



Northern Academy
COURSE GUIDE
2023/2024

1 Ashley Avenue

Middletown, NY 10940

Email: director@northernacademy.org

Phone: (845) 779 - 0808

INTEGRITY - COMPASSION - RESILIENCE

TABLE OF CONTENTS

A Description of The Curriculum	3
A. <i>Curriculum Areas</i>	3
Grade 6	3
Grades 7 & 8	4
Grades 9-12	4
B. <i>Physical, Health, and Life Skills Education</i>	5
C. <i>Talented and Gifted Students</i>	5
Graduation Requirements	6
Course Sequence	8
Course Descriptions	9
D. <i>Academic Courses</i>	9
English	9
Social Studies	15
Mathematics	21
Science	24
World Languages	30
Computer Science	32
Business	33
Health Education	34
E. <i>Dance Courses</i>	34
Ballet	34
Classical Chinese Dance	35
F. <i>Fine Arts Courses</i>	37
G. <i>Music Courses</i>	41

A Description of The Curriculum

Northern Academy offers primary and secondary education for grades 1-12 students, nurturing within them academic prowess, artistic excellence, and strength of character. Northern Academy provides students with the skills, discipline, and confidence they need to be successful in college and in life.

Northern Academy's rigorous education imbues a philosophy of lifelong learning. While every student fulfills a complete college preparatory curriculum, co-curricular activities are compulsory activities that are important for every student to participate in at Northern. These activities are designed and balanced with the academic curriculum so that every student gets to learn beyond subjects. Co-curricular activities are meant to bring social skills, intellectual competence, moral values, personality progress, and character appeal to students. Northern Academy co-curricular programs include athletics, cultural events, academic activities, dance, fine arts, meditation, and music. A student choosing a co-curriculum concentration in a semester takes two classes of his/her concentration daily in addition to the commonly required academic, PE and art classes.

All of Northern Academy's education programs are grounded in classical perspective and crowned by an emphasis on real-world application. Our low teacher to student ratio allows for individualized education that is flexible and responsive and has resulted in students achieving above average SAT scores. The Academy offers a wide range of elective courses for high school students including Advanced Placement (AP) courses.

In addition to the academic and co-curricular education students receive, Northern Academy's approach to character development aims to guide students to become healthy, upright people who know right from wrong, and who want to make good choices based on strong reasoning founded in respect for their own lives and the lives of others. We call this the *Northern Way*.

A. Curriculum Areas

Academic classes offered at different grade levels are outlined below, where one credit is equivalent to at least 180 minutes of instruction per week throughout the school year (i.e., 108 hours of instruction for a full year course). In addition, the school provides additional learning opportunities and/or arts training, which enhances students' overall career goals.

Grade 6

Classes in the following curriculum areas are required.

English language arts (1 credit)

Social studies, including geography and history (1 credit)

Science and technology (1 credit)
Mathematics (1 credit)
World languages (1/2 credit)
Music (1/4 credit)
Dance (1/4 credit)
Fine arts (1/4 credit)
Health and life skills (1/4 credit)
Physical education (1/2 credit)

Grades 7 & 8

Students are expected to achieve the U.S. intermediate education standards by the end of Grade 8. The following courses are required:

- English language arts (2 credits)
- Social studies (2 credits)
- Mathematics (2 credits)
- Science and technology (2 credits)
- Music (1/2 credit)
- Dance (1/2 credit)
- Fine arts (1/2 credit)
- World languages (1 credit)
- Health and life skills (1/2 credit)
- Physical education (1 credits)
- Technology education and career skills* (1 credit)
- Library and information skills* (1/2 credit)

(* The learning outcomes of these courses are incorporated into subjects in other courses.)

Grades 9-12

High school students are required to take classes in the following curriculum areas. These classes are designed to meet or exceed all U.S. High School diploma requirements.

- English language arts (4 credits)
- Social studies (4 credits)
- Science (3 credits)
- Mathematics (3 credits)
- Academic electives:
 - World languages (3 credits in one world language)
 - Other academic electives (3 credits)
- Dance, fine arts, music, theatre (1½ credits)
- Health and life skills (1/2 credit)
- Ethics and Etiquette (3/4 credit)
- Physical education (2 credits)

B. *Physical, Health, and Life Skills Education*

A unique feature of health education at Northern Academy is its emphasis on developing students' knowledge, skills, and habits in order to achieve a healthy body, mind, and spirit. Students are encouraged to maintain that sense of well being throughout their lives. Students are gaining the know-how and ability to create and maintain a safe and healthy environment and learn to manage their personal and community resources as responsible citizens.

Included in the life skills classes are highway safety and traffic regulations, fire drills, fire/arson prevention, and the dangers of alcohol and drug abuse. The importance of conserving natural resources is also taught.

Through physical education, students in all grade levels acquire the necessary knowledge and skills to establish and maintain overall fitness.

C. *Talented and Gifted Students*

At Northern Academy, talented and gifted (TAG) students who master a subject significantly more quickly than their classmates have the opportunity to be exposed to some advanced course material. For example, math TAG students in middle school can take the equivalent of a high school-level algebra course. AP courses are provided for TAG students in high school.

Graduation Requirements

Grade 9-12 (high school) students are required to take classes in the following curriculum areas:

- English Language Arts (4 credits)
- Social Studies (4 credits)
- Science (3 credits)
- Mathematics (3 credits)
- Academic Electives:
 - World Languages (3 credits in one world language)*
 - Other Academic Electives (3 credits)
- Dance, Fine Arts, Music, Theatre (1½ credits, with at least 1/2 credit in music and 1/2 credit in fine arts)
- Health and Life Skills (1/2 credit)
- Ethics and Etiquette (3/4 credit)
- Physical Education (2 credits)

* A student may meet the requirement for the World Languages by scoring at least 4 in the AP exam of a world language without having 3 course credits of the world language. In this case, however, the student will still need to obtain at least 6 course credits in academic electives.

For High School ENL (English as a New Language) Students

ENL II classes are counted as 1 credit of ELA course and 1 credit of academic electives.
ENL III class is counted as 1 credit of academic electives.

All high school ENL students are required to complete at least one year of ELA courses at grade level and pass a specified English Language exam.

Other Requirements

All students are required to take a minimum of 5 credits of courses per academic year, even if they have fulfilled the graduation requirements.

All students are required to participate in a co-curricular program each semester.

Transferring senior students must successfully complete one full semester of courses at Northern Academy in order to graduate.

Summary of Diploma Requirements

To receive a Northern Academy diploma, a student must:

- Complete all the required curricular areas and credits as detailed above;

- Be clear of any existing or pending discipline action;
- Meet all other school requirements.

The following table presents a summary of graduation requirements, including the requirements for transfer students.

	4-Year Students	3-Year Students	2-Year Students	1-Year Students
English	4 cr	3 cr	2 cr	1 cr
Mathematics	3 cr	2 cr	1 cr	
Science	1 cr of life science, 1 cr of physical science, and 1 cr of life or physical science	1 cr of life science, 1 cr of physical science, and 1 cr of life or physical science (including transferred science credits from previous high school)	1 cr of life science, 1 cr of physical science, and 1 cr of life or physical science (including transferred science credits from previous high school)	1 cr of life science, 1 cr of physical science, and 1 cr of life or physical science (including transferred science credits from previous high school)
Social Studies	2 cr of world history, 1 cr of US history, and 1 cr of civics and economics	1 cr of world history, 1 cr of US history, and 1 cr of civics and economics	1 cr of US history, and 1 cr of civics and economics	1 cr of civics and economics (1 cr of US history if not taken previously)
World Languages	3 cr in one world language	3 cr in one world language	2 cr in one world language	1 cr in one world language
Academic Electives	3 cr	3 cr	2 cr	1 cr
Dance, Fine Arts, Music, Theatre	0.5 cr of fine arts, 0.5 cr of music, and 0.5 cr of dance, fine arts, music, or theatre	0.5 cr of fine arts, 0.5 cr of music, and 0.5 cr of dance, fine arts, music, or theatre	0.5 cr of fine arts and 0.5 cr of music	0.5 cr of fine arts or 0.5 cr of music
Health & Life Skills	0.5 cr	0.5 cr	0.5 cr	0.5 cr
Ethics & Etiquette	0.75 cr	0.5 cr	0.25 cr	0.25 cr
Physical Education	2 cr	1.5 cr	1 cr	0.5 cr

