HillsHacks Schedule

MARCH 16TH 2024 | hills-hacks-2024.vercel.app

Time	Event				
11:00-11:45	**Intro to Python** Arav Katakam *Beginner*	**3D Modeling Basics** Megan Krutz *Beginner*	**Intro to Roblox** Liam Torres *Intermediate*	**Computational Biology and Genetics** Mayur Sharma *Advanced*	*Design Challenge*
11:45-12:30	**How to Be Better at Coding** Ryan Rana *Beginner*	**3D Graphic Design with Spline and Web Dev** Kai Yang *Beginner*	**Introduction to Data Structures** Ben Phan *Intermediate*		*Design Challenge*
12:30-1:00	**Panel Q&A**				
1:00-1:30	**Lunch** *Students may work on projects*				
1:30-2:15	**Bot Bash: Create Cool Chatbots with ChatGPT** Jay Fu *Beginner*	**How to Ace College and Get the Job You Want** Matt Carbone *Beginner*	**Game Theory** Aarish Patel *Intermediate*	**Corporate Arbitrage in Hedge Fund Management** Adnan Contractor *Advanced*	*Design Challenge*
2:15-3:00	**But What Should I Study?** Jared Pincus *Beginner*	**The Basics of R** Arin Harkawat *Beginner*	**Code for Cash** Erich Dong *Intermediate*		*Design Challenge*
3:00-3:45	Presentations				
3:45-4:00	Awards Ceremony and Closing				

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Workshop Descriptions

Intro to Python - Arav Katakam
In this workshop, we will introduce students to Python using a simple game. Students will learn about Python, how it works and how it was created. Using a simple pre-made program, students of this workshop will learn how to create variables, use functions, make interactive programs, using loops and importing other modules.

3D Modeling Basics - Megan Krutz
This is an introductory course in Blender 3D. Students will learn Blender's UI and main forms of polygon editing - vertex, edge, and face adjustments. The students will use these and other foundationary tools within Blender to create a "prism" of their choosing, and will then learn a basic material adjustment to make them shine/refract like a gemstone.

Intro to Roblox - Liam Torres
This is an introduction to Roblox, how to use the platforms and create different lands and environments, sponsored by CodeNinjas using a set of slides from our summer camp program. We not only will learn how to use parts and make obbies, but will also be taking an inside peek into LUA, the language used in Roblox Studio. It allows for you to be able to use your imagination and expand it into a new experience.

Computational Biology and Genetics - Mayur Sharma
We will use Python data analysis as a way to understand simple predator-prey relations, disease models, and genetic make-ups as different examples of how to use computer science to better study ecosystem models. We will work to understand how different system parameters and models give better descriptions for certain dynamics and how we can grow these models for greater specificity.

How to be Better at Coding - Ryan Rana
While this workshop doesn’t teach any technical skills it opens up to a methodology and mindset that allows one to take their coding skills to the next level. Whether this is from a non-coder to a coder, a beginner coder to advanced, or an experienced coder to one who gets paid to code. The workshop offers real insights that allows one to not only learn, build, and deploy better and faster but how to also make a name for themselves in the community.

3D Graphic Design with Splint and Web Dev - Kai Yang
Create beautiful 3D Websites without ever leaving your browser! In this workshop, you'll learn the basics of 3D graphic design, implement it into a website, and even launch that website! This workshop covers lighting, movement, libraries, objects, and more.

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Introduction to Data Structures - Ben Phan

Participants will learn about how various data structures are used as well as how they function. They will later be guided through the process of implementing a basic one (singly linked list) in the java programming language using replit as an ide that each student should have access to on their laptops if they do not have an ide on their device already.

Bot Bash: Create Cool Chatbots with ChatGPT - Jay Fu

Functional Programming is an altogether different programming paradigm than most typical languages, emphasizing the use of functions and mappings as opposed to stored variables and values. Through Haskell, participants will be provided an introduction to functional programming, discussing the high-level structure of functional programming, some of its advantages over other language types, and some of its practical and academic uses. We will also write basic Haskell code, going from basic ideas of iteration, to more advanced ideas of anonymous functions, functors, and associative mappings and new definitions of type. As part of this, we will also look at Haskell and functional programming through a theoretical framework and see some of the basic category and type theory present.

