

# Course Catalog — *Arts*

## **A157: Filmmaking 101: Getting Your Short-Film Made on a Budget**

*Molly Mielke*

Course explores best practices for making your short film on a student budget, from storyboarding to getting collaborators and applying to festivals. Introduction of organizational practices, resources available to students and practical advice for aspiring filmmakers. Course includes a mind-mapping exercise and guidelines to help identify the steps necessary to bring your creative project into reality. Content is applicable to all creative projects undertakings, with a specific focus on filmmaking.

*Open to students grades 9 through 12*

**Sat 10:00am–11:00am**

**Sat 9:00am–10:00am**

**Sat 4:00pm–5:00pm**

**Class is FULL!**

## **A185: Intro to Playwriting and Character Development**

*Alexis Sanchez*

This course is designed for anyone interested in the art of Playwriting or Dramatic writing! This course will approach Playwriting from a character-based approach in which the students will learn to develop a character on stage by utilizing certain writing exercises and practices in a workshop-type setting. Our emphasis is on being able to craft an entire play by creating a compelling character. The course includes a character sketch activity and a character-based monologue writing exercise. Content is applicable to all modes of storytelling with a specific emphasis on Playwriting.

*Open to students grades 9 through 12*

**Sat 9:00am–11:00am**

**Class is FULL!**

## **A190: Comparing Pop Music Around the World**

*Emily Moreira*

For music lovers or those wishing to expand their musical horizons, join this class as we take a deeper look at how pop music varies around the world. Since the start of the new century, America has been the standard for pop music, with superstars like Brittany Spears and Taylor Swift setting the scene. However, with the new rise in social media different sub-genres of music have been gaining more popularity. Other countries around the world have adopted and adapted Americas music and made it their own. Well be looking at different countries like Korea, Brazil, and France among others to analyze and compare their genres of pop music to what we see here in America.

*Open to students grades 9 through 12*

**Sat 11:00am–12:00pm**

**Class is FULL!**

## **A168: Perceptive Psychology and Art: How to Draw by Not Using Your Brain**

*Irina Bhor*

Learn about the basics about perceptive psychology and how our brain makes sense of what we see in front of us. We will break down our normal vision down into shapes, lines, and colors to make cool art that borders between realism and abstraction.

*Open to students grades 9 through 12*

**Sat 11:00am–12:00pm**

**Sat 3:00pm–4:00pm**

**Class is FULL!**

## **A178: Introduction to Filmmaking**

*Amy Ace*

This course is designed for all the film fanatics out there! We will be touching on the basis of filmmaking in its five stages: development, pre-production, production, post-production, and distribution. We will also briefly discuss about the film industry and the difference between independent filmmakers and Hollywood filmmakers.

*Open to students grades 9 through 12*

**Sat 1:00pm–4:00pm**

**Class is FULL!**

## **A187: Learn How to Dance!**

*CARA NGUYEN*

Have you ever wanted to learn how to dance? Now's your chance! I'll be teaching everyone the fundamentals of learning a dance and performing, and you'll walk away with a dance under your belt to impress your friends!

*Open to students grades 9 through 12*

**Sat 4:00pm–5:00pm**

**Sat 1:00pm–2:00pm**

**Class is FULL!**

## **A202: The Good, the Bad, and the Funny: Characteristics of a Sitcom**

*Paul Valdivia*

We will explore the characteristics of good and bad sitcoms, and what elements contribute to the shows success.

*Open to students grades 9 through 12*

**Sat 1:00pm–2:00pm**

**Class is FULL!**

## **A206: SCRIBBLE AND SPIT LIKE A PRO: A Poetry/Spoken Word Workshop**

*Lucy Flattery-Vickness*

Have you ever wanted to write a poem? Do you write already and dream of standing before a full auditorium, snapping and mmm-ing away as you perform a poem you wrote?? Do you want to be able to write for catharsis or for fun? Everyone has

something inside they want to express. In this workshop we will focus on the aspects of writing and performing that are often left out of writing workshops. How should you approach editing your own piece? How can small body movements completely change your performance? Come learn about writing poetry, try it out for yourself, and practice bringing your words to life with Oakland's former Poet Laureate!!  
*Open to students grades 9 through 12*  
**Sat 2:00pm–4:00pm**

# Course Catalog — *Engineering*

**E150: Engineering Composites: Combining Materials to Solve Problems**

*Ashvin Nagarajan*

Learn how composite materials are made and implemented in the creation of engineering miracles like F18 fighter jets and

rocket ships.

