

# Course Catalog — *Arts*

## **A967: Intro to Graphic Design (with Adobe Illustrator)**

*Selena Qian*

Logos, cartoon characters, posters, stickers, t-shirts, infographics ever wanted to be the designer friend that everyone goes to for cool-looking stuff? In this course, you'll have the opportunity to learn some of the basic tools for working in Adobe Illustrator (and similar free softwares) to turn your drawings into clean vector designs!

*Open to students grades 7 through 12*

**Sun 10:00am–11:50am**

**Sun 1:00pm–2:50pm**

**Class is FULL!**

## **A938: K-Pop Dance 101**

*Catherine Tsang, Charles Huang*

Are you a fan of Korean popular music? Have you ever wanted to try to dance like a K-pop idol? In this class, you'll learn a dance routine from popular K-pop songs and be able to impress all your friends! No dance experience required!

TWICE, What is Love? <https://www.youtube.com/watch?v=i0p1t1m9BwE>

PENTAGON, Shine

<https://www.youtube.com/watch?v=Nu2yQ1zYDYU>

*Open to students grades 7 through 12*

**Sun 10:00am–10:50am**

**Sun 11:00am–11:50am**

## **A971: Podcasting 101**

*Jennifer Young, Alec Ashforth, Sarah Xu, Ishaan Kumar*

Have you ever wanted to start your own show, or start a discussion you want people to hear? In Podcasting 101, we will give you the skills you need to get your stories out there! Podcasts are an audio-based medium, which consist of recorded pieces that people can download and listen to. In this course, we will teach you how to create a podcast yourself!

*Open to students grades 7 through 12*

**Sun 10:00am–11:50am**

**Sun 1:00pm–2:50pm**

**Class is FULL!**

## **A988: The Art of Filmmaking**

*jake ukleja*

In the modern day, a film is often perceived as successful depending on either critical reviews or box office revenue. This

class will discuss some other parts of the filmmaking process that when combined help create that 'movie magic.'

*Open to students grades 7 through 12*

**Sun 10:00am–11:50am**

## **A953: Basics of Music Production**

*Nathan Shaul, Logan Pucci, Kevin Huang*

Do you love music? Do you want to bring your own musical ideas to life? Do you want to get people to turn up to your music?

If you answered yes to any of these questions, then this is the class for you! Together we'll be exploring the exciting world of music production. We'll deconstruct some of today's hottest songs, and in the process, you'll learn the basic techniques that producers use to make musical magic. You'll even have opportunities to test out your own music-making skills along the way!

No prior knowledge of music theory is necessary for success in this class. Students should bring a laptop and headphones if they don't have them and download the free music production software sent to them prior to attending this course.

*Open to students grades 7 through 12*

**Sun 11:00am–11:50am**

**Sun 1:00pm–1:50pm**

## **A996: Irish Stepdancing**

*Kat Hefter*

A brief introduction to Irish stepdancing (as seen on Riverdance), focusing on group dances

*Open to students grades 7 through 12*

**Sun 1:00pm–1:50pm**

**Sun 2:00pm–2:50pm**

## **A957: Partner Yoga**

*Megan Mauro*

Come try out partner yoga! Combining traditional yoga poses with a friend let's you enhance your stretch and your fun! Bring a friend and mat if you have them. If not, we can provide both. Wear clothes that are comfortable to move in (yoga pants or shorts are highly recommended).

*Open to students grades 9 through 12*

**Sun 1:00pm–1:50pm**

**Class is FULL!**

# Course Catalog — *Engineering*

## **E958: Imprompt-Do!**

*Iris Chang, Rebecca Lee*

Build a fishing pole that can hold the most weights and stay off the ground! Present and advertise the newest household cleaning device!

In Imprompt-Do! teams compete in timed, impromptu challenges in three categories with simple, household items:

**CREATE:** building based challenge ex. build the tallest structure with just straws, spaghetti, rubber bands, and tooth picks.

