

# MSON COURSE CATALOG

2019 – 2020

Malone  
Schools Online  
Network  
(MSON)

The Malone Schools Online Network (“MSON”) provides upper level students at registered Malone Schools with a variety of superior online courses that enhance each member school’s existing curriculum. These courses promote the values of the Malone Family Foundation and are conducted by teaching professionals that are experts in their fields, have experience with independent school education, and share a commitment to excellence, small class sizes, and personal relationships. Course offerings target the most talented high school students, who demonstrate sufficient independence and commitment to succeed in a virtual discussion seminar setting.



Each course takes a blended approach, combining synchronous instruction—real-time video conferencing seminars—with asynchronous instruction including recorded lectures and exercises that students complete outside of the class. Each course has a maximum of 16 students, allowing for a virtual discussion seminar, and is delivered in high-definition classroom set-ups that allow students and teachers to see one another, interact throughout class, and form meaningful relationships.

## Participating Schools (2019-2020)

- |                                    |                                     |
|------------------------------------|-------------------------------------|
| Brownell Talbot School (NB)        | The Prairie School (WI)             |
| Canterbury School (IN)             | Porter-Gaud School (SC)             |
| Casady School (OK)                 | Roeper School (MI)                  |
| Chadwick School (CA)               | St. Andrews Episcopal School (MS)   |
| The Derryfield School (NH)         | Severn School (MD)                  |
| Fort Worth Country Day School (TX) | Stanford Online High School (CA)    |
| Hopkins School (CT)                | Trinity Preparatory School (FL)     |
| Indian Springs School (AL)         | University School in Nashville (TN) |
| Manlius Pebble Hill School (NY)    | Waynflote School (ME)               |
| Newark Academy (NJ)                | Wilmington Friends School (DE)      |
| Maret School (DC)                  | Winchester Thurston School (PA)     |
| Mounds Park Academy (MN)           |                                     |

# 2019-2020 COURSE DESCRIPTIONS

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# 2019-2020 COURSE DESCRIPTIONS

## Languages

### ARABIC I (first year of a two-year sequence) (Year)

#### Section A:

Target Grade Level: 9-12 (Juniors receive priority)

TEACHER: Farha Mohamed, Hopkins School, New Haven CT

Monday / Thursday 12:15–1:15 pm EST.

#### Section B:

Target Grade Level: 9-12 (Juniors receive priority)

TEACHER: Kaveh Niazi, Stanford Online High School, Stanford CA

Tuesday / Thursday 3:35 –4:35 pm EST.

*Prerequisite: None*

This course is an introduction to Modern Standard Arabic, the language of formal speech and most printed materials in the Arab-speaking world. Students will learn to read and write the Arabic alphabet and will develop beginning proficiency in the language. Through frequent oral and written drills, students will develop their basic communication skills.

### ARABIC II (second year of a two-year sequence) (Year)

Target Grade Level: 10-12

TEACHER: Farha Mohamed, Hopkins School, New Haven CT

Tuesday / Friday 12:15 – 1:15 pm EST

*Prerequisite: Completion of Arabic I*

This course is a continuation of the introduction to Modern Standard Arabic, the language of formal speech and most printed materials in the Arab-speaking world. Students will learn to read and write the Arabic alphabet and will develop beginning proficiency in the language. Through frequent oral and written drills, students will develop their basic communication skills.

### CHINESE V (Year)

Target Grade Level: 11-12

TEACHER: Lan Lin, Hopkins School, New Haven CT

*This course has a split time schedule – Wednesday 11:05 am -12:05 pm EST / Friday 12:15-1:15 pm*

*Prerequisite: Completion of Chinese 4 or Honors Level*

This intermediate level course, conducted entirely in Chinese, involves the reading of authentic texts of modern Chinese society and culture. Students explore current cultural topics through stories, dialogues, and documentaries using multimedia materials ranging from Internet, television, and films to traditional textbooks. Throughout the year, students write papers, critique films, and participate in oral discussion and debates.

### THE INVENTION OF MODERN-DAY FOOD WRITING: EXCURSIONS IN FRANCE'S GASTRONOMIC LIBRARY FROM THE 18TH TO 21ST CENTURY (Year)

Target Grade Level: 11-12

TEACHER: Max Shrem, Chadwick School, Palos Verdes CA

Tuesday / Friday 4:40 – 5:40 pm EST

*Prerequisite: AP French or its equivalent, or interview with the instructor*

The hunt and consumption of food have preoccupied visual artists since the first paintings were drawn on the walls of caves, approximately 35,000 years ago. Certainly, the same fascination can be seen in literature, from Rabelais's war between sausages and cooks to Proust's madeleine. This constant desire for a visual or literary depiction of the culinary realm begs the following questions: How and why does food operate as a source of artistic inspiration? To what extent do politics boil down to discussions about food? How does food operate as a metaphor? What is the relationship between memory and food?

