

Courses starting at: *Sat 1:00 PM*

H359s1: How To Be A Plant

Elaine Yang

Take a tour through plant mythology from different cultures, adopting plants as role models and mentors with the goal of becoming a better living being.

Open to students grades 9 through 12

Maximum Size: 30

Sat 1:00pm–1:45pm

H368s1: Lead your own Civilization! Playing a Role-Playing Game to Learn History

Tony Yao

All too often, History in school is about memorizing facts. In this experimental class, we'll try to learn history through playing a "table-top-style" game instead! Students will be tasked with leading their own fictional civilizations across Afro-Eurasia. Your choices will change the history of this parallel Earth! If you've wanted a new way to look at history, this is the class for you!

Open to students grades 9 through 12

Maximum Size: 12

Sat 1:00pm–2:45pm

H349s1: The Brain in a Vat

Lawrence Cao

Could you be a brain in a vat? You think that you are registering for Splash @ JHU, but maybe in reality you are just a brain connected to a computer. Skeptical scenarios like this have caused much problem to our theory of knowledge. This is roughly because if it is possible that we are dreaming, it seems that we cannot be certain of what we take ourselves to know. In this class, I will try to demonstrate the Brain in a Vat paradox, and suggest some potential solutions. Please note this will be a philosophy session so we will not discuss the technological details.

Open to students grades 9 through 12

Maximum Size: 15

Sat 1:00pm–1:45pm

M357s1: How The Internet Works

Shravan Venkatesan

Learn what makes the internet work, from how single bits are stored and transmitted, to how complex streams of information are sent in seconds around the world.

Open to students grades 9 through 12

Maximum Size: 25

Sat 1:00pm–1:45pm

M356s1: Intro to Cryptography

Reshmi Patel

Students will learn how to encrypt messages using a variety of ciphers, starting with simple algorithms and moving to more complex ones. We will go over techniques for decrypting encoded text, getting plenty of practice decoding by hand, and will also apply basic computer programs to decryption.

Open to students grades 9 through 12

Maximum Size: 30

Sat 1:00pm–1:45pm

X363s1: An Adventure in Looking and Listening

Andrew Solanto

If you can hear the sound of the sea in a shell, can you hear the sounds of the city inside a tin can?

This highly interactive, discussion-based class, co-taught by a civil engineer and a humanities major, is an example of what can happen when two very different disciplines come together. This is a deeper look into what typically goes unseen public (and private) structures that mold where we live and, of course, the way we live. Join us as, with new perspectives, we explore our cities, towns, and suburbs. What do we see when we choose to notice?

Open to students grades 9 through 12

Maximum Size: 15

Sat 1:00pm–2:45pm

S362s1: "Cutting" into Gene Editing

Sean Lee

In this course, students will have the opportunity to explore gene editing - a technique that will revolutionize healthcare, food security, and scientific research. We will first dive into the fundamental inner workings of gene editing, followed by an exploration of different advancements within this field.

Open to students grades 9 through 12

Maximum Size: 50

Sat 1:00pm–2:45pm

S371s1: Introduction to Bioanalytical Techniques

Wilson Huang

Interested in the sort of molecular biology experiments conducted in research and industry settings? This course will begin by giving a quick overview on DNA, RNA, and proteins and proceed to examine the basic theory and method regarding foundational bioanalytical techniques such as PCR, ELISA, gel electrophoresis and the cloning cycle. The course will then explore more technical experiments involving next generation DNA sequencing and common staining procedures performed on clinical samples.

Open to students grades 9 through 12

Maximum Size: 50

Sat 1:00pm–1:45pm

S365s1: The Biology Behind Food and Nutrition

Austin Chen

Have you ever thought about the complex biological molecules within the food that we eat? This course will relate concepts from the biological sciences in an applicable context to food and nutrition, providing students with an understanding of molecular biology, biochemistry, health, and nutrition. Topics include food molecules, function of different vitamins, and the impact of food on the human health are all covered in this course.

Open to students grades 9 through 12

Maximum Size: 50

Sat 1:00pm–2:45pm

S361s3: Why We Sleep & How To Make It Your Superpower

Sam Bronckers

Have you ever wondered why we sleep? What do dreams

mean? What influence does a lack of sleep have on learning and diseases like Alzheimer's? Why do some migrating animals only sleep for 1 hour per day while koalas sleep up to 21 hours per day? Come find out in this class!

Open to students grades 9 through 12

Maximum Size: 50

Sat 1:00pm–1:45pm

Courses starting at: *Sat 2:00 PM*

M357s2: How The Internet Works

Shravan Venkatesan

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Maximum Size: 25

Sat 2:00pm–2:45pm

H350s1: The Laws of Nature

Lawrence Cao

This will be a philosophy of science session. Instead of guessing the content of the laws of nature, we will take a step back and think about what are the laws of nature. Are they governing rules of the universe such that whatever happens according the laws of nature? Or are they a collection of elegant descriptions of the world made by humans scientists without any governing power?

Open to students grades 9 through 12

Maximum Size: 15

Sat 2:00pm–2:45pm

H372s1: What are Words: an Introduction to Linguistics and Morphology

Jillayne Clarke

Have you ever wondered how words are put together? How do we understand the word “unreliable” as a combination of the parts “un-”, “rely”, “-able”? This course will introduce that field of linguistics and more specifically morphology through fun language puzzles.

