Vermont Academy

Education for Life—One Student at a Time

Course Catalog 2014-2015

2014-2015 Course Offerings

ENGLISH

9th Grade

The Quest

10th Grade

The Individual in Society

Honors - The Individual in Society

11th Grade

American Literature

AP English - American Literature and Composition

For international students only
(placement by department evaluations)

English for Speakers of Other Languages (ESOL)

English for International Students (EIS)

12th Grade Full-Year Electives

Honors - Senior English: World Literature

12th Grade Trimester Electives

Fall Trimester

Senior Writing Seminar (required unless enrolled in Honors Senior English)

Journalism (does not replace Senior Writing Seminar)

Winter Trimester

Journalism

Public Speaking

Sports in Literature

Spring Trimester

Journalism

Public Speaking

The Pursuit of Happiness

Madness and Society

Dark Realities: Dystopian Film and Texts

HISTORY

9th Grade

Foundations in History

Foundations in History for International Students (also open to 10th and 11th grade)

10th Grade

Modern Comparative Cultures

Honors European History (T1 and T2)

AP US History (T3)

11th Grade

US History

AP US History

12th Grade Full-Year Electives

AP Psychology

Honors Economics

12th Grade Trimester Electives

Fall Trimester

History of Food and Eating

History of Canada

Eastern Religions

The American Civil War

Introduction to Microeconomics

Winter Trimester

Contemporary Issues

The Long Civil Rights Movement

World War II and the Cold War

The French Revolution

Intro to Macroeconomics

Spring Trimester

The Holocaust

History of American Immigration

History and Film

Applied Economics

MATHEMATICS

Algebra I

Algebra II

Honors Algebra II

Geometry

Honors Geometry

Functions, Statistics & Trig

Pre-Calculus

Honors Pre-Calculus

Probability and Statistics

AP Calculus (AB)

AP Calculus (BC)

AP Statistics

Advanced Topics in Mathematics

SCIENCES

Integrated Physical Science (P)

Biology (B)

Physics-Mechanics (P)

Chemistry (P)

Forensic Science (P)

Kinesiology (B)

Architecture & Engineering (P)

Robotics: Design and Engineering (STEM)

Anatomy and Physiology (B)

Environmental Engineering and Sustainability (P/B)

Electricity and Magnetism (P)

Robotics: Advanced Topics (P)

Biotechnology/Bioethics (B)

Honors Biology (B)

Honors Chemistry (P)

Honors Physics (P)

AP Biology (B)

AP Chemistry (P)

AP Environmental Science (B)

AP Physics Mechanics C (P)

Environmental

Sustainability and the Food System (T1)

Sustainability; Energy and Climate Change (T2)

Sustainability & Human Consciousness (T3)

WORLD LANGUAGES

Chinese 1,2,3

French 1,2,3,4, Honors 5, AP

Advanced Russian

Spanish 1,2,3,4, Honors 5, AP

Advanced Spanish Conversation

PERFORMING ARTS

Advanced Theater Seminar

Jazz Ensemble (open enrollment)

Vocal Ensemble (open enrollment)

Chamber Ensemble (open enrollment)

Music Lessons (open enrollment)

Fall Trimester

Theater I

Intro to Electronic Music

Winter Trimester

Music Appreciation

Electronic Instrument Building & Design

Spring Trimester

Music Theory & Composition

Recording Studio

VISUAL ARTS

AP Studio Art – 2D Design

Advanced Art

Pottery

Freshman Arts

Elective Courses

Art History

From King Tut to Thomas Jefferson (T1 and T2)

Smashing Expectations - Modern Art (T3)

Studio Art I

Introduction to Drawing (T1)

Introduction to 3D (T2)

Introduction to Painting (T3)

Studio Art II

Drawing and Design (T1)

Cardboard Construction (T2)

Painting and Printmaking (T3)

Digital Photography

Basics (T1)

Studio and Still Lifes (T2)

Landscapes and Portraits (T3)

Black And White Photography

B&W applications (T1)

B&W composition (T2)

B&W studio (T3)

Filmmaking

Basic Film (T1)

Stop Motion Animation (T2)

Advanced Film (T3)

COMPUTER SCIENCE

Senior Computing 101 (T1)

Web Design (T2)

App Development (T3)

Senior Seminar (full year)

Vermont Academy in Chile (T2)

Vermont Academy in Spain (T3)

Non-Credit Offerings

Drivers Education

Learning Skills

Key:

Unless otherwise noted, courses are a full year

P = Physical Science

B = Biological Science

T1 = Fall Trimester

T2 = Winter Trimester

T3 = Spring Trimester

English Department Course Offerings

We have two primary goals in English: To help our students become better writers and readers, and to help them sharpen their critical thinking skills. At the same time, we want to convey to them the excitement, power, freedom, and versatility of language through their own experience with writing and through exposure to a wide variety of literary works. Through literature and in their own writing, our students confront the ideas and issues that complete and enrich life.

English courses at all levels are based on individualized and small-group instruction that challenge students to take responsibility for their own learning and to think conceptually. Regular writing and reading assignments, frequent classroom discussions, group workshops, individual student - teacher conferences and special projects are all part of the challenge.

The English Department believes that critical thinking requires an open mind and a safe environment in which to use it. Therefore, we stress a comfortable setting for free exchange of ideas, and we encourage all members of classes to respect the natural variety of opinions and points of view that inevitably flow in class discussion.

English 9 – The Quest

In this year long course, students focus on the close reading of a text, the writing process, vocabulary building, and grammar. They are also introduced to literary forms including short stories, drama, poetry, and the novel. Patterns in literature such as the hero journey are also explored. Readings may include: stories from mythology and *The Odyssey, The Alchemist, The Bean Trees, and The Tempest. No prerequisites.*

English 10 – The Individual in Society

This year long course focuses on how individuals function within the context of the family and in society at large. Students refine skills acquired in the 9th grade. They continue to work on the writing process, analytical writing, vocabulary, grammar, and reading skills. Readings may include: *Fahrenheit 451, Othello, A Long Way Gone, Huckleberry Finn*, and short stories. *No prerequisites.*

English 10 – Honors – The Individual in Society

This year long class for sophomores will emphasize developing writing and reading skills that will be emphasized in junior AP English. Titles may include, but are not limited to: *A Doll's House*, *Night*, *Fahrenheit 451, Othello, A Long Way Gone, Huckleberry Finn*, short stories, and poetry. Students must complete an application process and receive departmental approval to enroll in this course.

English 11 – American Literature

This year long course concentrates on American writers from the 19th and 20th centuries. Students will read a selection of short stories, non-fiction, poetry, and novels covering a variety of literary styles and themes. Students will continue to refine their writing skills in research, analytical, and creative writing assignments. In conjunction with course material and in preparation for standardized tests, this course continues to emphasize vocabulary building and grammar. Texts will include *The Crucible*, *The Great Gatsby, Fences*, and *Sula*. *No prerequisites.*

English 11 – AP English – American Literature and Composition

This year long course for juniors will prepare students to take the Advanced Placement exam in English. Centered on American literature, the course is designed to introduce students to a variety of rhetorical styles and to increase students' repertoire of literary works. Emphasis is placed upon written exercises through which students explore how authors work to convey their meanings, and through which students learn to articulate ideas concisely. Titles may include, but are not limited to: *The Great Gatsby, Invisible Man, The Sound and the Fury, The Scarlett Letter, Bless Me Ultima, A Raisin in the Sun, East of Eden*, short stories by Kurt Vonnegut, Ernest Hemingway, Joyce Carol Oates, Jhumpa Lahiri, Alice Walker, Tim O'Brien, Flannery O'Connor, and poetry from the 18th century to the present. One trimester will focus on British and World Literature in preparation for the AP exam, including: *King Lear, Heart of Darkness,* and *Candide. Students must complete an application process and receive departmental approval to enroll in this course.*

English for Speakers of Other Languages (ESOL)

This is a year-long credit course which concentrates on teaching English as a secondary language. Students acquire listening and speaking skills and study grammar, vocabulary, reading, and writing. New students will be placed in this course based on their performance on a placement test given during orientation. *No prerequisites.*

English for International Students (EIS)

This course cannot be taken concurrently with ESOL. This course is designed as the final transition to mainstream English classes. This year long credit course is designed to give students an opportunity to practice the skills needed in mainstream English classes, such as analytical and personal writing, reading, and how to discuss literature. New students will be placed in this course based on their performance on a placement test given during orientation. *Current ESOL students will be placed in EIS.*

12TH GRADE FULL-YEAR ELECTIVE

Honors Senior English – World Literature

Focusing on world literature, this year long course is designed to introduce students to a variety of rhetorical styles and to increase students' repertoire of literary works. Emphasis is placed upon written exercises through which students explore how authors work to convey their meanings, and through which students learn to articulate ideas concisely. Titles may include, but are not limited to: *As You Like It*, *Pride and Prejudice, and Things Fall Apart*. Students will also read short stories and poetry from the 17th century to the present. Students must complete an application process and receive departmental approval to enroll in this course.

12TH GRADE TRIMESTER ELECTIVES

English 12 – Senior Writing Seminar *(T1)*

(required unless enrolled in Honors Senior English)

Using essays and short stories as models, this course offers an intensive preparation for college level expository writing emphasizing the process approach. Students examine and practice the rules and principles that underpin good writing. Time will be set aside for work on the personal college essay. The main text for this class is *50 essays: A Portable Anthology. No prerequisites.*

Journalism *(T1, T2, or T3)*

(does not replace Senior Writing Seminar)

This course will explore the history and tenets of American journalism and provide students with an opportunity to research and write articles and editorials for publication. The focus of the class will be producing a student run school newspaper the *VA Voice. Open to all students.*

Public Speaking *(T2, T3)*

Public Speaking is a course designed to improve oral communication skills. Emphasis is placed on the application of basic communication theory to practical communication experiences. Speech technique is bolstered by the study of rhetoric with a focus on the development of a unified thesis. By the end of the course, students should have increased confidence in their public speaking ability, learned the prin¬ciples of effective public speaking, demonstrated aspects of effective speech preparation, and applied appropriate public speaking skills to a variety of speech contexts. *No prerequisites.*

Sports in Literature *(T2)*

Why is there so much great baseball literature, but so little quality fiction about basketball? What drew Hemingway to write about hunting and fishing, not skiing nor tennis? What is it about some sports that make them great fodder for fiction, while others simply fall flat on the page? This class will endeavor to answer these questions and others, by reading and discussing *Shoeless Joe, The River Why, The Legend of Bagger Vance*, and several short stories about hunting. Students can expect to write frequently, both in class and out of class, in forms both short and informal, and long and polished.

