

Course Catalog — *Arts*

A133: Bachify Yourself: Building a Songwriter's Toolbox

David Oberst

In this class, we'll jump right into the basics of music theory including intervals, chord quality, voice leading, and harmonic progressions.

Ultimately, the goal of this course is to show you how following a few simple rules when writing music can help you write compositions that actually sound pretty good! We'll examine popular music (Lady Gaga, anyone?) and see how these rules govern how to make a hit single. It'll be a blast!

Open to students grades 9 through 12

Sat 9:30am–10:15am

Sat 10:30am–11:15am

A143: Conducting 101

Isa Ferrall

Have you ever noticed how a drum major conducts? It is much more than giving the band a steady beat (which is hard enough). A Drum Major's Job is to convey the music to the band through movement of the hands, the body, and the face. In this interactive class we will be doing a brief introduction to conducting a clear pattern and we will also cover different beat patterns.

Open to students grades 9 through 12

Sat 9:30am–10:15am

Sat 10:30am–11:15am

Sat 1:30pm–2:15pm

A140: Improv Comedy

Hunter Douglas

Have you ever watched Whose Line is it Anyway? Want to know how to make up jokes on the spot in scenes with friends? Join the students from Duke University Improv for a fun, hilarious, and informative lesson on improvised comedy. The

course will include some warm-up exercises, an introduction to the basic "rules" of improv, and lots of hands-on improv games.

Open to students grades 9 through 12

Sat 9:30am–10:15am

Sat 10:30am–11:15am

A150: Poetry as Performance

Shannon Potter

Poetry is typically thought of as an artistic style limited to words on a page, but what happens when those words go beyond the page and onto the stage? Come explore forms of performance poetry - from poetry recitations to Spoken Word Poetry, from musical lyrics to Slam Poetry - and find out.

Open to students grades 10 through 12

Sat 1:30pm–3:15pm

A141: The Language of Art

Chelsea Wezensky

Ever wonder how art communicates with us? In this class, we will do a fun activity to learn about how art talks to us through the picture and its words.

Open to students grades 7 through 12

Sat 1:30pm–2:15pm

Sat 2:30pm–3:15pm

A131: The Beat

Rebecca Holmes

Learn a short, fun hip hop combination and move to popular hip hop songs. No experience or skill required! This class is for anyone who just wants to get up, dance and feel The Beat.

Open to students grades 7 through 12

Sat 2:30pm–3:15pm

Course Catalog — *Engineering*

E147: Car Talk

Zach Wiener

Ever wondered what happens when you sit behind the wheel of a car and turn the key? This class includes a presentation on “how things work” followed by an up-close demonstration of the integral systems of a car - on a real car!

Bring any questions about anything you ever wanted to know about cars, trucks, and other vehicles on the road.

Be prepared for 20-25 minutes outside: Dress warm!

Open to students grades 9 through 12

Sat 9:30am–10:15am

Sat 10:30am–11:15am

Sat 1:30pm–2:15pm

Sat 2:30pm–3:15pm

E154: Nanotechnology

Tolison Humphrey

A course on the emerging field of nanotechnology.

Open to students grades 9 through 12

Sat 2:30pm–3:15pm

Course Catalog — *Humanities*

H162: Social Justice Issues in Haiti

Christina Smith

After the 2010 earthquakes in Haiti, the country received a lot of needed attention. The class will serve as an introduction to the issues that were already and still plaguing the country of Haiti, a country that was already referred to as “The Republic of NGOs”. After a very brief review of the country’s history and the route that led it to where it is today, we will review women’s rights issues, child labor (“restevék”) controversies, and social inequalities surrounding language barriers in Haiti. If time permits, we will learn a few simple greetings in Haitian Creole and Haitian proverbs. The goal of the class is to begin to learn about Haiti as a whole, including its history and its culture, so that we may better understand the many layers that have to be peeled back in order for Haiti to effectively recover. This class is great for anyone interested in global health or international development.

Open to students grades 7 through 12

Sat 1:30pm–2:15pm

Sat 9:30am–10:15am

H155: Dark Mentality: Social Commentary from The Dark Knight

Tolison Humphrey

A philosophical interpretation of The Dark Knight.

Open to students grades 9 through 12

Sat 1:30pm–3:15pm

H153: Philosophy and Ethics 101

Jordan Thomas

What is the meaning of life? Are humans born with a sense of right and wrong or are they taught it? In this class, we’ll be wrestling with questions like these and how people have tried to answer them in the past.