Recommended Core & AP Course Sequence

	Grade 9	Grade 10	Grade 11	Grade 12
English	ELA Grade 9	ELA Grade 10	ELA Grade 11	ELA Grade 12
			AP English Language & Composition	AP English Language & Composition
				AP English Literature & Composition
Social Studies	Grade 9	Grade 10	Grade 11	Grade 12
	Global History and Geography I	Global History and Geography II	U.S. History and Government	Civics & Economics
	AP Human Geography	AP World History	AP U.S. History	AP U.S. Government and Politics
		AP European History	AP World History	AP Economics
		AP Human Geography	AP European History	AP U.S. History
		AP Art History	AP Art History	
	AP Psychology	AP Psychology		
Mathematics	Grade 9	Grade 10	Grade 11	Grade 12
	Algebra I	Geometry	Algebra II & Trigonometry	Pre-Calculus
	Geometry	Algebra II & Trigonometry	Pre-Calculus	AP Calculus AB/BC
			AP Calculus AB/BC	AP Statistics
			AP Statistics	AP Computer Science
		AP Computer Science		
Science	Grade 9	Grade 10	Grade 11	Grade 12
	Biology	Chemistry	Physics	Earth Science
		Physics	Earth Science	AP Biology
		Earth Science	Chemistry	AP Chemistry
		AP Biology	AP Biology	AP Physics 1/2
		AP Physics 1	AP Chemistry	AP Physics C
		AP Physics 1/2		

Course Descriptions

The courses are divided first by tracks, then by subject areas. Within each subject area, a course legend is given before the course summary. Please see a typical example of the course legend below:

Chinese Culture and Language Arts	The name of the course
Level 1	The level of difficulty of the course
Grades 6-8	The grades that the course is suitable to
Full Year	The period that the course is offered
0.5 cr	The credit earned for successful completion
Level 0	Prerequisite

D. Academic Courses

English

English Language Arts Grade 6-8

Grade 6-8

Full Year

1 cr

Primarily, English Language Arts classes in these grades will focus on various classic novels and plays, with short stories and poems added in as well. Classes will contain instruction on various writing formats, styles, and methods. Classes will also focus on improving reading and writing as well as teaching new skills for critical thinking, and strategies for working through challenging tasks. Students will be required to read literary selections in addition to complete texts, and will maintain an independent reading log. Students will read, write, and interact abundantly, as well as having the opportunity to prepare and present their own information. Each grade will also feature instruction in grammar skills as needed. Consistent assessment of student writing will contribute to what additional skills are taught as dictated by the needs of the students.

English Language Arts Grade 9

Grade 9

Full Year

1 cr

Ninth grade English Language Arts will feature classic novels, plays, short stories and poems from antiquity to the 20th century, and from around the world. The class will contain instruction on various writing formats, styles, and methods: narrative, expository, persuasive, and more. The course will continue to focus on improving reading and writing abilities as well as encouraging critical thinking, and strategies for tackling challenging texts. Students will be required to read literary selections in addition to complete texts, and will maintain their own independent reading log. Students will read, write, and interact abundantly, as well as having the opportunity to prepare and present their own writing. The class will also contain instruction in grammar

as needed. Continuous assessment of student writing will determine what additional skills are taught as dictated by the needs of the students. The overall goals of the course are to introduce students to the next level of literary quality, to improve their understanding of literature and to broaden their writing repertoire. The class will seek to improve their skills in all literary areas, which can aid them in all disciplines, and foster an interest in reading for pleasure as well as for school.

English Language Arts Grade 10

Grade 10

Full Year

1 cr

English Language Arts Grade 10 class addresses reading, writing, speaking, and listening as well as teaching new skills for critical thinking, and strategies for working through challenging tasks. The depth of understanding for the complexities of literature is a major focus in tenth grade as students will unearth layers of meaning, and real world implications in plays, novels, poems and short stories. Close reading is emphasized daily to build comprehension skills as students bring their own questions and revelations regarding the assigned reading to class each day. Independent reading continues to be a focus as we try to encourage a lifelong interest in reading for pleasure as well as information. Occasional presentations and group activities are part of student work also, with the interactions between students, and the sharing of their ideas and interpretations taking center stage as their understanding and confidence grows. Lastly, a focus on more academic, structured writing emerges throughout the year, from an introduction to standard forms, to putting those forms into practice for themselves.

English Language Arts Grade 11

Grade 11

Full Year

1 cr

English Language Arts 11 focuses on strengthening skills in reading and writing. ELA 11 is a study of language, literature, composition, and oral communication with a focus on exploring characterization across different themes in a wide variety of genres. Students use literary interpretation, analysis, comparisons, and evaluation to read and respond to representative works of historical or cultural significance in classic, contemporary, and young adult literature balanced with nonfiction. Students use tools to assist them in crafting persuasive arguments, responses to literature, reflective compositions, scenes, and technical documents that incorporate visual information in the form of pictures, graphs, and tables. Students will write and deliver multimedia presentations and access, analyze, and evaluate online and printed information. Students will additionally be given lessons and exercises for the SAT/ACT tests.

English Language Arts Grade 12

Grade 12

Full Year

1 cr

English Language Arts Grade 12 focuses on strengthening skills in reading and writing. It is a study of language, literature, composition, and oral communication with a focus on exploring characterization across different themes in a wide variety of genres. Students use literary interpretation, analysis, comparisons, and evaluation to read and respond to representative works of historical or cultural significance in classic, contemporary, and young adult literature balanced with nonfiction. Students use tools to assist them in crafting persuasive arguments, responses to literature, reflective compositions, scenes, and technical documents, which incorporate visual information in the form of pictures, graphs, and tables. Students also write and deliver multimedia presentations and access, analyze, and evaluate online and printed information.

Writing in English

Grade 6-8

Full Year

0.5 cr

This class teaches students how to express their thinking for all types of writing. Students learn the mechanics of writing, such as the components of a sentence, and use varied sentences in original writing. Students will do close reading and annotate mentor texts for literary devices to apply to their own writing. The class provides practice writing and revising narrative, creative, informative, and argumentative writing. Instruction focuses on organization and clarity in their writing.

English as a New Language 1

ENL 1

Full Year

3 cr

ENL (English as a New Language) is a course provided for speakers of languages other than English. The goal of the course is to develop a fundamental understanding of the English language for English Language Learners (ELLs). ELLs will improve their abilities in the areas of reading, writing, speaking, listening, grammar, vocabulary, and understanding of U.S. culture. During the course, students will use stories that correspond with essential topics in order to acquire and apply basic vocabulary, reading comprehension skills, and simple grammatical/writing structures. The students will attain frequently used vocabulary and contextualize common phrases to ensure relevance and retention.

English as a New Language 2

ENL 2

Full Year

2 cr

ENL 1

ENL 2 (English as a New Language 2) is taught to students for whom English is not their primary language with the aim of helping them acquire fluency in both spoken and written word at an intermediate level of English through the development of their interpretive, presentational, and interpersonal skills. Speaking, listening, reading and writing are all part of the course. Themes covered include daily life and activities of people in the United States.

Essential Benchmarks – Students will:

- Participate in conversations on a number of familiar topics about current, past, and future events
- Write an informative essay, as well as short analyses and narratives on familiar topics
- Understand the main idea of simple presentations, conversations about familiar topics, and authentic texts
- Demonstrate understanding of American culture

English as a New Language 3

ENL 3

Full Year

1 cr

ENL 2

ENL 3 (English as a New Language 3) is taught to students for whom English is not their primary language with the aim of helping them acquire fluency in both spoken and written word at an advanced level so as to progress to ELA (English Language Arts). Speaking, listening, reading and writing are all part of the course. ENL 3 will amplify students' knowledge of English through the development of their interpretive, presentational, and interpersonal skills. Students will also be expected to write analyses and narratives that are well-organized and demonstrate a receptive understanding of common academic language.

Essential Benchmarks – Students will:

- Participate in conversations on a number of familiar topics about current, past, and future events at a high-intermediate level of fluency
- Write a persuasive essay, as well as short analyses and narratives on familiar topics
- Understand the main idea of presentations, conversations about familiar topics, and authentic texts in various genres that mirror ELA materials
- Demonstrate in-depth understanding of American culture and current affairs

AP English Literature and Composition

Full Year

1 cr

Placement test and teacher consent

The AP English Literature and Composition course will engage students in the careful reading and critical analysis of imaginative literature. Through the close reading of selected texts, students will deepen their understanding of the ways writers use language to create meaning. Students will learn to consider a work's structure, style, and themes, as well as smaller-scale elements such as the use of figurative language, imagery, symbolism, and tone. This course is intended to provide the experience of a typical introductory college literature course. It includes intensive study of representative works from various genres, periods, and cultures, concentrating on works of recognized literary merit. Reading in the course builds on the reading done in previous English courses. Students will read deliberately and thoroughly, taking time to understand a work's complexity, to absorb its richness of meaning, and to analyze how that meaning is embodied in literary form. Students will also learn to consider the social and historical values a work reflects and embodies.