Madness and Society *(T3)*

In many provocative literary works, characters are viewed as mad by those around them. This course will explore the social norms presented in various texts (such as, but not limited to "The Yellow Wallpaper", selected stories by Edgar Allen Poe, F*ight Club, A Clockwork Orange, and Hamlet*.) and the reasons why characters are often deemed mad. We will also explore the responses to mad characters – ostracizing, imprisoning, and reforming – and how those actions affect both the individual character and the society in which he/she lives. Students will be expected to write regularly, most often in response to a section of the reading. As the course proceeds, essay topics will ask students to link texts together. *No prerequisites.*

The Pursuit of Happiness *(T3)*

According to John Milton's Satan, "The mind is its own place, and in itself can make a heaven of hell, a hell of heaven." Is this true that happiness can be both created and destroyed in our own minds? Or, as our forefathers suggested in defining our right to the *pursuit* of happiness, is there more of a quest involved in being happy? Let me state what this course will NOT do... I will not teach you how to be happy; I will not even attempt to tell you what happiness is, nor how to pursue it. In this course, students will read a variety of world literature and through discussions and writing, attempt to answer these essential questions for themselves: *What is happiness?* and *How does one attain it, or attempt to?* As an exciting and refreshing lens to look through, we will also read Shawn Achor's *The Happiness Advantage*.

Dark Realities: Our World Revealed in Dystopian Film and Texts *(T3)*

Texts and films often imagine dark realities meant to reflect contemporary society. These dark worlds much like our own are called dystopias. This course will explore the dystopian realities presented in various texts and films (including but not limited to "The Machine" by EM Foster, *1984, Do Androids Dream of Electric Sheep, The Handmaids Tale, Bladerunner, The Matrix, Wall-E*, and episodes of *The Twilight Zone*) and examine the ways in which these texts and films reflect our present society. We will also identify various themes in dystopian narratives, including politics, the environment, corporations, technology, the apocalypse, violence and aliens. Students will be expected to write regularly, including critical reflection and analysis. Students will have the opportunity to complete one independent project in which they write a critical analysis of a dystopian film not otherwise covered in class. *No prerequisites*.

History Department Course Offerings

The History Department offers a variety of courses that will leave students with a wide knowledge of history across time and geographical space after their four years at Vermont Academy. Beginning in the freshman year, students gain a firm foundation in key historical themes and develop essential reading, writing, speaking, and critical thinking skills. Subsequent courses in Modern Comparative Cultures, U.S. History, and senior-level electives build upon these skills and historical approaches throughout a student's years at VA. In each course, there is an emphasis on historical research and writing. Across the history curriculum, we also place a high premium on learning history by doing history: students read primary sources to listen in on the voices of the past, evaluate those sources, and synthesize them into historical arguments. Students are also given ample opportunities to speak and engage with their peers in class through interactive classroom activities and presentations.

Students are required to complete a minimum of three credits in social studies, including U.S. History, which is typically taken during the junior year. Students must take history in grades 9, 10, and 11, but may choose whether or not to take a history elective in their senior year. Designated honors/AP sections are available for grades 10 through 12. Students electing to take honors courses will need the approval of the course instructor or department head. Not every course is offered every year.

NINTH GRADE

Foundations in History

Foundations in History is a year-long course in which students learn not only basic study skills – note-taking, test-taking, and organizing – but also the essential skills of history: reading, writing, speaking and thinking critically about the world. The course will explore three major historical themes: The Power of Ideas, Patterns of Organization and Authority, and Commodities and Exchange. Using these themes, students will investigate early civilizations from ancient Mesopotamia through the Middle Ages. Within each of segment of the course, students will read primary sources, write argumentative papers, learn and execute the research process, and speak articulately and passionately about these topics.

Foundations in History for International Students

(for new international students in grades 9, 10, and 11)

This course is designed for students who are new to VA and whose first language is not English. The goal of the course is for students to develop their English communication and historical thinking skills through papers, projects, and presentations. As they develop these skills, students will experience American culture through the use of historical documents, documentaries, movies, and music. Class participation will also be a major part of the course and each student's evaluation. The course does not fulfill the American history requirement; students enrolled in this course will be expected to take United States history in their junior year. Instead, this course is meant to provide them with the foundation, in terms of both skills and familiarity with American culture, that they will need in order to succeed in mainstream history classes in the 11th and 12-grade years.

TENTH GRADE

Modern Comparative Cultures

Modern Comparative Cultures is a year-long course for sophomores that introduces students to the Western and non-Western world from the early modern era to the present. Along the way, students will be encouraged to read, think, speak and write critically and analytically about the histories and cultures we cover in the course. Topics from the beginning of the year include the Columbian Exchange, Scientific Revolution, and the Ages

of Enlightenment, Revolution, Industrialization and Imperialism. In the second half of the year, we will begin with a discussion of the World Wars, the Cold War, and the Age of Globalization and end with the War on Terror and the 21st Century. We will pay particular attention to global history. Specifically, students will examine the cultural, social, political, economic and religious systems in this period. The course will conclude with a significant research project of the students' choosing.

Honors European History *(T1 and T2)*

Offered to selected sophomore students who have achieved a high level of success in freshman history, this two-trimester course covers the history of Europe from the Renaissance through the French Revolution. Topics will include the flowering of art, culture, and new ideas in Renaissance Italy; the diversification of Christianity that accompanied the Protestant Reformation; the expansion of Europeans' worldview in the Age of Exploration; the rise of secular and scientific ideas during the Enlightenment; and the challenges to absolutist monarchy that characterized the French Revolution. Students will learn to work critically with both primary and secondary sources and will develop their writing skills through a variety of writing assignments.

AP United States History *(T3)*

Those sophomores who would like to continue taking history at the Honors level may enroll in the four-trimester AP U.S. History series, which begins in the spring trimester of the sophomore year and continues through the junior year. In the sophomore year, we will cover the earliest phase of United States history, spanning from the history of pre-Columbian American Indians through the beginnings of the Early Republic. Topics will include the colonization of North America by competing European empires, the development of English colonies in New England and the Chesapeake, the history of colonial slavery, the American Revolution, and the development of nation's government through the Constitution. Throughout the course, students will gain experience with the format of the AP exam. The class will not focus solely on test preparation, however, and will continue to emphasize work on critical thinking and writing skills.

ELEVENTH GRADE

United States History

This junior level course offers a survey of American history from the mid-15th century to the present. We will study the major social, political, and economic transformations that have characterized the past five centuries in what is now the United States. Emphasis will be placed not only on learning the important people and places of the past, but also on developing critical reading and writing skills to better prepare the students for study in college. Assignments include response papers, projects, presentations, and several research assignments.

AP United States History

Those juniors who completed the spring trimester of AP U.S. History in their sophomore year must enroll in this course in their junior year. In the junior year, we will continue to prepare for the AP exam as we study the history of the United States from its infancy as a nation to the present. Throughout the year, we will study the major social, cultural, political, and economic transformations that have characterized American history. In addition, students will hone their reading, writing, and critical thinking skills, culminating in the AP exam in May. All students in the course are required to take the exam.

TWELFTH GRADE ELECTIVES

Honors Economics

This is a full-year course that introduces the fundamental concepts of both Microeconomics and Macroeconomics. Students will begin the year by exploring the economic principles that apply to individual decision makers, both consumers and producers, acting within a market. This micro-level approach will explore concepts such as scarcity, opportunity cost, and the law of diminishing marginal returns, among others. These topics, along with thorough analysis of the role of government within these markets, will be discussed in order to develop a sense of the economy as it applies to individuals on a daily basis. In the second half of the course, many of these concepts will be revisited on a more aggregate, or Macroeconomic, level. Topics include the study of national income and price-level determination, as well as an exploration of broad economic indicators such as gross domestic product, unemployment, and inflation. These topics will be explored and enriched by discussion of government regulation in the economy through investigation of current events as well as historical case studies. Students will be expected to take both the AP Microeconomics and AP Macroeconomics exam at the conclusion of this course.

AP Psychology

This course is meant to prepare students for the AP Psychology exam, introducing students to the systematic and scientific study of behavior and mental processes of human beings and other animals. Students will study psychological facts, principles, and phenomena associated with the major subfields within psychology. In addition, students will explore how psychologists use research methods and critical analysis to explore human behavior. In particular, students will learn about ethical considerations for and methods of psychological research, and will learn how to plan for and conduct their own research. This is fast-paced course that will require a significant amount of memorization, and students must purchase the textbook before arriving in class. All students enrolled in the course will be required to take the AP exam at the end of the year.

History of Food and Eating *(T1)*

Food and eating are central to our existence and have been since the beginning of humankind, yet how many of us have stopped to consider all of the important roles food plays in our lives? This course will examine the long history of the relationships between human societies and food, including how and why we both produce and consume it. We will explore how access to certain foods and food-production technologies has acted as a driving force in human history. How has the ability to control food endowed some groups with power while impoverishing others? What role has food preparation and consumption played in crafting gender roles and racial inequalities? How has food affected the outcome of wars, or inspired mass migrations of human populations? In addition, the course will pay close attention to a variety of historical eating habits and customs to uncover the role food plays in various cultures. Why do some religions hold a taboo against eating pork, for example? What does the structure of a meal reveal to us about the eaters? Students will complete a series of short assignments and essays over the course of the trimester and will end the term with a research presentation project.