*Open to students grades 9 through 12*

**Sat 11:00am–12:00pm**

# Course Catalog — *Humanities & Social Science*

## **H181: Getting to Know Your Brain: Mastering an Imperfect Memory**

*Anna Bretz, Kathryn Walsh*

Just how accurate are your memories? Are we doomed to forget everything with time? How do drugs and alcohol affect your ability to remember events and experiences? In this course, we will explore the hidden structures and processes your brain uses to make memories and demonstrate how you can use that knowledge to your advantage.

*Open to students grades 9 through 12*

**Sat 11:00am–12:00pm**

**Sat 9:00am–10:00am**

**Sat 4:00pm–5:00pm**

## **H189: Global Studies: US Relations with the P5**

*Emily Moreira*

In the politically polarized world we live in today, it's important for students to properly understand International Relations—especially as we begin addressing global issues like World Poverty, Climate Change, and Denuclearization. The P5 is referred to the five countries within the United Nations who hold veto power, which are: The United States, France, China, The United Kingdom, and Russia. We'll first start by taking a look at how these countries became the five permanent members of the UN, what this means for the international community, and then comparing The United States policy with the P5s on popular global topics such as Global Warming.

*Open to students grades 9 through 12*

**Sat 10:00am–11:00am**

**Sat 9:00am–10:00am**

**Class is FULL!**

## **H207: Mental Health Wellness**

*Elizabeth Benke*

This course is designed to provide an introduction to students on the topic of mental health and activities for achieving wellness such as mindfulness. Students will also learn strategies for advocating for themselves and others.

*Open to students grades 11 through 12*

**Sat 9:00am–11:00am**

**Class is FULL!**

## **H211: What is Happiness? A Lens into Our Lives and What Gives Us Happiness**

*Claire Glendening*

What really makes us happy? How can we get more of this happiness? We will introduce the psychology and neuroscience behind aspects of peoples' lives that can make them happier. We will also discuss easy parts of our life we can

change to make us live more in the moment, feel more connected to others, and have greater content.

*Open to students grades 9 through 12*

**Sat 2:00pm–3:00pm**

**Sat 9:00am–10:00am**

**Class is FULL!**

## **H180: Let's Be Clear: Tips And Tricks For Being A Better Writer**

*Dhruva Krishna*

Writing is a critical skill for success. Whether you envision yourself as a lawyer, doctor, artist, engineer, author, or social influencer, being able to clearly convey your message is central to building your brand, your identity, and your reputation.

This course will teach students practical skills for improving their writing. We will look at examples from multiple sources, including social media posts, books, academia, and music to demonstrate effective writing skills.

Students will leave this class with practical writing skills that they can apply to all aspects of their life. This class will not be a grammar lesson or English class. Instead, it will give students a toolbox that they can continue to build throughout their professional and personal careers.

*Open to students grades 9 through 12*

**Sat 11:00am–12:00pm**

**Sat 10:00am–11:00am**

## **H222: Food Through a Societal Lens**

*Ryan Moon*

What's the connection between what you eat on a daily basis and your health? Is there a relationship between what we eat and where we fall in America economically, racially, and socially? In this class, we will piece through these questions based on studies, research, and most importantly, based on your experiences.

*Open to students grades 9 through 12*

**Sat 1:00pm–2:00pm**

**Class is FULL!**

## **H151: How to break the law and get away with it: a study of “desuetude laws” in California and beyond.**

*Hunter Valada*

Have you ever worn cowboy boots in the city of Bythe, California? How about riding a bike in a swimming pool in Baldwin Park? What about detonating a nuclear device within the city limits of Chico? Believe it or not, if you have done any of the above you have broken the law. Join me in

a journey around California, the country, and the world to study some of the most bizarre laws in existence.