**COMMUNICATE:** presentation based challenge ex. make and present the newest fashion trend from coffee filters, cups, and string.

**COLLABORATE:** teams are split to complete a challenge ex. talk a blindfolded teammate into matching the built structure

*Open to students grades 7 through 12*

**Sun 10:00am–10:50am**

**Sun 11:00am–11:50am**

**Class is FULL!**

## **E966: Lend a Hand**

*Tamanna Srivastava, Anjali Arora*

Learn about 3D design and how it can be used to create adaptive devices for amputees! Students will be able to see real 3D printed prosthetics that have been made in Duke's very own Co-lab, and then use what they learned to design an adaptive device themselves.

*Open to students grades 7 through 12*

**Sun 10:00am–10:50am**

**Sun 11:00am–11:50am**

**Sun 1:00pm–1:50pm**

**Sun 2:00pm–2:50pm**

## **E986: Introduction to MRIs**

*Alexander Culbert*

Ever curious as to how a giant magnet can create images through skin and tissue? Come explore the history and applications of MRIs, as well as how they work and compare to other imaging modalities.

*Open to students grades 9 through 12*

**Sun 1:00pm–1:50pm**

# Course Catalog — *Humanities*

## **H969: Exploring How to Live**

*Noah Lanier*

How ought we to orient ourselves in the world? How do we find meaning and happiness in life? Exploring individual and developmental psychology, Buddhism, and the paths of those who have struggled, with influences from Dr. Jordan B Peterson, this class will be an interactive exploration on how we can best live our lives, and improve them so we are happier, suffer less, and are more fulfilled.

*Open to students grades 7 through 12*

**Sun 10:00am–11:50am**

## **H962: Intro to American Sign Language!**

*Jasmine Leahy, Bailey Bogle, Karan Thadhani*

This course will be covering the basics of American Sign Language, from learning the alphabet to greetings to numbers! We will also learn about Deaf culture and customs.

*Open to students grades 7 through 12*

**Sun 10:00am–10:50am**

**Sun 11:00am–11:50am**

## **H941: Creative Writing Workshop: Flash Fiction**

*Christina Shin*

Hemingway wrote a story in six words: “For sale: baby shoes, never worn.” In this creative writing workshop, we’ll be reading short, short stories (aka flash fiction) and try to write some of our own. The workshop will include writing in different genres, including personal fiction to fantasy. This workshop will be an opportunity to write, revise, and share your writing!

*Open to students grades 8 through 12*

**Sun 11:00am–11:50am**

**Class is FULL!**

## **H951: Game Theory**

*Blake McCann*

Learn the basics of game theory and understand the economics of making a deal. Whether its over trade or jail time, game theory is important!

*Open to students grades 9 through 12*

**Sun 11:00am–11:50am**

## **H976: Basic Music Theory**

*Alex Chao*

Learn basic music theory and listen to some dope classical music. No prior experience necessary.

*Open to students grades 9 through 12*

**Sun 1:00pm–1:50pm**

## **H968: Introduction to Behavioral Economics**

*Noah Lanier*

Why do people make the decisions they make? It’s not what you expect. In the ever expanding field of Behavioral Eco-

nomics, we use experiments to get at the root of how we choose. Take this class to understand your psychology and the psychology of others when it comes to making choices of all kinds.

*Open to students grades 7 through 12*

**Sun 1:00pm–1:50pm**

**Sun 2:00pm–2:50pm**

## **H970: Non-Binary and Inclusive Linguistic Forms in the French Language**

*Melany Puente*

Looking at gender non-specific language in French in which currently, by default, requires you to choose a gender when referring to others or yourself. Brief discussion of politics surrounding l’Academie Franaise and the general changing of language towards inclusivity. The course will present examples of written non-binary and inclusive french forms from research of twitter and facebook accounts where these forms are being created. Additional discussion of the importance of using inclusive language that affirms an individuals identity. Class will be taught in English.

