UNIVERSITY OF MARYLAND

STICs



# Catalog

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spring 2025

## ASTR288T

**Introduction to Astrophotography**
**Credits: 1**
Facilitators: Chaitanya Garg, Matthew Prem
Advisor: Elizabeth Warner
Website

In this course, you will learn the foundations of several popular forms of amateur astrophotography, along the way gaining practical astronomy knowledge which you can apply in your free time, no matter what career you pursue.By the end of this course, you will know important regions of the night sky, how to photograph a wide variety of celestial objects, and how to view and analyze astro images taken from professional sources.

## CMSC388J

**Building Secure Web Applications**
**Credits: 1**
Facilitators: Chuck Peterson, Nikita Krupin
Advisor: Michael Alan Marsh
Website

Explores tools such as Python, Flask, Django, MongoDB, Svelte, and React

## CMSC389E

**Digital Logic Design through Minecraft**
**Credits: 1**
Facilitators: Amrit Magesh, Minsi Hu
Advisor: Cliff Bakalian
Website

Explores the fundamentals of digital logic design using Minecraft's Redstone. Using the low-level and intuitive visualization of circuitry Redstone provides, you will create a series of projects that apply principles of digital logic design learned in class.

## CMSC389O

**The Coding Interview**
**Credits: 1**
Facilitator: Emmanuel Bautista
Advisor: Tom Goldstein
Website

Technical interviewing is a critical skill for acquiring internships and jobs. Students will gain a comprehensive, practical introduction to technical interviews. Students will be introduced to basic topics such as Big O and String Manipulation and later move into more complex topics such as Graphs and Dynamic Programming. Most in-class time will be spent on mock interviews to give real interview practice. The course facilitators are experienced in interviewing and have received internship/job offers from companies like Meta, Optiver, Bloomberg, Amazon, Apple, Microsoft, Databricks, Capital One, and more.

## CMSC389P

**Mastering the PM Interview**

Product Management is an interesting intersection of technology and business that students are given the opportunity to learn more about in this class. Students are introduced to the tools, techniques, and resources to nail their PM (Product Management) interviews. We'll be providing

**Credits: 1**
Facilitators: Angelyn Pham, Tushar Garg
Advisor: Huaishu Peng
Website

hands-on practice with PM specific topics including product design, analytical, and case questions. By the end of the class, you should be acing all your PM interviews!

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## CMSC398L

**Introduction to Competitive Programming**
**Credits: 1**
Facilitators: Cheng-Yuan Lee, Kelin Zhu, Max Wang
Advisor: Laxman Dhulipala
Website

This course covers most of the basic techniques and algorithms that are used in competitive programming. Topics include C++ STL, greedy, dynamic programming, divide and conquer, graph algorithms, and data structures. Students will learn different algorithmic techniques and apply these concepts to solve interesting programming problems in practice.

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## CMSC398M

**Introduction to Product Design with Figma**
**Credits: 1**
Facilitators: Beatrice Chung, Amber Chen
Advisor: Clifford Bakalian
Website

An exploration into the world of Figma! Figma is a popular collaborative design tool used by many developers for brainstorming, proof of concepts, and website/application design. In this course, we will be exploring the various capabilities of Figma, and how we can create a website or mobile application from a design made on Figma. Students will learn principles of design, create mockups, and build their own website/mobile app that will look great for resumes and portfolios.

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## CMSC398N

**Ethics in Computer Science**
**Credits: 1**
Facilitators: Anushka Anand, Chayanika Sinha, Nicholas Farber
Advisor: Elias Gonzales
Website

This course will introduce students to the different aspects of ethics within Computer Science. There will be 14 different topics, each one focusing on a different issue regarding ethicsin the tech industry.Students will learn what to do in these situations, understand how these issues impact society, and participate in in-class discussions about these topics.After taking this course students should be able to recognize these issues in the real world and be able to use their knowledge to try and better the field.

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## CMSC398R

**Binary Exploitation**
**Credits: 1**
Facilitators: Edward Feng, Avery Parker, Andrei Kotliarov, Hari Kailad
Advisor: Tudor Dumitras
Website

An introduction to exploiting common vulnerabilities in compiled applications. Topics include an overview of C, intro to x86 assembly, buffer overflows on stack and heap, format string bugs, heap exploitation, and other special topics (kernel/browser/blockchain). Students will be able to write exploits for all the bugs learned in class, and secure their own applications.

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## CMSC398W

**Practical Tools for Efficient Development**
**Credits: 1**
Facilitators: Karan Jain, Mohammad Durrani
Advisor: Christopher Kauffman
Website

Provides a broad overview of many common and useful tools, like the command line, Git, debuggers, build systems, and more. Through a hands-on approach, you will be introduced to a variety of tools and techniques that can immediately be applied to everyday problems. We aim to provide students with material that improves their computing ecosystem literacy and increases their efficiency as a developer.

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## MATH299G

**Generating Functions**
**Credits: 1**
Facilitator: Rishi Cherukuri

This course develops the theory of formal power series and generating functions with extensive applications. Topics covered include, but are not limited to: solving recurrences with generating functions; ordinary, exponential, and dirichlet generating functions; multi-variable generating functions; stirling numbers and bell numbers; card games; graph counting, the Snake Oil method; domination polynomials and chromatic polynomials; probability generating functions.

Advisor: Qendrim Gashi
Website

## MATH299R

**The Philosophical Foundations of Math**
**Credits: 1**
Facilitator: Rowan Weiss
Advisor: Dana Grosser-Clarkson
Website

In this course, we will overview several of the prevailing philosophical viewpoints that have emerged. These perspectives are often at odds with each other, so this course is designed to help you develop your own perspective about these topics. This course will require both mathematical and philosophical discussion, as the philosophy will inform the mathematical systems we develop, and the consequences of the mathematical systems we develop will in turn inform our philosophy. We will be talking about the math arising from philosophical ideas as much as we will be talking about the philosophical ideas themselves.

## SPHL276

**Decolonizing Medicine: Steps to Actionable Change**
**Credits: 1**
Facilitators: Shree Bhattacharya, Moumita Afrin
Advisor: Dina Borzekowski
Website

This course provides a comprehensive foundation of how colonial legacies continue to shape global health systems and medical practices. We will critically engage with the concept of 'the White body' as the standard in medical training, explore the consequences of the historical context underpinning colonial medicine, and interrogate neocolonial dynamics in contemporary global health efforts. Designed for students interested in careers in medicine, public health, or health policy, this course will challenge students to rethink the ethical and epistemological frameworks that underlie modern healthcare.

## TLPL488N

**The Psychology of Habit Building in Education: Creating and Sustaining Positive Learning Behaviors**
**Credits: 1**
Facilitator: Kian Mostoufi
Advisor: Sarah Henson-Darko
Website

Have you ever made a New Year's Resolution just to fall into the same old habits weeks later? The goal of this course is to explore the idea that students' habit building is much simpler than just freeing up more time or working harder. Throughout the semester, you will learn about how students can be taught to build consistent long- term habits and apply these skills to improve learning outcomes. The course will also delve into student motivations in habit building to work towards personal goals in their health, career, or other endeavors.

# contact us.

Reach out to us at **stics@umd.edu**