As students investigate these questions, there are three objectives of the course: (1) present a survey of French literature in prose (including Zola, Balzac, Proust, and Desbiolles as well as other genres); (2) provide strategies for literary analysis; and (3) teach theoretical approaches to analyzing French culture. Through literature, students will explore the origins of food journalism written in early-19th-century Paris, and they will examine the evolving perception of the cultural figure of the gourmand, from overweight buffoon to gastronomic dandy. In the end, students will study the extent to which the "foodie" ubiquitous in our culture today descends from the French gourmand. The class will culminate in a focus paper and presentation. **NOTE: This class is conducted entirely in French.**

## 2019-2020 COURSE DESCRIPTIONS

### Humanities and Social Sciences

#### **ADVANCED MACROECONOMICS** (Fall 2019) (Alternating year offering)

**Target Grade Level: 11-12**

**TEACHER: Julien Meyer, Severn School, Severna Park MD**

**Wednesday / Friday, 10:00 - 11:00 am EST**

*Prerequisite: Students who have not taken a microeconomics course will need to read some chapters of the text and watch some screencasts prior to the beginning of the class.*

Advanced Macroeconomics is a semester course that covers the study of an economic system as a whole. Topics include economic performance measures, price-level determination (inflation and deflation), the financial sector, monetary and fiscal policies, economic growth, productivity, unemployment, and international trade and the balance of payments. Students will manipulate economic models and “think like an economist.” While the course does not follow the AP curriculum, students will be positioned, with extra work on their own, to take the AP exam if they wish.

#### **ADVANCED MICROECONOMICS** (Fall 2020) (Alternating year offering)

**Target Grade Level: 11-12**

**TEACHER: Julien Meyer, Severn School, Severna Park MD**

**Wednesday / Friday, 10:00 - 11:00 am EST**

*Prerequisite: Completion or concurrent enrollment in Precalculus*

Advanced Microeconomics is a semester course that covers decisions at the individual consumer, producer and market level. Topics include scarcity, supply and demand, elasticity, international trade and the theory of the firm. The role of the government, both distortive and restorative, in the areas of regulation, public goods, market failures and the environment, will be debated. Students will manipulate economic models and “think like an economist.” While the course does not follow the AP curriculum, students will be positioned, with extra work on their own, to take the AP exam if they wish.

#### **AMERICAN DEMOCRACY AND CIVIL ENGAGEMENT** (Fall)

**Target Grade Level: 11-12**

**TEACHER: Geoff Wagg, Waynflete School, Portland ME**

**Monday / Wednesday, 1:20 pm - 2:20pm EST**

*Prerequisite: None*

American Democracy and Civic Engagement combine a deep study of the roots and traditions of America’s unique form of democracy with civic engagement and actual dialogue across the political divide. Students will study the form of government established by the Constitution, paying particular attention to federalism, the separation of powers, and checks and balances. Students will learn how individual citizens form a political identity and how those identities form the foundation of U.S. political culture. The course takes advantage of the broad geographic diversity inherent in the Malone School Online Network to experience how political ideology and perspectives on democracy differ in various parts of the country.

Students will learn the skills of dialogue across difference using techniques and protocols developed by Waynflete School for use in the New England Youth Identity Summit and the “Can We?” Project. Students will be asked to reflect on where their own political viewpoints come from as well as to seek a deeper understanding of beliefs that are different than their own. This work will include engaging in political dialogue and taking on positions that may differ from one’s own.

# 2019-2020 COURSE DESCRIPTIONS

## Humanities and Social Sciences

### **THE AMERICAN FOOD SYSTEM: PAST. PRESENT. FUTURE** (Fall)

**Target Grade Level: 11-12**

**TEACHER: Lindley Shutz, The Derryfield School, Manchester NH**  
**Monday / Thursday, 11:05 am - 12:05 pm EST**

*Prerequisite: None*

The American Food System consists of the interrelated components of how we get food from “farm to fork,” including the producing, harvesting, processing, transporting, marketing, distributing, and the eating of food. Through a humanities-based, interdisciplinary approach the course will examine the political, social, economic, and environmental aspects of the system, as well as the challenges and opportunities in moving from our current industrial food system to a more sustainable one.

Students will engage in a variety of projects, allowing them to understand their regional and local food systems, while learning from their classmates throughout the country. Topics to be covered include animal agriculture, organic farming, local production and distribution, the debate over GMOs, the marketing of unhealthy food to children, and the problem of hunger in America.

### **ARE WE ROME?** (Spring)

**Target Grade Level: 11-12**

**TEACHER: Michael Leary, The Derryfield School, Manchester NH**  
**Monday / Thursday, 11:05 am - 12:05 pm EST**

*Prerequisite: Completion of US History (may be concurrent); Background in Classics not required*

Inspired by Cullen Murphy’s 2007 book of the same name, “Are We Rome” will examine the similarities between the Roman empire and the United States. This course is designed to be a capstone for study in classics and history. The interdisciplinary nature of this course will serve as a vehicle by which students of Latin and history can expand their knowledge and apply that knowledge in an intercultural comparison. Since 1776, from our system of government to the architecture of government buildings, the United States has used Rome as a foil for itself, and forefathers of the US created many institutions using Rome as a model. This course will be structured around one basic question: How can the United States learn from Rome?

We will examine, among other things, political and social ideologies, privatization, globalization, borders, and exceptionalism. Taking our beginnings from the founding of these two nations, we will discuss the governing practices and bodies, the rhetoric of politics, and the public view of governmental institutions with emphasis on how these progress and change. The course will culminate with analysis of the most recent political and social events in the United States and form a final conclusion on our topic. Our class discussions will be centered around primary sources from both Rome and the US. Weekly reading and writing assignments will be required.