History of Canada *(T1)*

This course explores the challenges associated with the formation of a Canadian national identity. Students will examine the social, political, and economic forces that have shaped Canada from the pre-contact period to the present and investigate the historical roots of modern issues from a variety of perspectives. Students will learn about the structural evolution of Canadian society from prior to the arrival of European settlers, to the founding of New France, the British take-over of Canada, and Confederation. Additionally, the course will examine Canada's geopolitical interdependence, its role and involvement in the major conflicts and organizations of the world, and its relationship with the developing world.

Eastern Religions *(T1)*

To both believers and non-believers alike (and everybody in between), it is obvious that religions play a major role in the world today. Since the birth of civilization, they have helped humans understand their place in the universe, answered questions of right and wrong, reinforced social and political orders, and provided solace to those fearful of the vast unknown that lies ahead. Bells tolling mightily at the Vatican to announce mass and the eerily-beautiful adhan calling residents of Mecca to prayer are powerful symbols of the expansive reach that religion has in our lives. In particular, the religions of India and East Asia have captivated the imaginations of the western world. Positing worldviews and cosmologies so distinctly different from those of the Judeo-Christian tradition, these faiths have garnered both the intrigue and, at times, the scorn of the Western world. By examining the development, basic beliefs, holy texts, rituals, and architecture of some of Asia's major religions, students will gain an understanding of just how expansive their reach has been throughout the long histories of India, China, Southeast Asia, and Japan. Topics for the course include Hinduism, Buddhism, Daoism, and other minor faiths as time allows.

The American Civil War *(T1)*

This course examines one of the defining moments in American history, the Civil War. In addition to looking at the war itself, focus will also be placed upon the events leading up to the conflict, the political and social developments during the war, the questions surrounding slavery, and the culminating period of Reconstruction. Students will closely examine the lives of Abraham Lincoln, Jefferson Davis, Robert E. Lee, and William Tecumseh Sherman in addition to those of everyday people in both the Union and the Confederacy. The students will investigate numerous primary sources in addition to secondary sources, film, and photographs to understand what led to this initial period of division, and ultimately, healing.

Introduction to Microeconomics *(T1)*

Microeconomics is an introductory course that examines how society decides to allocate scarce resources. We will study how households and firms make decisions and how they interact in the market. Students will learn how consumers make decisions on spending, how firms decide on how much to produce and at what price, and the role government can have in influencing these decisions. We will read newspaper articles on a weekly basis and try to relate the concepts we are learning from the text to current economic events.

Contemporary Issues *(T2)*

What is going on in the world today? Turn on CNN, read the newspaper headlines, or tune in to NPR, and it is a pretty easy question to answer. But is what you hear on the news or read online the whole story? Students in Contemporary Issues will examine major global events from an historic, economic, social, political, and cultural standpoint in an effort to gain a greater understanding of why the world is the way it is today. By tracing the roots of some of the world's pressing issues – environmental changes, economic downturns, wars, political upheaval, and epidemic diseases – students will seek to understand just how some of these problems began. In examining how the news works, they will also come to better understand what gets reported and why, thus allowing them to consider the role that the media plays in shaping our understanding of a complicated, dynamic present. Students will even consider how they can effect positive changes starting in their own communities, as the goal of Contemporary Issues is to help students become informed, empowered citizens of a complex and interdependent world. Course content will include excerpts from scholarly texts and regular readings of major newspapers and online news sources, and students will have an opportunity to select one contemporary issue of their choosing as the focus of a research project.

The Long Civil Rights Movement *(T2)*

Ask anyone about the Civil Rights Movement and they will likely mention Martin Luther King, Jr., and Rosa Parks, and perhaps conjure up images of protests and marches. While these were central elements of the Civil Rights Movement, this course will delve far deeper into the history of the movement to discuss otherwise unknown leaders and examine a variety of strategies of social and political activism. We will trace the movement's development from its World War II roots through the rise of Black Power in the late 1960s, all the while paying close attention to change that occurred from the "top down" (laws that were passed, court cases won) and the "bottom up" (door to door voter turnout campaigns, sit ins, Freedom Rides, etc.). By the end of the course, we will be able to assess how successful the Civil Rights Movement really was: how much has changed and what remains the same? What are the new civil rights frontiers in the present day? Assignments will include readings, analytical essays, and a final research presentation project.

World War II and the Cold War *(T2)*

This course examines the period of time from the beginning of the second World War until the beginning of the twenty-first century. Students will look at the growth and collapse of empires as a result of World War II, the rising emergence of the U.S. and the U.S.S.R. as world superpowers, and the importance of nuclear weapons. Students will work to understand how the U.S. and the U.S.S.R.'s competing political and economic ideologies dominated international affairs for half a century, and will also look at what lasting influence this competition has had on world politics. Course content will include a combination of primary and secondary sources and several short assignments and essays.

The French Revolution *(T2)*

This course will examine the contributing factors to the revolutionary process as it unfolded in late 18th century France. Students will explore the Old Regime and the actions of the monarchy that sparked a widespread desire for rebellion and set the stage for the Revolution. By examining major events and key political figures vital to the Revolution, students will investigate the unique circumstances necessary for the rise of drastic civil unrest and the ensuing chain of events involved with creating mass sociopolitical change. Students will be expected to present and discuss material in class, and complete weekly writing assignments including a final paper.

Introduction to Macroeconomics *(T2)*

Introduction to Macroeconomics is designed to introduce the basic theories, concepts, and principles of macroeconomics, which is the study of how the economy works as a whole. We will study the effects of unemployment, inflation, money and banking systems, as well as the role of supply and demand and economic growth. Also, the course will study the effects of macroeconomics on the U.S. and global economies and the long-term and short-term fluctuations in the economy. The students will also compete in a virtual stock market game that will last for the duration of the winter semester. Macroeconomics is a continuation of the Introduction to Microeconomics course, although the completion of Microeconomics is not a prerequisite for enrollment in Macroeconomics.

The Holocaust *(T3 – two sections)*

This upper-level elective is for mature students who can handle the difficult subject matter. The course opens with an examination of the historical context of Nazi Germany and investigates the political, economic and social conditions that allowed for evil to flourish. Although the Holocaust has come to describe the Nazi extermination of Jews during World War II, there are other instances of genocide found throughout the world. With that in mind, we will not only study the genocide of the European Jew, but also the plight of the First Americans, the Armenians, and other more recent acts of genocide. We also discuss the role of the individual in society and explore the process by which individuals and groups become marginalized, excluded, and then targeted by those in power. The course requires a great deal of reading and writing, and a research paper on a topic relevant to genocide is mandatory. Graphic evidence of the Holocaust is presented through the use of documentaries. This course includes a class trip to the Holocaust Museum in Washington, D.C. While this field trip is not required, students are highly encouraged to attend.

History of American Immigration *(T3)*

This course examines the history of American immigration from the colonial period to the present. Students will look at the settlement of the English colonies, European migration during the mid-19th century through the 20th century, as well as Asian and Latin American immigration to the United States. Students will identify push and pull factors of immigration, examine ways in which immigrants have shaped American culture, and explore the growth of immigration restrictions and anti-immigrant rhetoric. As part of the class, students will also study the history of their families' immigration to make connections between America's history and their own.

History and Film *(T3)*

How often have you sat in a just-darkened theater, grabbed a handful of popcorn, and heard a preview kick off with the words, "Based on a true story…?" Hollywood has long embraced dramatic historical epics as summer blockbuster mainstays. The International Movie Data Base lists over 4000 movies based on historical events. Three of last year's Academy Awards nominees for Best Picture (*Lincoln*, *Zero Dark Thirty*, and the winning film, *Argo*) were historical dramas. Biopics like *The Aviator*, *Ray*, and *Walk the Line* were major critical and commercial successes that offer audiences a glimpse into the untold stories of important historical figures. It's true—everybody likes a good sword-and-sandal flick like *Gladiator*, and Hollywood knows it. But why? Why do stories to which we often know the ending captivate us so much? What's more, is what we see on the big screen an accurate reflection of true events? Students in this course will view several feature films, read essays about the movies, and examine the historical background of the events portrayed from an academic perspective to see how Hollywood stacks up to history. By doing so, they will explore concepts such as historical bias, heroes and villains, revisionism, propaganda, and creative interpretation of the past in order to answer the question, "Should you believe everything that you see in the movies?" Please note: the films selected for this class might not be suitable for sensitive viewers.

Applied Economics *(T3)*

This course is an extension of Microeconomics and Macroeconomics. We will study some of founding principles that deal with Economic theory and practice. The course is designed to expand on the concepts learned in the previous two trimesters by adding some historical context and analysis. We will study texts from prominent historical economists such as Adam Smith, Karl Marx, and John Maynard Keynes. Students will complete a large research paper and presentation during the trimester. Students will be asked to expand on the concepts covered from both the fall and winter, along with the materials covered in this course, to figure out what type of economist they will become. *Students must take Microeconomics and Macroeconomics as prerequisites for this course.*

Mathematics Department Course Offerings

The Mathematics Department offers a range of courses designed to teach the mathematics required for admission to colleges and universities. The goal of the department is to provide our students with the ideas, skills, concepts, and attitudes that are essential for further study in mathematics and related fields, and to foster an appreciation for the power and beauty of mathematics. The Mathematics Department recommends that all students take four years of mathematics. Successful completion of Algebra I, Geometry, and Algebra II is required for a Vermont Academy diploma. All mathematics courses require that students have a TI-83+ or TI-84 graphing calculator.

Algebra I

This full year course emphasizes such topics as the properties of the real number system, solving first degree equations for one variable, fundamental operations involving exponents, graphing and interpreting linear equations, factoring, proportions, basic properties of quadratic equations and their graphs, and problem solving strategies.

Prerequisites: This course is open to all entering 9th graders and others by recommendation of the department.

Geometry

In this full year course, students learn to recognize and work with geometric concepts in various contexts. They develop an understanding of Euclidean plane and solid geometry through inductive and deductive reasoning, logic, and problem solving. Students use visualizations, spatial reasoning, and geometric modeling to develop formulas and solve problems. Topics of study include points, lines, and angles, the properties of triangles, quadrilaterals and other polygons, circles, coordinate geometry, three-dimensional solids, geometric constructions, proportions, symmetry, the use of transformations, and an introduction to trigonometry. Throughout the course, students will make important connections between geometry concepts and those previously mastered in Algebra 1.

