Beautiful Mathematics
Taught by: Melissa Mease

Mathematics appears in art, culture, and the everyday mundane things around us. Mathematics is what makes those things beautiful. We will start this course making paper and pencil constructions to see the interaction of angle, line, and curve. We will explore the beauty in the world around us, as it relates to mathematics, including naturally occurring phenomena like the golden ratio and the Fibonacci sequence. We will look at computer programs that allow us to create art from mathematical equations, and how computer mathematics help create animations. Be ready to be amazed by some Beautiful Mathematics!

Board Game Design
Taught by: Kathleen Mercury

A revolution in board gaming has been taking place as games that emphasize player choice and rich thematic worlds have become popular, like Catan, Pandemic, Terraforming Mars, and more. But how are these games designed? Learn by doing in this course where you will play a wide variety of games, learn the important elements of board games, then design, playtest, and iterate a game of your own creation. As part of this course, students will learn the Stanford school model of iterative prototype development and design mindsets, which can be applied to any other open-ended design process. Guest speakers will include published game designers, developers, and publishers who will share their expertise with students and provide practical advice on the development of their games.

Canoes, Cabs, and the French Railroad
Taught by: Steven Senger

This is a math course, but you won’t need much background knowledge. We’ll study questions simple enough for a child to understand, but as yet unanswered by our species. There will be more emphasis on pictures than equations.

Energy: the Currency of Change
Taught by: Joe Milano

Energy is the currency of change: the non-stuff that makes stuff do stuff. But what really is energy, and how do we harness it? In this hands-on class, you will take the front seat as scientists and engineers tasked with discovering what energy is and developing ways to use it. Conducting experiments with your fellow scientists, you will develop models to help make sense of your observations. Implementing our new discoveries, we will undergo an iterative engineering design cycle to prototype a water-deliver system powered by wind. We will continue to cycle between our scientists and engineer hats until we develop a deep sense of the
influence of energy. If you are a tinkerer, or if you are always asking how things work, then this is the class for you.

**Finding Hogwarts**

Taught by: Jennifer Fisher

Famous Missourian Mark Twain once said, "I have never let my schooling interfere with my education." But who decides what the difference is between the two? In this course, we will discover, discuss, and dissect the American education system from its very foundations and challenge what it means to be "educated." We will ask questions like the following: "Whose job is it to make sure American kids are learning?"; "Should teachers be armed in a world where school shootings are becoming commonplace?"; "Is it a school's job to teach students to have good character?" and "What place should sports have in education?" Together in this course, we will work to try to create a school of our own that could rival the likes of Hogwarts! We will question the place of politics in education and analyze the position that schools hold in sparking social change. We will try to figure out gifted students’ place in all of this and consider how it affects your education. After all, if knowledge is power, then those who hold the keys to unlock it are some very powerful people indeed!

**Finding Your Voice: Explorations in Writing**

Taught by: Jordan Henson

“For last year’s words belong to last year’s language / And next year’s words await another voice." These lines, famously penned by T.S. Eliot, speak to our ever-shifting understanding of literature. T. S. Eliot, William Shakespeare, Toni Morrison, Ernest Hemingway, Sylvia Plath, E. E. Cummings, J. K. Rowling, and countless other writers have expressed their voice through the written word. In doing so, they have created literature that is equal parts timeless, enchanting, and transformative. No author is born with the skill to publish. Through diligent practice and dozens of worn out pens and keyboards, they honed their craft and refined their voice to become the legends we know them today. Students in this major will spend three weeks doing just that, exploring the traits and styles of great authorial voices as we attempt to discover our own. Whether you are a regular participant in National Writing Month or spend more time writing Tweets than essays, all writers are welcome to join us as we scribble out stories the world can’t possibly ignore.

**Introduction to Philosophy: Great Thoughts Worth Thinking**

Taught by: Nicholas Kirschman

Utilizing sections of The Republic, the class will explore questions of ethics, epistemology, religion, government and economics and finally aesthetics. Learn why Socrates claimed that knowledge of the self is paramount, why Plato distrusted democracy and why Aristotle believed
them that excellence is a habit, like riding a bike. Different schools of philosophy and philosophers will be discussed in dialogue with Plato’s ideas and see why it is important to question everything.

It's the End of the World (As We Know It)
Taught by: Brian Stuhlman

It’s not easy being green, and it’s definitely not easy living in a world of varied tastes, mixed opinions, and random ideas. Using the ARTS and some of the philosophies of the last century or so, we will research the past and use it to find out where we are today, artistically and philosophically speaking. With explorations ranging from cubism to impressionism to theatre of the absurd, to modern and contemporary arts, and MUCH more, we will try to work with and understand the philosophies underlying cultural change, and we’ll create some groovy art . . . all in the trek to figure out where we are, why we are, and where we are going. No arts experience required! You need only to possess a creative spirit and an open mind to enjoy, to learn from and to emulate the written, visual and performance arts that include all sorts; Picasso to Calvin and Hobbes, Steve Martin to the Muppets, Albert Einstein to Pablo Picasso, expressionism to memes, jazz to rap, Godot to Seuss, communism to symbolism, collage to splatter art…the list of literature and artists and philosophies goes on and on!

Japanese Language and Culture
Taught by: Ake Takahashi

Understanding this as a background, this course will have a major emphasis on Japanese language (Kanji, Hiragana, Katakana; incidentally Japanese kanji are the same as Chinese characters), scholars are also provided with a broad exposure to culture, customs, religions, arts, and the educational system of Japan. We will study Shodo, Anime, Kirigami, Bonsai, Ukiyoe, some Japanese films, a brief history of Japan.