Open to students grades 9 through 12

Sat 1:30pm–2:15pm

Sat 2:30pm–3:15pm

H139: The Economics of Food

Shahnaz Khandoker

In this class will explore the relationship between food and economics. It was recently announced that the population of humans on Earth has reached 7 billion, and although this number continues to increase every second, our food supplies do not. With increasing demand for a limited supply of food, competition increases, and although we may not realize this at the dinner table, this has increasingly important consequences for both domestic affairs and international relations. We will explore such topics by cooking pasta and understanding the connection between food (specifically the ingredients

of the pasta) and the global economy.

Open to students grades 9 through 12

Sat 1:30pm–3:15pm

H156: Understanding the Stock Market

Stephanie Downey Downey

We will cover what stocks, bonds, and other bonds of investments are, from the ground up. Then, we will discuss the various stock classifications, how the stock market functions, and the various stock indices. We will then discuss what impacts stock returns (i.e. stock price, dividends, and taxes). We will conclude by discussing why it is best to invest in stocks when you are young. Best of all, we will discuss a bit about the tulip bubble and the dot com bubble- if you don’t know what those are, get ready to find out!

Main points:

There are many different types of companies and stocks, which change with time.

As an investor, you have to understand what meets your investment goals and invest in those types of stocks and investment vehicles.

The stock market has many moving parts, but understanding how the process works is important when investing.

Investors are not always rational, which leaves opportunities for you to invest. Make sure you don’t become an irrational investor.

Some of the best stock pickers in the world rely on a few fundamental investment rules, which should help guide you as well.

Open to students grades 9 through 12

Sat 1:30pm–3:15pm

H137: The New Negro Movement

Destiny Hemphill

Have you heard of Langston Hughes? W.E.B. Du Bois? Zora Neale Hurston? Alaine Locke? If yes, come learn more about them and their contributions to the cultural culmination of literary, artistic, and political endeavors known as the New Negro Movement (more commonly known as the Harlem Renaissance). If not, take this opportunity to learn about these amazing people who have left imprints visible to this day.

Open to students grades 9 through 12

Sat 2:30pm–3:15pm

Course Catalog — *Math & Computer Science*

M163: Game Theory

Glenn Palmer, Joseph Graves

With a wide variety of applications from chess to economics, game theory is a mathematical method of analyzing situations in which success is determined by the choices of others. We'll have some fun with the topic, playing some games as a class, and analyzing what decisions lead to victory or defeat, and whether it's a good idea to bid on a dollar!

Open to students grades 9 through 12

Sat 9:30am–10:15am

Sat 10:30am–11:15am

M149: Love, Marriage, and Mathematics

David Hemminger

Learn how to solve all of your love problems with math. In this class, I will teach you how play matchmaker with your friends without creating any opportunities for extramarital affairs, and I will present the optimal algorithm for finding “the one”!

Open to students grades 9 through 12

Sat 9:30am–10:15am

Sat 1:30pm–2:15pm

M126: What else can Google do for me?

Gavin Ovsak

The future is here, but did you know it's free and available right now online? You will be surprised how many services

Google offers online from everything including:

- Texting through a Computer
- Social Networking
- Getting alerts when your name is mentioned online
- Making a personal Website
- Translating Languages
- Managing, storing and buying music and movie rentals
- Collaborating on documents and presentations

and much much much more!

Come see a fast paced introduction and demonstration of a wide range of Google services!

Open to students grades 9 through 12

Sat 9:30am–10:15am

Sat 10:30am–11:15am

Sat 1:30pm–2:15pm

M161: How to Watch a YouTube video from Scratch.

Alex Kritchevsky

I'll run through a quick (and super non-technical) overview of how computers work, starting from bits of silicon and going all the way to downloading and watching something on YouTube.

Open to students grades 9 through 12

Sat 2:30pm–3:15pm

Course Catalog — *Miscellaneous*

X127: Dog Training

Tiff Shao

Learn the basic mindset needed to train a dog. What makes them obey or disobey us? Why are some dogs 'smarter' than others? I will also be bringing my dog to demonstrate how the training process works.

(Please note, there will be a large dog in the classroom, on a leash. Great for people who are afraid of dogs but would like to get over it, not suitable for people with pet allergies).