Careful attention to both textual detail and historical context provides a foundation for interpreting a text. Writing is also an integral part of the AP English Literature and Composition course and of the AP Exam. Writing assignments in the course will address the critical analysis of literature and will include expository, analytical, and argumentative essays. In addition, creative-writing assignments such as response and reaction papers, free-writing, or keeping a journal will help you see from the inside how literature is written. The goal of both types of writing assignments is to increase students' ability to explain literary works clearly and cogently and how to interpret them.

AP English Language and Composition

Full Year

1 cr

Placement test and teacher consent

The AP English Language and Composition course aligns to an introductory college-level rhetoric and writing curriculum, which requires students to develop the use of rhetorical elements and write evidence-based analytic and argumentative essays that proceed through several stages or drafts. Reading and writing assignments will be structured to analyze and demonstrate certain specific techniques. Students will evaluate, synthesize, and cite research to support their arguments. Throughout the course, students develop a personal style by making appropriate grammatical choices. This course is designed to help students become both skilled readers of prose written in a variety of rhetorical contexts and skilled writers who compose for a variety of purposes. Students will learn to read primary and secondary sources carefully, to synthesize materials from these texts in their own compositions, and to cite sources using conventions recommended by professional organizations such as the Modern Language Association (MLA). Students will read classical and modern pieces devoted to specific themes. Students in this class should be willing to work hard and challenge themselves to think clearly and express themselves at a relatively high level of sophistication.

Creative Writing

Fall Semester

0.5 cr

Creative Writing is designed for students to create original forms of descriptive writing, poetry, drama and fiction. Vocabulary development, creative writing techniques, and skills are explored. Students submit their work to local and national magazines. Computers and word processing are used for composition. Writings are presented orally and in written form. Short spontaneous exercises and longer assignments combine to motivate, and refine, students' writing, both about the chronicler's main subjects (place, people, and things) and about the fiction writer's concerns (character, plot or narrative economy, and closure). Whether fiction or nonfiction, students' writing is discussed via criteria pertinent to literary work. Learning to analyze a piece of writing critically is a key component of the course. Guidelines/criteria will be provided. Students are encouraged to apply them as well as to improvise, as long as opinions are always grounded in evidence from the relevant text.

Public Speaking and Debate

Fall Semester

0.5 cr

Public Speaking and Debate is a one-semester beginning level course offered in the Spring Semester for students who are interested in learning more about public speaking or have never debated before. After completing this course, students will have a set of portable argumentation and advocacy skills that they can use in a variety of experiences throughout the curriculum at Northern. Students will initially learn about and practice structured extemporaneous speeches with emphasis on verbal and nonverbal delivery skills (organization, projection, inflection, eye-contact, hand gestures, and more). Students will then build a foundation for effective argumentation and advocacy (claim/warrant/evidence) by participating in "SPAR" debates and finally, students will develop and deliver one research-based persuasive speech. Because public speaking functions in a larger democratic context, the class will also consistently stress critical listening skills and an attitude of appreciative inquiry with diverse perspectives.

British Literature

Spring Semester

0.5 cr

This course introduces students to the major authors, trends, and genres of British Literature from the Anglo-Saxon period to the Victorian Age. All readings will be considered in their literary and historical contexts. The course enhances reading skills and aesthetic appreciation through exposure, discussion, writing, and critical thinking.

Social Studies

United States History Grade 6

Grade 6

Full Year

1 cr

Students will journey through United States history by reading selected historical stories that provide inspiration, wisdom, and resilience. From the founding of the colonies to the Civil War and beyond these exciting narratives bring American history to life. Among the stories, are some less known heroes, whose anecdotes are sure to engage a young reader. The stories present a moral message that is positive and uplifting of the founding of the United States. In addition, geographical content and skills are taught that align with content.

World History Grade 7

Grade 7

Full Year

1 cr

Students will be introduced to major events, artistic achievements and intellectual discoveries that shaped the ancient world, the classical civilizations and the Middle Ages. They will first take a journey to experience the lively adventures of the ancient civilizations of Mesopotamia, Egypt, China and the Persian empire. Moving along the timeline, students will then explore the enduring classical civilizations including the Greek and Roman empires that draw inspiration from our own Western heritage. Next, students will study the Middle Ages and discover the wisdom of the medieval thinkers and biblical scholars. Through a close reading of primary sources that will supplement the textbook, students will learn to source documents. In addition, geographical content and skills are taught that align with content.

United States & New York State History

Grade 8

Full Year

1 cr

This course is arranged chronologically, beginning with the Reconstruction and ending at the present, and incorporates geography as well as economic, social and political trends. The course content is divided into several key areas; the first traces the human experience in the United States from Reconstruction to the end of World War II. The last few areas examine different themes in United States and New York State history from the post-War period up to the present day, which provides the opportunity to explore contemporary issues.

Global History & Geography I

Grade 9

Full Year

1 cr

Learning our history teaches us how and why our world is the way it is. We are learning the story of humanity. It teaches us tolerance, respect, and appreciation for past peoples, for different cultures, and other areas of the world. This course will study the political, economic, social, and cultural development of the world from earliest times to the 15th century. We will investigate areas of history including the earliest civilizations, such as the Sumerians, Egyptians, Babylonians and Persians. We will then explore classical civilizations including the Greek, Roman, Chinese, Indian, and Byzantium empires. Also, we will discover the historical impact of Judaism and Christianity.

Global History & Geography II

Grade 10

Full Year

1 cr

Learning our history teaches us how and why our world is the way it is. We are learning the story of humanity. It teaches us tolerance, respect, and appreciation for past peoples, for different cultures, and other areas of the world. We will explore the historical development of people, places, and patterns of life from 1750 to the present. Students will study the origins of much of our heritage using primary documents, maps, pictures, stories, diagrams, charts, chronological skills, inquiry/research skills and technology skills.

US History & Government

Grade 11

Full Year

1 cr

This course begins with the colonial and constitutional foundations of the United States and explores the government structure and functions written in the Constitution. The development of the nation and the political, social, and economic factors that led to the challenges our nation faced in the Civil War are addressed. Industrialization, urbanization, and the accompanying problems are examined, along with America's emergence as a world power, the two world wars of the 20th century, and the Cold War. Students explore the expansion of the federal government, the threat of terrorism and the place of the United States in an increasingly globalized and interconnected world.

Civics

Grade 12

Fall Semester

0.5 cr

This course is designed to help high school seniors effectively, as the course title indicates, participate in government. That is, public policy decisions are constantly being made and these decisions affect our daily lives. To be a part of the decision-making processes at the local, state, national, and international levels, one needs to acquire the necessary skills for analysing and judging actual and proposed policies. This course is designed to provide students with the means to become better, more well-informed citizens.

Economics

Grade 12

Spring Semester

0.5 cr

In this course, students examine economic theories and how those ideas are applied in the real world. This course explains why goods cost as much as they do (e.g., production and transportation expenses); whether their future cost will rise or decrease (e.g., speculating in the stock market); and whether or not you'll be able to afford those items down the road (i.e., how you can create a budget for your money). The goal of this course is to give students a practical skill set that will enable them to survive in the real world.

AP Art History

Full Year

1 cr

Teacher consent

AP Art history covers all features that will help students achieve a high score in the AP Art History test. The exam is completely aligned with the course learning objectives and content. Students explore works of art through observation, discussion, reading, and research. Students develop skills in visual, contextual, and comparative analysis. They learn through class discussions specific works, historical contexts, art periods and styles, and themes. They learn to critically analyze works of art within diverse historical and cultural contexts, considering issues such as politics, religion, patronage, gender, and ethnicity. There is a focus on the major forms of artistic expression of architecture, sculpture, and painting from across a variety of cultures. The AP Art History course and exam are structured around ten content areas: Global Prehistory, Ancient Mediterranean, Early Europe and Colonial Americas, Later Europe and Americas, Indigenous Americas, Africa, West and Central Asia, South, East, and Southeast Asia, The Pacific, and Global Contemporary.

AP World History

Full Year

1 cr

Teacher consent

AP World History is a challenging course, equivalent to an introductory college survey course. It is designed to prepare students for higher-level college and university history courses. APWH focuses on the development of analysis and critical thinking skills. The investigation of selected themes (or topics) is woven into key concepts covering distinct chronological periods. Students are assessed on their mastery of the course goals when they take the AP World History Exam in May.

AP U.S. History

Full Year

1 cr

Teacher consent

The AP U.S. history course will be two-semester long, designed to be the equivalent of a two-semester U.S. history college course. This course is primarily intended for 11th grade students. Students will read all required materials in advance so that class time can be devoted to lecture, various Socratic seminars, jigsaw type presentations, small group discussions, debates on contrasting historical interpretations, projects, note-taking, developing a word bank, viewing film clips and artistic works, reading and analyzing primary sources of evidence, and applying concepts from the readings toward analysis of current events. Students will be expected to be active participants in class and in their own learning. The course will be taught thematically with students focusing their attention on the characteristics of U.S. History divided into 9 distinct time periods (from 1491 to present day). Students will be assessed on how they accomplish historical thinking skills, academic skills, and AP test type questions, essays, and/or tasks. Students will take a major exam at the end of each of the 9 time periods, along with several full-length practice exams before the AP test in May.