*Open to students grades 7 through 12*

**Sun 1:00pm–1:50pm**

## **H991: Speaking with Gusto**

*Sarah Seibert*

Speaking with Gusto will explore a variety of simple public speaking strategies that can transform a boring speech into a captivating one. Techniques will be modeled and “played with” in a workshop-style class. Participants should be willing to speak in front of others, be open to suggestions for improvement, and be encouraged that we are learning TOGETHER.

*Open to students grades 8 through 12*

**Sun 1:00pm–1:50pm**

## **H995: What is Modern Architecture?**

*Joel Kohen*

Why do some houses look gray and plain? Why do older buildings have fancy decorations and ornaments, while many new ones don’t? Why is there so much glass everywhere?!

This class will discuss the style and era known as modern architecture and why the term can be so misleading. We will look at its history, theory and at some of the reactions that it provoked. Photographs and videos will serve as the background for the historical discussion, as well as the students’ own thoughts as to how buildings should look like.

*Open to students grades 8 through 12*

**Sun 1:00pm–1:50pm**

## **H987: The Emu War, and other unconventional bouts of history**

*Alex Chao*

Everyone knows about the great wars (such as the Great War); however, there are many strange and interesting small-scale conflicts that are more obscure in public discourse. In this course we will explore some fun battles or wars that you probably didn't learn about in your history class.

*Open to students grades 9 through 12*

**Sun 2:00pm–2:50pm**

**H977: The History of Hip-Hop**

*Nathan Shaul, Logan Pucci, Kevin Huang*

Hip-hop is the most popular genre of music today, with artists like Drake, Kendrick Lamar, and Kanye West pushing new boundaries with each new song. But how did hip-hop reach such heights? In this class we will explore the roots of hip-hop, from its inception to the the present day.

*Open to students grades 7 through 12*

**Sun 2:00pm–2:50pm**

# Course Catalog — *Math & Computer Science*

## **M975: Introduction to Smartphone App Development**

*Nathan Shaul, Logan Pucci, Kevin Huang*

Have you ever wondered what goes on behind the scenes to create smartphone apps like Instagram, Snapchat, Facebook, or Spotify? In this class, we'll learn some basic Java programming techniques and use them to make a simple Android app. No computer science experience necessary!

*Open to students grades 7 through 12*

**Sun 10:00am–10:50am**

**Class is FULL!**

## **M945: Learn to Program with Java**

*Samuel Rabinowitz*

Learn how to code in Java! Learn basic programming concepts with instant visual feedback. Then apply what you learned to make an animation or game, with individualized help along the way! We will be using Processing, a Java implementation that simplifies graphics.

No programming experience required! But if you have some, you're welcome to come too to expand your skills.

Bring your laptop. If you can do so beforehand, please download Processing from <https://processing.org/download/>  
*Open to students grades 7 through 12*

**Sun 10:00am–11:50am**

**Sun 1:00pm–2:50pm**

**Class is FULL!**

## **M961: Data science and visualization**

*Jeffrey Letourneau*

In this course, we will approach statistics from a qualitative perspective (as in without the math), learning how to interpret graphs and when to be skeptical. We will also use Excel to analyze data with these issues in mind.

Key concepts covered:

- Ways to summarize large datasets
- How summaries and graphics can be misleading
- Scales
- Error bars
- p-values
- Correlation vs. causation

*Open to students grades 7 through 12*

**Sun 1:00pm–1:50pm**

## **M943: Game the System**

*Rachel Helman*

Have you ever felt like the world is crazy and irrational? Have you ever felt frustrated that friends make choices that just don't make sense? Or do you just want to explore the Slytherin side of life and learn to think strategically? If

you answered "yes" to any of the above, come learn about game theory! We will play some games, talk about Game of Thrones, and discuss the relative merits of British and American candies .