Note: Students hoping to take Algebra 2 and Geometry simultaneously must have earned at least a B+ in Algebra 1.

Prerequisites: successful completion of Algebra I or by recommendation of the department.

Geometry Honors

This full year course follows the description of the traditional course at a more rapid pace, in more depth, and with more connections made to algebra topics. A greater emphasis will be placed on developing ideas collaboratively through the problem solving process, oftentimes before any formal postulates or theorems are presented. Students will devise, present, and defend rigorous geometric proofs.

Prerequisites: successful completion of Algebra I or by recommendation of the department.

Algebra II

This full year course delves more deeply into all of the topics covered in Algebra I. There is strong emphasis on algebraic and transcendental functions, trigonometry, analysis of both the real and complex number systems, arithmetic and geometric sequences, and probability.

Note: Students hoping to take Algebra 2 and Geometry simultaneously must have earned at least a B+ in Algebra 1.

Prerequisites: successful completion of Algebra I.

Algebra II Honors

This full year course has all of the content of Algebra 2 and more. Students will primarily use the ALEKS web-based educational environment for course materials, supplemented by in-class lectures and problem-based projects. Each student will have a learning profile through ALEKS which tracks progress and facilitates individualized programs within the course. The goal of the course is to develop problem solving skills with emphasis on creating connections between concepts and communicating mathematical ideas. Areas of study include a variety of functions and their applications, as well as inquiry into the process of mathematical reasoning. Students should expect homework assignments to include reading and learning new material independently prior to attending class.

Prerequisites: Students applying for the Honors section must have earned at least a B+ in Geometry and obtain the permission of the department.

Functions, Statistics, and Trigonometry

This full year course develops students' critical thinking and problem solving skills that they will apply for the rest of their lives. It makes a connection between the theory of mathematics taught in the classroom and real world situations, integrating real life problems from science, business, and other applications while reinforcing and expanding on the student's existing skills. The course completes the study of the elementary functions (linear, quadratic, exponential, logarithmic, and trigonometric) and includes topics from finite mathematics, including basic probability and statistics. This class is designed to review topics from previous courses while introducing material that will be given emphasis in Pre-calculus.

Prerequisites: Successful completion of Algebra II.

Pre-calculus

This full year course is designed for the mathematics/science student preparing for AP or college-level Calculus and/or advanced science classes. Students will explore algebraic and transcendental functions (with an emphasis on trigonometric functions) in terms of tables, formulas, graphs, and their application. Other topics covered include vectors, analytic geometry, the numbers *i, e,* and φ, trigonometric identities, algebraic translations, radian measure, and series. Students will strengthen their ability to communicate mathematical ideas clearly and effectively, and will employ a variety of technologies to develop and demonstrate their ideas. Successful completion of this class will prepare students to take AP Calculus AB.

Prerequisites: Successful completion of Functions with a B average or higher, Algebra II Honors with a B- average or higher, or by recommendation of the department.

Honors Pre-Calculus

This accelerated full year course is designed for students interested in pursuing a math related curriculum in college. Topics include functions, series, sequences, matrices, complex numbers, conic sections, polar and parametric equations, linear regression, vectors, applications of trigonometry, and an introduction to Calculus. Successful completion of this class will prepare students to take AP Calculus BC.

Prerequisites: Successful completion of Algebra 2 honors.

Probability and Statistics

This project-driven, full year course is an exploration of the elements of probability, and introduces students to the basics of statistical testing. This course is a good foundation for AP or college level Statistics.

Prerequisites: Successful completion of Pre-Calculus or Functions, Statistics, and Trigonometry. This class may also be an option for students who have successfully complete algebra 2 Honors and are interested in an alternative to pre-calculus, but are not ready to take AP Statistics.

AP Statistics

This full year course follows the Advanced Placement Statistics course requirements. In statistics, students learn the art of distilling truth from data. Students will collect and analyze data from the surrounding community and pre-prepared scenarios, test hypotheses, and make appropriate conclusions. Students will learn how to properly display and discuss statistics and their implications.

Prerequisites: Successful completion Algebra 2 and with permission of the department. Students must be prepared to complete college level work.

AP Calculus (AB)

This full year course follows the Advanced Placement Calculus AB course requirements. Students are introduced to the derivative and the integral with emphasis on their applications.

Prerequisites: Successful completion Pre-calculus with permission of the department. Students must be prepared to complete college level work.

AP Calculus (BC)

This full year course follows the Advanced Placement Calculus BC course requirements. It covers the same material as AP Calculus AB, plus other topics listed in the Advanced Placement Calculus BC course requirements.

Prerequisites: Successful completion of AP Calculus (AB) with permission of the department. Students must be prepared to complete college level work.

Advanced Topics in Mathematics

This full year course is occasionally offered as an independent exploration into further topics within Mathematics. It is currently incorporated under the umbrella of the Senior Seminar, which is a student initiated guided research format approved by the department.

Prerequisites: Successful completion of AP Calculus AB, AP Calculus BC, and AP Statistics with the permission of the department. Students must be prepared to complete independent college level work.

Science Department Course Offerings

Science has been described in numerous ways ranging from "any methodological activity" to "knowledge gained through experience." At Vermont Academy, it is presumed that experience is the key to the study of science and, therefore, students are given as much scientific experience as possible. The goal of the science curriculum is to help students consider data presented to them and make intelligent, rational, and justifiable decisions based on that data. This approach will give students the tools they need to explore the scientific concepts they will face in college, and to later pursue rewarding careers in the sciences. The normal sequence of courses for a student begins with Biology, in either the freshman or sophomore year. Science electives and advanced level science classes are offered based on interest and availability of faculty.

Note: New Graduation requirements for Science
Students must have **three** years of high school science in order to graduate from Vermont Academy: one Biological = B, one Physical = P, and one more science of your choice

Integrated Physical Science (P)

Integrated Physical Science is a year- long laboratory science course, with its main goal being to instill a strong base of the fundamentals of scientific inquiry. The following concepts will be explored throughout the year: scientific method, setting up an experiment with variables, collecting and recording scientific data, proper format for laboratory reports, scientific writing, and scientific language. The first trimester explores what is beyond the earth, touching on such topics as atmosphere, weather, and astronomy. The second trimester answers the question, "How do things work on the earth?" The curious world of physics teaches motion, momentum, energy, and a bit of robotics. The third trimester tackles geology, answering the question, "what is the earth?" The origins of our planet, geologic time, and field work

of local rock will be the topics covered. Students will be graded on homework assignments, laboratory investigation procedure and technique, formal laboratory reports, and a complement of papers, quizzes, tests, participation, and a trimester exam.

Prerequisites: None

Biology (B)

Biology is a full year lab course that will help students to explore interactions between living organisms and their environment. The focus will be on New England flora and fauna, emphasizing time in the field to identify species in the Vermont Academy forest and interpret the history of our local landscape. The course will introduce students to basic concepts of scientific study, research and experimentation and explore major themes including biodiversity, landscape history, evolutionary ecology, and conservation biology. The course will meet for one lab block each week, providing the opportunity for supplementary lab and field experimentation. The combination of these methods is designed to encourage observation, critical thinking, attention to detail, and understanding of the scientific method. Evaluation is based on participation and attendance, homework, tests and quizzes, lab performance and reports, and a final exam.

Prerequisites: Passing the IPS Skills Assessment

Physics – Mechanics: (P)

This year long laboratory physical science utilizes basic algebraic and trigonometric techniques to solve physics problems. Topics covered include using vectors to analyze motions in one dimension and two dimensions, accelerated motion, circular motion and the associated forces, mechanics, and kinematics. Experiments will be designed, performed, and data collected by the students using automated machines. The student will learn how to design, build, wire, program, and collect data autonomously. The student will also learn how to maintain an engineering design notebook, create simple proof of principle experiments, collect, examine, and use electronic data to make scientific conclusions to hypothesis. In addition, the student will learn to create and write technical documents based on the information gathered. In this way, the students will be discovering physics and engineering design using a hands-on STEM approach.

Prerequisites: Completion or concurrent enrollment in Algebra II or prior approval from the department.

Chemistry (P)

Chemistry is a laboratory science course in which students investigate the composition of matter and the physical and chemical changes it undergoes. Students use science process skills to study the fundamental structure of atoms, the way atoms combine to form compounds, and the interactions between matter and energy. Students explore chemistry concepts through an inquiry-based approach. This course offers a solid understanding of the fundamentals concepts of chemistry. It will utilize a STEM based approach where problem solving is presented logically one step at a time, with sample solutions to all types of chemistry based interactions and problems.

Completion of Algebra I or concurrent in Geometry. Prior approval from the department may be required.

ENVIRONMENTAL TRIMESTER COURSES

Sustainability and the Food System *(T1)*

Food has the power to nourish us—body, mind and spirit. Food connects us to family and friends and to our cultural roots. To paraphrase Wendell Berry, *eating is an agricultural act, one that ends the annual drama of the food economy that begins with planting and birth. Most eaters today, however, are no longer aware that this is true… they think of themselves as passive consumers ignoring important questions about the quality and true cost of what they are sold (The Pleasures of Eating, 1990).*

Sustainability and The Food System is a trimester-long course intended to teach students about how food has changed from sustenance to business commodity, and how the industrialization of the food system has resulted in social injustice, environmental degradation, and a decline in human health. We will also explore the growing movement towards food sustainability through community supported agriculture, farm to school programs, urban farming initiatives and the resurgence of interest in buying locally grown organic produce and free-range, grass-fed animal products. Students will have the opportunity to visit local farms, participate in a community garden project in Saxtons River, plan and prepare a number of locally sourced meals, and explore ways in which Vermont Academy can further develop its own Farm to School Program.

Prerequisites: Course is open to students who have successfully completed Biology and get department approval.