AP U.S. Government & Politics

Fall Semester

0.5 cr

Teacher consent

AP U.S. Government and Politics provides a college-level, nonpartisan introduction to key political concepts, ideas, institutions, policies, interactions, roles, and behaviors that characterize the constitutional system and political culture of the United States. Students will study U.S. foundational documents, Supreme Court decisions, and other texts and visuals to gain an understanding of the relationships and interactions among political institutions, processes, and behaviors. They will also engage in disciplinary practices that require them to read and interpret data, make comparisons and applications, and develop evidence-based arguments. In addition, they will complete a political science research or applied civics project.

AP European History

Full Year

1 cr

Teacher consent

AP European History is an introductory college-level European history course. Students cultivate their understanding of European history through analyzing historical sources and learning to make connections and craft historical arguments as they explore concepts like interaction of Europe and the world; economic and commercial developments; cultural and intellectual developments; states and other institutions of power; social organization and development; national and European identity; and technological and scientific innovation. Emphasis is placed on critical and evaluative thinking skills, and essay writing. In addition, students will interpret primary sources, statistics, works of art, and maps.

AP Human Geography

Full Year

1 cr

Teacher consent

The AP Human Geography course introduces students to the systematic study of patterns and processes that have shaped human understanding, use, and alteration of Earth's surface. Students employ spatial concepts and landscape analysis to examine socioeconomic organization and its environmental consequences. They also learn about the methods and tools geographers use in their research and applications. The course is structured to address human geography's seven core topics: the nature of geography, population, cultural patterns and processes, the political organization of space, agriculture and rural land use, industrial and economic development, and cities and urban land use.

AP Microeconomics

Fall Semester

0.5 cr

Teacher consent

AP Microeconomics provides students with a thorough understanding of economic principles that apply to the functions of individual decision makers, both consumers and producers, within an economic system. The course places primary emphasis on the nature and functions of product markets and includes the study of factor markets and of the role of government in promoting greater efficiency and equity in the economy.

AP Macroeconomics

Spring Semester

0.5 cr

Teacher consent

AP Macroeconomics introduces students to the principles that apply to an economic system as a whole. The course places particular emphasis on the study of national income and price-level determination. It also develops students' familiarity with economic performance measures, the financial sector, stabilization policies, economic

growth, and international economics. Students learn to use graphs, charts, and data to analyze, describe, and explain economic concepts.

AP Psychology

Full Year

1 cr

Teacher consent

The AP Psychology course introduces you to the systematic and scientific study of human behavior and mental processes. While considering the psychologists and studies that have shaped the field, you will explore and apply psychological theories, key concepts, and phenomena associated with such topics as the biological bases of behavior, sensation and perception, learning and cognition, motivation, developmental psychology, testing and individual differences, treatments of psychological disorders, and social psychology. Throughout the course, you will employ psychological research methods, including ethical considerations, as you use the scientific method, evaluate claims and evidence, and effectively communicate ideas.

Chinese History

Full Year

1 cr

This course is designed for students to acquire a general knowledge of Chinese history. The course comes in a two-part sequence offering a general history of China from the earliest records of Chinese civilization through the Ch'ing [Qing] Dynasty. The course is designed for students who have no prior knowledge of China. The organization of the course is basically chronological, but within that framework will approach China from a wide range of viewpoints, taking up political, economic, social, religious, philosophical, and artistic developments.

Studies on Current Events

Fall Semester

0.5 cr

Using current events stemming from the fall of the Berlin Wall through the US Election of 2016, this elective course focuses on world and local issues that affect students' everyday lives, such as economics, media, government and conflict. This course uses newspapers, online media, cartoons, and newscasts to support class discussion as well as utilizing case study of world events. Additionally students participate in group projects, presentations and work with primary source materials and opinion pieces in order to better understand the world around them. Through this course students will have a more holistic view of America's place in the world today, engage their learning with hands-on materials and understand the complex interconnected world we find ourselves in during the 21st century.

Cultural Anthropology

Spring Semester

0.5 cr

This course is an introduction to socio-cultural anthropology. Socio-cultural anthropology offers a way of understanding both the commonalities of the human experience and the diversity of human societies and cultures. It offers tools for making sense of the experience of people whose lives are different from our own, as well as casting our familiar world in a new perspective. Through readings, lectures, discussions, and films, students will become familiar with the concerns and viewpoints of cultural anthropologists.

The course introduces some of the key concepts that have concerned anthropologists such as culture, social structure, religion, kinship, race, gender, consumption, community, and identity, and provides an opportunity to learn about a variety of social and cultural contexts both within and outside the U.S.

Mathematics

Mathematics I

Full Year

1 cr

Mathematics I is the first course in the Northern Academy's middle school math program, which reviews basic arithmetic, builds computation and problem-solving skills, and prepares students to learn pre-algebra. It seeks to ground students in computational fluency and mathematical problem solving, on which foundation algebra will be built. This course primarily presents the fundamental concepts and skills underlying whole numbers, decimals, fractions, and percents and applies them to ratios and proportions, rudimentary algebra, geometry, and statistics in both real-life and mathematical problems. It serves as a prerequisite to Math II, where students will further develop a familiarity with basic pre-algebra and geometry.

Mathematics II

Full Year

1 cr

Mathematics I

Mathematics II is the second course in the Northern Academy's middle school math program, which focuses on pre-algebra and geometry. It seeks to ground students in computational fluency, mathematical modeling, and problem solving on which foundation algebra and high school geometry will be built. This course primarily presents fundamental concepts and skills underlying proportions, percents, rational numbers, expressions, equations, inequalities, angles, areas, surface areas, volumes, and statistics. It will help students develop skills in mathematical thinking and apply them to solve mathematical and real-life problems.

Mathematics III

Full Year

1 cr

Mathematics II

Mathematics III is the third math course in Northern Academy's middle school program that focuses on pre-algebra, geometry, and probability-based data process. It seeks to ground students in mathematical modeling and solving skills, building a solid foundation for algebra and high school geometry. This course primarily presents the fundamental concepts and skills underlying the number system, functions, linear relations, angles, volumes, geometric congruence and similarity, and statistics. The course will help students develop skills in mathematical abstraction, analysis, and problem-solving.

Algebra I

Full Year

1 cr

Mathematics II

The fundamental purpose of Algebra 1 is to formalize and extend the mathematics that students learned in the middle grades. It deepens and extends understanding of linear and exponential relationships by contrasting them with each other and by applying linear models to data that exhibit a linear trend. Students will engage in methods of analysing, solving, and using quadratic functions, as well as interpreting statistical data models. Mathematical Practice Standards apply throughout the course, together with the content standards, prescribe that students experience mathematics as a coherent, useful, and logical subject that makes use of their ability to make sense of problem situations.

Algebra II

Full Year

1 cr

Algebra I

This course is designed to build on algebraic and geometric concepts introduced in Algebra I and Geometry courses. It develops advanced algebra skills and prepares for the NYSE Regents exam. The content of this course is also important for the students' success on the SAT Subject Test in Mathematics, the American Mathematics Competition, college mathematics entrance exams, and further advanced math courses (i.e. calculus) and science courses (i.e. physics). During this course students will learn how to use a graphic calculator throughout the course. Teaching methods cover classroom teaching, simulations, group work, discussions, and where adequate proofing and presentations. Students learn to appreciate mathematics by developing problem-solving skills through verbal, real-life exercises and problems.

Geometry

Full Year

1 cr

This proof-based geometry course introduces the study of the properties and applications of geometric figures, and presents the fundamental concepts underlying geometric theorems and applications to the real world. Topics include logic and proof, parallel lines and planes, similarity and congruence, polygons, perimeter, area, and volume, circles, trigonometry, coordinate geometry, transformations and symmetry, and constructions. This course emphasizes logical reasoning and critical thinking skills and enables students to present formal proofs when solving problems or evaluating arguments.

Pre-Calculus

Full Year

1 cr

Algebra II

Pre-Calculus covers topics in Algebra ranging from polynomial, rational, logarithmic and exponential, trigonometric functions to conic sections. Trigonometry concepts such as Law of Sines and Cosines will be introduced. Students will then begin analytic geometry and calculus concepts such as limits, derivatives, and integrals. It is an important prerequisite for Calculus and other college level math classes.