*Open to students grades 7 through 12*

**Sun 1:00pm–1:50pm**

## **M993: Magic Squares**

*Jeffery Yu*

You have probably seen (or will see in this class!)  $3 \times 3$  magic squares. But have you seen a  $4 \times 4$ , or  $6 \times 6$  magic square? In fact, magic squares exist for almost all sizes, and we'll see how to make one of (almost) any size. And why stop with squares? We'll also explore magic rectangles, magic triangles, and other shapes! And if you ever get tired of all the magic, we can also talk about antimagic squares!

*Open to students grades 7 through 12*

**Sun 1:00pm–1:50pm**

## **M982: Mathematics of Geography: Map Projections**

*Kevin Tan*

Maps are the key tool we use to visualize our world; they are ubiquitous to our lives and immensely useful in so many different ways. But did you know that there is a significant mathematical component to map design? In this course, we will explore different types of map projections and how they each offer a different visual representation of the world. The course will conclude with a fun Google Earth browsing session!

*Open to students grades 7 through 12*

**Sun 1:00pm–1:50pm**

## **M994: How to Win Integration Bee**

*Jeffery Yu*

Do you know how to do these integrals?

$$\int_0^{\infty} x^{2018} e^{-2019x} dx$$

$$\int_0^1 \frac{x^{2018} - 1}{\log x} dx$$

$$\int_0^{\pi/2} \frac{1}{1 + \sin(x)} dx$$

By the end of this class, you'll be able to do all of these and many others very quickly!

*Open to students grades 8 through 12*

**Sun 2:00pm–2:50pm**

## **M956: Python Turtles**

*Jon Stanley, Jonathan Mengistu*

Do you enjoy drawing or art in general? Are you interested in Computer Science? Well, Turtles in Python is just for you. We'll teach you the basics on how to make computer generated drawings using the coding language Python!

*Open to students grades 7 through 12*

**Sun 2:00pm–2:50pm**

in a math class... Here is your answer.

*Open to students grades 9 through 12*

**Sun 2:00pm–2:50pm**

**M944: The Mathematics of Love**

*Rachel Helman*

For anyone who has asked “when will I use this in real life”

# Course Catalog — *Miscellaneous*

## **X983: CPR and AED: Skills to Save Lives**

*Kevin Zheng*

Did you know that 90% of cardiac arrests happen either at home or at the workplace? Learn from Duke EMS members on how to perform CPR, use AEDs, and save lives.

*Open to students grades 7 through 12*

**Sun 10:00am–10:50am**

**Sun 11:00am–11:50am**

**Sun 1:00pm–1:50pm**

**Sun 2:00pm–2:50pm**

## **X978: Coffee 101**

*Joanne Zheng, Michael Wang*

Learn the basics and chemistry behind coffee and coffee brewing methods!!

*Open to students grades 9 through 12*

**Sun 10:00am–10:50am**

**Sun 11:00am–11:50am**

## **X950: Conspiracy Theories and How They Work**

*Madeleine Gagne'*

Do you love conspiracy theories? Do you want to learn more about why people believe in them? Then this is the class for you! From aliens building the pyramids to JFK, sign up for this class if you're ready for a whirlwind of paranoia, psychology, and fun!

*Open to students grades 7 through 12*

**Sun 10:00am–10:50am**

**Sun 1:00pm–1:50pm**

**Sun 11:00am–11:50am**

## **X959: Deciding Who Lives & Who Dies at the End of the World**

*Elizabeth Allen*

Note: Similar to Spring 2018 Version

World war is coming, and a nuclear bomb is about to drop near you. Luckily, you and other similarly paranoid people know about a bunker with supplies that could save you from the nuclear fallout. You all rush there and discover that there are only ten spots.

Who gets to live? How do you decide who gets to live? What makes human lives valuable? What makes life worth living? What do you owe to humanity?

Come explore these questions and many more!

