. E. B. Du Bois, Zora Neale Hurston, James Baldwin, Jacob Lawrence, Betye Saar, Claudia Rankine, Jordan Peele, Jesmyn Ward, John Locke, Thomas Hobbes, Mary Wollstonecraft, Karl Marx, and Michel Foucault.

From Disunion to Union: Achieving the Impossible in Contemporary Europe

How did Western Europe transition from two world wars to become one of the most powerful political and economic unions in the world today? This course explores the creation of and changing purpose of the European Union. Students will analyze the European Union’s governmental and economic structures. Students will also question the relevance and power of the European Union in maintaining the liberal world order. The course will have aspects of a thoughtful and reflective college seminar relying on a multitude of primary sources and scholarly articles. Students will develop college-level writing skills and complete projects using various technologies.

Malone Schools Online Network

Manlius Pebble Hill School is the only school in New York State to be included in the Malone Schools Online Network (MSON), a consortium of 28 of the nation's most highly regarded independent schools. Together with our MSON partners, MPH offers students an interactive distance learning experience. Our students have access to an expanded advanced curriculum and can take courses taught by other member schools – and by MPH faculty – in real time with students from across the country.

MSON FAQ's

Academic Information

- Available to Juniors and Seniors.
- Courses are comparable to, or more advanced than, Advanced Placement and Advanced Studies courses.
- Courses are considered essential academic subjects (count toward 5 each semester).
- Courses are available in full-year and semester (fall and spring) options.
 - Go to <https://maloneschoolsonline.org/> to view the 2023-2024 Course Catalog.
 - Hard copies of the MSON catalog, schedule, and calendar are available in the Division Office
 - Submit MSON Course Registration Form to MSON Academic Liaison (Mr. Twomey-Smith) by the end of the course registration process.
- Courses may be dropped before the 4th class meeting.
- Courses may be added before the 3rd class meeting depending on space availability.
- Classes meet 2 times per 5-day week.
 - Class meeting times are not aligned with MPH class times.
 - Students must attend a minimum of 80% of their MSON classes.
 - Students are responsible for attending classes when MPH is not in session for reasons including, but not limited to planned school closures (Holidays, In-Service days), sports practices and games, class trips, field trips, snow days, illness.
- Students must communicate regularly with their MSON instructor, particularly regarding specific circumstances that affect participation in class.
- MSON classes that meet during the MPH school day must be attended from the designated MSON space.
- MSON classes that meet after the MPH school day has ended may be taken on a student laptop in another location outside of the MSON classroom.
- The MPH MSON Academic Liaison (Mr. Twomey-Smith) coordinates with the course instructors and students to arrange for taking quizzes and exams outside of class time.
 - All quizzes and exams must be taken in a location designated by the MSON Academic Liaison unless otherwise directed by the course instructor.

Registration Information

- Students register for MSON courses by turning in the Course Registration Form to Mr. Twomey-Smith during the course selection period.
- MSON courses are included in the maximum number of courses that students may select in their Course Requests.
- Students who request MSON courses will be contacted by the MPH MSON Academic Liaison to provide additional information for enrollment in their MSON course(s).
- Enrollment in MSON courses is ultimately determined by the MSON Registrar.

Mathematics

Manlius Pebble Hill math classes are multi-grade level to allow students to complete an appropriate three-year sequence of college preparatory mathematics. Most students take four years of math in Upper School. The Math Department offers two vigorous pathways for students to be invested in their study of math: one is rooted in algebraic skills and statistical analysis, and the other in theory and proof leading to the study of calculus. Whenever possible, we utilize a five-point approach to presenting material: numerically, algebraically, graphically, descriptively, and concretely (through an activity or with a picture). Teachers blend the best of traditional pedagogy with proven contemporary teaching practices, including frequent collaborative projects and open-ended investigative activities. Students are encouraged to take intellectual risks by raising questions and formulating conjectures using mathematical arguments. As part of the MPH's support of writing for life, students are required to express mathematical concepts in clear, coherent prose in their math courses. Courses are designed to encourage students to embrace conceptual challenges, function independently, and enjoy delving into problem solving.

To ensure that students are successful in their upcoming course, summer assignments are given to provide continued practice with the material to strengthen skills and reinforce content knowledge. Some students may be requested to seek guided summer work with a tutor in preparation for the next year's course.

Courses for Graduation Credit

Algebra 1 S

Pre-requisite: Math 8

This algebra course is offered to 9th grade students interested in studying statistics and analyzing data. In this course, students pursue traditional topics of algebra: solving equations and inequalities, linear functions and graphing, systems of linear functions and inequalities, operations with polynomials, quadratic functions, and rational and irrational numbers. In addition, students pursue basic topics of statistics: linear regression, data spread, and summarizing categorical data in a two-way frequency table. The course pays special attention to algebraic manipulation skills, communication of ideas, developing the relationship between algebraic models and graphs, data fluency, and the use of the graphing calculator.

Algebra 1 C

Pre-requisite: Math 8 and teacher recommendation

This algebra course is offered to 9th grade students interested in studying calculus. This course is for students who enjoy delving into how and why mathematical concepts work. Students pursue a variety of topics of algebra: solving equations and inequalities, graphing functions, systems of linear functions and inequalities, operations with polynomials, quadratic functions, rational and irrational numbers, functional notation, and mathematical fluency. The course devotes special attention to problem solving skills, abstract thinking, written communication of ideas, developing the relationship between algebraic models and graphs, and the use of the graphing calculator.