AP Calculus AB

Full Year

1 cr

Algebra II and teacher consent

Calculus brings together methods and skills the students have learned throughout their high school years and is thus the culmination of their high school Mathematics. Calculus is also a gateway to more advanced courses in Mathematics. This course is a one-year introductory course on Calculus following the AP Calculus AB curriculum standards and preparing students for the AP Calculus AB exam. The course is primarily concerned with developing students' thorough understanding of the concepts of Calculus, and providing experience with its methods and applications. The course emphasizes a multi-representational approach to Calculus, with concepts, results, and applications being expressed verbally, numerically, graphically, and analytically. Historical perspectives that developed the field of Calculus are incorporated into the course. To be eligible, students must demonstrate exceptional ability and achievement in prior math courses.

AP Calculus BC

Full Year

1 cr

Algebra II and teacher consent

This one-year course is designed to meet the Advanced Placement curricular requirements for Calculus BC by the College Board. The major topics of this course are limits, derivatives, integrals, the Fundamental Theorem of Calculus, series, and

parametrics. Calculus BC provides a more theoretical development of the calculus than Calculus AB and includes the additional topic of series.

AP Statistics

Full Year

1 cr

Algebra II

Statistics is the science of data and the language of science. AP Statistics is to introduce students to the major concepts and tools for collecting, analyzing and drawing conclusions from data. Four primary units will be studied:

- Exploring Data: Describing patterns and departures from patterns.
- Sampling and Experimentation: Planning and conducting a study.
- Anticipating Patterns: Exploring random phenomena using probability and simulation.
- Statistical Inference: Estimating population parameters and testing hypotheses.

Advanced Math Problem Solving

Full Year

0.5 cr

Geometry

This course is to learn advanced techniques in math problem solving through real practice of solving hard math problems (at the math competition level).

Science

Science Grade 6

Grade 6

Full Year

1 cr

The objective of this course is to make the educational process investigative and personal. Students are encouraged to develop interdisciplinary thinking skills (problem solving, critical thinking, communication, creativity). Understanding the scientific view of the natural world is an essential part of personal, social and ethical decision-making. Students will acquire an understanding of key scientific concepts and ideas and develop an awareness of the relevance that Science plays in our daily lives.

Science Grade 7

Grade 7

Full Year

1 cr

The objective of this course is to make the educational process investigative and personal. Students are encouraged to develop interdisciplinary thinking skills (problem solving, critical thinking, communication, creativity). Understanding the scientific view of

the natural world is an essential part of personal, social and ethical decision-making. Students will acquire an understanding of key scientific concepts and ideas and develop an awareness of the relevance of Biology as an integral part of everyday life.

Science Grade 8

Grade 8

Full Year

1 cr

The eighth-grade curriculum covers the physical environment. The following topics will be covered over the course of the school year: Chemistry, Physics, Ecology, and Astronomy. Throughout the course, content will be covered in units to build a foundation for future courses. Students will be learning content in a variety of ways to maximize learning styles and comprehension. The standards, objectives, and learning goals are aligned with NY State Intermediate Science standards, Next Generation Science standards, and Literacy in Science standards that adopt portions of ELA standards. In order to promote literacy in science, students are exposed to current events, article response writings, and two elected (teacher chosen) non-fiction novels. The goal is not only to provide content knowledge but also skills that will be carried across curriculum with provide real-life application and relevance. Each above topic and its units involved will include laboratory skills exposure, writing components, formative and summative assessments, collaborative group projects, and checklists for increasing self-advocacy (character building/accountability). This course is not only designed to prepare students for the NY Grade 8 Intermediate-Level Science Test but also aims to provide an insight and build a foundation/background knowledge base for future science courses and topics.

Biology

Grade 9

Full Year

1 cr

Biology is the study of the living world, including microscopic organisms, fungi, plants, and animals. In Biology, it is important to attempt to understand life and life processes. The Biology (Living Environment) course is designed to provide students with knowledge of important biological concepts, principles, mechanisms, and relationships, as well as to prepare students for the NYS Living Environment Regents Exam. Major topics include ecology, biochemistry, cell biology, the maintenance of homeostasis in animals and plants, human anatomy and physiology, genetics, and evolution. Students must satisfactorily complete all required laboratory exercises in order to be eligible to sit for the Regents exam.

Chemistry

Grade 10

Full Year

1 cr

Chemistry is designed to introduce to students the wide range of chemical applications and relevance. Areas of study will include atomic and molecular structure, gas behavior, chemical bonding, reduction/oxidation reactions, mathematics of chemistry, equilibrium, acid-base theory, forces driving chemical reactions and organic chemistry. Students must complete the state lab requirement of 1200 minutes, and have successfully completed lab reports on file, to be eligible to take the Regent's exam in June. In order to provide a real- world application, students will also be expected to complete current events articles, scientific writings, and a research project of choice.

Physics

Grade 11

Full Year

1 cr

Physics is a one-year course designed to provide a general understanding of the fundamental principles of physics. The syllabus includes five core units: Mechanics, Energy, Electricity and Magnetism, Wave Phenomena, Modern Physics and optional topics. The course has laboratory component. Emphasis will be placed on both theoretical and practical aspects.

Earth Science

Full Year

1 cr

This one-year course guides students to explore the fundamental concepts of earth science, examine Earth's complex and interrelated processes, and search basis theories of astronomy. This course covers the basic concepts, models and theories of geology, oceanography, meteorology, and astronomy, such as Earth's place in the universe, dynamic Earth processes, energy in the Earth system, rocks and minerals, weathering, earthquakes, volcanoes, plate tectonics, and the structure, composition and interactions of atmosphere, geosphere and hydrosphere. The study integrates critical thinking and laboratory skills that stress the scientific approaches to experimental design, detailed observation, accurate recording and data interpretation. This course also offers students excellent opportunities to explore career developments in their future.

AP Physics 1

Full Year

1 cr

Teacher consent

AP Physics 1 is a full-year course that is the equivalent of a first-semester introductory college course in algebra-based physics. Students cultivate their understanding of Physics through inquiry-based investigations as they explore these topics: kinematics; dynamics; circular motion and gravitation; energy; momentum; simple harmonic motion; torque and rotational motion; electric charge and electric force; DC circuits; and

mechanical waves and sound. Students spend less of their time in traditional formula-based learning and more of their effort will be directed to developing critical thinking and reasoning skills.

AP Physics 2

Full Year

1 cr

AP Physics 1 and teacher consent

AP Physics 2 is a full-year course that is the equivalent of a second-semester introductory college course in algebra-based physics. Students cultivate their understanding of Physics through inquiry-based investigations as they explore these topics: fluids; thermodynamics; electrical force, field, and potential; electric circuits; magnetism and electromagnetic induction; geometric and physical optics; and quantum, atomic, and nuclear physics. Students spend less of their time in traditional formula-based learning and more of their effort will be directed to developing critical thinking and reasoning skills.

AP Physics C Mechanics

Full Year

1 cr

Physics or AP Physics 1; students should have taken or be concurrently taking calculus, and teacher consent

This course is designed to be a thorough introduction to mechanics as seen in a calculus based, first semester physics course at the university level. Introductory differential and integral calculus will be developed and used where necessary throughout the course.

AP Physics C Electricity and Magnetism

Full Year

1 cr

Physics or AP Physics 2; students should have taken or be concurrently taking calculus, and teacher consent

This course addresses introductory electricity and magnetism topics including: Electrostatics, Conductors capacitors and dielectrics, Electric circuits, Magnetic fields, and Electromagnetism using calculus.

AP Biology

Full Year

1 cr

Biology and teacher consent

This course is constructed around the AP Biology Curriculum Framework, which focuses on the four big ideas, enduring understandings, and science practices, with an emphasis on the connections between the big ideas. Students will have opportunities to engage in

hands-on laboratory investigations, which will make up at least 25% of instructional time. Students will complete all the 13 required labs in the AP Lab Manual for Students, and a variety of additional labs. Students will also conduct a minimum of 8 inquiry-based laboratory investigations (two per each of the big ideas). These labs will provide opportunities for students to develop and test hypotheses, collect and analyze data, as well as communicate the results of their investigations. Through hands-on activities, formal labs, inquiry-based learning, and student-directed investigations, students will be able to apply, and integrate the seven science practices with biological knowledge. Students will be required to report on all laboratory investigations according to the criteria specified in the lab report rubric of the AP Lab Manual. In addition to hands-on lab experience, students will improve their critical thinking skills, and problem-solving abilities through journal readings, group discussions, and scientific writings. These activities will also let students apply biological and scientific knowledge to major social concerns.

AP Chemistry

Full Year

1 cr

Chemistry and teacher consent

This AP Chemistry course is designed to be the equivalent of the general chemistry course usually taken during the first year of college. This course will focus on six “Big Ideas” in chemistry: structure of matter, bonding and intermolecular forces, chemical reactions, kinetics, thermodynamics, and chemical equilibrium. A special emphasis will be placed on the seven science practices, which capture important aspects of the work of scientists. Hands-on laboratory time and inquiry-based investigations will account for 25% of instructional time. By the end of the course, students will be able to develop their critical thinking and problem-solving skills, teamwork abilities, laboratory techniques, and effective oral and written communication skills.