Open to students grades 7 through 12

Sat 9:30am–10:15am

Sat 10:30am–11:15am

Sat 1:30pm–2:15pm

Sat 2:30pm–3:15pm

X130: Gardening

Patsy DeLacey

In this class I will demonstrate the types of vegetables, fruits, and herbs that can easily be grown at home in North Carolina. I will teach different tips for home gardening (rows, mounds, drainage trench, mulching, compost etc). If possible I will have examples of plants with me so I can show how to harvest certain vegetables as well. Lastly I will go over tasty and healthy dishes that can be made from a home garden.

Open to students grades 7 through 12

Sat 9:30am–10:15am

Sat 10:30am–11:15am

Sat 1:30pm–2:15pm

X148: Global Health: NTDs, NCDs, CHEs, and more

Braveen Ragunathan

In this course we will take an introductory look at many different global health topics. We will look at neglected tropical diseases, non-communicable diseases, complex humanitarian emergencies, and many more issues. Additionally we will examine the need for global health funding and study the impact of the financial crisis on the HIV/AIDS epidemic. Questions will guide discussion. Inquiries about studying global health in college and careers are welcome!!

Open to students grades 7 through 12

Sat 9:30am–11:15am

X164: Mischief, Mayhem, and Manipulation: The Essential Guide to Innovation in Society

Fred Olaleye

Exploration, creativity, experimenting... In almost every field, you need to have a desire to go beyond where others feel comfortable to truly innovate. This class shows you how to do so- from a general view, and how to apply it to specific areas.

Open to students grades 10 through 12

Sat 9:30am–10:15am

Sat 10:30am–11:15am

Sat 1:30pm–2:15pm

X151: Practicing Yoga: Balancing the Mind and Body

Chad Guthrie

This class will be split evenly between learning and practicing as we teach you the history and health benefits of yoga before leading a large group yoga session that covers some basic poses. No prior yoga experience is needed! Come learn so yoga basics to take home with you to impress your friends.

Open to students grades 7 through 12

Sat 9:30am–10:15am

Sat 10:30am–11:15am

X125: Recession Economics

Raj Singh

What is a recession? How about the 'stimulus package' or 'quantitative easing' programs we hear about in the news? And how about the 'housing bubble'? This class will be a survey of different economists' view on the causes of recessions and the policies to promote economic growth.

Open to students grades 9 through 12

Sat 9:30am–10:15am

X166: Follow your passion: with your own venture

Tanuj Khurana

A professor a grad school told me, work at a place where you will even if you don't get paid.. hypothetical, but very true. Its all about the satisfaction you get from job and you can't be more satisfied if you pursue your passion as a full time business opportunity.

Open to students grades 10 through 12

Sat 10:30am–11:15am

X91: How do people make decisions?

Amy Estersohn

This class will explore some of the biases you and those around you use when making decisions. We'll cover the basics of risk-aversion, framing, and the prospect theory curve.

Open to students grades 7 through 10

Sat 10:30am–11:15am

X152: bread baking

Veronica Lepa, KellyNoel Waldorf

Come join me and learn how to make a simple bread recipe that will have your house smelling like a bakery.

Open to students grades 7 through 12

Sat 10:30am–11:15am

Sat 1:30pm–2:15pm

X165: Basketball - A game of action and reaction

Viju Mathew

Ever wanted to learn how basketball players get by their defenders with seemingly simple moves? Ever wonder how

some players can always find a way to score? Or are you just interested in learning the basics of basketball?

If you answered yes to any of these questions, you should try this class out!

Open to students grades 7 through 9

Sat 1:30pm–2:15pm

Sat 2:30pm–3:15pm

X157: Gender Justice Activism!

Ebonie Simpson, Ming Jiu Li

Students would explore the ways 'gender' influences their lives, and through interactive activities start developing strategies to act for a better world!

Open to students grades 9 through 12

Sat 1:30pm–3:15pm

X138: Wobble, Shuffle, and Slide

Destiny Hemphill

We see you! Yes you! Standing to the side all awkwardly while everyone else rushes to the dance floor in exhilaration in order to engage in an organized dance bonanza, more commonly known as a line dance. You do not even know where to begin, do you? Well, fret not! In this class, you will learn three popular line dances which you have encountered probably or will in just a matter of time: the Wobble, the Cupid Shuffle, and the Electric Slide! And if you all ready know these dances and want to just practice a bit, please do come!