### **BOB DYLAN’S AMERICA** (Fall)

**Target Grade Level: 11-12**

**TEACHER: Dean Masullo, University School of Nashville, Nashville TN**  
**Monday / Wednesday, 4:40 – 5:40 pm EST**

*Prerequisite: Previous or concurrent enrollment in American literature and American history*

Arguably the most influential, important, and closely scrutinized American artist of the past six decades, Bob Dylan is as difficult to define as the nation that produced him. Connecting his work to contemporary theories of cultural memory, this course looks at the ways in which Dylan, both in his music and his cultivation of various public personae, maps the contours of the national imagination and explores the prevailing attitudes of class, race, gender, and place in American culture.

We will organize our investigation around three symbolic American geographies: the frontier, the city, and the south. Using Dylan's masterworks and subsequent official "bootleg" recordings as touch-stones, students will consider a variety of texts, including poetry, fiction, and cultural history; biography and autobiography; and popular and documentary film. Works may include Bob Dylan’s Chronicles, Volume I (2005), Greil Marcus’ The Old, Weird America: The World of Bob Dylan's Basement Tapes (2001), Don DeLillo’s Great Jones Street (1973), Michael Ondaatje’s Coming Through Slaughter (1976), D. W. Griffith’s Birth of a Nation (1915), Alan Crosland’s The Jazz Singer (1927), Sam Peckinpah’s The Wild Bunch (1969), D. A. Pennebaker’s Don’t Look Back (1967), and Martin Scorsese’s No Direction Home (2005).

# 2019-2020 COURSE DESCRIPTIONS

## Humanities and Social Sciences

### **BUILDING UTOPIA** (Fall)

**Target Grade Level: 9-12**

**TEACHER: Mary Ellen Carsley, Severn School, Severna Park MD**

**Monday / Wednesday, 3:35 - 4:35pm EST**

*Prerequisite: None. Background in Ancient and European History recommended*

Utopia, “a good place,” as defined by the Greeks, is a term coined by Sir Thomas More referring to a fictional ideal island society. The act of intentionally shaping one’s environment to be “a good place” modeled after sustainability, economy, and delight is a uniquely human endeavor. This semester long study examines the course of Western Architecture from the Ancient Egyptians to the 21<sup>st</sup> century through the lens of the primary philosophic ideas that have been the drivers of aesthetic vision of Western civilization architecture through the ages. The course will offer an introduction to design principles, the visual language of architecture, and design analysis. The necessities, desires, and spiritual beliefs which go into the shaping of a culture’s aesthetic vision of their ideal built environment will be examined in a series of seven units of the course of the semester:

1. Forming the Human Universe: Mark Making and the Necessity of Shelter
2. Creativity and Humankind: Beauty Defined and the Building of Civilizations
3. Immortality and the Gods: Building for the Greater Glory
4. Getting Perspective: Perfect Geometry in Design & Building in the Humanist and Rational World
5. Power and Production: Society and the Machine
6. Modern Utopia and the Architect’s Vision: Shaping an Individual World
7. Back to the Future: Palimpsest and Irony

### **CREATIVE NON-FICTION WRITING WORKSHOP: IF ONLY YOU COULD SEE THIS PLACE**

(Spring 2020) (Alternating year offering)

**Target Grade Level: 11-12**

**TEACHER: Susan Conley, Waynflete School, Portland ME**

**Tuesday / Thursday, 2:30 - 3:30 pm EST**

*Prerequisite: None*

How do we write great non-fiction (and this includes all flavors of essays – college essays, literary journalism, memoir, and more), so that our stories have an injection of narrative tension that invites the reader to sit down inside our stories and stay awhile? This workshop will help you become a better writer so that your stories contain an electrical charge that starts at the sentence level and travels through the entire piece. This tension, or electrical charge, is the engine that great non-fiction runs on. Students will search the places in one’s life that have mattered most, and using a series of fun writing prompts, generate new writing, using place as a portal to help land on the life stories that students’ most want to tell. Later, the class will move into class workshops of each student’s work. Each session will also look at other specific craft aspects: primarily beginnings, endings, and the weaving of multiple story lines in one essay. This is an ideal course for juniors beginning to think about ideas and drafts of their personal essay for college.

### **CREATIVE WRITING IN THE DIGITAL AGE** (Fall)

**Target Grade Level: 11-12**

**TEACHER: Julia Maxey, Severn School, Severna Park MD**

**Monday / Thursday 10:00 – 11:00 am EST**

*Prerequisite: None*

Storytelling is as important today as it was hundreds of years ago. What has changed, in many cases, is the media through which writers tell their stories. Today’s literary artists take advantage of digital tools to spread their messages and tell their stories in new ways that combine narrative and contemporary form. Students will begin with the traditional forms of poetry, short prose, and literary non-fiction and then go beyond those forms to explore how contemporary tools can enhance expression. We will study master writers in each of the traditional forms and be inspired by their examples. Then, we will look at how communication in the 21st century has provided us with even more ways to share our thoughts and to be creative. Possible explorations include hyperlinked narratives, social media as inspiration and tool, animated text, audio, videos, and all manner of non-linear narrative. The class will ask an essential question: what happens when communication becomes wider and has an instant audience? The class routine, based around writing, reading, and discussion, will include weekly critiques of student work and required writing, including in some non-traditional, contemporary formats.