*Open to students grades 9 through 12*

**Sat 1:00pm–2:00pm**

**Sat 4:00pm–5:00pm**

**Class is FULL!**

### **H188: Witches, Zombies, and the End of the World**

*Ashley Huendo*

The end of the world is near! Everywhere you look, witches, zombies, and the apocalypse are popping up. Pop culture is full of these mystic themes and they can all be traced back to religion. We'll look at shows like Good Omens, The Good Place, The Walking Dead, and The Chilling Adventures of Sabrina to analyze how religion has influenced these pop culture staples!

*Open to students grades 9 through 12*

**Sat 2:00pm–3:00pm**

**Class is FULL!**

### **H167: How to Make a Language: An Introduction to Linguistics**

*Jordin Wang*

This 2-hour seminar presents fundamental linguistic concepts through a classroom-wide effort to create a constructed language (conlang). We will be covering 3 broad topics: sounds (phonetics, phonology), words (root morphology, derivation, semantics), and grammar (morphosyntax, pragmatics). Students will volunteer ideas for each element of the language, with final decisions made by a class vote. Through this process we will develop a sound system, grammar rules, and basic vocabulary. We will also address a short history of conlangs, as well as major subtypes and famous examples, such as Esperanto, Klingon, and Dothraki. By the end of the seminar, students will be able to write a short text in their conlang.

*Open to students grades 9 through 12*

**Sat 3:00pm–5:00pm**

**Class is FULL!**

# Course Catalog — *Lunch*

**L219: Lunch Period**

*Open to students grades 7 through 12*

**Sat 12:00pm–1:00pm**

Enjoy a break for lunch with your friends! Please register for at least one lunch period on each day of the program.

# Course Catalog — *Math & Computer Science*

## **M204: Coke vs. Pepsi: An Intro to Graph Non-Isomorphism and Zero-Knowledge Proofs**

*Eli Jaffe*

Suppose your friend tells you they can taste the difference between Coca-Cola and Pepsi. How would they prove it? In particular, can they prove it without revealing what the difference is? In this course we explore this simple problem and how it relates to a much deeper problem called Graph Non-Isomorphism, where one must determine whether two graphs (or networks) are actually the same graph. We will also learn about Zero-Knowledge Proofs, by which one can prove a statement to someone else without revealing any information besides the truth of the statement.

*Open to students grades 9 through 12*

**Sat 9:00am–11:00am**

## **M191: Intro to Data Science**

*Rishov Chatterjee, Claire Kim*

- What if you had a machine that could do all your homework for you?
- How do you take control of your fitness using your FitBit or Smart Watch?
- How do you create music if you feel you're not a good musician?
- How do you control your diet when you know there's something you want to eat and you can't control the urge?
- How do you accurately manage your time?
- How do you control your spending and improve your credit score?
- How do you control addiction to gaming and smoking?
- How do you read your textbook in less than 10 minutes?
- How do you use AI to recommend you a strategy to get into your dream college?
- How can AI strengthen your personal safety and notify you when danger is present?

In this class, we will not only answer the above questions, but we will also discuss examples of limitations and provide a seminar to share individual experiences of interacting with data and artificial intelligence. Conceptually, we will go over a day-to-day data science workflow and introduce opportunities to pursue Data Science internships through a non-profit called ChanR Analytics.

*Open to students grades 9 through 12*

**Sat 9:00am–10:00am**

**Class is FULL!**

## **M218: How do Computers Computer? An Introduction to How Computers Work**

*Maanek Sehgal*

Have you ever wondered what the computer did with the code

on your screen? How the computer converted a bunch of text into the applications we love? This is where you can find out! We'll take a look out how computers manage memory, store human constructs like strings and integers, stack frames, x86 instructions, and much more\*.

This course is designed to be an introduction to computer organization. If you already have some experience in this subject area, you may not find this interesting.

In more technical terms, we will cover binary, binary representations of data, caching memory models, and virtual memory.

*Open to students grades 9 through 12*

**Sat 10:00am–12:00pm**

**Class is FULL!**

## **M196: Real World, Applied Data Science**

*Rishov Chatterjee, Claire Kim*

- How you can apply data science to change your life
- How can you use maps to describe the impact of solar in California? (Guest speaker)
- How can you use data science to prevent bullying?
- How can you use data science to make money while you're sleeping?
- How do self driving cars work?
- How can data science help you improve your mental health?