Open to students grades 9 through 12

Maximum Size: 40

Sat 2:00pm–2:45pm

X352s1: Pre-Dental 101

Nathaniel Semanek

Are you interested in the field of STEM? Are you also interested in a career in medicine? From the perspective of a pre-dental student, this course will cover the importance of oral health and the field of dentistry. We will cover the pros and cons of the job, while also comparing the pre-dental academic path to the pre-medical path. I will discuss the application requirements and how technology is changing how dentists work with patients. This will also be a great class (full of advice) for any student considering a pre-health path in college.

Open to students grades 9 through 12

Maximum Size: 50

Sat 2:00pm–2:45pm

S354s1: How to Blow Up a Black Hole

Aniket Pratapneni

A step-by-step, scientific guide on how to engineer a supernova-scale explosion. A fun experiment to try out on your enemies! Or their entire solar system, for that matter.

Open to students grades 10 through 12

Maximum Size: 30

Sat 2:00pm–2:45pm

S353s1: The Origins of COVID-19

Sruthi Katakam

Where did COVID-19 come from? There have been many different theories floating around – was it a lab accident? A biologically engineered weapon? A coincidence? In this class, we will walk through several of the most popular theories on the origins of COVID-19 and discuss their plausibility, as well as their implications for the future of global health.

Open to students grades 9 through 12

Maximum Size: 50

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Courses starting at: *Sat 3:00 PM*

X363s2: An Adventure in Looking and Listening

Andrew Solanto

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Sat 3:00pm–4:45pm

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H351s1: A Number Larger than Infinity

Lawrence Cao

You can count 1, 2, 3, 4, for a 45 minutes session without reaching the end of natural number. Suppose you have all the time in the universe, you still wouldnt reach infinity. However, is the infinity the largest number? In this session, I will try to prove that there is a number bigger than infinity (its not infinity+1, actually we can show that infinity+1=infinity).

Open to students grades 9 through 12

Maximum Size: 15

Sat 3:00pm–3:45pm

H373s1: Collective (Active) Forgetting and National

Identity as a Social Construct

Marybella Zhang

Is "nation" natural? How have nationalist historical narratives contributed to the formation of modern nation-states? As we've witnessed both the liberating and destructive effects of nationalism, it's urgent to reflect on the essence of "nation" and national identity. In this class, we'll look at theories on how intentional forgetting of certain past events is integral to collective identity, as well as how the legitimization of collective identity sometimes leads to animosity towards minorities within the nation.

Open to students grades 10 through 12

Maximum Size: 13

Sat 3:00pm–3:45pm

H366s1: The Evolution of American Democracy

Roberto Jarrin

The United States constitution is the world's oldest active codified constitution, yet despite that our current system of government is vastly different today than during its inception. In this class we will explore how the relationship between the US's government and its citizens changed as it transformed from a fledgling nation of former British colonies to a global superpower.

Open to students grades 9 through 12

Maximum Size: 30

Sat 3:00pm–3:45pm

X370s2: Applying to College 101

Kaitlyn Storm

Applying to college soon? Curious about the process? This class is for you! We will cover the entire timeline of creating a school list, testing, writing essays, asking for letters of recommendation, and finally sending in applications. Please note this class will NOT give specific admissions advice, but more a general overview of the process and what to expect. There will be opportunities to ask questions throughout!

Open to students grades 9 through 12

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Sat 3:00pm–3:45pm

S369s1: How Rare Are We?

Tony Yao

The Universe is incredibly vast, yet we are the only intelligent civilization we know of. Join us as we walk through the rare events in Earth's history, from evolutionary quirks to mass extinctions, that have created intelligent life. Then, as a class, we'll estimate just how unlikely we are!

Open to students grades 9 through 12

Maximum Size: 50

Sat 3:00pm–3:45pm

S355s1: How to Power a House on Mars

Aniket Pratapneni

In this class, we'll use engineering and the laws of physics to explore one of the most effective (and yet, one of the most

absurd) ways to power a house on Mars.

Open to students grades 10 through 12

Maximum Size: 30

Sat 3:00pm–3:45pm

**S360s1: Introduction to Astrobiology and Space
Medicine**

Arjun Yogaratnam

Ever wonder how space affects various parts of the human body or what evidence we've found of life on other planets?

Join us as we delve into the worlds of space medicine and astrobiology to find intersections between 3 interesting fields.

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Arjun Yagaratnam

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Open to students grades 9 through 12

Maximum Size: 50

Sat 4:00pm–4:45pm

M367s1: Introduction to Java Workshop

Eli Levenshush, Angela Mak, Eric McAlexander, Andres Parra

This workshop taught by the JHU MedTech Network will be an introduction to Java and cover the basics of syntax, data types, loops, and arrays. Students will learn about medtech applications of Java through interactive coding activities.

Open to students grades 9 through 12

Maximum Size: 50

Sat 4:00pm–4:45pm

X358s1: How to Get Good At Geoguessr

Evan Edelman, Rohin Gurumurthy

This class will equip you with the skills needed to impress anyone who watches you play Geoguessr. We will explain the best methods to successfully pinpoint the most likely country or location that you are placed in. This class will focus on the distance based mode and the country selection mode.

Open to students grades 9 through 12

Maximum Size: 30

Sat 4:00pm–4:45pm

S364s1: Introduction to Epigenetics

Sandy Wong

Why are identical twins so different? How does the environment affect your genes? What different modifications can be made to DNA? All of these questions can be answered with epigenetics. Join us as we explore the role of epigenetics in making us who we are.

Open to students grades 9 through 12

Maximum Size: 30

Sat 4:00pm–4:45pm