# 2019-2020 COURSE DESCRIPTIONS

## Humanities and Social Sciences

### DIVERSITY IN A GLOBAL COMPARATIVE PERSPECTIVE (Fall)

**Target Grade Level:** 11-12

**TEACHER:** John Aden, Canterbury School, Ft. Wayne, IN

**Tuesday / Thursday 3:35 –4:35 pm EST**

*Prerequisite: None*

This course examines the ways our Human Family has sought to create, marshal, contest, and maintain identities through Culture and relations of power. These identities can be appreciated through “lenses of analysis.” The course critically engages the traditional “Big Three” lenses of analysis: Race, Class, and Gender, understanding that Culture serves as an important backdrop against which these identities emerge. Once students appreciate the important ways the Social Sciences have engaged with, written about, and debated these three core modes of analysis, the course expands to incorporate other, equally rich, lenses: age, ableism, intellectual diversity, geographic diversity, cognitive and neurological diversity, and the business case for Diversity, as well as how to study synergistically intertwined phenomena. Film and Critical Film Studies, as well as the role Colonialism has played in the major conflicts of the last 500 years, each serve to enrich student understandings of Diversity.

### ENVIRONMENTAL BIOETHICS (Spring)

**Target Grade Level:** 11-12

**TEACHER:** Ellen Johnson, Wilmington Friends School, Wilmington DE

**Tuesday / Friday, 3:35 – 4:35 pm EST**

*Prerequisite: None*

This course will focus on such cases as environmental sustainability, global energy and food resources, gathered from sources in literature, journalism, and film. The academic study of ethics examines how people make the decisions. Curricula will build on a foundation of theoretical moral theories, more specifically, how one makes decisions when faced with complex, often controversial, issues. No prior knowledge of philosophy is assumed, however, authentic assessment of students’ initial facility with logical analysis will ensure that all students are challenged to grow and deepen their theoretical and practical understandings of the subject.

### ETYMOLOGY OF SCIENTIFIC TERMS (Fall 2020) (Alternating year offering)

**Target Grade Level:** 11-12

**TEACHER:** David Seward, Winchester Thurston School, Pittsburgh PA

**Tuesday / Friday 2:30 – 3:30 pm EST**

*Prerequisite: None*

The purpose of the course is, to quote the textbook, "By teaching ... the root elements of medical terminology – the prefixes, suffixes, and combining forms of Greek and Latin ... not only to teach students modern medical terminology, but to give them the ability to decipher the evolving language of medicine throughout their careers."

This is in many ways a language course, and deals with elements that are used to create terms to meet the specific needs of medical scientists. As material is introduced, students will complete practice exercises during each class meeting, as well as complete approximately one quiz per week. Outside of class, students are expected to analyze and define fifty terms each week. Additional material deals with complex etymologies, the history of our understanding of certain aspects of medical science, and relevant material from Greek and Latin texts.

# 2019-2020 COURSE DESCRIPTIONS

## Humanities and Social Sciences

### THE FICTION OF JAMES JOYCE (Spring)

**Target Grade Level:** 11-12

**TEACHER:** Aaron Lehman, Porter-Gaud, Charleston SC

**Monday / Wednesday 3:35 – 4:35 pm EST**

*Prerequisite: Recommended past or concurrent enrollment in either AP Language & Composition or AP Literature & Composition or the equivalent*

James Joyce created the most beautiful literature of the Twentieth Century, prose that has thrilled and at times confounded readers for generations. Simply put, *Ulysses*, his 1922 masterpiece, changed the landscape for the novel as a whole. This course will unpack the mystery and loveliness of two Joyce novels, *A Portrait of the Artist as a Young Man* and *Ulysses*, giving students the close-reading tools to appreciate and make sense of Joyce's particular literary power, to scale the edifice of *Ulysses* to see it for what it truly is: a marvel of stylistic achievement, a testament to the ways in which language shapes us as we shape it, and, at its core, a gorgeous love story and an exploration of the everyday heroism that we often overlook.

In particular, we will explore how Joyce tried to render the authentic human experience through language: how Joyce wanted literature to look and feel more like life than like "art," how he wanted literature to mirror the texture of the actual thinking and feeling mind. To that end, while the course will give students an intensive look at arguably the greatest literary mind since Shakespeare, it will also have us—teacher and student alike—consider what it means to inhabit fully our hearts, minds, and selves in the modern world.

### INTRODUCTION TO MUSIC THEORY (Fall of 2020) (Alternating year offering)

**Target Grade Level:** 11-12

**TEACHER:** Janet MacKay-Galbraith, Canterbury School, Fort Wayne IN

**Tuesday / Friday 10:00 – 11:00 am EST**

*Prerequisite: Basic music literacy (rhythm and note reading (at least in one clef)) required. Must have access to a keyboard, even an inexpensive roll-up one.*

Music theory deepens the knowledge and intellectual understanding of the building blocks of music: scales, rhythms, chords, formal analysis, counterpoint, musical forms, and the different stylistic periods of music history. This class is geared primarily for musicians who are serious about music performance, improvisation and/or composition, but also perhaps just interested in pursuing a deeper understanding of the theoretical components of music. Basic musical literacy is a prerequisite. During the course of this class students will learn to:

- Identify all notes in both clefs and all key signatures
- Learn and identify all forms of minor scales
- Learn to transpose within different keys
- Learn and identify time signatures
- Aurally and visually identify major, minor, augmented and diminished chords
- Practice and attain proficiency in rhythmic and melodic dictation
- Learn the basics of voice-leading
- Harmonize a simple tune
- Practice rhythmic and melodic dictation
- Chord analysis
- Discuss and identify different characteristics of Medieval/Renaissance/Baroque/Classical/Romantic eras, as well as cover some of the compositional techniques of the 20<sup>th</sup> and 21<sup>st</sup> century.
- Discuss and identify major composers within the above noted eras.