Geometry S

Pre-requisite: Algebra

The second course in this mathematics sequence for statistics introduces students to geometric concepts. Students examine topics in plane geometry using algebra as a foundation for each unit. Euclidean geometry is introduced as an axiomatic mathematical model founded on postulates. Theorems and definitions are used to justify equations for solving problems focused on segments, angles, triangles, parallel lines, quadrilaterals, and circles. Through activities, students explore the properties of geometric shapes using hands-on explorations, including constructions with the compass and straight edge. In addition, statistical concepts will be used to summarize large data sets by reducing their complexity to a few key values that model their center and spread. Distributions will be used to analyze data sets.

Geometry C

Pre-requisite: Algebra 1C

The second course in the mathematics sequence for calculus is offered to students who have successfully completed Algebra 1C. This course introduces Euclidean geometry as an axiomatic mathematical model founded on postulates, and students experience its development through the proof, exploration of theorems and properties, and applications of algebra. Students focus on creating two-column proofs of properties and theorems for triangles, parallel lines, quadrilaterals, and circles. Constructions with a compass and straight edge are used to create designs and explore the properties of geometric shapes.

Algebra 2/Trigonometry S

Pre-requisite: Geometry

The third course in the mathematics sequence for statistics stresses algebraic manipulations, problem solving, exploring rational, radical, and quadratic equations. Students continue their study of algebraic structures, including the real number system and the development of function theory. Algebraic manipulations involving whole number, integral, and fractional exponents are examined. Trigonometric functions are introduced from the viewpoint of the unit circle, and students analyze their graphs and applications. The graphing calculator is used to explore and solve equations, to check solutions, to discover properties of functions, and to simplify calculations. Topics in probability focus on the use of conditional probability. Extensive statistics work is done to help students understand how population parameters can help to infer properties about populations.

Algebra 2/Trigonometry C

Pre-requisite: Geometry C

This course stresses algebraic techniques, problem solving, and exploring rational, radical, and quadratic equations. Students continue their study of algebraic structures, including the real and complex number systems. The course focuses on the theory of functions. Trigonometric functions are introduced from the viewpoint of the unit circle, then analyzed through graphs and applications. The algebraic and graphical characteristics of exponential and logarithmic functions are introduced. The graphing calculator is used to solve and check equations, and to discover the properties of all the functions studied.

College Algebra S

Pre-requisite: Algebra 2/Trigonometry

This course is for those students who would like further practice with algebraic manipulations and the study of functions. Topics include a review of algebraic manipulations, linear and quadratic equations and inequalities, characteristics of functions, and manipulations with linear, quadratic, and higher degree polynomial functions, rational, exponential, and logarithmic functions. The unit circle, right triangles, graphs, and applications of trigonometry are also studied. Students will pursue several topics in statistics: solve problems using permutations and combinations of compound events, use probabilities to influence decisions, summarize, represent, and interpret data on two categorical and quantitative variables. The calculator plays an integral role in discovering mathematical concepts.

AS Pre-Calculus

Pre-requisite: Algebra 2/Trigonometry C

Pre-calculus builds on the skills developed in the Upper School mathematics calculus sequence. It places a strong emphasis on problem solving. Sound manipulative algebra skills are necessary. Students analyze the relationships between numeric, algebraic, and graphic representations of linear, quadratic, exponential, logarithmic, polynomial, rational, and trigonometric functions, along with the special characteristics of each function. The graphing calculator, Calculator Based Laboratory (CBL), various probes, programs, computer software, and applications provide a variety of ways to explore and create mathematics. Algebraic proofs are discussed to provide a greater understanding and appreciation of our mathematical system in preparation for Advanced Placement and college-level math courses.

Advanced Placement Calculus AB

Pre-requisite: Pre-Calculus

Calculus builds on the intuitive approach of Pre-Calculus to develop the concepts of derivatives and integrals and their algebraic processes. Using derivatives to describe rates of change of one variable with respect to another or using definite integrals to describe the net change in one variable over an interval of another, enables students to understand change in a variety of contexts. The relationship between integration and differentiation as expressed in the Fundamental Theorem of Calculus is a central idea in AP Calculus AB. Using definitions

and theorems to build arguments and justify conclusions are a major emphasis. This course includes comprehensive preparation for the AP examination.

Advanced Placement Calculus BC

Pre-requisite: AP Calculus AB

The second year of calculus covers topics unique to the Advanced Placement Calculus BC curriculum and numerous applications of calculus. Topics include vector and parametric functions and their derivatives, polar coordinates, rigorous definitions of limits, advanced integration techniques with improper integrals, and an extensive treatment of infinite sequences and series. Using definitions and theorems to build arguments and justify conclusions are a major emphasis of the AP course. The course includes thorough preparation for the AP Calculus BC exam, including a demanding review of Calculus AB from an advanced viewpoint.

Advanced Placement Statistics

Pre-requisite: Algebra 2/Trigonometry

AP Statistics focuses on the analysis of data with an emphasis on observing patterns in data and the departures from those patterns. Students produce models of data using regression analysis, probability, and simulation in order to anticipate and predict patterns beyond the measured data. They observe the normal distribution and learn how to mathematically describe variations from the norm. Students study the process of sampling and sampling distributions to produce a confidence interval and to make an inference about a population based on the sample. The binomial and normal distributions provide good models for inference. Students use several tests of significance to make inferences, including the “z,” “t,” and Chi-Square tests. The course includes thorough preparation for the AP Statistics exam.

Elective Courses

First Semester

Financial Algebra (Grades 10 - 12)

Pre-requisite: Algebra 1

In this introductory course to personal finance and decision making, students apply what they have learned about functions to understand income taxes, credit and debt, loans, banking practices, car and home ownership, and the stock market. This course is designed to provide students with a strong foundation in financial problem solving that will enable them to make informed decisions regarding matters of money and finance in their daily lives.