In this class, you will learn to solve real world issues with data science in a hands-on manner. We will develop an end-to-end workflow which involves the use of Python programming, data collection, exploratory data analysis, geographic information systems (GIS), data visualization, data transformation, cloud computing and framework design. Machine Learning will be adopted to some extent from an understandable point of view, but actual predictive model development will take place in the Machine Learning course.

- Students are encouraged to bring their own computers.

*Open to students grades 9 through 12*

**Sat 10:00am–12:00pm**

**Class is FULL!**

## **M221: Natural Language Processing (How Siri, Google Translate, Alexa, etc. work)**

*David Morley*

This class will cover some of the techniques that are used in natural language processing (word vector/character models, etc) and also provide a brief interlude into machine learning. At the end of the class there will be a discussion to ask questions about the topic and find out ways to learn more.

Free intel swag and other goodies will be provided to all who attend!

*Open to students grades 9 through 12*

**Sat 1:00pm–3:00pm**

**Class is FULL!**

**M197: Hands-On, Applied Machine Learning**

*Rishov Chatterjee, Claire Kim*

This is a hands-on applied class which will explore the following applications and tools:

- EDM Track Generation with IBM Watson Beat and Google Magenta
- Tools
- Python Programming
- GitHub
- Google Cloud Platform
- Logic Pro
  
- Detecting Faces in Images
- Tools
- JavaScript

- Tensorflow.js
- Dart
- Flutter
- App Emulator (Visual Studio Code or Android Studio)

- Students are encouraged to bring their own computers.

*Open to students grades 9 through 12*

**Sat 2:00pm–5:00pm**

**Class is FULL!**

**M173: How to prove  $1+1 = 2$**

*Jinwoo Baik*

In high school, math is often just seen as calculations. Here, we will look at the natural numbers learn about math as a language. This class will explore elementary set theory, axioms, proofs, and a brief introduction to Peano arithmetic in an approachable matter. In the end, we will be able to prove that  $1 + 1$  is indeed 2, and if time allows, more!

*Open to students grades 10 through 12*

**Sat 2:00pm–4:00pm**

# Course Catalog — *Miscellaneous*

## **X171: Avalon! A social deduction game**

*Louis Gosart*

Avalon is a social deduction game, with a dynamic very similar to mafia, in which you try to deduce who's who based on certain clues. It is easy to learn once you've play one round, and it can be incredibly fun and thrilling to play.

*Open to students grades 9 through 12*

**Sat 9:00am–12:00pm**

**Class is FULL!**

## **X163: How to Not Be Stupid**

*Grace Gibbons*

Don't make the same mistakes I did! Figure out what you want to do after high school, whether it's a 4-year college, community college, traveling abroad, or something else! We can figure it out together! You have one life to live, so why shouldn't you be able to do exactly what you want to do?

*Open to students grades 9 through 12*

**Sat 9:00am–11:00am**

**Class is FULL!**

## **X165: Cricket 101**

*Delight Azariah Daniel Wellington*

Basic introduction to the sport of cricket, explaining the rules and different strategies involved in a game of cricket.

*Open to students grades 9 through 12*

**Sat 11:00am–12:00pm**

## **X170: Chinese Chess (xiangqi)**

*Louis Gosart*

Come learn and play Chinese chess! This is a wonderful game and an interesting variation to regular western chess. The game dynamic is the same, but piece movement and some rules are slightly different. Sign-up if you want to play or learn how to play. I will explain and demonstrate different aspects of the game in class. Hope to see you there!

*Open to students grades 9 through 12*

**Sat 1:00pm–3:00pm**

## **X152: Get Into the College of Your Dreams with the Perfect College Essay!**

*Neira Ibrahimovic*

Are you wondering what it takes to get into the school of your dreams? Well look no further- this class will teach you all about how to write the perfect college essay that will make you a strong candidate for any school! Come learn about the steps to writing your essays, tips to make them better, and even get a head start by starting today! I'll also show you all my college essays that got me into UCLA, and we can work together from there... this class is a MUST!

*Open to students grades 9 through 11*

**Sat 3:00pm–4:00pm**

**Sat 1:00pm–2:00pm**

## **X201: Intro to Relationships**

*Grace Cai*

What makes a romantic relationship successful? How do we cultivate connection and love? Let's discuss!