3D Modeling and 3D Printing

Fall Semester

0.5 cr

3D modeling (a.k.a Computer-Aided Design, CAD) has been widely applied in various industrial fields; it is also widely taught in many STEM majors, such as Mechanical Engineering, Chemical Engineering, and Civil Engineering. The 3D printing technology brings up the development of 3D printing. As a branch of additive manufacturing technology, 3D printing makes it possible to build real models by adding molten plastic materials layer by layer. In this one-semester course, students will learn the skills of designing and creating models in a cloud-based 3D modeling software – Onshape. They will also be able to use the Northern Academy's 3D printer to print one model designed by themselves. After this class, students will be in an intermediate level in designing and rendering 3D models based on needs by using Onshape. It will also be easier for students to transition to other 3D modeling software.

Robotics Engineering

Spring Semester

0.5 cr

Educational robotics opens minds. It has become a popular field in helping students learn concepts and develop interests in STEM. This class uses VEX V5 as a platform which provides students with almost unlimited design possibilities. This one-semester class is group work based and is divided into three stages: in the first stage, students build a V5 Clawbot by following a manual, and program the robot to achieve certain functions. In the next stage, students learn the functions of components – structure, motion, sensor – that are necessary in a robot; in this stage, students also design and build simple structure according to requirements. In the last stage, which is the most exciting part in this whole class, students work for a final project: they design a more complex robot that can achieve more advanced functions. The skill-learning process and fun are endless as they can choose to participate in the VEX Robotics Competition.

Introduction to Neuroscience

Full Year

0.5 cr

Neuroscience is the study of the nervous system, particularly the workings of the brain. In this course, students will learn some fascinating facts on the basic structures or functions of the brain and neuronal system, and explore some questions: what we know and don't know yet about neuronal system or brain, how we learn, how we memorize things during our study, how we sense pain, how we smell, how we feel and visualize the images. The course will consider why we sometimes make stupid mistakes, what happens in the brain while we sleep, and how our mind, body and brain are interwoven.

Environmental Science

Spring Semester

0.5 cr

The objective of this course is to make the educational process investigative and personal. Students are encouraged to develop interdisciplinary thinking (problem solving, critical thinking, communication, creativity). Understanding the science behind major environmental issues of the world today on both local and global scales is an essential part of personal, societal and ethical decision-making. Students will strengthen their awareness of their role in our environment and the responsibilities that role carries.

Zoology

Fall Semester

0.5 cr

In this course, students will study the major phyla of the Animal Kingdom. Students will dissect each major species of the animal kingdom from mammalogy to herpetology and

many more. The taxonomy, diversity, behavior and ecology of all animal phyla will be studied with an emphasis on the functional anatomy of the major groups. The evolution of plant and animal life, the interaction of organisms in their environment, food chains and trophic levels, and ecological distributions are introduced. Representative animal phyla including both invertebrates and vertebrates are studied from the viewpoint of a zoological researcher.

Students will analyze wildlife laws and legislation set in place to protect major endangered species around the world. They will use concepts of conservation to apply toward negative environmental factors that are affecting today's wildlife and how to manage them with their own philosophy and ideas toward conservation.

Human Physiology

Spring Semester

0.5 cr

Human Physiology guides students to investigate the human body, its structure, function and, especially, how the human body reacts to external stimuli. This course covers comprehensive knowledge and skills in biochemistry, molecular biology, anatomy and pathology. Students will learn the mechanisms related to all kinds of functions performed by cells, tissues, organs and systems in human body. Students will engage in investigations to understand and explain the behavior of the human body in a variety of scenarios that incorporate scientific reasoning, analysis, and communication skills.

World Languages

Chinese Culture and Language Arts

Non-Heritage Speakers

Novice Low, Novice Mid, Novice High

Grades 6-8

Full Year

0.5 cr

Designed for non-heritage speakers, with little or no background in Chinese, this course helps students develop basic skills for listening, speaking, reading, and writing in Chinese and provides students the opportunity to expose themselves to traditional Chinese culture and history.

Chinese Culture and Language Arts

Level 1-2

Grades 6-8

Full Year

0.5 cr

The course is designed for students who can understand and/or speak conversational Chinese related to daily-life situations but have not learned to read or write Chinese characters. This includes students who were raised in a non-Chinese speaking country but in a home where the Mandarin Chinese dialect was spoken. This also includes students who have acquired a certain level of Mandarin Chinese language proficiency (primarily speaking and listening) by living or working in a Chinese-speaking country or region for an extended time. The course aims to develop students' correct pronunciation and overall competence in reading and writing. Ancient Chinese literature is used as the main course material. This will provide students the opportunity to expose themselves to ancient Chinese wisdom, which may challenge, confirm or broaden their perspective.

Beginning Chinese

Grades 9-12

Full Year

1 cr

Designed for non-heritage speakers, with little or no background in Chinese, this course helps students acquire a fundamental knowledge of Chinese and develop basic skills for listening, speaking, reading, and writing in Chinese. By the end of the second semester, students are expected to develop a good command of the pronunciation system, be able to communicate effectively in daily life situations on familiar topics, understand the meaning of 400 Chinese characters and be able to write at least a few hundred words.

Elementary Chinese

Grades 9-12

Full Year

1 cr

Placement test and teacher consent

Designed for heritage speakers—overseas Chinese who are not entirely new to the language and may understand the Chinese that is spoken at home but have little or no literacy—and for learners who have completed Beginning Chinese. This course develops students' competence in listening, speaking, reading, and writing in Chinese, with special emphasis on reading and writing. By the end of this course, students are expected to be able to recognize about 500 Chinese characters and possess basic Chinese language reading and writing skills.

Intermediate Chinese

Grades 9-12

Full Year

1 cr

Elementary Chinese and teacher consent

This course further develops students' listening, speaking, reading, and writing skills. The goal is to have students reach an intermediate level of proficiency in the language.

By the end of this level, students should have mastered an active vocabulary of about 800 Chinese characters, have a good command of basic idiomatic expressions and sentence patterns, be able to converse with ease on familiar topics, and be able to write short stories and personal communication.

AP Chinese Language and Culture

Grades 9-12

Full Year

1 cr

Placement test and teacher consent

This course will continue to build the students' listening, speaking, reading, and writing skills and take them to a higher level of sophistication in the language. Upon completion of this level, students should have mastered an active vocabulary of about 1,500 Chinese characters and can be considered fluent in the language. Students at this level begin to develop their academic Chinese skills. They read original texts and examine the meaning and impact of their readings within the Chinese cultural tradition. This course aims to consolidate and enhance the students' language ability, emphasize the students' appreciation of classical literature, develop students' appreciation and awareness of Chinese culture.

Spanish 1

Full Year

1 cr

This is a beginning course in Spanish intended for students with no previous knowledge of the Spanish language. The objective of this class is to help master basic communication skills in Spanish. We will engage in speaking, reading, listening, and writing activities in order to gain proficiency in Spanish.

Spanish 2

Full Year

1 cr

Spanish 1

Spanish 2 is a continuation of Spanish 1. Students will complete tasks and projects that help them build skills to communicate in a variety of real-life contexts. In addition, the course will explore the cultural aspects of many of the Spanish speaking countries.

Computer Science

Northern Horizon (Web Programming)

Full Year (Repeatable)

1 cr

This course starts with the learning of Web Programming that covers the introductory level HTML5/CSS/Javascript, and then interactive HTML/Javascript topics and Server Side technology. Students learn Web Programming by implementing projects with fun.

Students at an advanced level will learn how to develop professional skills while working on international award-winning, collaborative projects intended to solve real-time, real-world problems.

AP Computer Science A

Full Year

1 cr

This is a one-year introductory course on computer science for students whose future work or study will significantly involve technology and computers. This course will teach students to design and implement computer-based solutions to practical problems; to select and use commonly used data structures and algorithms; to code fluently in an object-oriented paradigm using the programming language Java and its commonly used class libraries; to read and understand a large programs consisting of several classes and interacting objects; and to recognize the ethical and social implications of computer use.

Business

Introduction to Marketing

Spring Semester

0.5 cr

Introduction to Marketing provides students with an introduction to the principles of Marketing. This course focuses on basic marketing concepts, marketing functions, entrepreneurship concepts, national and global economies, international marketing, and human relations. Students will be expected to meet all of the course goals and be able to demonstrate their understanding of the underlying concepts. The instructional strategies will include small and large group discussion, lecture, role play, research reports, presentations and problem-based learning activities used to integrate process skills such as decision making, problem solving, and critical thinking.