Sustainability; Energy and Climate Change *(T2)*

For most of our time on this planet, the human species has maintained a population well below 1 billion individuals. Beginning in the 1900's however, human population growth began to increase exponentially so that there are now over 7 billion of us sharing the limited resources of one Earth. Human population growth is directly linked to advances in medicine, agriculture and other technologies made possible by the industrial revolution and the exploitation of fossil fuel energy resources including coal, oil and natural gas. The production of fossil fuel resources, however, has resulted in carbon dioxide

emissions that are concentrating in our atmosphere and creating an amplified greenhouse effect referred to as *global warming*.

Global warming has catalyzed increased droughts and heat waves, the melting of the polar ice caps, destructive storms and flooding events, ocean acidification, sea-level rise, loss of biodiversity and animal extinction. According to climate scientists, unless we rapidly make the shift to clean, renewable energy sources such as solar, wind and hydropower, we may be headed towards a climate tipping point. This course will familiarize students with the science of climate change and help them to explore our most viable choices for a clean energy economy. Students will participate in the Green Schools Alliance's *Green Cup Energy Challenge* and learn about energy use right here at Vermont Academy. They will also work with VA's Sustainability Committee to help our community become more energy conscious and help us to take steps towards our own shift towards energy efficiency and clean, renewable energy.

Prerequisites: Course is open to students who have successfully completed Biology and get department approval.

Sustainability & Human Consciousness *(T3)*

Modern humans have resided on this planet for approximately 200,000 years—only a tiny fraction of the 3.5 billion years that life on Earth has existed. We consider ourselves to be the most intelligent and conscious species that has ever lived, yet conservation biologists inform us that our activities are currently accelerating the normal rate of species extinction by 1,000 to 10,000 times. As the human population exponentially increases and the global economy continues to depend on fossil fuel for food and energy production, ecologists and climate scientists warn that we will soon bring the planet towards a tipping point that may make it unsuitable for life as we know it. As a conscious species, *how will we choose to move forward?*

Sustainability and Human Consciousness is a trimester-long course that will help students to gain deeper respect for the billions of years of evolutionary time it has taken for the planet to develop the spectacular biodiversity that exists today. Together, we will explore our role as the caretakers of an evolving and conscious species with the power to preserve or destroy Earth's biological legacy. We will explore the works of visionaries such as Terry Tempest Williams, Barry Lopez, Daniel Quinn, and Frijtof Capra. The ultimate goal of this course is to inform, inspire and empower students to be the leaders in a paradigm shift towards a more sustainable human consciousness that sees itself as a part of nature and envisions a brighter future for the health and wellness of our species and for all the other species that will inhabit our planet in the future.

Prerequisites: Course is open to students who have successfully completed Biology and get department approval.

ELECTIVE COURSES

Robotics: Design and Engineering (STEM)

This year long laboratory physical science covers a wide range of entry level electrical, mechanical, software design topics as applicable to the years First Tech Challenge (FTC) competition. They will work with an experienced project leader and learn how to function as part of a team working together with common goals and timelines. Topics include electrical and hardware design, NXT-G and/or Robot C programming software, the basics of trouble shooting hardware and software malfunctions. The student will also learn how to maintain an engineering design notebook, create simple proof of principle experiments, collect, examine, and use electronic data. In addition, the student will learn to plan long term projects, maintain a schedule, create and write technical documents based on the information gathered, and create a business plan. In this way, the students are discovering physics and engineering design using a hands-on STEM approach.

Prerequisites: Completion of Physics Mechanics or prior approval from the department.

Forensic Science (P)

Forensic Science is a yearlong course. Enrollment requirement: Students must have successfully completed or be concurrently enrolled in biology and chemistry. Physics and human anatomy are strongly recommended.

The class is designed around authentic performance assessments with students working in teams to solve crimes using scientific knowledge and reasoning. It involves all areas of science including biology, anatomy, chemistry, physics, and physical science with an emphasis on complex reasoning and critical thinking and STEM centered applications. In addition, students must incorporate the use of technology, communication skills, and mathematics.

Prerequisites: Course is open to juniors or seniors who has completed both Biology and Chemistry or concurrently enrolled in chemistry.

Kinesiology (B)

Exploration of the application of scientific concepts to the study of human motion is covered in this course. The concepts are drawn from the studies of human anatomy and physiology, chemistry, and physics. The students will have the use of several anatomical skeletal models to study the architecture of bones, joints, and muscles as well as the opportunity to complete laboratory activities investigating the actual range of motion, speed, and strength of selected joint movements. The human nervous system will also be covered. Energy usage and nutrition will be studied in terms of body development, growth, conditioning, and repair. The students will discuss the mechanism of several bone, joint, and muscle injuries and the mechanics of repair and rehabilitation from these injuries. The use and abuse of drugs for sport competition may also be discussed. Practical application to athletic exercise prescription will also be covered.

Prerequisites: Biology and Chemistry. Laboratory exercises regarding aerobic and anaerobic exercise and strength training will also be included. Department Approval maybe required.

Architecture and Engineering (P)

This is a yearlong course that looks at the architect as part artist, designer/engineer, visionary, organizer and master of presentation. In this course, the students will investigate their own architectural tools of the trade, a creative mind, artistic talent with paper, pens and pencils, and research and organizational skills as they are applied to completing an architectural project.

Topics for research papers and presentations include:

- Dream House
- Differentiating architectural time periods and construction techniques
- Green Architecture
- The Smart House
- Planning the village, town, or city

The students will investigate these topics, present them to the class and learn about the entire process from each other. They may visit with some of the types of architectural firms, and a discussion of the organization and responsibility of each and of the various trades and groups that would be encountered by the architect in a typical project.

Hand and computer drafting techniques will be presented and used in a variety of small assignments as they pertain to progress through a project. The students will choose an architectural project. This project is to be completed by the end of the academic year. It will be evaluated through a presentation to a panel as if it were for a real client. The text for this course is Introduction to Architecture by Francis D.K. Ching and James F. Eckler, 2013 edition.

Prerequisite: Course is open to juniors or seniors who have completed a course in physics that included vector analysis and Algebra II. Department Approval may be required.

ADVANCED ELECTIVE COURSES

Anatomy and Physiology (B)

This yearlong lab course will integrate biology, chemistry, physics, and health through the fundamental concepts of human anatomy and physiology. It is hoped that participation in this class will stimulate students' interest in medical and paramedical related fields. Topics to be studied include (but are not limited to); histology, integumentary system, musculo-skeletal system, nervous system, endocrine system, cardiovascular system, digestive system and excretory system. Class time will be utilized with a combination of discussions, lectures, videos, group and individual work and extensive lab work. Evaluation is based on participation and attendance, homework, tests and quizzes, lab performance and reports, projects, and a final exam. Lab work will include (but not be limited to); histological examination of organs, examination of real skeletons, dissections of a cat, sheep's brain and heart, and cow's eye. Each unit will include written and lab practical assessments.

Prerequisites: Course is open to juniors or seniors who have completed Honors Biology and have taken, or are concurrently enrolled, in Chemistry. Offered alternating academic years.

Environmental Engineering and Sustainability (P/B)

In this hands-on course, students become architects and innovators while working as a team to create projects with the potential for implementation! Students will have the opportunity to engineer a system that incorporates the three pillars of sustainability: social responsibility, environmental sensitivity & economic viability. Principles of renewable energy, "cradle to cradle" design, bio-mimickry, and systems thinking will be thoroughly explored. Throughout the design stage, ideas will be mapped out and potential flaws will be analyzed. Next, corrections will be made using a process that will help students to develop skills in collaboration and problem-solving, while engaging their natural curiosities and

talents. Once a project is agreed upon, our "think tank" of student-scientists and entrepreneurs will create a business proposal including budget and timeline, which will be presented to a panel of faculty, students and administrators. The proposal will be judged in accord with the three pillars of sustainability and if approved, the students will move forward with the implementation and refinement of the project.

Prerequisites: open to juniors and seniors who have completed Biology and geometry.

Electricity & Magnetism (P)

The Electricity and Magnetism course follows the AP Physics C level course curriculum as a general guideline. Sitting for the AP examination in May is not a requirement for the course. This course will cover electrostatic and electromagnetic forces and fields in depth. Topics of capacitance, resistivity and resistance, and induction as they apply to electric circuitry and the nanostructure of matter will be investigated. This course combines both algebraic and calculus techniques as they apply to the study of these concepts.

During the course of the year, the electric nature of the atom will be investigated as it pertains to the Nanoscale Science of the structure of matter and light. The students will discuss and research topics in the area nanotechnology for the use in everyday materials and process, and for applications in electronics and information technology, sustainability, environmental remedies, nanobiosystems, health and medical improvements, and future transportation systems.

Prerequisites: Students who have completed secondary school laboratory-based chemistry and physics and are currently enrolled in calculus.

Robotics: Advanced Topics (P)

This year long laboratory physical science covers, in much more detail, a more focused range of advanced level electrical, mechanical, and software design topics, including system integration and design, and project planning while assuming a lead role in a design team. The special topic(s) are selected by the student and include:

- Automated control systems theory and its application.
- Applying circuit design and analysis techniques to create custom sensors and other robotic control devices.
- Mechanical design using computer aided design (CAD) software and fabrication using 3-D printing to prototype custom parts.
- Learn how to use Labview software, code custom application blocks for Labview in C.

In this way, the students are discovering physics, engineering design, and engineering team leadership roles using a hands-on STEM approach.

Prerequisites: Completion of Robotics: Design and Engineering or prior approval from the department.

Biotechnology/Bioethics (B)

This yearlong lab course is an introduction for non-specialists to important concepts in modern DNA and protein science with an emphasis on real world applications and their implications to the global society. The course will begin with a review of the Central Dogma of molecular biology and a survey of different ethical constructs. Focus will be on major laboratory investigations that embody many of the fundamental techniques and concepts of modern molecular biology, from basic micropipetting to recombinant DNA technology and gene amplification by PCR. Human reproductive technologies will also be discussed and studied. Evaluation is based on participation and attendance, homework, tests and quizzes, lab performance and reports, and projects. Students will be expected to write small formal lab reports after each new biotech concept and they will be expected to write formal and informal (in the form of reaction papers) papers that explore student and teacher generated issues that relate to each technology. Final exams will include a lab practical and a written project.