*Open to students grades 9 through 12*

**Sat 1:00pm–2:00pm**

## **X182: Rhythm Gaming and Music**

*Jonathan Chau*

Have you ever been impressed when you see a guy/girl show off their talents and get a combo of 1000 and wanted to do the same? Or are you might want to tap into the music of rhythm gaming? Well this is the place for you! Come and learn how to tap notes perfectly, score big combos, and appreciate the music used for your hearing sensation!

*Open to students grades 9 through 12*

**Sat 1:00pm–2:00pm**

**Class is FULL!**

## **X175: Fanfiction: Should you care?**

*Tuong Le*

This course takes on this very murky and taboo topic known as fanfiction. You don't even have to know what it is. The basis on what fanfiction is and why you shouldn't or should care. We'll try to tackle this as objectively as possible. Questions are absolutely encouraged.

*Open to students grades 9 through 12*

**Sat 2:00pm–3:00pm**

## **X210: wHaT iS cOILeGe?? (Discussing the stereotypes around the college application process)**

*Angelynn Nguyen*

In this class we will engage in a seminar with the goal of learning more about different perspectives on the college application system.

*Open to students grades 11 through 12*

**Sat 4:00pm–5:00pm**

**Sat 2:00pm–3:00pm**

## **X199: Disney and the Feminist Theory: A Critical Analysis of How Disney Films Largely Fail to Uplift and Empower Young Women**

*Sabrina Huang*

Ever wonder why Disney princesses are always saved by princes? Curious to know why women are continually relegated to a socially "inferior" role? If you answered yes to either of these questions, then this class is for you! By critically analyzing the actions, language, and appearances of female characters through the lens of the Feminist Theory, we

will learn how Disney films reaffirm and perpetuate existing gender stereotypes. Come and see how you can combat these sexist micro-insults to challenge widely-held social norms.

*Open to students grades 9 through 12*

**Sat 4:00pm–5:00pm**

**Sat 3:00pm–4:00pm**

**X162: Game Theory**

*Ashesh Desai*

Learn about the science behind rational decision-making, participate in logical exercises, and apply practical skills to real-life situations.

*Open to students grades 9 through 12*

**Sat 3:00pm–4:00pm**

**Class is FULL!**

**X212: Strategy 101: Winning the Board Game Risk**

*Claire Glendenning*

Founded in 1957, Risk is a classic board game testing negotiation, tactics, and diplomacy. We will learn different strategies

and why they are useful. We will then test out these different methods when playing the game.

*Open to students grades 9 through 12*

**Sat 3:00pm–5:00pm**

**X213: Interviewing for Introverts**

*Aarushi Bajpai*

“Tell me about yourself.” “What is your greatest weakness?”

Broad questions like these can be difficult for people who need time to think about what they say. What if I told you that interviewing is a skill, that with the right tips and practice, can be improved? And that being shy doesn’t have to be your demise?

From professional school interviews to job interviews, these skills will serve well to open doors for introverts and extroverts alike.

*Open to students grades 9 through 12*

**Sat 4:00pm–5:00pm**

# Course Catalog — *Science*

## **S155: Cracking the Cranium: an introduction to brain functionality**

*Tasneem Sadok*

How does our brain do that stuff? You know, stuff like make us excited about our favorite meal, laugh at a top-tier meme, or become hyper-aware in social situations. And with it stuck in our skull, how can we test what we supposedly already know about the brain and learn what we don't? This class will serve as an introductory overview of brain functionality, with both lecture and participatory activity components. We will first establish basic gross brain anatomy, then explore how some of these areas are connected in facilitating higher-level cognition and behaviors, and finally touch on the logic behind experiments that expand our neuroscientific and psychological knowledge.

*Open to students grades 9 through 12*

**Sat 9:00am–11:00am**

## **S217: Honey, We've Got a Big Storm Comin': The Fall of Antibiotics**

*Cara Budzinski*

This course will cover the history of antibiotics and the rise of antibiotic resistance, as well as potential therapies to replace antibiotics.