Business Management

Fall Semester

0.5 cr

The objective of Business Management is to make the educational process investigative and personal. Students are encouraged to develop interdisciplinary thinking skills (problem solving, critical thinking, communication, creativity). Understanding basic business principles is an essential part of professional, personal, social and ethical decision-making. Students will acquire an understanding of key business management concepts and ideas and develop an awareness of the relevance that business organization and planning, human resource management and leadership have on institutional, professional and personal levels.

Health Education

Health Education

0.25 cr

The health curriculum at Northern Academy spirals through each grade level; that is, it builds on previous instruction, with a variety of age-appropriate topics that correlate with the New York State and National Standards for Health Education while also addressing specific needs of our school community. In addition to the curriculum outline, classes will often examine topics taken from current events and community experience. School health teachers benefit from partnering with guest speakers who will contribute their knowledge and experience in specific areas. Topics may include: the Internet and health, healthy eating, nutrition, exercise, disease prevention, reproduction, mental health, drugs, and the effect of alcohol on the body. Other topics covered might include: consumer health, personal safety (strangers, social media, first aid, and the Heimlich Maneuver), relationships, fitness, stress management, personal hygiene, time management, and life skills.

E. Dance Courses

Ballet

Ballet 1 - 6

Basic - Advanced

Full Year

1 cr

*Prerequisite required

This course aims to give students a strong foundation for ballet. This course helps develop the students' flexibility, strength, and coordination so they can improve their balance and extensions. Along with fundamental ballet training, students will also learn musicality (learn, listen, and follow accompaniment). The student must be able to demonstrate an understanding of the proper placement of the body and turnout. As students develop more body control, coordinated breath, and core strength, they will learn more complicated combinations, and work on making the movements light, yet strong. Advanced students will be able to demonstrate the use of expression, communication, interpretation, and projection while performing. Students will also learn Ballet etiquette, discipline, and attitude in this course.

Strength and Stretching 1 - 4

Basic - Intermediate

Full Year

1 cr

*Prerequisite required

Flexibility training is mandatory for all dance students. This training will prescribe daily stretch routines to help the students will improve their flexibility and mobility in their legs, shoulders, and back to maximize their range of motion. this will help students have a clear awareness of their lines and improve their jumps, turns, extensions, and pointe work. Through this course, students will be better equipped with the abilities necessary for studying more advanced levels of dance.

Repertoire 1 - 6

Basic - Advanced

Full Year

1 cr

*Prerequisite required

This course continues to work on developing the students' basic whole body flexibility and control. The objective in this class is for students to be able to demonstrate level appropriate technique while performing movement sequences and dances in ballet. Students must demonstrate appropriate timing and responsiveness to music. They should be able to show awareness of performance skills and demonstrate the use of expression, communication, interpretation, and projection. Through this course, students will be better equipped with the abilities necessary for studying more advanced levels of dance.

Pointe and Partnering (*Pas De Deux*) 1 & 2

Intermediate & Advanced

Full Year

0.5 cr

*Prerequisite required

Introduction to partnering technique. Partnering classes will work on various partnering skills. For male dancers, this allows them to train in a way that provides them the strength to gracefully and confidently lift, catch and carry their female partner. For female students, this class offers them the opportunity to be lifted and carried and to work the muscles necessary to be a graceful partner, and be able to carry their weight. They'll learn how to perform the basic partnering movements together, such as *pirouette*, and simple lifts and jumps. Students learn how to work effectively together - regardless of who their partner is and have a heightened sense of musicality and spatial awareness.

Classical Chinese Dance

Fundamentals of Classical Chinese Dance – Level I - V

Basic - Advanced

Full Year

1 cr

*Prerequisite required

This course aims to help students develop the fundamental skills needed for effective studies in classical Chinese dance (CCD). Students will familiarize themselves with different forms of classical Chinese dance and undergo flexibility and physical conditioning to improve their range of motion and build a strong foundation for further technique studies. This includes but is not limited to a strong emphasis on terminology, flexibility, dance techniques, proper alignment, musicality, bearing and expression, and technical proficiency. Advanced students are taught to utilize all of the skills they have acquired through the previous years of dance training with ample implementation of artistic elements. This course enables students to improve their flexibility, bodily control, and accuracy of form and pathways in basic classical Chinese dance movements.

Flexibility Training – Level I - V

Basic - Advanced

Full Year

1 cr

*Prerequisite required

Flexibility and conditioning training is mandatory for all dance students. This training is an extension to the Fundamentals of Classical Chinese Dance class. Through daily stretching routines, students will improve their flexibility and mobility in their legs, shoulders, and back, so as to maximize their range of motion and acquire the physical condition needed for classical Chinese dance studies. Students will also learn to endure, persevere, and motivate fellow classmates as they work together and assist each other in stretching exercises. Through this course, students will be better equipped with the abilities necessary to learn and express the beauty of this dance form.

Chinese Dance Technique I - III

Intermediate - Advanced

Full Year

0.5 cr

*Prerequisite required

As a part of classical Chinese dance fundamentals, this course will be introducing students to basic techniques of classical Chinese dance, including jumps, turns, *fanshen*, and controlled movements. Students will further extend their mastery of existing skills by improving the speed, energy, and lightness of their technique, in addition to combining different skills together in a compound fashion as they advance towards more advanced levels.

Tumbling Level I - III

Basic - Advanced

Full Year

0.5 cr

*Prerequisite required

Students will study and practice the primary movements of tumbling while building upon them to execute skills that are more complex. This course provides the student with training, knowledge, and application in Chinese dance tumbling techniques, starting from the most basic skills and gradually progressing to higher-level aerial techniques and combinations thereof.

Dance Rehearsal I & 2

Basic - Intermediate

Full Year

1 cr

These elective dance courses provide the opportunity to learn and perform dances on stage. Through learning choreography, students will learn to use their dance vocabulary while presenting the culmination of their dance training in front of live audiences. Rehearsal pieces will be performed at community events, competitions, school functions, the annual showcase, and at the annual recital, thus affording students with numerous opportunities to gain real-world stage experience.

Chinese Ethnic and Folk Dance – Level I & II

Basic - Intermediate

Full Year

0.5 cr

*Prerequisite required

China has diverse folk and ethnic dance styles. Folk dance refers to the different styles performed by people within the Han ethnic region, while ethnic dance comes from the different ethnic groups in China. By training in different folk and ethnic dance styles, students will learn different types of movement dynamics presented through different forms of cultural expression.

F. *Fine Arts Courses*

Drawing

Fall Semester & Spring Semester

0.5 cr

Drawing is a form of visual art that uses a monochrome tool to depict the outline, volume, structure, space, light, texture, and other basic modeling elements of an object. During the Renaissance in the 15th century, Da Vinci and others invented and applied the principles of perspective, anatomy and composition, which provided a scientific basis for the three-dimensional and spatial sense of sketch expression, and gradually improved the drawing. Since then, drawing has become the basis for all types of visual art in teaching. The basic requirement of drawing is to cultivate our basic observation

and aesthetic ability by means of specific objects, environment, light and shadow. Students will learn how to create three-dimensional space on a two-dimensional plane, so that the ability to observe and reproduce things is improved. Proficiency in the use of a drawing method to represent objects and scenes will make it easier to learn other types of painting.

The basic requirement of drawing is to cultivate our basic observation and aesthetic ability by means of specific objects, environment, light and shadow. Thus learn how to create three-dimensional space on a two-dimensional plane, so that the ability to observe and reproduce things is improved. Proficiency in the use of drawing method to represent objects and scenes, easier to learn other types of painting.

Chinese Painting and Calligraphy

Fall Semester & Spring Semester

0.5 cr

This course helps students develop the basic knowledge and techniques in Chinese calligraphy and painting, two separate yet closely-related, major art forms in traditional Chinese culture. In calligraphy, students will be introduced to the theoretical bases of the art form as well as the practical skills. Throughout the course, students will imitate the works of famous calligraphers in Chinese history with the purpose of developing an appreciation and aesthetic understanding of the beauty in them. Chinese painting, also known in Chinese as “national painting” (國畫 *guohua*), has a long history and long-standing tradition in China. Students will choose one of the two main techniques in Chinese painting: “fine brush” (工筆 *gongbi*) and “freehand style” (寫意 *xieyi*). There will be painting sessions focusing on landscape and bird-and-flower painting.

Studio Arts Drawing

Full Year

1 cr

The Studio Art-Drawing course is a two-semester course of study. Students will develop a portfolio of their work for evaluation. The final student portfolio will comprise three components: 1) a quality series of five artworks most representative of the student’s best effort; 2) Concentration in an area where the student conceives, develops, and submits a series of 12 works related by content; and 3) Breadth that demonstrates the student’s mastery of all basic elements of design. The process of developing a portfolio requires a great deal of time. Besides four 50-minute classes each week, students will be required to draw outside of class to practice and discover where they excel. Students will use a sketchbook as a visual journal to work through ideas, practice drawing and design skills, and record their artistic journey throughout the course.