Explorations in Math

Pre-requisite: Algebra 2/Trigonometry

Does every math problem have an answer? Students will dive into a variety of mathematical topics typically not covered in core classes. Topics include, but are not limited to, paradoxes, logic and logical fallacies, proof by induction, properties of infinity, and philosophy of math. Additional topics may be added based on the mathematical interests of the students. This course is offered in the first and second semester, but it may be taken only once per year.

Second Semester

Accounting

Pre-requisite: Algebra 2/Trigonometry

This course introduces students to the basics of financial accounting. Students learn the rules for tracking debit and credit as well as the structure and preparation of a General Journal and a General Ledger. The content of the course includes the preparation of a worksheet from which the students write a business's financial statements. Students study cash controls, the maintenance of a checking account, and various special journals to make the recording of repetitive transactions more efficient. Students will follow accounting from sole proprietorships to small businesses to large businesses to see how things change. Students will prepare year-end

adjustments, write the financial statements of a corporation, and close the books at the end of a fiscal period. Students will use Google Sheets to help organize these statements.

Explorations in Math

Pre-requisite: Algebra 2/Trigonometry

Does every math problem have an answer? Students will dive into a variety of mathematical topics typically not covered in core classes. Topics include, but are not limited to, paradoxes, logic and logical fallacies, proof by induction, properties of infinity, and philosophy of math. Additional topics may be added based on the mathematical interests of the students. This course is offered in the first and second semester, but it may be taken only once per year.

Innovative Math with Coding

Pre-requisite: Algebra 2/Trigonometry

The TI-Innovator Rover helps introduce students to coding and robotics. The simple programming language is built into the TI-84+ graphing calculator and makes it easy to program the system, run it, and trouble shoot to correct or fine-tune performance. With the TI-Innovator Rover, students will roll over roadblocks to learning by experiencing – not just seeing – math. The physical representation creates an entry point to problem solving that connects math, coding, and movement. Students will learn basic coding and use their algebra and geometry skills to solve various challenges.

Performing Arts

The Performing Arts Department fosters an environment within the MPH community where students express themselves creatively through movement, music, and drama. MPH's student performers learn that creativity requires careful intellect, meaningful purpose, and thoughtful collaboration.

When the opportunity is available, we send performers into the community as members of All-County and All-State ensembles, and students have graduated from MPH to attend prestigious performance programs such as Juilliard, Boston Conservatory, NYU Tisch School, Eastman, Purchase College, and the Crane School of Music. Students participating in our ensembles and programs move forward with an increased appreciation of the arts and fond recollections of their experiences here.

Courses for Graduation Credit

1 credit alone or in combination with Visual Art and Design.

First and Second Semester

(Selecting 2 semesters of ensemble classes is preferred for continuity and development.)

Music Ensembles: Band, Orchestra, and Vocal Ensemble (Grades 9 - 12)

Music ensembles present an opportunity to study and perform music literature while experiencing the joy and love of music. Students will explore a variety of musical styles and genres, develop overall musicianship, and build teamwork amongst one another. Each semester will conclude with a performance. In addition to rehearsals during class time, students will have one group lesson per 8-day cycle during tutorial to continue building individual skills and do sectional work. Students may take both an instrumental ensemble (band and orchestra) and Vocal Ensemble at the same time but will split the music block and credit between the two groups. Playing experience and a playing proficiency of at least a NYSSMA Level II are prerequisites for Band and Orchestra enrollment. New players may participate in a tutorial lesson group to prepare for future enrollment in an instrumental ensemble. Students are encouraged to be members of performing ensembles in consecutive semesters and over multiple years to continue developing their overall musicianship and the ensembles as groups.

Stagecraft (Grades 9 - 12)

Stagecraft explores components of stagecraft for theatrical production (including scenery, lighting, costume, and sound) and how they are designed and utilized safely in the theatre. In addition, the course enhances the collaborative process of production through the planning, design, stage management, and stage crew support for MPH productions. These productions include the Middle and Upper School plays, musicals, and dance concerts. This course may be taken more than once so that students can continue developing advanced skills.

First Semester

Acting (Grades 9 - 12)

Acting is a hands-on exploration of and introduction to the performer's creative process. Students in this class will learn about the history of acting techniques, develop fundamental acting tools, and build confidence. Students will gain an understanding of their unique tendencies and strengths as individual performers through games and practical exercises while building trust as an ensemble. In addition, students will study diction, projection, and memorization techniques that they can apply to theatre, class presentations, public speaking, and more.

Dance Composition and Performance (Grades 9 - 12)

Dance Composition and Performance explores dance as a performing art and medium for artistic expression. The curriculum includes movement technique classes, improvisation, and the choreographic process, culminating with the Annual Student Choreography Concert. Student choreographers use class time to discover their unique style, develop choreography, conduct rehearsals, and learn elements of production planning. Students receive Performing Arts or Physical Education credit for this course. No prior dance experience is necessary for participation. This course may be taken more than once so that students can continue developing their skills.

Introduction to Music Theory and Keyboard (Grades 9 - 12)

Introduction to Music Theory and Keyboard develops an understanding of the fundamentals of music theory through learning keyboard skills. While studying music theory, students will apply their knowledge to learn basic keyboard techniques, harmonize songs with chords, and learn beginning piano repertoire. This course is a prerequisite to Music Theory I for both new musicians and experienced musicians who wish to have an introduction to playing the piano. This is an essential academic course and counts as one of the five essential courses each Upper School student must enroll in per semester.

Second Semester

Dance History and Repertory (Grades 9 - 12)

Dance History and Repertory introduces the legacies of great dance companies and choreographers of the 19th through 21st centuries. Students deconstruct and study original historic choreography, recognizing and understanding the unique styles originated by dance icons. The semester culminates with the annual Repertory Dance Concert. Students receive Performing Arts or Physical Education credit for this course. This course may be taken more than once so that students can continue developing their skills.