*Open to students grades 10 through 12*

**Sat 9:00am–10:00am**

**Class is FULL!**

## **S153: Origins of Music**

*Jinwoo Baik*

Do you love both science and music? You've come to the right place! Here, we will look at the fundamental source of sound, the overtone series, the pentatonic and western scales, and tuning systems!

Come join us to look at how music started and became standardized in the early days of western music.

*Open to students grades 9 through 12*

**Sat 9:00am–11:00am**

**Class is FULL!**

## **S161: The Ecology of the Tropics**

*Marcel Vaz*

In this crash course, students will learn what it means to do Science in tropical forests and other ecosystems. We will go over the most relevant factors affecting the lives of plants and animals living there and how ecologists find out about it. Next, we will put it in practice, by paying the botanical garden a visit. There, each student will sit and observe, draw and describe as objectively as possible an organism of their choice. To wrap up, we will share with each other our findings and try to make a sense out of our observations.

*Open to students grades 9 through 12*

**Sat 9:00am–12:00pm**

**Class is FULL!**

## **S193: Why do we remember and why do we forget? Examining the role of value and selectivity in visuospatial memory, learning, and attention**

*Shawn Schwartz*

Although our memory is quite vast, limited cognitive resources when encoding memories and simultaneously performing other tasks lead us to be selective. In this course, we will explore the science behind key features of our memory system that allow us to remember the locations of items that may be of critical importance to our daily life and survival through an exploration of the latest research on these topics.

*Open to students grades 10 through 12*

**Sat 11:00am–12:00pm**

**Sat 9:00am–10:00am**

**Class is FULL!**

## **S164: Quantum Mechanics in one hour**

*Michael Gutperle*

Learn the basic principles of quantum mechanics. We introduce q-bits, what a measurement is and entanglement.

*Open to students grades 9 through 12*

**Sat 11:00am–12:00pm**

**Sat 10:00am–11:00am**

**Class is FULL!**

## **S198: Conservation in Marine Biology**

*Benjamin Ha, Paige Zhang*

Ever wondered what conservation biologists do? What are some of the most hot-button issues in conserving today's marine life? What can we do as citizens and/or scientists? In this class, we will dive into what we currently know about marine biodiversity. We will have lively discussions of some of the most pressing issues we face. Students will walk out of the classroom with better ideas about what conservation biologists do as well as practical tips for helping with conserving our blue planet.

*Open to students grades 9 through 12*

**Sat 11:00am–12:00pm**

**Class is FULL!**

## **S216: Ice Ice Baby**

*Tylor McGrew*

Join the COOL kids in experimenting with dry ice! Learn about the properties of dry ice, while unleashing your inner mad scientist! Don't be fooled by the "science" category, this is a CHILL class.

*Open to students grades 9 through 12*

**Sat 4:00pm–5:00pm**

**Sat 11:00am–12:00pm**

**Class is FULL!**

**S179: From Time Lords to Time Travel: What is Time?**

*Ashley Huendo*

Curious about what time really is? Ever wish you could time travel to the past or future? Explore the weird world of time and the paradoxes that accompany it. This course will delve into a few scientific theories about what time really is and the possibility for time travel. Worried about not having a science background? Not a problem! This course will also talk about how time has influenced pop culture and view it from a humanities point of view!

*Open to students grades 9 through 12*

**Sat 1:00pm–2:00pm**

**S177: How to train your brain!**

*Sina Zakeri*

Are you interested in how the mind works? Do you want to change your little sibling's behavior? In this course we will cover how to train your brain (...or someone else's) to react a certain way! We will also learn about several interesting psychological experiments! In specific, we will learn about operant and classical conditioning.

*Open to students grades 9 through 12*

**Sat 2:00pm–3:00pm**

**Sat 1:00pm–2:00pm**

**Class is FULL!**

**S209: Neuroscience MythBusters**

*Roy McReynolds III*

Neuroscience MythBusters is a course designed to point out and challenge many myths about the brain and neuroscience in general found in pop culture. It is also designed to include interesting facts and engaging examples to spark interest in the brain and neuroscience

*Open to students grades 9 through 12*

**Sat 1:00pm–2:00pm**

**Sat 4:00pm–5:00pm**

**Class is FULL!**

**S194: The Evolution of Color Pattern in Reef Fish**

*Alma Franco, Shawn Schwartz*

Reef fishes are one of the most biodiverse group of vertebrates on the planet. With so much biodiversity, how can we quantify complicated traits, such as color pattern complexity, to understand how these traits have evolved through time? Students will learn about some modern approaches being used to solve these types of problems. Students will also explore key concepts necessary to ask the types of questions that drive research in ecology and evolution.