Prerequisites: Course is open to juniors or seniors who have completed honors Biology and have taken or are concurrently enrolled in Chemistry. Two years of reading and writing in English is also required. Offered alternating academic years.

Honors Biology (B)

Honors Biology is a yearlong lab course designed to introduce students to basic concepts of scientific study, research and experimentation, as well as provide a survey of major themes in biology. This Biology course addresses the major themes of Biology through the lens of nutrition, medicine, health and fitness. The course will cover the units of chemistry, biochemistry, cells, genetics, evolution, and the human body systems. Class time will be utilized with a combination of discussions, lectures, group and individual work. The course will meet for one lab block approximately once per week, providing the opportunity for supplementary lab and field experimentation. The combination of these methods is designed to encourage observation, critical thinking, attention to detail, and understanding of the scientific method. Evaluation is based on participation and attendance, homework, tests and quizzes, lab performance and reports, and a final exam.

Prerequisites: Incoming freshmen or sophomores may take this course with a strong recommendation from their sending school and approval from the department. Demonstrated mastery of reading and writing in English is advised.

Honors Chemistry (P)

Beginning with an extensive look at the currently accepted model of atomic theory, this yearlong course uses this theory in discussions of chemical periodicity, the states of matter, stoichiometry, reaction mechanisms, reaction kinetics, and acid-base theory. Because chemistry concerns itself with the finite, quantitative aspects of matter, it utilizes the skills of advanced algebra, geometry and STEM applications. The approach used is a combination of lectures, problem-solving sessions, and laboratory work. Chemistry carries laboratory credit and, therefore, requires the students to write formal reports and technical analyses of the research performed.

Prerequisites: Students must have successfully completed algebra II or concurrently enrolled. Sophomores concurrently enrolled in honors algebra II and get department approval.

Honors Physics (P)

Honors Physics is a year-long algebra based course. During the first half of the course, the curriculum focuses on topics in classical mechanics: One and two dimensional linear motion, the Newtonian laws of motion, the conservation of mechanical energy, the exchange of momentum in linear collisions. During the second half of the course, topics for

discussion include circular motion, rotational dynamics, mechanical vibration, and simple harmonic motion. Also, the students will be assigned a research project in January the topic of which will be discussed at that time.

Prerequisites: Students who have completed secondary school laboratory-based chemistry and are currently enrolled in at least Pre-calculus.

AP Biology (B)

This yearlong lab course is designed to introduce students to content and laboratory procedures comparable to college-level biology. The course will cover the units of biochemistry, cells, genetics, DNA technology, evolution/classification and organ systems. Ecology and botany are covered independently by the students. Class time will be utilized with a combination of discussions, lectures, group and individual work. The combination of these methods is designed to encourage observation, critical thinking, attention to detail and process, and understanding the scientific method. Evaluation is based on participation and attendance, homework, tests and quizzes, lab performance and reports, projects, and a final exam. Students are required to take the AP Exam in order to have AP printed on their transcripts. Students taking the AP Exam are responsible for reviewing any topic that is not covered in class.

Prerequisites: Course is open to juniors or seniors who successfully completed honors Biology, Chemistry and Algebra II. Demonstrated mastery of reading and writing in English is advised. Offered alternating academic years.

AP Chemistry (P)

The AP Chemistry course is designed to be the equivalent of the general chemistry course, usually taken during the first college year. This course will follow the AP curriculum guidelines to prepare all members of the class to take the AP exam in the spring. Students will develop the needed content background, laboratory exposure, and science process skill development to be prepared for entrance into science in college. Course content will include an introduction to the theoretical framework of modern chemistry, including atomic structure, chemical bonding, phase changes, solutions, chemical reactions, thermodynamics, kinetics, general equilibria, acid-base equilibria, electrochemistry, and aspects of inorganic and nuclear chemistry. Approximately five introductory chapters will be required as summer work. Emphasis is placed on developing problem-solving skills and understanding the experimental basis of theories. A college-level text is used. Laboratory work is an integral part of the course. The syllabus of this course is appropriate preparation for the College Board Subject Test.

Prerequisites: Students must have successfully completed a one-year course in honors chemistry and get department approval. In addition, the recommended mathematics prerequisite for an AP Chemistry class is the successful completion of a second year algebra course. Offered alternating academic years.

AP Environmental Science (B)

The goal of the AP Environmental Science course is to provide students with the scientific principles, concepts, and methodologies required to understand the interrelationships of the natural world, to identify and analyze environmental problems both natural and human-made, to evaluate the relative risks associated with these problems, and to examine alternative solutions for resolving and/or preventing them. Environmental science is interdisciplinary, embracing a wide variety of topics from different areas of study. Major themes include: science as a process, our planet as an interconnected living system, human population and its influence on the Earth's biodiversity, societal dependence on non-renewable energy sources and the search for alternatives, and managing and sustaining common resources. Students will spend a considerable amount of time doing field work around Vermont and the Academy's greater campus. An additional objective of this course is to prepare the student for the AP Environmental Science examination given each May.

Prerequisites: Biology and Chemistry.

AP Physics Mechanics C

This year long course is designed to prepare the students for the AP Physics Mechanics examination given in May of each academic year. The examination is mandatory for the students who enroll in this course. The Students in the AP course must have completed or be enrolled in AB or BC Calculus.

Each week, the AP Mechanics course meets four times for lecture and discussion and one long laboratory block. The students may find that this is not enough time for them to discuss all of the topics to their satisfaction and therefore they may find the need to request additional meeting class time during the evening study hours.

Reading and homework assignments are given from the primary text with additional questions and problems assigned from various reference texts, outside readings which are provided by the instructor, and from practice problems taken from previous AP Mechanics Exams. It is recommended that each student obtain one of the commercial AP Physics Test Prep books that are easily found in most bookstores. Laboratory exercises are assigned to compliment the assigned reading and problem sets and are drawn from a variety of sources.

Prerequisites: A first year course in Newtonian Physics and Enrollment in AB or BC Calculus and department permission. Offered alternating academic years.

World Language Department Course Offerings

The World Language Department prepares students to become culturally sensitive and communicatively competent in a second language. Through spoken languages it offers students an invaluable point of reference into their native language and global vision of the world. A five-year sequence is offered in French and Spanish; a three year sequence is currently offered in Chinese. The emphasis of the department is on the spoken word, and to that end, the classes are taught with an immersion approach and are constantly filled with music, film, media and the latest available technology and tools to support this philosophy.

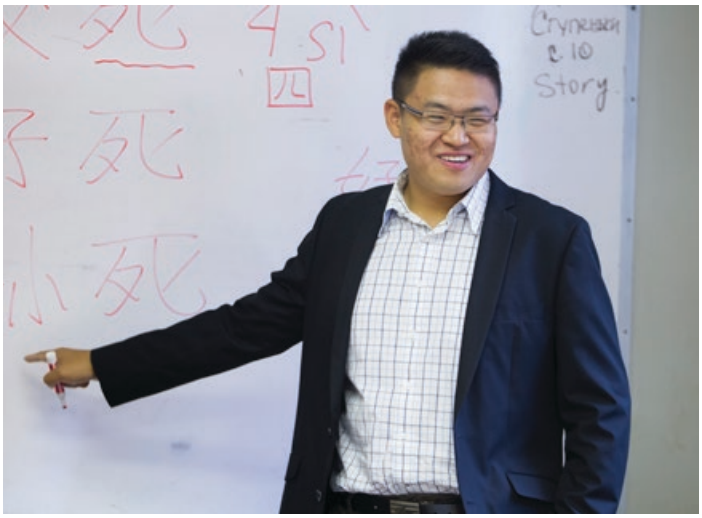
Advanced and honors levels in Spanish and French require a C+ average during the second term of the previous level and a strong commitment to the language as they are taught in the target language. The transition from level 1 to level 2 requires a C- average during the second semester. French 5 Honors, French AP, Spanish 5 Honors and Spanish AP (requiring departmental approval) are courses for the motivated linguists and tailored to fit the need and interest of each candidate. All language courses are year long.

Chinese 1

This course introduces the language through all four skills: listening, speaking, reading, and writing. The main goal is to develop the student's confidence in using Chinese as a means of communication. Participants are expected to work effectively in groups, as well as independently, and to maintain a self-corrected notebook for compositions.

Chinese 2

Intended for students who have acquired a basic knowledge in Chinese, this course offers an equal emphasis on written and oral skills. Participants are expected to work effectively in groups, as well as independently, and to maintain a self-corrected notebook for compositions.



Chinese 3

This Third Year Mandarin Chinese class builds on the fundamentals of Mandarin Chinese acquired in the first and second year. Students continue to develop their proficiency in communication skills as they discuss everyday topics. The class will also engage students in interactive and integrated language practice that is intertwined with the 5 C's of foreign language learning: communication, cultures, connections, comparisons and communities. Highlights of Mandarin Chinese III includes:

- Be able to recognize and write 400 additional Chinese characters
- Write 200-word essays
- Conduct a 5-minute conversation with a native Chinese speaker
- Academic topics include weather and season, health, sports, professions, vacation, holidays and celebrations, Chinese slang and social issues
- Continue to use Middlebury Interactive complimented by Integrated Chinese Textbook and Workbook
- Gain better cultural understanding and practice language skills through movies, music and the New York City Chinatown immersion trip in May

French 1

This course introduces the language through all four skills: listening, speaking, reading, and writing. The main goal is to develop the student's confidence in using French as a means of communication. Participants are expected to work effectively in groups, as well as independently, and to maintain a self-corrected notebook for compositions. *Breaking the French Barrier, Beginner* is the grammar text; there are many supplemental materials used including a beginner reader, songs, and authentic listening sources found online.

French 2

Intended for students who have acquired a basic knowledge in French, this course offers an equal emphasis on written and oral skills. Participants are expected to work effectively in groups, as well as independently, and to maintain a self-corrected notebook for compositions. *Breaking the French Barrier, Intermediate* is the grammar text; there are many supplemental materials used including an intermediate level reader, songs, film and authentic listening sources found online.