Music Theory I (Grades 9 - 12)

Music Theory I examines the inner workings of music through an in-depth analysis of rhythm, melody, harmony, notation, and compositional techniques. Students develop aural skills through the rudiments of sight-singing and melodic, rhythmic, and harmonic dictation. The study of music theory promotes the development of overall musicianship and a greater appreciation and enjoyment of music. Fluency in music reading is a prerequisite for this course. This is an essential academic course and counts as one of the five essential courses each Upper School student must enroll in per semester.

Advanced Course

Full Year

Advanced Recital (Grades 9 - 12)

Advanced Recital is an opportunity for instrumentalists and vocalists to prepare twenty to thirty minutes of solo or chamber music at a shared recital in the Spring. Advanced Recital students will meet twice a quarter to plan repertoire, discuss practice techniques, and present their work to their teacher and peers for critique. Before the recital performance, students will participate in a recital jury where they play their program for the music faculty for a formal evaluation. A commitment to practicing five hours a week is required for this course.

Science

The Science Department believes students, to be informed members of our global community, must achieve scientific literacy enabling them to weigh disparate ideas, facts, and opinions before making ethical decisions. Recognizing such competencies as a set of thinking skills, the department is committed to hands-on and inquiry-driven learning. Rather than present facts about the world, we teach students to formulate questions from their observations and systematically answer their questions.

At MPH, science is presented as an open-ended process. Opportunities are available for students to work individually and as part of a team to develop the skills to test questions using the scientific process. That process involves researching a question, designing and carrying out an experiment, solving problems, analyzing data, drawing conclusions, and communicating findings. In this way, studying biology, chemistry, and physics builds a foundation of lifelong learning.

Courses for Graduation Credit

Biology (Grade 9)

Introductory topics include the diversity and classification of living things, ecology, evolution, genetics, cell biology, and human impact on the environment. Unifying themes stressed throughout the year are evolution, energy transfer, the relationship of structure to function, interdependence in nature, and regulation. Laboratory activities help students to understand that science is a process, and to develop essential skills in scientific expression and qualitative and quantitative analysis. Biology challenges students to think critically to understand the larger significance of the life sciences.

Chemistry (Grade 10)

This introductory course covers the basic concepts of inorganic chemistry. The major units are matter and energy, atomic structure, the periodic law, chemical bonding and reactions, stoichiometry, solutions, gasses, and the reactions of acids and bases. The course encompasses both the conceptual aspects of chemical theories and the application of mathematical formulas to the course concepts. Involving both quantitative and qualitative methods, laboratory exercises reinforce the course content and allow hands-on experience with each of the topics.

The Physics of Motion: Visualizing Energy (Grades 11 and 12)

Prerequisite: Geometry

The Physics of Motion is a largely experiment-driven course teaching students the study of physical phenomena with a heavy emphasis on laboratory skills. Topics include motion and the study of mechanics, electricity and magnetism, waves, and optics. Graphs are used as a primary tool to visually represent the relationships between experiments and grounding concepts. Because this class requires familiarity with algebra, geometry, and graphical analysis, students must have completed Geometry or equivalent courses before enrolling in The Physics of Motion.

General Physics (Grades 11 and 12)

Prerequisite: Algebra 2/Trigonometry

Physics is an in-depth study of physical phenomena. The topics covered include vector analysis, mechanics, electricity, magnetism, waves, and optics. Physical problem-solving is emphasized throughout the course, and laboratory investigations reinforce concepts and develop analytical skills. Because the course is highly mathematical and requires familiarity with algebra, trigonometry, geometry, and graphical analysis, students must have completed Algebra 2/Trigonometry or the equivalent before enrolling in Physics. General Physics

students must be concurrently enrolled in an advanced math class such as College Algebra S, AS Pre-Calculus, or AP Calculus.

AP Physics: Mechanics (Grades 11 and 12)

The Advanced Placement Physics C course forms the first part of the college-level sequence that serves as the foundation in physics for students intending to major in the physical sciences or engineering. Strong emphasis is placed on solving various challenging problems, many requiring calculus. The primary emphasis of Advanced Placement Physics C is on Newtonian mechanics. The use of calculus in problem-solving, derivations, and formulating principles increases as the year progresses. Topics include the laws of motion; work, energy, power, and conservation of energy; momentum; rotation and rolling motion; simple harmonic motion; and gravitation. AP Physics is taught as a first-year college course; although prior enrollment in physics is not required, enrolled students must have the approval of the Advanced Placement Physics instructor.

Elective Courses

Full-Year

AS Biology

Pre-requisite: Biology and Chemistry

This year-long advanced studies course explores our biological world, building from molecular to cellular, organismal, population, and ecological interactions. Topics covered will include biochemistry, cell structure and function, cellular energetics, cell communication and signaling, molecular genetics, heredity, ecology, and evolution through natural selection. In each unit, students will do inquiry-based lab activities and present them in digital poster formats. Students will also learn skills to help them read and critique primary scientific literature. In addition, students will design and carry out their own independent research projects.

First Semester

AS Chemistry I: Intro. to Organic and Biochemistry (Grades 11 and 12) *Pre-requisite: Biology and Chemistry*

For many STEM majors, organic chemistry and biochemistry are two of the most challenging classes taken in their undergraduate years. This class provides students with a robust knowledge base, offering them a jump start by introducing them to the major classes of biological compounds, their structures, and their chemical properties. Additionally, students will develop a fundamental understanding of organic chemistry topics including: organic functional groups, nomenclature, stereochemistry, visualization of organic structures, and organic reactions. This course is intended for juniors and seniors with a demonstrated and motivated interest in STEM fields.