## 2019-2020 COURSE DESCRIPTIONS

### Humanities and Social Sciences

#### MAN'S INHUMANITY TO MAN: GENOCIDE & HUMAN RIGHTS IN THE 20<sup>TH</sup> CENTURY (Spring)

**Target Grade Level:** 11-12

**TEACHER:** George Dalbo, Mounds Park Academy, St. Paul MN

**Monday / Thursday 4:40 – 5:40 pm EST**

*Prerequisite: None*

The story of genocide in the 20th century stands in stark contrast to the social progress and technological advancements made over the last 100 years. As brutal culmination of nationalist and racist attitudes and policies, as well as a poignant reminder of both the cruelty and resilience of human beings, these genocides punctuate modern history with harsh reality. This course explores the many facets of genocide through the lenses of history, literature, art, sociology, and law. We will turn our attention to understanding the framing of genocide as a legal concept. Using the holocaust as our foundation, we will examine examples of additional genocides from the 20th century. Ultimately, we will train our attention to the enduring legacy of genocides around the world, especially as we consider attempts to recognize, reconcile, and memorialize genocide from the individual to the collective. Students will read and analyze primary source material, secondary historical accounts, genocide testimony and memoirs, in addition to examining individual fictional and artistic responses and the collective memories and memorials of whole societies

#### NARRATIVES OF PLACE / THE PLACE OF NARRATIVE ON THE N. AMERICAN PRAIRIE (Year)

**Target Grade Level:** 11-12

**TEACHER:** Matt Low, Brownell-Talbot Omaha NE

**Monday / Thursday, 12:45 – 1:45 pm EST**

*Prerequisite: US History, US Literature; some familiarity with environmental science recommended*  
Prairie ecosystems have long played a formative role in the history and culture of the North American midcontinent, dating back to pre-contact indigenous communities, through the eras of Euro-American exploration and settlement, up to the predominance of large-scale industrial agriculture that characterizes the region today. This course will interrogate the transformation of a once thriving, but now degraded, ecosystem through an interdisciplinary approach centered upon analysis of a wide array of texts – oral tradition, travel narrative, canonical poetry and fiction, documentary film, folk music, and more – that also explores concepts in prairie ecology and cultural geography to enhance understanding of this greatly misunderstood region. The role narrative plays in creating, altering, and sustaining sociocultural attitudes toward a given place will be a major point of emphasis, as students work through a variety of texts with contrasting, and often contradictory, outlooks on the place of the prairie in American life, identity, and experience. Instruction will also include on-site tutorials and virtual interactions with remnant and reconstructed prairies throughout eastern Nebraska and western Iowa.

#### PHILOSOPHY IN POP CULTURE (Spring)

**Target Grade Level:** 11-12

**TEACHER:** Joyce Lazier, Canterbury School, Fort Wayne IN

**Wednesday / Friday, 1:20 -- 2:20 pm EST**

*Prerequisite: None. Some familiarity/experience with logic helpful. Netflix subscription required.*  
Have you ever had a realistic dream that you were sure was true and then work up confused? How do you know that you are not in the Matrix? What is real and what is not? This course will investigate the nature of existence. It will combine classic philosophic works, like Descartes, with contemporary movies like *The Matrix* and *Inception*, to contemplate what it is to exist and what the meaning of life is or should be.

## 2019-2020 COURSE DESCRIPTIONS

### Humanities and Social Sciences

#### **PLAYING GOD? THE ETHICS OF BIOMEDICAL ADVANCEMENTS** (Fall)

**Target Grade Level:** 11-12 (occasional 10th, at the recommendation of home school administrator)  
**TEACHERS:** Ellen Johnson, Wilmington Friends, Wilmington DE  
Joyce Lazier, Canterbury School, Ft. Wayne IN  
**Wednesday / Friday, 3:35 - 4:35 pm EST**

*Prerequisite: None.*

The objective of this course is to provide students with the tools and experience necessary to better make difficult, ethical decisions. In order to achieve this, we will study and evaluate critically several different ethical theories including Utilitarianism, Virtue Ethics, and Deontology. Which framework students choose to use as their guide is up to them, but by the end of this course they should be able to defend their choices and ethical decisions clearly.

The course strives to develop a cross conversation between two academic disciplines - philosophy (ethics) and biology (medical research, molecular genetics). This is a collaborative teaching effort between Joyce Lazier (background in philosophy and ethics) and Ellen Johnson (background in biology and genetics), and an evolution of two previously existing courses. Both teachers will be present for all classes, focusing on the growth that comes from a shared discourse.

#### **POSITIVE PSYCHOLOGY** (Fall)

**Target Grade Level:** 10-12  
**TEACHER:** Blake Keogh, Waynflete School, Portland ME  
**Monday / Thursday 3:35-4:35pm EST**

*Prerequisite: None*

This course begins by providing a historical context of positive psychology within broader psychological research, and helps explain why the field is of particular importance to those in a high school or college setting. Students will be introduced to the primary components and related functions of the brain in order to understand the biological foundation of our emotional experiences. Current research will be used to develop a broader sense of what positive psychology is and is not, and how it can be applied in students' own lives. Additionally, students will gain an understanding of basic research methods and their application to the science of psychology.