*Open to students grades 11 through 12*

**Sat 1:00pm–3:00pm**

**S160: Mind-Reading and Mind-Control: How to mea-**

**sure and manipulate your brain**

*Zoe Lee*

As science and technology advances at an incredible rate, it seems that we are getting closer to the realization of sci-fi mind-reading and mind-control. But how close are we, really?

In the first hour, we will discuss various neuroimaging methods of how scientists measure the brain's activities, such as MRI (magnetic resonance imaging), fMRI (functional magnetic resonance imaging), EEG (electroencephalography), and the physics behind their mechanism. We will try reading someone's brain activities in real time, using EEG. (You can volunteer if you are ok with getting some goo on your hair/scalp! Not harmful, comes off with a wash.)

In the second hour, we will discuss some non-invasive neurostimulation techniques (ones that don't require making a hole in your skull) for manipulating the brain's activities, such as TMS (transcranial magnetic stimulation) and LIFUP (low-intensity focused ultrasound pulsation), and the physics behind their mechanism.

*Open to students grades 9 through 12*

**Sat 2:00pm–4:00pm**

**Class is FULL!**

**S183: The Periodic Table of Elements**

*Jonathan Chau*

Look around you, everything and everywhere is made up of atoms of many different flavors, from oxygen to gold to sodium to einsteinium. Even the air you breathe is made of many different elements. Why is the world like this rather than water, fire, earth, and air? In this class, we will learn the elements that are listed in the Periodic Table, and why we should appreciate them.

*Open to students grades 9 through 12*

**Sat 2:00pm–3:00pm**

**S174: Evolution in Action: From Birds to Bacteria**

*Vivien Enriquez, Natalie Lozano-Huntelman*

Students will learn about the concept of rapid evolution in urban environments. Using an avian species as a model, students will learn about current, ongoing research at UCLA and how evolution is acting on bird populations on UCLA's very own campus. Additionally, students will gain an understanding of how urbanization impacts microscopic species like bacteria, and its connection to wildlife in the city.

*Open to students grades 11 through 12*

**Sat 3:00pm–4:00pm**

**S159: Genetics and Probability: How Genes, Dice and Disease are all Connected**

*Rohila Kusampudi*

Have you ever wondered why you are born with blue eyes? Black hair? What the probability of a die rolling the same number in a row is? Why some children inherit a disease while their siblings don't? In this class, you have the opportunity to explore the above questions, as well as many more!

If you want to delve into how the principles of genetics and probability are connected and how can they be used simultaneously to better our understanding of human disease, this is the class for you!

*Open to students grades 10 through 12*

**Sat 3:00pm–5:00pm**

**Class is FULL!**

**S208: How to get into RESEARCH!!!**

*Angelynn Nguyen*

Interested in doing research in high school or college??? Well... This is the class for you!! This course will guide you through how to get into STEM labs/internships, as well as what to expect from them. We will also be focusing on cold emails, reading literature, finding the right lab, and more!!

*Open to students grades 9 through 12*

**Sat 3:00pm–4:00pm**

**S203: Let’s Talk (Scientifically) About Sex Baby!**

*Sarah Bi*

What internally happens to our body when we are sexually aroused? How did the common sexual positions develop? Why do men cheat more? The physiology, neuroscience, and psychology behind how the human body responds to sexual attraction is a great demonstration of how much our bodies are designed for reproduction. This class is strictly intended for mature students, taught from a scientific point of view.

*Open to students grades 9 through 12*

**Sat 3:00pm–5:00pm**

**S192: Prehistoric California**

*Aidan Howenstine, Clive Lau*

What was it like in California millions of years ago? What can fossils tell us about the past and how the environment changed over time? Come examine our fossils and learn about the fantastic beasts and where we found them!

*Open to students grades 9 through 12*

**Sat 4:00pm–5:00pm**