Counting Sheep: The Neurobiology of Sleep (Grades 11 and 12)

If I fall asleep now, I will get six hours of sleep. That will be okay.... If you have considered a similar sentiment, join this class and learn why your body must sleep and sometimes struggles to reach deep sleep. That is, what does sleep accomplish, and what challenges sleep? It turns out the phrase “lemme sleep on it” has neurological underpinnings. Worms, some fish, mammals, birds, reptiles, and amphibians all need sleep, just like us. We will tease apart the neurobiology of sleep, examine its wide application across the arts, sports, the economy, and other fields, and improve your capacity to catch some of those critically needed zzzzzzzzzzs.

Canine Cognition (Grades 10 - 12)*Prerequisite: Biology*

Dogs are among the very first animals to be domesticated. This course will introduce you to the study of canine cognition and behavior and the latest research on how dogs think, learn, and feel. You will learn to apply concepts like perception, learning, cognition, and emotion, which are typically applied to humans, and dogs. Topics covered include evolution, neurobiology and perception, behavior, research methodologies, learning, theory of mind, and emotion. Prerequisites include successful completion of 9th-grade Biology.

Electricity and Magnetism (Grade 12)*Prerequisites: Physics or AP Physics C: Mechanics*

Electricity and Magnetism is an in-depth study of branches of physics that make up so much of our modern life. We will discuss electric forces and fields, the motion of charged particles, circuits, magnetic fields, and electromagnetism. Physical problem-solving is emphasized throughout the course, and analytical skills will be further developed through laboratory experiments.

Molecular Genetics (Grades 10 - 12)*Prerequisites: Biology*

In this semester-long course, students will explore the molecule world of nucleic acids, DNA and RNA. We will explore the structure and function of these molecules, how they are replicated and how unregulated replication can lead to cancer, how genes are coded into proteins, genome organization in eukaryotes and prokaryotes, how genes are expressed, the effects of the environment on the expression of genes (Epigenetics), and methods and techniques that scientists use to manipulate and examine genomes such as CRISPR, DNA Fingerprinting, and more. Students will engage in case studies, model building, and authentic laboratory experiences.

Second Semester

AS Chemistry II: Math-Intensive Inorganic Chemistry (Grades 11 - 12) *Prerequisites: Biology and Chemistry*

This chemistry class introduces the fundamentals of equilibrium, kinetics, acid-base theories, and thermodynamics. This Advanced Studies course will further examine the mathematical basis for these topics in greater detail. Topics include reaction orders, determining rate constants, equilibrium constants, ICE tables, Gibbs free energy, and other topics typically covered in the second semester of a college chemistry sequence. This course is intended for juniors and seniors and will be mathematically intensive, requiring the successful completion of, or co-enrollment in, either College Algebra or AS Pre-Calculus.

MPH Goes CSI - Forensic Science (Grades 11 - 12)

Have you ever wondered how DNA can be manipulated to prove guilt or innocence? Did you know that lipstick left on a glass can be evaluated and then linked to a specific brand and, perhaps, a person? Are you interested in learning how to lift fingerprints left on an object? This forensic course will apply new and well-established lab techniques to the evidence left at a staged crime. The course is a series of experiments that lead a team of investigators to decide upon a possible perpetrator from a field of suspects. The final project involves solving a crime staged in the classroom with faculty serving as suspects.

Transmission and Population Genetics (Grades 10 - 12)*Prerequisites: Biology*

This semester-long course builds on the fall elective "Molecular Genetics," but it can also be taken as a stand-alone course. Students will explore the basics of transmission genetics through meiosis and gene linkage; using pedigrees and other models to explain patterns of heredity; advanced Mendelian inheritance patterns such as multiple alleles and incomplete dominance; how to measure gene and allele frequencies in populations; and how changes in gene frequencies can lead to natural selection in populations. Students will engage in case studies, model building, and authentic laboratory experiences such as breeding insects or plants to measure changes in gene frequencies over time.

500 Million Years of Land Plants (Grades 10 - 12)

Prerequisite: Biology

This course will take you on a journey through time to view the history of land plants through the lens of three main themes: evolutionary relationships among extant and extinct plant groups, structural innovations in land plant bodies (with a particular focus on complex reproductive strategies), and interactions among plant communities, geology, and climate. We will learn about the fossil record of terrestrial plants, what the ecosystems they built looked like through time, and how the earth of the past differed from the green planet we live on today.

Independent STEM Projects (Grades 9 - 12)

The Science Department offers an exciting opportunity for students to continue the thread of independent scientific research. The Department designed a timeline and benchmarks to support interested students in their quest to complete independent STEM fair projects culminating with participation in the MPH and Central New York Science and Engineering Fairs. Interested students enroll in the third quarter class and meet on an as-needed basis with a mentoring member of the Science Department. Over the years, participating Upper School students have enjoyed great success with their independent science research.

Senior Capstone Seminar

This course will meet twice per cycle for the full school year to prepare and support students throughout their Senior Capstone. Students will study the methods and conventions of academic research to understand how project management might vary across different academic disciplines. Students will research and discuss citation methods, writing, and revision strategies, and as the year goes on, this course will serve as a workshop and peer community for students to brainstorm, experiment, and troubleshoot their capstone projects. In addition to their capstone-specific preparation, this course will equip students to approach their post-high school career with experience and confidence. This is a required course for all seniors.

Visual Art and Design

The Visual Art and Design courses are built on a foundation of five key pillars that encourage students to be intelligent, independent, and creative thinkers and makers who are unafraid of creative artistic risk. Aspects of these pillars inform each class.

Intelligent and Technical Aesthetic Decision Making: Students are trained to create and understand technically strong and visually striking work with an emphasis on craftsmanship.

Understanding Their Creative Process: Based in metacognitive practices, students are challenged to understand, critique, and improve their actions and decisions during their creative process.