French 3

Conducted entirely in French, this course introduces students to French literature with Le Petit Prince by Saint-Exupery. Participants are expected to analyze and reflect weekly on the reading in a journal. An in-depth study of one or two films and a complete grammatical review solidify the communicative proficiency. *Breaking the French Barrier, Advanced* is the grammar text; many cultural and supplemental materials are used to enhance the class.

French 4

Stressing the effective communication of thought and ideas through debate and discussion of political and literary topics, this syllabus includes an in-depth study of Camus' L"Etranger and the region of Provence. This class also utilizes the grammar text, *Breaking the French Barrier, Advanced*, but it incorporates many other materials from advanced texts as well. Additionally, the students study the cuisine of France and many other francophone countries. This course is also conducted entirely in French.

French 5 Honors

For advanced students who do not want to pursue the AP curriculum, this is an accelerated course tailored to the interests of the students. It can take many different forms that range from a cultural and historical study through film to a study of different genres of literature to French philosophers. It is conducted entirely in French and requires a high level of motivation and a strong interest in culture and ideas.

AP French

This course follows an AP syllabus that is approved by the College Board and prepares students for the AP exam. It requires strong motivation and discipline as well as instructor and department chair approval. The AP exam is required for all students at the end of the year.

Advanced Russian

This course broadens the knowledge of grammatical structures as well as a significant enrichment of vocabulary. More focus is also placed on verbal communication and increased levels of oral proficiency through conversation and listening exercises. The instructor also continues the use of a film series to guide the content of the class.

Spanish 1

This course introduces the language through all four skills: listening, speaking, reading, and writing. The main goal is to develop the student's confidence in using Spanish as a means of communication. Participants are expected to work effectively in groups, as well as independently, and to maintain a self-corrected notebook for compositions. *Breaking the Spanish Barrier, Beginner* is the grammar text; there are many supplemental materials used including a beginner reader, songs, and authentic listening sources found online.

Spanish 2

Intended for students who have acquired a basic knowledge in Spanish, this course offers an equal emphasis on written and oral skills. Participants are expected to work effectively in groups, as well as independently, and to maintain a self-corrected notebook for compositions. *Breaking the Spanish Barrier, Intermediate* is the grammar text; there are many supplemental materials used including an intermediate level reader, songs, film and authentic listening sources found online.

Spanish 3

Conducted entirely in Spanish, this course introduces students to common themes in Latin American and Spanish literature through *Album*, a reader of short stories. Participants are expected to analyze and reflect weekly on the readings in a journal. An in-depth study of one or two films and a complete grammatical review solidify the communicative proficiency. *Breaking the Spanish Barrier, Advanced* is the grammar text; many cultural and supplemental materials are used to enhance the class. The use of authentic listening sources such as radio and internet sites occurs frequently and in concert with other materials.

Spanish 4

Stressing the effective communication of thought and ideas through debate and discussion of political and literary topics, this course includes an in-depth study of magical realism through pieces of Latin American literature and films. This class also utilizes the grammar text, *Breaking the Spanish Barrier, Advanced*, but it incorporates many other materials from advanced texts as well. Additionally, the students study the cuisine from Galicia, Spain as well as other provinces. This course is also conducted entirely in Spanish.

Spanish 5 Honors

For advanced students who do not want to pursue the AP curriculum, this is a course tailored to the interests of the students. It can take many different forms that range from a cultural and historical study through film to a study of different genres of literature to uses of alternative energy in Spain. It is conducted entirely in Spanish and requires a high level of motivation and a strong interest in culture and ideas.

AP Spanish

This course follows an AP syllabus that is approved by the College Board and prepares students for the AP exam. It requires strong motivation and discipline as well as instructor and department chair approval. The AP exam is required for all students at the end of the year.

Advanced Spanish Conversation

Taught in Galicia, Spain, this course is designed for the students that have successfully finished Spanish 1 and Spanish 2 while on the Vermont Academy campus and who are accepted into the Vermont Academy Spain program. This course is taught by teachers in Spain and from Spain and is, therefore, conducted entirely in Spanish. The class explores a weekly theme that focuses on an aspect of daily life and culture in Spain; it incorporates exercises, conversations, and new vocabulary, and it develops skills in listening and speaking. This is an eminently practical course that embraces the Vermont Academy philosophy of "hand-on learning" and helps students put into practice the accumulated knowledge from their previous study of Spanish.

Performing Arts Department Course Offerings

THEATER

Advanced Theater Seminar

Students in the advanced theater course will explore a variety of traditional and non-traditional theater techniques, tackling a wide array of acting, directing and playwriting projects throughout the year. In the fall trimester we will focus mainly on performance techniques, ranging from cerebral "method" techniques to physical and image-based performance techniques. During the fall, students in this course will also work on developing a text that will serve as a guide for the Winter Blackbox production which will be refined and rehearsed in the winter term and performed at the end of the second trimester. During this section, students will have the opportunity to take on roles both on and offstage. In the spring, the class will hone their directorial skills and participate in a series of short collaborative scenes that challenge each student's directorial eye. This class is open to students who have completed at least one theater class, or by special permission from the instructor.

Theater 1 *(T1)*

This course is intended for beginning theater students, or students who have completed the Freshman Arts course. Throughout the term, students will engage in a series of exercises and projects designed to broaden the student's understanding of various aspects of theater; from acting to directing, playwriting and design. Performances, creative projects and written assignments will be assigned throughout the trimester, and a moderate amount of reading and memorization will be required. Students enrolled in the course will be expected to perform for this class on a regular basis and on occasion for the VA community. Theater 1 is a single trimester elective with open enrollment for any sophomore, junior, or senior.

Music Course Offerings

Intro to Electronic Music *(T1)*

Serving as a foundation for TII and TIII electives, students enrolled in this course discover a broad scope of concepts related to electronic music, sound recording, and music technology. Students in this course will work through a diverse set of music and technology related activities, where they have the opportunity to learn about the audio sound systems on campus, learn how to record themselves or a student band, compose an original piece of music, repair a broken instrument or amp, or unlock the secrets of wireless transmission. This is an excellent course for a student interested in pursuing any field of music technology, electronics, or musical experimentation. Intro To Electronic Music is a single trimester elective with open enrollment for any sophomore, junior, or senior.

Music Appreciation *(T2)*

Music Appreciation is a course designed to teach listening skills with the intention of providing historical and culturally relevant information about music throughout history. The course begins with an overview of the basic elements of music with a focus on active listening, and continues with units covering many musical styles and periods including music from antiquity through the 20th century, including contemporary pop, rock, and jazz music. Students will participate in 'music sharing' days where they will prepare and share information about their personal interests in music, as well as attend numerous live music events throughout the term. This course offers students the opportunity to share and explore music from all genres, with an emphasis on listening techniques, diverse musical exposure, and many cultural influences in music. Music Appreciation is a single trimester elective with open enrollment for any sophomore, junior, or senior.

Electronic Instrument Building & Design *(T2)*

This course provides discussion, application, construction and hands-on experience with musical instruments of an electronic nature. This course begins with the basic properties of sound and electricity as a foundation for basic understanding of instrument design and construction. Major projects include constructing a tone generating circuit, constructing a pitch controller, modifying a 'found instrument', circuit bending, and basic sound processing techniques. This lab-based, hands-on course is an excellent offering for a student who is interested in music, electronics, or sound production. E.I.B.D. is a one trimester elective with open enrollment for any sophomore, junior, or senior.

Music Theory And Composition *(T3)*

The goal of this class is to provide students with a comprehensive foundation in general musicianship. Major areas of study include basic musical theory, ear training, analysis, piano skills, and composition. PC based musical notation software is used to aid in associating concepts with sounds. Students learn to compose and harmonize melodies, which serve as the foundation for a large scale composition project that serves as the final evaluative tool for each student's success. This is an excellent course for any student studying instrumental technique, playing in ensembles, or considering a study of music in college. Music Theory and Composition is a single trimester elective with open enrollment for any sophomore, junior, or senior.

Recording Studio *(T3)*

This class offers its students exposure to all of the materials and principles related to sound recording. Actual recording processes will be explored on many types of historical devices, including LP, cassette, reel to reel, wax cylinder, and all forms of digital media. This course presents the opportunity for students to learn about the physical nature of sound recording in an environment that encourages thoughtful and creative composition. Each student will produce their own creative music compositions using varying recording devices. Recording Studio is a single trimester elective with open enrollment for any sophomore, junior, or senior.

Music Lessons *(open enrollment)*

Vermont Academy's music lesson program offers students with an interest in performance a chance to study their instrument as part of their academic regiment. This popular aspect of the music offerings allows students to take a lesson once a week, during the academic day with a private teacher. Lesson students earn academic credit for their lessons, and earn the privilege of access to practice rooms, lockers, and listening resources. Lesson students benefit from the outstanding teaching and musicianship brought to Vermont Academy by our staff of adjunct lesson teachers. Music lessons are an elective opportunity open to any Vermont Academy student for one, two, or three trimesters.

ENSEMBLE OFFERINGS – H PERIOD

Jazz Ensemble

(full year course, open enrollment)

Through intensive ensemble rehearsal, this class will provide members with the knowledge of and ability to perform music from the jazz, funk, latin, and contemporary literature. Two rehearsals per week make this ½ class an easy addition to a musician's academic schedule. The group focuses on ensemble playing of music of all styles, as well as improvisational and instrumental technique. The ensemble presents upwards of 6 concerts each year to enthusiastic audiences. All instrumental students are welcome to enroll, with occasional limitations based on instrumentation. Jazz Ensemble is a year-long elective with no prerequisite.

Vocal Ensemble

(full year course, open enrollment)

Through ensemble rehearsal, this class will provide members with the knowledge of and ability to perform music from many genres, including jazz, classical, madrigal, musical theater, spiritual, and contemporary literature. Two rehearsals per week make this ½ class an easy addition to a musician's academic schedule. The group also works on vocal techniques. The ensemble presents upwards of 6 concerts each year. In addition, students are also eligible for off campus festivals, such as the All-New England Choral Festival, Vermont All-State, and District Festivals. Vocal Ensemble is a year-long elective with no prerequisite.