This course will require substantial reading (sometimes on par with 100 level college courses) and writing. Students will be asked to reflect regularly on their individual experiences in order to integrate course material into their daily lives. One of the key learning outcomes is to have each participant identify his or her own strengths while simultaneously recognizing and respecting the attributes others bring to the course.

#### **STOLEN LIVES: CAPTIVITY IN HISTORY AND CONTEMPORARY CONTEXTS** (Fall)

**Target Grade Level:** 11-12  
**TEACHER:** Emily Wardrop, Casady School, Oklahoma City OK  
**Wednesday / Friday 2:30 - 3:30 pm EST**

*Prerequisite: Previous or concurrent enrollment in a US or World History course preferred*

Captive taking and enslavement have been near-universal trends among human societies throughout history. Traditionally, the majority of these captives were young women and children. This course will explore captivity in a variety of contexts, beginning with a broad survey of captive-taking practices worldwide and an examination of the crucial role that captives have played not only in delineating the differences between nations, but also serving as cultural mediators, purveyors of new technology, and agents of change. Students will then read a variety of captivity narratives, discerning the patterns, themes, and tropes of this genre and comparing narratives across time and cultures. The final section of the course will focus on instances of modern-day captivity including, the treatment and fate of incarcerated individuals, victims of human trafficking, and non-human captives.

## 2019-2020 COURSE DESCRIPTIONS

### Humanities and Social Sciences

#### **THINK GLOBAL. DEBATE LOCAL** (Fall)

**Target Grade Level: 11-12**

**TEACHER: Dan Jacobs, Roeper School, Bloomfield Hills MI**

**Tuesday / Friday 4:40 – 5:40 pm EST**

*Prerequisite: None*

Water justice. Gentrification. Housing. Education. Race Relations. Public Safety. Environmental Issues. Is it wrong to shut off water service to households that are delinquent on their water bills? When forced to choose, should a city invest limited funds in education or public safety? Should cities and states focus more on improving neighborhoods or enticing business investments? When in conflict, should environmental issues take priority over the needs of businesses?

Many cities in the United States (and around the world) struggle with these and other challenges. In Debate Local, Think Global, we use our local experiences to take deep dives into the facts and philosophies underlying the challenges, values, and perspectives that shape our cities, neighborhoods, and homes, and that form the foundation of our experiences within them.

The overarching goal of this course is for students to teach each other about important topics in their own neighborhoods, towns, states, and regions, and to use debate as a tool to examine the arguments surrounding those topics. Other goals include: achieving a better understanding of complex issues by taking on and arguing for the viewpoints of various stakeholders; discovering ways to shift from an adversarial to a cooperative relationship when disagreements arise; and understanding the ways different values can be used as filters through which to view a given issue.

### Humanities and Social Sciences

#### **WARTIME DISSENT IN AMERICAN HISTORY** (Fall)

**Target Grade Level: 11-12**

**TEACHER: John French, Prairie School, Racine WI**

**Tuesday / Friday 8:30 – 9:30 am EST**

*Prerequisite: AP US History or equivalent suggested*

Benjamin Franklin once said that “They that can give up essential liberty to obtain a little temporary safety deserve neither safety nor liberty.” An oft-cited quotation by champions of American civil liberties protections and anti-war activists, Franklin’s passage illustrates how dilemmas regarding the balance between free speech and national security have tested and often perplexed American politicians, courts, and citizens since the inception of the country. During wars the government reserves the right to draft men into the armed services, confiscate the property of individual citizens, set prices, ration food and fuel, and drastically increase taxes. Viewing them through the prism of the nation’s existential crisis, most citizens accept these compromises on their liberty. Ben Franklin, however, lived in a premodern world devoid of anthrax, drones, Internet communication, and long-range nuclear weapons. The Founding Fathers could not have foreseen the awesome power nor puissant pressure of commanders-in-chief who, obligated to protect the lives of millions, regularly criticize dissenters. And thus lines must be drawn between civil liberties and national security - but where?

Through reading, discussing, and critically analyzing primary and secondary sources from each American war (from the Revolutionary War through the War on Terror), students will emerge with a better understanding of American wars, their dissenters, and the meaning of freedom under its most intense stress tests.

# 2019-2020 COURSE DESCRIPTIONS

## STEM

### ADVANCED TOPICS IN CHEMISTRY (Spring)

**Target Grade Level:** 11-12

**TEACHER:** Jocelyn Rodgers, Maret School, Washington DC

**Monday / Thursday, 2:30 – 3:30pm EST**

*Prerequisite: Chemistry*

This semester course explores aspects of chemistry that are often skimmed over or omitted in most chemistry courses – chemical applications and the history of chemistry. Real-world applications abound in areas such as nuclear, medical, atmospheric, industrial, food, water, and consumer product chemistry. We will begin with an exploration of energy sources such as nuclear power, solar power, and lithium ion batteries. We will then explore computing – both the properties of the elements that power the computers we use every day as well as computational techniques that have revolutionized the ability of scientists and students to visualize and understand chemical processes at a molecular level. Throughout the semester, we also explore the history and life events of scientists who discovered the chemical elements and have impacted the history of the world through chemistry. In independent projects, students will explore the periodic table for daily applications and technologies, from cell phones to photovoltaic cells to medical treatments. This course will be heavy in applications and theory, with less of the traditional problem-solving found in other courses.