Articulate Visual Communication: Students learn to use Art and Design as modes of communication and to consider how and what their work communicates. Students strive to be articulate visual communicators.

Individual Experimentation: Student are provided with the encouragement, opportunity, and support to experiment and create based on their own interests, skills, and creative pursuits. They are encouraged to take creative risk, try something new, and play.

Community: Students are encouraged to be a part of the larger MPH Art community and connect with peers who can help them further their artistic learning.

Courses for Graduation Credit

1 credit alone or in combination with Performing Arts.

First Semester

Introductory Courses

Introduction to Photography (Grades 9 - 12)

This class introduces students to the basic technological, compositional, and editing skills necessary to be a successful photographer. Through a series of games and photoshoots, students learn everything from shooting in manual and decisive moment, to influential photographers and how to design a photo shoot. Students frequently collaborate with one another to generate ideas, shoot, and edit. The primary learning is centered around control of the camera, understanding of light, value and composition, collaborative skills, and building creative confidence. In addition, students gain a strong working knowledge of Adobe Photoshop. This is a very active class, and students will frequently engage in activities that require considerable movement. Students would benefit from access to personal cameras, but they are not required. This class is highly recommended as a basis to further studies in Art and Design.

Elemental Studio (Grades 9 - 12)

Elemental studio is a 2D (two-dimensional) intensive class that deeply dives into technical skills and idea generation. Through a series of exercises and projects, students build their speed, confidence, and quality of art production. The primary learning for Elemental Studio is the development of technical skills and an introduction to reflection. Students are provided with the opportunity to experiment with different mediums and materials. Major assignments are student driven with a significant element of critique and reflection. Students are introduced to the art elements, design principles, and post-modern art principles. This class is highly recommended as a basis to further studies in Art and Design. Can be taken multiple times.

Introduction to Design (Grades 9 - 12)

Students are introduced to the basics of design and design thinking. Students are challenged to creatively solve problems and create useful or desirable products. Students work collaboratively as a design team to find and solve unique problems with the end user in mind. Students do everything from build a boat or sled, to walk on water, to design and sell t-shirts. The primary learning is rooted in design thinking and collaborative problem solving. This is a very active class and students will frequently engage in activities that require considerable movement and collaboration.

Advanced Course

Portfolio & Supplemental Preparation (Grades 11 and 12)

Prerequisite: Other Visual Arts Classes

Portfolio preparation is not just for students who are looking to go into a creative field. This class is an opportunity for non-visual arts major students to create supplemental materials for college applications, and for students looking towards a creative field to generate a powerful and articulate body of work to submit with their applications to visual art programs and schools. Students will regularly get feedback on their work from professors and college admissions officers. Students will attend National Portfolio Day, focus on the professional aspects of creative fields, learn to document their work, and how to professionally present themselves and their art. This class is independently driven and is an opportunity for students to dive into their creative process and interests. The class molds itself to fit the students individual needs. Can be taken multiple times.

Second Semester

Introductory Courses

Digital Art Explorations (Grades 9 - 12)

Digital Art Explorations provides an opportunity for students to experiment with a variety of digital mediums from digital painting and illustration, to VR (Virtual reality) and AR (Augmented Reality), to projection and Photoshop. This class blends traditional art techniques with new digital mediums. It is a high energy collaborative class paired with a relaxing, individual, art-making experience.

Advanced Courses

Design 2 (Grades 9 - 12)

Prerequisite: Introduction to Design

Design 2 builds on the foundation set in the coursework of Introduction to Design. Students will act as design professionals and a design collective to solve real-world needs. This course will be an exciting mix of tackling fun design challenges, working on real world projects, and building professional business skills. Can be taken multiple times.

Elemental Studio 2 (Grades 9 - 12)

Prerequisite: Elemental Studio or permission from teacher

Elemental Studio 2 builds on the foundational techniques learned in other introductory classes. This class will give students the space and opportunity to dive into deeper learning and practice a particular technique that interests them. Students will focus on developing positive and productive studio habits, careful critiquing, and finding a medium that they can feel confident in. Students will also work with the Post-modern art principle. The majority of the projects will be student driven and it is a wonderful opportunity for students to take creative risks. Can be taken multiple times.

Photography 2

Pre-requisite: Introduction to Photography

Photography 2 builds on the foundation of Introduction to Photography. Students dive deeper into camera control, editing, controlling the quality of light, and photoshoot design. In addition, students will learn studio

lighting, how to use professional grade equipment, and how to measure light to make the best aesthetic decisions to fit their idea. The class will also create larger photographic series with an emphasis on both concept and technique. Students will practice careful editing and have ample opportunity for creative experimentation. This is a very active class and students will frequently engage in activities that require considerable movement. Students would benefit from access to personal cameras, but they are not required. Can be taken multiple times.

World Language

At MPH, we believe that proficiency, and ideally, fluency, in a world language is the gateway to global citizenship. We value the study of languages not only for the immediate practical benefits, but also for the way in which learning a new language enables the student to learn a new culture, and thereby see their own more clearly. MPH offers instruction in French, Latin, Mandarin Chinese, and Spanish. Students often pursue their language of choice through the most advanced courses, and over the years, many also have taken advantage of our international travel and immersion programs.

Small classes are essential to MPH's excellence in language instruction. Students are immersed in the cultural products of the countries whose language they are studying. They may do as the Romans did, prepare a Spanish meal, read a French magazine, or watch a Chinese film. Because the study of a world language entails a progressive acquisition of linguistic skills, our program is intentional in its vertical articulation. Our students' progress over time from beginners to truly fluent speakers and connoisseurs of the culture, and several choose to master more than one language.