Chamber Ensemble

(full year course, open enrollment)

This ensemble caters to the musicians at VA who are more interested in classical repertoire. Our group usually carries 10-15 members including strings, winds, brass, and other instruments where appropriate. Our literature includes arrangements of well-known classical pieces as well as examples of music from film and popular culture. Two rehearsals per week make this ½ class an easy addition to a musician's academic schedule. This ensemble presents numerous concerts throughout the school year, adding balance to concert programs featuring Jazz and Vocal Ensembles. Chamber Ensemble is a year-long elective with no prerequisite.

Visual Arts Department – Course Offerings:

FULL YEAR COURSES

AP Studio Art (2D Design)

This class is governed by the expectations of the College Board and culminates in the creation of an Advanced Placement Portfolio which is submitted to the College Board in May. This class is designed for the technically advanced student who has a passion for making art. Students are able to submit work in a variety of mediums which can include drawing, painting, printmaking, digital work and film photography. Open to Juniors and Seniors.

Prerequisites: At least two visual arts courses completed with grades of B+ or better, or by permission of the Department Chair.

Advanced Art

This honors level class has a focus on portfolio development and gallery presentations, is open to seniors, with approval by the instructor and permission of the department chair. Students who plan to focus on the visual arts in college would benefit from this course. The first trimester helps the student prepare a portfolio for college admissions. The second trimester gives students an introduction to Art History and continued portfolio development. The third semester allows for a more independent study according to the student's goals.

This class can also be taken as an Advanced Pottery course with the same expectations of the student in terms of trimester development.

Prerequisites: At least two visual arts courses completed with grades of B+ or better.

Pottery

Students learn the basic hand-building techniques with which they are expected to produce a required number of pieces. When hand-building proficiency has been demonstrated, the students may choose to learn to use the wheel or work in sculpture. All work is done in stoneware, which is a high-fire clay of great durability and finished with cone 9 reduction glazes that are mixed in our studio. Motivated students are able to take more than one year of pottery, with the permission of the instructor.

Freshman Arts

All Freshmen will rotate through Visual, Performing and Theatre Arts studios, one each trimester. In this way students will gain experience in a variety of arts classes and come to an understanding of how the arts function at Vermont Academy. This is required for all freshmen.

In Visual Art, students will work in three different studios, during the course of one trimester, those are the fine art studio, the computer studio and the pottery studio.

ELECTIVE COURSES

ART HISTORY

From King Tut to Thomas Jefferson *(T1 and T2)*

Thousands of years separate the two rulers, yet they are united by art. Learn how humans have used art to show power, speak to beauty and exert influence the world over. This class will incorporate both writing about art and art-making as students look at world history from the creative perspective. A museum field trip will further cement an understanding of the history and process involved in establishing the art of a society. Open to Juniors and Seniors otherwise there is no pre-requisite for this course.

Smashing Expectations – Modern Art *(T3)*

This class looks at what happened to painting beginning with the Industrial Revolution. Students will see how changes in society alter the course of art as it experiences a paradigm shift in the perception of the role of the artist from working within the public taste, to becoming an avant-garde creator. Students will augment their understanding of the dramatic shifts in art by reading current publications as well as by visiting galleries and museums. Several hands-on art projects will allow students to further understand the artistic process. Open to Juniors and Seniors otherwise there is no pre-requisite for this course.

STUDIO ART I

Studio I is a basic class that is recommended for all students (except freshmen – see Freshman Arts) who wish to take a general art class or for sophomores interested in pursuing an arts intensive path of study culminating in participation in Advanced Art. Basic techniques along with art historical studies and the Elements of Art and Principles of Design are stressed. Each student will make a Creativity Journal that emphasizes imagination and independence in the studio.

Introduction to Drawing *(T1)*

Students will explore a variety of drawing techniques and media. The focus will be on working towards improved observational drawing.

Introduction to 3D *(T2)*

Students will create several different sculptures based on a range of modern sculptor's work. Students will work with wire, wood and found objects.

Introduction to Painting *(T3)*

Students will work with acrylic, watercolor and pastel to make paintings that are based on both observation and fantasy.

STUDIO ART II

These classes build on the Studio I experience and allow further investigation of the history, techniques and ideas that inform the visual arts. Hands-on studio exploration and learning-through-looking at major artists are important aspects of the classes. Students are required to keep a sketchbook/journal throughout each trimester.

Prerequisites: Studio Art I Foundations and Introduction to Painting.

Drawing and Design *(T1)*

Drawing and design projects are created using pencil, colored pencil, charcoal, and pastels.

Cardboard Construction *(T2)*

Students will create wall sculptures and sculptural paintings on cardboard.

Painting and Printmaking *(T3)*

Building from Introduction to Painting, this is a deeper exploration of acrylic and watercolor painting. Students will also learn several printmaking techniques such as: collograph, monoprint and linocut. Students who have a base in drawing will be able to understand concepts and create work with better understanding.

DIGITAL PHOTOGRAPHY

These classes encourage students to fully explore how to use our digital cameras and our computer studio. Basic compositional techniques along with art historical studies and the Elements of Art and Principles of Design are stressed in each semester.

Basics *(T1)*

Students will learn how to use their cameras to best effect. Camera techniques and composition will be emphasized as students take pictures all around campus.

Studio and still lifes *(T2)*

Students will learn how to digitally enhance, or alter, their work by using a variety of options available on the computers in our studio. Continued emphasis on composition and lighting will guide the process.

Landscapes and portraits *(T3)*

By studying the work of artists such as Julia Margaret Cameron and Edward Weston; students will develop their own eye as photographers and then take those photos one step further in the lab.

BLACK AND WHITE PHOTOGRAPHY

This course examines the historic, aesthetic, and practical roles of photography in the modem world. It consists of three equal parts.

B&W applications *(T1)*

Students will explore how photography developed as a historic process with darkroom applications and processes being explored.

B&W composition *(T2)*

Photography as an art will be examined with a focus on taking pictures within the confines of historic composition.

B&W studio *(T3)*

Gives students more hands-on experience in how a camera works and allows for more personal exploration in the field and studio.

FILMMAKING

Basic Film *(T1)*

Students will learn the basics of visual storytelling and develop a working knowledge of film and video editing practices. Our filmmaking studio allows students to address the main issues surrounding linear and non-linear editing, and the practical differences between digital video and film. Students will engage in creating story boards, shooting schedules, and shot lists. Drawing on classic films, students will learn the basic shot types, camera movements, and "points of view." Willingness to spend a substantial amount of time working outside of the classroom is a must.

Stop Motion Animation *(T2)*

Students will learn the basic techniques of stop motion animation. Working in a variety of mediums—i.e., photo cutouts (think Monty Python), clay (think Wallace and Gromit) and pen and ink (think the classic Disney animations)—students will learn the sometimes painstaking art of stop motion animation (where 12, 24, and sometimes 30 still photos combine to make just one second of animation.

Advanced Film *(T3)*

Students will spend the trimester writing, producing, directing and editing a 10-15 minute narrative short film (or stop motion animation) for public presentation. Willingness to spend a substantial amount of time working outside of the classroom is a must.

Prerequisite: One semester of Filmmaking.

COMPUTER STUDIO

Introduction to Computer Studio *(T1)*

Students will explore their artistic capabilities digitally using primarily Adobe Photoshop, Adobe Illustrator and the scanner. Illustrations will be created by generating imagery in each program (or a combination of both) or by scanning drawn or found materials as a basis for developing illustrations. By juxtaposing the differences between "traditional" art techniques and digital art techniques, students will learn how to create art and effective graphic design.

Designing for Print and Digital Publications *(T2)*

Students with experience using Adobe Photoshop and Illustrator will learn the basics of both layout design and typography for print and digital publications (i.e., magazines, blogs, the VA Yearbook and basic websites). In this course, students will contemplate how important graphical style, attractiveness and layout are to the effective communication of both textual and photographic content.

Prerequisite: One semester of Computer Studio.

Fine Art in the Computer Studio *(T3)*

Students who have experience with Adobe Photoshop and Illustrator will focus on producing fine art utilizing digital tools. From abstract art to digital portraiture and layered photo manipulation, this course emphasizes free artistic expression as opposed to the more functional graphic design techniques of Designing for Print and Digital Publications.

Computer Science Course Offerings

Senior Computing 101 *(T1)*

This course is designed to give students a basic level of proficiency in applying computer technology in the educational setting. Students will be introduced to fundamental computer concepts, basic principles of keyboarding, PowerPoint, word processing, multi-media presentations, internet applications and spreadsheets. By the end of the semester students will have developed the basic computer skills needed to be successful in the real world.

Web Design *(T2)*

Web Development course is an introduction to the design, creation and maintenance of web pages and websites. Students will explore the issues in relation to online social responsibility, discover the world of HTML (Hypertext Markup Language) and CSS (Cascading Style Sheets) to develop necessary techniques in creating user friendly websites. Throughout the course students will progress from introductory work on web design to a culminating project in which students will design and develop a functional multi-page website. Upon successful completion of this course students will have a good foundation in web design using HTML and CSS.

App Development *(T3)*

App technology has become a huge part of students lives, as everyone interacts with apps on a daily basis. The App Development course is designed to open the doors to the discovery of how and what goes into creating the next big thing in mobile apps. Throughout the course students will cover the three key elements to the development process: the interface, the language and live coding running on multiple devices. Upon successful completion of this course students will have a good foundation in App Development.

Vermont Academy Graduation Requirements 2014-2015

Students must satisfactorily complete at least 17 college preparatory course credits to graduate; the majoity of students graduate with 20 or more credits. All courses are awarded a half-credit per semester.

CREDITS

COURSES REQUIRED	MINIMUM	AVERAGE
English **Four:** Eng 9, Eng 10, Eng 11 and 1/3 credit each trimester in Grade 12	4	4
Mathematics **Three:** Algebra 1, Geometry, Algebra 2	3	4
Sciences **Three:** one from the biological sciences and one from the physical sciences	3	3+
Modern Languages **Two:** through level two of one language	2	3
History **Three:** U.S. History (normally in the junior year) and two additional credits	3	3+
Arts **One** (does not include Freshman Arts)	1	2
Electives **One:** any credit from one of the departments above	1	1
Total Credits	17	20+