The Basics of R - Arin Harkawat

This workshop is designed to introduce students to the basic foundation of the programming language R, which is a user-friendly language often used to run statistical models, create maps, etc. The workshop is friendly to individuals with no or preliminary experience with R as the workshop will cover introductory topics and conclude with maps and models.

Game Theory - Aarish Patel

During this workshop you will explore the topic of game theory which studies interactive decision-making, where the outcome for each participant or "player" depends on the actions of all. You will learn key strategies about famous games such as prisoner's dilemma, nash equilibrium, and the dollar auction.

Corporate Arbitrage in Hedge Fund Management - Adnan Contractor

Come learn about the theory and practice of corporate arbitrage strategies practiced by hedge funds over the last 30 years. Topics will include convertible arbitrage, merger arbitrage, closed-end fund arbitrage, special purpose acquisition companies, special situations, and more. We'll also discuss how different hedge funds have incorporated multi strategy approaches into arbitrage based funds based on investment targets, leverage volume, and risk appetite.

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But What Should I Study? - Jared Pincus

The field of computer science is more vast than ever, and ever harder to navigate. It can be tricky to decide what programming-related discipline to pursue (in college or otherwise!) when there are so many options and so much information. This workshop will explore major areas of study within and surrounding computer science, to help students plan their future paths and discover what areas they find most exciting.

How to Ace College and Get the Job You Want - Matt Carbone

In this informal chat, I will go over what I believe to be a useful strategy (or at least a starting point) to approach the beginning of your careers, from the end of high school, through college, and beyond. To demonstrate that nothing in life is a straight line, I will go through the unorthodox path I took from a pre-med, Johns Hopkins-hopeful (reject) to Columbia PhD graduate and staff computational scientist at a US National Lab. We'll talk about college classes and workload, finances, social/Greek life, social skills/"networking", physical exercise, impostor syndrome, how to learn to code [well] and most important of all, how to fail gracefully. If I can do it, you can too, but in this age of your first-choice college costing $350k, we all need a plan. My hope is that those who attend leave the talk reassured and confident about their academic and professional future. All are welcome, be prepared for a frank discussion, and come with questions!

Code For Cash - Erich Dong

In CodeForCash, you will be learning how to use computer science to aid in a world where financial literacy is more crucial than ever. Whether you're just starting your career or creating programs for business, navigating unexpected challenges, understanding how to manage your program effectively is essential in an ever changing world. Students will use Node.js to build a program and learn techniques to be applied for creating income opportunities.

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Panelist Biographies:

Matt Carbone *is an assistant computational scientist (think assistant professor) in the Computational Science Initiative at Brookhaven National Laboratory. He is a proud WHRHS alum (class of 2012), received a BS in chemistry and BA in physics at the University of Rochester in 2016, and his PhD in chemical physics at Columbia University in 2021, where he was a United States Department of Energy Computational Science Graduate Fellow. Currently, he works on fundamental problems at the intersection of physics, data-driven techniques, and computational science, such as machine learning and scientific software development. Outside of work, Matt loves to watch football (go Giants) and F1 racing, go to all of the restaurants he can in New York City, and hang out with his cat, Lucy.*

Jared Pincus *is a second year PhD student in computer science at Boston University, with a research focus on logic and programming language theory. He graduated WHRHS in 2018, earned his BS in computer science from Stevens Institute of Technology in 2021, and his MS in computer science from Stevens in 2022. He aspires to be a research professor that studies logic across a variety of disciplines. jaredpincus.com*

Daniel Lamson *graduated from DeSales University with a B.S. in Mathematics. He worked in various manufacturing engineering roles including process improvement, production line optimization, laser engraving technology, and automation. He changed careers 8 years ago, and has taught HS mathematics and computer science ever since. In his spare time he enjoys music, hiking, camping with his family, and of course computer programming.*

Liam Torres *is a senior at WHRHS, looking to pursue a career in Computer Science and is currently undecided towards a school. He is a representative of CodeNinjas Green Brook. He loves coding and learning, and hopes to learn more. Outside of work, Liam loves to watch all kinds of sports, (MAN U Will make a comeback) and loves hanging out with his friends.*