Graduation Requirement

Every student must take at least three years of the same world language in the Upper School. These graduation requirements are supported by the variety of courses offered in a wide range of topics and levels. Instruction is offered in French, Latin, Mandarin Chinese, and Spanish.

Upper School Sequence French

French Novice B

This course entails the same program as the French Novice course but in greater detail and complexity while maintaining the same emphasis on oral communication. Students read and comprehend passages that focus on cultural affairs in France and in French-speaking countries. The course develops writing skills, from simple sentences to paragraph compositions in French. Greater attention is given to written compositions and reading selections. Integrating the cultural material into the learning process, students acquire an awareness of youth-related life in the French-speaking world. Students will maintain a portfolio of work and present a final project to demonstrate their acquired level of proficiency in all three modes of communication at the end of the course.

French Intermediate

French Intermediate is an immersion course designed with acquisition-driven instruction principles and a proficiency-oriented approach. The students will continue to develop interpretive reading, presentational writing, and interpersonal speaking skills through increasingly complex readings and authentic texts, videos, and social media. At this level, students develop the ability to analyze authentic resources and apply their language skills to create oral and written arguments about current and historical events in the Francophone world. This course provides a path to intermediate proficiency based on high-frequency words, grammar, and cultural themes of the Francophone world. Students will maintain a portfolio of work to demonstrate their progress and present a final project to demonstrate their acquired proficiency level in all three modes of communication at the end of the course.

French Storytelling

The human experience is conditioned by narratives, that is the stories we hear, tell others, and tell ourselves. In this advanced intermediate French language class, students will develop their ability to understand French

stories in a variety of texts like poems, tales, songs, short stories, graphic novels, films, and social media in a variety of historical time frames and contexts. Students will continue developing their competency in the three modes of communication. This is an immersion language course in which students are expected to contribute to daily discourse and conversation, as well as daily creative writing exercises. This course is for students who have successfully completed the Intermediate course or can demonstrate an Intermediate Mid level of proficiency.

Current Issues in the Francophone World

This immersive conversation course will explore the breadth of the Francophone world and introduce students to its many cultures. With daily exposure to authentic articles, video clips, films, radio segments, songs, and social media, students will be invited to discuss, write about, research, and present on current issues and perspectives in the Francophone world. This course is for students who have successfully completed the Intermediate course or can demonstrate an Intermediate Mid level of proficiency.

AS French Language and Literature

AS French Language and Literature is a course designed for fifth-year students or students who have demonstrated intermediate-high proficiency levels in the three modes of communication, interpersonal, interpretive, and presentational. Students will continue to advance their studies of Francophone cultures and develop a deeper analysis of the topics presented. The students are expected to plan, prepare and present a variety of assignments about cultural and historical topics. Students will present a variety of projects to express their views as global citizens. This course prepares students to collaborate, construct and produce work in formal and informal settings with peers, and other Francophone professionals. The students will focus on topics like global challenges, science and technology, contemporary life, personal and public identities, families and communities, and beauty and aesthetics. Students in this course are expected to be prepared and fully engage and lead the discussion on global citizenship and current issues in the Francophone world. The students will support their opinions with their research as well as material presented in-class lectures.

Upper School Latin Sequence

Latin Novice B

The Novice B Latin course develops awareness and mastery of Latin grammar. Specifically, it stresses proficiency in a language based on an understanding of basic forms and syntax. Additionally, vocabulary building is fundamental to this process, and Latin forms and endings are practiced daily. While the ultimate goal is the reading and writing of the language, there is practice in speaking. Classical pronunciation is used. The class also emphasizes the impact of Greek and Roman civilizations on literature, culture, and art.

Latin Intermediate

The Intermediate Latin course continues the sequence begun in Latin A. The first half of the year is devoted to a student's development of a secure knowledge of grammar and a mastery of reading Latin prose. The second semester is devoted to reading Caesar's Gallic Wars: Book I. There is much emphasis on the student's awareness of ancient culture.

Latin Literature

Students in Latin Literature read two ancient authors: Cicero and Ovid. Selections from Cicero's essays, speeches, and letters begin the year. Considerable time is spent discussing the historical context of his writing, including the causes of the Civil War and the eventual breakdown of the Roman Republic. Selected portions of the Amores and Metamorphoses of Ovid, which introduce the student to authentic Latin poetry, complete the year. Students learn all aspects of Ovid's work including style, meter, and literary devices.

Advanced Latin Literature

The Advanced Latin Literature course is designed for students to review Latin grammar and develop skills in reading Latin passages from Catullus' and Horace's lists of works. Skills include the ability to translate, analyze, interpret, read aloud, and scan the meter appropriate to the text. The course places a strong emphasis on the historical, social, cultural, and political context of Catullus' and Horace's poetry. Also, students learn how Latin literature has influenced the art and literature of the modern world and culture.

AS Vergil and Caesar: The Literature of Empire

This course's goals are to develop the students' abilities to translate the required passages from Caesar's *De bello Gallico* and Vergil's *Aeneid* into English, to help them understand the context of the written passages (including the political, historical, literary, and cultural background of each author and text), and to help them understand the reasons behind the particular style of writing and the rhetorical devices employed. The course also helps students to be successful in analyzing Latin passages and in understanding how and why the author uses the language in a particular way and the effects he is hoping to produce.

Ancient Greek

Ancient Greek introduces students to the rudiments of Attic-dialect grammar, syntax, vocabulary, and accents of Greek words. Class time is spent on the explanation of grammar, short practice exercises, translation from Greek to English and from English to Greek, and on the discussion of student work. The course uses the reconstructed pronunciation and devotes additional time to the study of Greek culture. Students must have completed Advanced Latin Literature or receive permission from the instructor.