### ADVANCED APPLIED MATH THROUGH FINANCE (Spring)

**Target Grade Level:** 11-12

**TEACHER:** Julien H. Meyer III, Severn School, Severna Park MD

**Monday / Thursday, 10:00 – 11:00 am EST**

*Prerequisite: Completion of Algebra II*

This one-semester course will provide students a mathematical and conceptual framework with which to make important personal financial decisions using algebraic tools. Specifically, the class will investigate i) the time value of money (i.e., interest rates, compounding, saving and borrowing) using exponential functions; and ii) the characteristics and risk/reward tradeoff of different financial instruments/investments, such as stocks, bonds and mutual funds, using algebra, probability and statistics. Other financial algebra topics selected with student input may include financial accounting, depreciation methods and foreign currency exchange. The course will stress use of the TI-83/84 calculator, Excel spreadsheets and iPad apps. Students should be comfortable with exponential growth models and, preferably, the concept of the number  $e$  for continuous compounding. They should be willing to exhibit an interest in mathematical reasoning and display a hefty dose of curiosity about the language and problem solving nature of personal finance.

### CSI: MSON – FORENSIC SCIENCE (Spring)

**Target Grade Level:** 11-12

**TEACHER:** Carrie Lopez, Trinity Preparatory Day School, Winter Park FL

**Tuesday / Thursday, 1:20 - 2:20 pm EST**

*Prerequisite: Completion or concurrent enrollment in Chemistry or Biology and Algebra II. Lab kit required (sent by teacher)*

This course is designed for those interested in learning the discipline of forensic science and crime scene investigation. Students will be introduced to some of the specialized fields of forensic science and topics will include blood spatter and pattern analysis, death, ballistics, trace and glass evidence, toxicology, entomology, anthropology, serology, and DNA fingerprinting. Students will explore the forensic analysis of substances such as glass, soil, hair, bullets, gun powder, blood and drugs. This class includes a mixture of laboratory experiments, demonstrations, and speakers who are experts in the field.

# 2019-2020 COURSE DESCRIPTIONS

## STEM

### DATA STRUCTURES AND DESIGN PATTERNS (Year)

**Target Grade Level:** 11-12

**TEACHER:** J.D. DeVaughn-Brown, Chadwick School, Palos Verdes CA  
**Monday / Thursday, 4:40-5:40pm EST**

*Prerequisite: Completion of AP Computer Science or equivalent. Laptop required.*

This course is a yearlong course that will give advanced students the strong foundation needed to build complex applications using object-oriented principles and the skills needed to gain a top-level internship at a tech firm. This course covers the design and implementation of data structures including arrays, stacks, queues, linked lists, binary trees, heaps, balanced trees (e.g. AVL-trees) and graphs.

The course will also serve as an introduction to software design patterns. Each pattern represents a best practice solution to a software problem in a specific context. The course covers the rationale and benefits of object-oriented software design patterns. Numerous problems will be studied to investigate the implementation of good design patterns. Students will receive assistance in crafting an effective resume and go through sample interview questions.

### EINSTEIN'S RELATIVITY AND THE EVOLUTION OF THE QUANTUM MODEL (Fall 2020) (Alternating year offering)

**Target Grade Level:** 11-12

**TEACHER:** Ben Taylor, Hopkins School, New Haven CT  
**Tuesday / Friday, 2:30 – 3:30 pm EST**

*Prerequisites: Physics or AP Physics 1; Co-requisite: AP Calculus AB*

This is a mathematically rigorous course in which students study contemporary physics. The course begins with Einstein's theory of relativity, and then takes on a chronological exploration of the development of quantum mechanics. Time travel, quantum tunneling, and the acceptance of seemingly impossible dualities mark highlights of this course.

### EXPLORATIONS IN COMPUTER SCIENCE: SOLVING MULTIDISCIPLINARY PROBLEMS WITH COMPUTATIONAL METHODS (Year)

**Target Grade Level:** 9-11 (students must have maturity and time management to succeed in a project-based, independent course)

**TEACHER:** Page Lennig, Waynflete School, Portland ME  
**Tuesday / Thursday, 11:05 am – 12:05 pm EST**

*Prerequisite: None. Students will need access to a laptop and other devices and equipment, up to about \$100.*

This project-based course will teach computational thinking skills through problem solving in computer science. Students will choose real projects based on their interests in the arts, humanities, STEM, and the world around them and then leverage the power of computer science to approach them. For example, students might design a website to bring attention to an issue in their communities, draw on big data to answer an environmental or historical question, compose music through code, or explore autonomous vehicles through robotics. For each project, students will break down a problem into pieces, build a sequence of steps to solve the problem, and translate those steps into a digital or technological solution. Students will often work collaboratively in groups, give one another feedback, and discuss/debate ethical questions related to current topics in computer science and the world. The course will function at the introductory level and is suited for students who wish to gain a broad exposure to computational methods, coding, and other tools of computer science.

# 2019-2020 COURSE DESCRIPTIONS

## STEM

### GENETICS AND GENOMICS (Fall)

**Target Grade Level:** 11-12

**TEACHER:** Audrey Yeager, Manlius Pebble Hill School, Syracuse NY

**Wednesday / Friday 12:15 - 1:15 pm EST**

*Prerequisite: Completion of Chemistry and Biology. Access to compound microscope, laptop required.*

This course will emphasize classic Mendelian genetics, molecular genetics, and population and evolutionary genetics. The topics include structure and function of genes (and the genome), biological variation, and regulation of gene expression. Subsequently, the course will explore current genome analysis methods, and genome manipulation technologies such as CRISPR. We will also discuss the implication of our use of this information in society. Topics include recombinant DNA technology, mathematical models and statistical methods for data analysis. Papers from the current and classic literature will supplement lecture materials.