Open to students grades 9 through 12

Sat 1:30pm–3:15pm

Course Catalog — *Science*

S160: Forensics on TV

Elysia Su

Love watching crime show on TV? Want to be Temperance Brennan when you grow up? Is Stokes your hero? This class will serve as an introduction to forensic anthropology, and along the way will examine its portrayal in current television.

Open to students grades 9 through 12

Sat 9:30am–10:15am

Sat 10:30am–11:15am

S124: Green 101

Rebekah Johnston

Do you like the Environment? Do you like to save money? Both of these things are green and are actually very related. In this class, you will learn ways to both help the environment and save money at the same time!

Open to students grades 9 through 12

Sat 9:30am–10:15am

Sat 2:30pm–3:15pm

S142: Learning Neuroscience through the Arts

Meghan Akim

Neuroscience is more than just a word - it involves everything we as people do and experience every day. In 'Learning Neuroscience Through the Arts' the goal is to de-mystify neuroscience by connecting it to practical real world applications. Using a combination of lecture and group work, students learn in depth about the brain's synapses. Lessons are designed to include such activities as acting, food preparation and tasting, sketching/sculpture, etc.

Open to students grades 10 through 12

Sat 9:30am–10:15am

S129: Why Einstein Was Awesome: an introduction to relativity

Eugene Rabinovich

Everybody knows Einstein was one of the greatest theoretical physicists in history, but what was it about his discoveries that made him Time person of the century? This course introduces the basic concepts of both special and general relativity in some mathematical detail. These concepts will be applied to famous paradoxes in special relativity, and black holes and cosmology in general relativity.

Open to students grades 9 through 12

Sat 9:30am–11:15am

S145: You Are What You Eat

Unwana Nseyo

If You Are What You Eat, then what are you? This class takes you and your taste buds on a journey as you learn about what it means to eat "how you want to feel and not just how you feel." We will learn about the basics of nutrition, how to assess the nutrition in the foods we eat, healthy meal planning and try our own hand at creating a healthy meal!

Don't just eat for now, but eat for your future! This class will teach you how

Open to students grades 8 through 12

Sat 9:30am–10:15am

Sat 10:30am–11:15am

Sat 1:30pm–2:15pm

S128: Skin Cell to Stem Cell

Rui Dai

Embryonic stem cells are cool, but there is a lot of problems with using human embryos to create stem cells. So what if you can turn skin cells or any other cell in the human body into stem cells? Since 2007, we have been able to! Learn about induce pluripotent stem cells and the scientific revolution since then!

Open to students grades 7 through 12

Sat 10:30am–11:15am

S132: Giant sperm, sterile workers, and other oddities of evolution

Kenneth Hoehn

Why do some fruit flies have sperm cells twenty times the length of their bodies? Why do worker ants slave all day working for a queen, but have no offspring of their own? These are powerful examples of problems in biology which make little sense except in the light of evolution. This course will apply abstract (though graspable) concepts of evolutionary biology to explain these and other puzzling examples of adaptation in the natural world.

Open to students grades 9 through 12

Sat 1:30pm–2:15pm

Sat 2:30pm–3:15pm

S144: Searching for Extraterrestrial Life

Ann Danello

Is anybody out there? For centuries, the possibility of extraterrestrial life has intrigued humans all around the world. In this class, we will explore the history of the search for life outside Earth and learn about current research and discoveries in this exciting and mysterious field.

Open to students grades 7 through 12

Sat 1:30pm–2:15pm

Sat 2:30pm–3:15pm

S159: Ask an Astronomer Anything

Michael Shaw

Have you ever wondered why the stars twinkle, but the planets don't? Or where our planet is in the galaxy? Or why the sky is blue, and the sunset red? Where comets come from, and how they grow their magnificent tails.

This class is your chance. Come prepared with questions, and we'll answer as many as we can.

The stars have fascinated people for thousands of years. Come join generations past, revel in their beauty, and take your first steps into astronomy, the oldest of the sciences.

Open to students grades 9 through 12

Sat 2:30pm–3:15pm

Rachel Keeler

You've probably heard about the greenhouse effect and its contribution to global warming – this is a purely scientific look at exactly how our atmosphere gains and traps heat, starting from the foundations of solar radiation.

Open to students grades 10 through 12

Sat 2:30pm–3:15pm

S146: Radiation and the Greenhouse Effect