Upper School Mandarin Chinese Sequence

Mandarin Chinese Novice B

Introduction to Mandarin Chinese is designed for students who have no previous or little experience with the Chinese language. This course provides an introduction to the fundamental principles of the Chinese language: tones/phonetics, characters writing system, and cultures at a faster pace. The emphasis is on reading, writing, speaking, and listening communicative skills. Students will be expected to present information about everyday topics using simple sentences through spoken and written language.

Mandarin Chinese Intermediate I

This is a sequential course after the Novice Mandarin Chinese course. Students will continue to build upon their communicative skills in listening, speaking, reading and writing. There is a more in-depth look at grammatical structures and vocabulary. Students will be expected to present information about everyday topics by creating and using simple sentences, through spoken or written language.

Mandarin Chinese Intermediate II

Intermediate Mandarin is designed for students who have completed Beginner's Mandarin or have demonstrated competency in basic Chinese language skills. Intermediate Mandarin helps students construct and engage with longer and more complex language structures. Students will build on interpretive modes of communication and practice using those skills in personal and professional scenarios. Course topics will also introduce students to literary knowledge and cultural perspectives embedded within the Chinese language. By the end of the course, students will be able to write in a short essay format and perform short monologues in Chinese.

Mandarin Chinese Advanced I

The Advanced Mandarin course is aimed at helping students express themselves with longer and more complex sentence structures. Students will build on interpretive modes of communication developed in the previous year and practice accessing those skills in personal and professional environments. The topics focus on cultural perspectives, linguistic knowledge, and exposition. By the end of the course, students will be able to write in a short essay format and speak in a 2-3 minute presentation.

AS Topics in Chinese Culture

Advanced Topics in Chinese culture is a full-year course that covers all areas of communication in an intensive and extensive advanced linguistic repertoire. Topics discussed in class include but are not limited to contemporary arts, poetry, current affairs, economics, and global issues. By the end of this course, students will be provided with maximum exposure to authentic culture and language and be able to apply their growing linguistic and cultural knowledge to communicate in real-life contexts.

Upper School Spanish Sequence

Spanish Novice B

This Spanish immersion course is designed to develop the student's interpersonal, interpretive, and presentation skills. In this course, the students will apply their knowledge and skills to complete a variety of written and oral projects to demonstrate their learning. Students will continue to develop their understanding and appreciation of Spanish Culture with authentic texts, realia, music, and dance from the 21 Spanish-speaking countries. Students will maintain a portfolio of work and present a final project to demonstrate their acquired level of proficiency in all three modes of communication at the end of the course.

Spanish Intermediate

This Spanish immersion course is designed to develop the student's interpersonal, interpretive, and presentation skills. In this course, students will develop their ability to sustain oral conversations and written presentations on a variety of topics and themes using authentic texts and multimedia materials. Students will learn to construct oral and written arguments to narrate, persuade, compare, and analyze a variety of contemporary and historical topics of the Spanish-speaking world. Students will maintain a portfolio of work and present a final project to demonstrate their acquired level of proficiency in all three modes of communication at the end of the course.

Spanish Theater, Cinema, and Culture

This Spanish class is an immersion course designed to further develop students' abilities in the three modes of communication: interpersonal, interpretive, and presentational. The students will analyze and compare different genres of theater, film, and documentaries of the 20th- and 21st-century. Students will research, analyze, compare, and reflect on social issues, fashion, food, social media, and music. They will also gain an understanding of how all twenty-one Spanish-speaking countries are connected by the Spanish language and still preserve their own unique culture and identity. Students will lead discussions on the meaning of being a global citizen, current issues and trends of the Spanish-speaking world, and analyze how technology is transforming cultural traditions and identities, specifically with the use of social media. In this course, the students will produce videos in a variety of genres; for example, commercials, horror video clips, short plays, video stories, short movies, and critiques of films that have been discussed in class. This course is for students who have successfully completed the Intermediate B course or can demonstrate an Intermediate Mid level of proficiency.

Current issues in the Spanish-Speaking World

This course is a language immersion course designed with an emphasis on the interpersonal, interpretive, and presentational modes of communication. The students will develop the ability to analyze and compare the diverse Spanish and Latin American Cultures with daily discussions, readings, news, video clips, and guided writing practice. Some of the topics discussed will be global challenges, science and technology, contemporary life, personal and public identities, families and communities, and beauty and aesthetics. Students will be introduced to idiomatic expressions of the Spanish language and will continue to refine their pronunciation and comprehension by participating in class discussions, preparing rehearsed speeches, and participating in debates. A variety of Spanish realia, as well as historical and cultural topics, are used to increase the depth of student appreciation of Spanish culture. Contemporary authentic Spanish news, video clips, and Podcasts are used to

engage in advanced language discussions. This course is for students who have successfully completed the Intermediate B course or can demonstrate an Intermediate Mid level of proficiency.

AS Spanish Language and Literature

This course is designed for fifth-year students who have demonstrated intermediate-high proficiency in the three modes of communication: interpersonal, interpretive, and presentational. Students will continue to advance their studies of Spanish-speaking cultures and develop a deeper analysis of the topics presented. The students will plan, prepare and present a variety of assignments about cultural and historical topics. Students will present a variety of projects to express their views as global citizens. This course prepares students to collaborate, construct and produce work in formal and informal settings with peers, and other Spanish-speaking professionals. The students will focus on topics like global challenges, science and technology, contemporary life, personal and public identities, families and communities, and beauty and aesthetics. Students in this course are expected to be prepared and fully engage and lead the discussion on global citizenship and current issues in Latin America and Spain. The students will support their opinions with their research as well as material presented in-class lectures.

AS 20th-Century Spanish Literature

This course of study is for students who have successfully completed five years of study or can demonstrate an Advanced Low Level of proficiency in all three modes of communication.