### INTRODUCTION TO ORGANIC CHEMISTRY (Fall)

**Target Grade Level:** 11-12

**TEACHER:** Jocelyn Rodgers, Maret School, Washington DC

**Monday / Thursday, 2:30 – 3:30pm EST**

*Prerequisite: Completion of Chemistry*

This semester course will provide useful background information in organic chemistry by covering topics not typically found in high school chemistry courses. The course will give insight into the importance of the chemistry of carbon compounds to our daily lives. Topics covered will include organic nomenclature, structural formulas, stereochemistry, bonding, reaction mechanisms, and chemical transformations of functional groups. Completion of the course should make students more confident in their chemical background when entering college biology or chemistry courses.

### LINEAR ALGEBRA (Fall 2020) (Alternating year offering)

**Target Grade Level:** 11-12

**TEACHER:** Jon Gray, Indian Springs School, Indian Springs Village AL

**Monday / Thursday, 4:40 – 5:40 pm EST**

*Prerequisite: Calculus BC*

A standard treatment of linear algebra as presented to university-level science and engineering majors. Course topics will include row-reduction, matrix equations, linear transformations, matrix operations, invertibility, LU-factorization, subspaces of Euclidean space, dimension, rank, determinants (elementary product definition, expansion by minors, and row-reduction), vector spaces, null and column spaces, linear independence, bases, change of basis, eigen-theory, algebraic and geometric multiplicity, diagonalization, inner product, length, orthogonality, orthogonal sets, projections, the Gram-Schmidt process, QR-factorization, and the method least-squares. Time-permitting, the remainder of the course will be spent exploring applications of linear algebra to various disciplines. Regular problem sets will allow the students to practice and master the techniques introduced in class. Topic mastery will be exhibited through both written and oral exams.

# 2019-2020 COURSE DESCRIPTIONS

## STEM

### MULTIVARIABLE CALCULUS (Year)

#### Section A:

Target Grade Level: 11-12

TEACHER: Josh Link, Maret School, Washington DC

Monday / Thursday, 8:10 – 9:10am EST

#### Section B:

Target Grade Level: 11-12

TEACHER:, Kaveh Niazi, Stanford Online High School, Stanford CA

Monday / Thursday, 12:15 - 1:15 pm EST

#### Section C:

Target Grade Level: 11-12

TEACHER:, Stefanie Kawasaki , Chadwick School, Palos Verdes CA

Monday / Wednesday, 4:40 – 5:40 pm EST

*Prerequisite: Completion of BC Calculus. Laptop required*

The mathematics of three dimensions is the emphasis of this college-level course. Multivariable Calculus will explore the geometry of three-dimensional space, including vector arithmetic. It will also explore three-dimensional surfaces, using the tools of derivatives and integrals expanded into multiple dimensions. A robust unit on differential equations will allow students to review the topics of single-variable calculus. The emphasis throughout the course will be on problem-solving and on real-world applications of the tools students learn in fields such as economics, astronomy, physics, engineering, and medicine.

### THE QUANTUM MECHANICAL WORLD (Spring 2021) (Alternating year offering)

TEACHER: Andrew Blechman, Roeper School, Bloomfield Hills MI

Target Grade Level: 11-12

Wednesday / Friday, 11:05 am - 12:05 pm EST

*Prerequisite: Completion of AP Physics-C, Mechanics, or equivalent and AP AB Calculus.*

This class is designed for students who have a firm introduction to classical (Newtonian) mechanics and would like to see how things change when working on the atomic/sub-atomic scale. The first third of the class begins with a review of some of the important facts from classical mechanics, and follows a historical introduction to how we learned that there was more going on than what Newton's Laws suggest. While we learn of these discoveries, we will begin to introduce some of the mathematics needed to understand quantum mechanics, such as complex numbers and probability theory. In the second third of the course, we will begin to study some of the consequences of the principles of quantum physics by solving the trapped "particle in a box" problem. We will use this system to understand many of the difficult concepts of quantum physics in a definite setting, such as the probability interpretation, expectation values of observables, and the uncertainty principle. In the last third of the course, we will study the issues of Quantum Theory that caused Schrodinger to say, "I don't like it, and I'm sorry I ever had anything to do with it!" We will consider the EPR Paradox, the Measurement Paradox, Bell's Inequalities, and survey some "Quantum Philosophies" such as the Copenhagen, Many-worlds and Hidden-variables interpretations.

### ROBOTICS (Spring)

TEACHER: Steven Slovenski, University School of Nashville, Nashville TN

Target Grade Level: 10-12

Wednesday / Friday, 12:15 - 1:15 pm EST

*Prerequisite: None*

*Materials: Students will need either to purchase or have access to a robotics kit (which can run upwards of \$400). Interested students should communicate with their schools regarding access options.*

This course will center on LEGO robotics kits and students working in pairs. Students will complete a series of escalating challenges using the kits that would build their knowledge of both mechanical and programmatic elements of robotics.

Students will learn about gears, leverage, traction, and power through building robots to accomplish various tasks. In the visual programming language of LEGO Mindstorms, students will learn about loops, conditionals, and other programming structures. Project challenges will mostly reflect real world robotics challenges.