Introduction to After Effects (Animation)

Full Year

0.5 cr

This class will teach Adobe After Effects from the ground-up. After effects is a multi-faceted software, the program is used for motion design, visual effects, and character animation. This is an intro level class which makes learning the basics of After Effects as easy and fun as possible. Students will learn the most commonly used tools in After Effects and the best-practices to utilize them. They will master the interface, concepts, and the methods used by motion designers in the industry.

Graphic Design 1

Full Year

0.5 cr

This course explores the basic foundations of design through a series of visual projects that explore the principles and elements of design, introduces the interaction of text and image and the fundamental components of graphic communication, familiarization with form and message development as well as an emphasis on visual concepts and fundamental design theory. Students will work both with analog and digital media as they explore two-dimensional design, hone skills in working with text and image as they create solutions to a series of design problems, through lectures, group discussions, presentations and creative work. Participation in discussion and critique is vital to the success of this class. To foster a better understanding and appreciation of craft and materials, in the first half of the class students will work by hand and explore simple analog processes. In the second half of the year we will transition to working on the computer and use Adobe Photoshop, InDesign, and Illustrator; there will be tutorials to facilitate this transition, however this class is not software-oriented.

To foster a better understanding and appreciation of craft and materials, in the first half of the class students will work by hand and explore simple analog processes. In the second half of the year we will transition to working on the computer and use Adobe Photoshop, InDesign, and Illustrator (there will be a few tutorials to facilitate this transition however this class is not software-oriented).

Graphic Design 2

Full Year

0.5 cr

Graphic Design 2 is a continuation of Graphic Design 1, and explores more on the interaction of text and image. We will cover the Effects aspects inside Illustrator, with a focus in typographic design, as well as introducing the basics of InDesign, and typographic theory. Students will work more independently in the use of fundamental components of graphic communication. Students will create independent and creative solutions to a series of design problems. Students will be expected to expand proficiency in all aspects of the design process, including creative brainstorming, conceptualizing, critical thinking, collaboration, and presentation.

Graphic Design 3

Full Year

0.5 cr

Graphic Design 3 is a continuation of Graphic Design 2. The ability to take an idea to production is assumed. Students will learn some Illustrator and Photoshop to create original illustrations for use in layouts and will create multi-page projects using InDesign. The main focus of this semester will be page layout and design. There will be a focus on how graphic designers use typography and images to design compelling magazine layouts. The class will go deeper into the elements of Graphic Design, introducing the basics of typography, illustration, interaction of text and image, lay out (how to design for magazines, newspaper, or book content) and reinforcing the fundamental components of graphic communication.

Photography

Full Year

0.5 cr

This beginning course addresses photographic theory, technical issues, applications, composition, practice and history. This course provides the basis for advanced film photography, digital photography, video and film making. It focuses on understanding the basic operations and functions of a digital single lens reflex camera and the manipulation of its settings to achieve a specific result.

Video Production

Full Year

0.5 cr

This is an entry-level course that serves as an introduction to basic video/film/audio production. The goal of the course is for the student to develop the ability to capture great video images and audio, and to be able to edit those two elements together to tell a story. During the course each student will be taught:

- The basic understanding of operating a video camera.
- The basic principles of how to capture great video and audio.
- How to edit video and audio.
- How to tell a story by combining video and audio.

Fashion Construction

Full Year

0.5 cr

The Golden Proportion (GP) can be found in nature's animate as well as inanimate elements. It underlies the order found in the structures of plants, animals and the human body. Quite simply, it is all around us and within us as well. In this course students will learn the advantages of using the Golden Proportion in fashion construction in a workshop environment. The emphasis will be on structure over style. Students will apply the GP to produce garments that reflect their understanding of the

GP and their ability to manipulate this simple mathematical rule so as to achieve a harmonious garment.

G. Music Courses

Individual Lessons

Grade 6-12

Full Year

2 cr

With this course, students will receive individual instructions of instrumental performance for the following instruments: piano, violin, viola, violoncello, flute, clarinet, trumpet, pipa, and erhu. Instructors will focus on systematic training in basic bowing, embouchure and fingering. Students will apply their training to scales, arpeggios, and etudes. Students will be exposed to repertoires from the Baroque, Classical and Romantic era. This course effectively prepares the student for future recital performances.

Music Theory

Grade 6-12

Full Year

0.25 cr

This course will enable students to build a solid foundation in music theory. It develops analytical thinking, builds up the listening awareness, encourages musical creativity, and helps students to more deeply understand music. The curriculum covers basic music notation, rhythm, scales, intervals, rhythmic variations, as well as multiplicity of chords, cadences, transposition, melody writing, music analysis, and voice-led compositions.

Ear Training

Grade 6-12

Full Year

0.5 cr

This course will enable students to acquire basic musical skills such as dictation and sight singing. It will help build a strong foundation for further development of their musical and sight singing abilities, providing a solid basis for more advanced musical studies.

Orchestra

Grade 6-12

Full Year

1 cr

Students will have the opportunity to perform as part of an ensemble. They will acquire skills of public performance and learn how to cooperate with other musicians in an

ensemble. Students will learn standard repertoires from the literature of great composers throughout the history of Western Classical music. The orchestra will perform in two major concerts each year.

Chorus

Grade 6-8

Full Year

0.25 cr

Students will receive instruction and training in choral singing. They will be exposed to techniques such as the correct vowel formation, diction, articulation, and sound blending. Students will also improve their sight singing skills while cultivating a strong sense of harmony as they learn to sing choral repertoires of different styles. The chorus will be featured in the two major annual concerts.

Percussion

Grade 6-8

Full Year

0.25 cr

This course will enable students to build a foundation in percussion. They will learn different percussion instruments and learn how to cooperate with other musicians in an ensemble.

Concert Practice

Grade 6-12

Full Year

0.25 cr

The weekly concert practice offers students an opportunity to accumulate valuable experience in public performance. Additionally, students will learn to give feedback on the performances of their fellow students. They will learn to accept and appreciate both positive and negative comments about their own performance as well as those of others.

Wind Orchestra

Grade 6-12

Full Year

0.25 cr

This course is open to woodwind, brass and percussion students who will be selected by the music faculty. During the two-year course, the students will learn to play standard repertoires chosen from wind instrument literature according to their performance level. A wind orchestra will be featured in the two major annual concerts.

Chamber Music

Grade 6-12
Full Year
0.25 cr

Chamber Music is open to advanced students selected by the music faculty. This course offers a great experience in learning how to collaborate with others, interpreting and recreating finely-tuned, delicate masterpieces.

Keyboard

Grade 9-12
Full Year
0.5 cr

This course provides group instruction in keyboard performance using a variety of classroom performance forms such as solo, unison, and accompaniment. Students will learn and develop their skills in multipart music listening, rhythm, and sight-reading, and improve their comprehensive keyboard performance.

Music Appreciation

Grade 9-12
Full Year
0.5 cr

This course introduces students to the history and genre of music from a chosen repertoire. Students will learn to appreciate classical music from the Renaissance, Baroque, Classic, Romantic, to the Nationalism periods.

General Music

Grade 6-12
Full Year
0.5 cr

This course is offered to non-music track students. Students will explore and experience a variety of music. They will further their understanding of music and extend their potential in the previous musical experiences. They will familiarize themselves with musical instruments and musical elements including pitch, rhythm, dynamics, tempo, texture, tone color and articulation, through notation exercises, singing, clapping rhythmic patterns, and keyboard exercises.

Students will also learn basic music history and appreciation. They will apply this knowledge to their vocal and instrumental performance experiences, as well as relating the knowledge gained in this course to other disciplines and cultures. This course provides a platform for students to exhibit and expand their musical potential and talent.

School Band

Grade 6-12

Full Year

1 cr

School Band is open to all non-music students. The main activities are: basic performance of all woodwind, brass and percussion instruments; basic training in a band ensemble, including rhythm, scales, and harmony; basic music theory; different styles of band repertoire, such as marches, overture, folk song, dance, suite, and other arrangements of classical music; performance opportunities at school and in the community.

Music Creativity Through Technology

Grade 9-12

Full Year

0.5 cr

This course is to help students enhance their creative thinking and experience fun music learning. Students will use computer music technologies to make film soundtracks for the movie clips they like, and learn how to make high-quality speech/narrator audio mixed with beautiful background music. Students will also learn to make electronic music through elements of loops music.

NOTES AND QUESTIONS

FOR ADDITIONAL INFORMATION

Visit our website at www.northernacademy.org

Contact the Education Director for more information on the curriculum:
email director@northernacademy.org, phone (845) 779 – 0808

For enrollment and school visit, contact Admissions Office:
email admissions@northernacademy.org, phone (845) 288-0636