*Open to students grades 7 through 12*

**Sun 10:00am–10:50am**

**Sun 11:00am–11:50am**

## **X964: Menstruation and Me**

*Alice Chen, Shannon Malloy, Gia Cummings, Crystal Chiu, Jackie Vicksman, Cydney Livingston, Hannah Ahrendt*

Want to learn about reproductive justice? Come join Duke Progress. Period., a student organization dedicated to destigmatizing menstruation and increasing access to feminine hygiene products, and learn about the importance of reproductive health. This course will focus on reproductive health and the numerous misconceptions and complexities that are characteristic of it. We will start with an overview, and then dive into debunking some common myths. We will end with how access to menstrual products is crucial for female empowerment and how environmental sustainability and contraceptives are part of the menstrual story. This will not only be an educational course, but also a very empowering one! All genders are welcome!

*Open to students grades 7 through 12*

**Sun 10:00am–10:50am**

**Sun 11:00am–11:50am**

## **X939: Fortnite 101**

*Yoonseo Choi*

Want to learn the basics of Fortnite, its evolution, and how it came to be? Want to know how to do better at becoming a Fortnite player? Wonder how streamers like Ninja, Tfue, Myth, and others ended up so popular? Well, this is the class for you! We'll cover the history and development of Fortnite, trends on Fortnite, and basic strategies to become better!

*Open to students grades 7 through 12*

**Sun 1:00pm–1:50pm**

**Sun 2:00pm–2:50pm**

## **X965: How to Decorate Cookies**

*Anna Jiang, Alisha Nayak, Claire Yin, Kelsey Zhong*

Learn some fun tips on how to decorate cookies!

*Open to students grades 7 through 11*

**Sun 2:00pm–2:50pm**

**Sun 1:00pm–1:50pm**

**Class is FULL!**

## **X946: Survival of the Prettiest**

*Yesha Desai, Kathryn Howley, Shagun Vashisth*

Where do beauty standards come from, how have they evolved, and how are they shaping our world today? Explore the psychological and commercial implications of body image in the 21st century.

*Open to students grades 7 through 12*

**Sun 1:00pm–1:50pm**

**Sun 2:00pm–2:50pm**

## **X963: History of Black Hair**

*Lela Owens, Kiamya Philson*

Exploring the history of black hair and its relationships with politics, beauty standards, and the idea of "blackness."

*Open to students grades 7 through 12*

**Sun 2:00pm–2:50pm**

**X980: Peace Corps 101***Rhian Carreker-Ford*

An exploration of the toughest job you'll ever love.

Looking at the history of Peace Corps and its role in the world today.

*Open to students grades 7 through 12*

**Sun 2:00pm–2:50pm**

**X979: Principles of Wilderness Medicine: Surviving in the Wild***Max Fleischer*

Imagine you're on day 6 of a hiking trip through the Appalachians. Your friend rolls his ankle and hits his head as he falls, but you're hundreds of miles from a hospital and too far in to the forest for emergency medical services to reach you. How do you keep your friend healthy? Should you evacuate? This class will cover the basics of wilderness medicine, how to take care of injuries when you're in the backcountry. Learn from a professional camping trip leader how to diagnose injuries, risks, and maybe save lives.

*Open to students grades 9 through 12*

**Sun 2:00pm–2:50pm**



# Course Catalog — *Science*

## **S972: Basics of Cancer Immunotherapy: Engineering our Natural Defenses**

*Angus Li*

This year's Nobel Prize in Physiology or Medicine was awarded for pioneering work in cancer immunotherapy. But what is immunotherapy, and what does it have to do with cancer? What are current approaches in the field, and how do they work?

We will discuss two treatments that can be considered two ends of the same stick: immune checkpoint blockade (for which the Nobel Prize was awarded) and CAR-T cell therapy. This class is not meant to exhaustively cover the science behind these approaches but rather to provide a conceptual description for each.

*Open to students grades 9 through 12*

**Sun 10:00am–10:50am**

**Sun 11:00am–11:50am**

## **S952: Introduction to Biological Research**

*Zollie Yavarow*

This course will be an introduction to some of the techniques used in biological research laboratories. We will discuss how these techniques work on a molecular level and then work together to apply and analyze in an experimental situation. Finally, we will discuss some places to find research opportunities.