MSAN: Missouri Scholars Action News
Taught by: Jon Gunasingham

BREAKING NEWS: Missouri Scholars Academy is getting its very own news network! In this course students will develop journalistic and production skills in order to show their friends that MSA isn’t just another nerd camp. Students will be in charge of running their very own news network and the tasks that entail, from publishing online written, audio, and video content, to conducting the interviews with faculty and students. Along the way students will acquire basic video and sound editing skills that they can use when starting their own Youtube channel and/or podcast.
O Critics, Where ART Thou? Finding Greatness in Paragraphs, Pages, and Plasma Screens
Taught by: Ben Batzer

Have you ever wondered what assessments we use when determining a work of “greatness”? What does it mean to say that a movie is a classic or a book is canonical? Why is it that we read Homer, Shakespeare, and Twain in class? Is it possible to look at art objectively? In answering questions like these, this class will help you think like English teachers, movie critics, poets, playwrights, and filmmakers. Although you’ll learn a range of approaches that professionals use to analyze, critique, and evaluate literature and film, you’ll also leave better prepared to analyze other art forms: photography, painting, song. This class requires no prior knowledge, but it asks that you bring an open mind, an eagerness to participate in lively discussion, and the courage to see the world around you in new ways.

Race, Place and Identity in Missouri
Taught by: Stephanie Hasty

Who are we? Why are we here? What can we do to change the world? These are the questions that we are going to tackle and answer while exploring the voices and experiences of those around us. Through civil discourse, we will address texts through a critically literate lens to see what experiences are being left out. We will talk about privilege, social justice and listen and read about how confronting these issues helps us identify who we are and helps us plan for a future where all voices are heard and represented. We will look at and explore our own culture and share that with others. In the end we will ask ourselves about what we’ve learned and find ways to take that knowledge back to our schools and communities. We will read works by others spanning the 60s-present day, listen to podcasts centered on these topics and explore diversity through looking at our communities.

The Art of Programming: Programming Art
Taught by: Joel Jeffries

An artist uses a paint brush and a writer uses a pen. Throughout history, artistic exploration has taken many forms. Today, technology allows us to express ourselves in new ways. This course will aim to build skills to be able to bring the ideas in our minds into (virtual) reality. The course will begin with the basics of coding (no prerequisite skills necessary), explore the use of graphics to create works of art, delve into the use of computers to run simulations that imitate life, and culminate in original creative projects.
To Infinity and Beyond

Taught by: Frank Corley

We'll start at zero, and we won't stop until we get there. The concept of infinity pervades so much of mathematics that we will have plenty to do in this course. What happens when a process is repeated over and over again, changing only a single parameter each time? Does infinity come in different levels, or is it one size fits all? Is infinity a number or is it something else? How can we prove a statement about all the numbers without proving it individually for every number? Can infinity be arrived at or can we even get close to it? Will these questions never end? Take the course and find out.

Understanding the Modern Middle East

Taught by: Shadi Peterman

Conflict and crisis in the Middle East have been regular events on the nightly news in recent decades. This course will consider the origins and continuing aspects of major events in several areas of the Middle East, including the rise of ISIS, the Syrian Civil War and refugee crisis, and the conflict between Israel and Palestine. Students will consider many factors that contribute to the conflicts, including political, economic, and religious issues. Students will also be challenged to propose ways to address each situation, considering what role the United States and/or international organizations and coalitions can and should play.

“Whaaaaaaaat, that's not music!”

Taught by: Austin McWilliams

Or is it? This major aims to explore just what music is. We'll start at the physical origins of sound and dig through music theory and compositional techniques of the great classical composers until we hit the twentieth century and musical chaos erupts. Then WE will become the musicians as we dare to perform and analyze some of the great experimental works of the last century. Finally, we'll create and perform our own Contemporary musical works using digital audio editing software, found sounds, traditional instruments, and whatever else we've come to know as music. Having the ability to read music is recommended but not necessary in order to enjoy this course. Bring your instrument(s) with you to MSA!
Where there's a will there's a Way: Shakespeare today
Taught by: Mike Kersulov

What’s the big deal with Shakespeare? The language can be confusing. He’s been dead for years. But for some reason he is still important in today’s world. This course will look at how Shakespeare still impacts our lives and entertainment through film, television, and even comic books. Have you read all the different types of Shakespearean plays? Do you like romance, murder, mystery, shipwrecks, and fantasy? They are all there calling out to us. Romeo, Juliet, Hamlet, Macbeth, Iago, and Bottom. We will meet them all, act the parts, and find how they work themselves into our lives. But we won’t stop there. While we lose ourselves in the magic of drama and theater, we will find a way to become more acquainted with Shakespeare and his works and determine how each and every one of us has a little bit of Shakespeare inside.

With Friends Like These, Who Needs Hegemonies? Employing the Sociological Imagination
Taught by: Doug Valentine

What makes you who you are? Are we just a collection of free-floating individuals? Do our histories and experiences matter? What’s all this “privilege” business about? Using a sociological perspective, we will examine the categories of race, gender, class, and much more. We will discuss important local, national, and global news while exploring topics such as inequality, social construction, universal human rights, and cultural relativism. We will investigate how the social institutions of education, the family, government, religion, and media contribute to our socialization, police "deviant" behavior, and engage in social control. It’s a big world with diverse perspectives. Let’s explore a few. When we use the sociological imagination, things get real.