*Open to students grades 9 through 12*

**Sun 10:00am–10:50am**

**Class is FULL!**

## **S960: Nutrition Science**

*Jeffrey Letourneau*

Our lives revolve around food. In this class, we will explore the chemical basis for food and understand the role different compounds play in our health. In addition to science, we will discuss the social aspects of food, including common misconceptions and marketing strategies.

Course objectives:

- Learn to read and interpret a nutrition facts label
- Critique nutrition research and appreciate the challenges faced by researchers
- Understand strategies used to market food

*Open to students grades 7 through 12*

**Sun 10:00am–10:50am**

**Sun 11:00am–11:50am**

## **S973: Probability, Statistics, and Understanding the World**

*Evan Tey*

Probability is the language we use to understand the world around us. It helps us conclude that gravitational waves exist or that certain drug treatments actually help cure a disease. Come learn the fundamentals fundamentals of probability

and statistics from random variables to estimation. In particular, we'll talk about where these come up in the world and why it's important to understand them.

*Open to students grades 9 through 12*

**Sun 10:00am–10:50am**

## **S974: DNA Replication Workshop**

*Zollie Yavarow*

DNA is found in almost every cell of our body. When a cell divides, it must make a new copy of DNA to pass onto the new cell. This course will be a hands-on workshop with a candy model of DNA replication. Time permitting, we will also discuss how the cell reads DNA and makes proteins.

*Open to students grades 7 through 12*

**Sun 11:00am–11:50am**

**Class is FULL!**

## **S940: Introduction to Boolean Algebra**

*Ruijie Darius Teo, Sarah Brandsen*

This is an introductory course to boolean algebra and how it can be used in real-world systems. Some basic logic expressions using Python (programming language) may be covered as well.

*Open to students grades 9 through 12*

**Sun 1:00pm–1:50pm**

**Sun 2:00pm–2:50pm**

## **S997: Lemurs 101: Lemur Diversity**

*Chelsea Southworth*

An introduction to the 100+ species of lemurs that live on the island of Madagascar! We'll talk about what makes lemurs special, the different groups of lemurs, and some of the conservation threats facing them.

*Open to students grades 7 through 12*

**Sun 1:00pm–1:50pm**

## **S990: Sleep 101**

*Thien Hoang*

If we sleep for 8 hours a day, that means that a third of our life is spent sleeping. Do you want to know more about your favorite part of the day? Why do we even need sleep? How does coffee keep us awake? What would happen if we didn't sleep? Learn about the neurobiological basis behind sleep and sleep disorders in this ironically non-sleep-inducing class.

*Open to students grades 8 through 12*

**Sun 1:00pm–1:50pm**

**Sun 2:00pm–2:50pm**

## **S992: Environmental Justice: Why it matters and what you can do**

*Sarah Seibert*

What's the big deal about recycling and turning off the lights?

This interactive class will use a justice lens to explore some of the reasons that taking care of the earth matters and will explore some practical ways YOU can make a difference.

*Open to students grades 8 through 12*

**Sun 2:00pm–2:50pm**

**S989: Language Acquisition**

*Jennifer Ricano*

How do humans learn languages? What happens in our brains when we learn a new language? What benefits are there to being multilingual? We'll discuss all of these questions and more during this class! While the focus will be more on neurolinguistics, we'll also cover basic linguistic and sociological

theories.

*Open to students grades 9 through 12*

**Sun 2:00pm–2:50pm**

**S998: Lemurs 102: Lemur Behavior**

*Chelsea Southworth*

Why do girls rule in lemur societies? How do males win over a mate? What's up with all of those weird vocalizations? Dive deeper into the world of lemurs, and learn all about how they interact with each other and their environment.

*Open to students grades 7 through 12*

**Sun 2:00pm–2:50pm**