

Fall 2024 Weekend Programs Course Catalog

PreK - Grade 8

Northwestern University's Center for Talent Development (CTD) has an array of high-quality, captivating in-person enrichment courses available for students on Saturdays. Our courses focus on high-interest topics, include both collaborative group work and individual hands-on projects, and are led by expert instructors who demonstrate the joy in learning. Courses in mathematics, science, design & engineering, and computer science & technology engage students during six Saturdays. Students with demonstrated strengths in verbal/reading and/or math, depending on course, may apply. See <https://www.ctd.northwestern.edu/eligibility> for eligibility details. Visit our [application page](#) to begin your application.

Weekend Enrichment Program Details
Dates: Saturdays, October 19, 26; November 2, 9, 16, 23, 2024
Times: 9:00 a.m. - 11:30 a.m.; select afternoon courses (12:00 p.m. - 2:30 p.m.)
Locations: Evanston - view the Weekend Enrichment Program web page for details.
Tuition: \$395

PreK - Kindergarten

Builder's Paradise

What do engineers do? Young builders challenge their critical thinking skills by creating structures that dare the laws of gravity. Explore what shapes and materials are stronger than others and compare the stability of completed structures. Students imagine and improve their own designs while exploring what makes a structure stand or collapse.

Open Enrollment: no eligibility requirements

SUBJECT: Technology & Engineering

Math You Can See

How is math represented in the world around us? Through hands-on graphing and pattern finding, be propelled into the visual world of mathematics. Challenge yourself and others by creating your own data set to show trends about mathematical principles such as proportion, patterns, and graphing.

Open Enrollment: no eligibility requirements

SUBJECT: Mathematics

Kindergarten - Grade 1

Tangible Coding: Coding with Your Hands

How do you control a robot without written code? Students develop coding and spatial reasoning skills while using colorful, interactive block commands and hands-on tools. Gain practice with testing and debugging original programs while engaging with various robots like Primo Cubetto, BeeBots, and others. Fundamental computer science concepts such as symbols and algorithms are explored through dramatic play, construction, engineering, and storytelling.

Open Enrollment: no eligibility requirements

SUBJECT: Technology & Engineering

Grades 1 – 2

Solutions Sleuth: Experts in Problem Solving

A fire engine travels five miles to a fire at a speed of 60mph. Its tank holds 500 gallons of water, but it has been leaking throughout the journey at a rate of 5 gallons per minute. How much water is left in the tank when it arrives at the fire? By learning and applying strategies, students grapple with mind boggling and brainteasers to determine the best solutions to real-life problems. Mathematical dexterity is enhanced as young learners think about, solve, and create their own complex and interesting problems utilizing operations such as multiplication and division.

Open Enrollment: no eligibility requirements

SUBJECT: Mathematics

Art and Science of Color

What is color and how do we see it? Through hands-on science experiments and arts activities, students explore how we experience color, where color comes from (in nature and chemical reactions), and how it has been used throughout time by humans. By investigating the electromagnetic spectrum, the visible spectrum, and the fundamentals of the color wheel, young artists and scientists learn how color is perceived. Discover the importance of color in the plant and animal world and create art using both natural and human-made pigments.

Open Enrollment: no eligibility requirements

SUBJECT: Science

Grades 3 – 4

Chain Reactions: Rube Goldberg

How is movement explained by physics? A Rube Goldberg machine is a design challenge that proposes moving objects through space using various means, from pulleys to inclined planes to levers. Explore different structural systems each week for building these kinds of machines, from smooth tubes to cereal box construction. Working both individually and in teams, learn about the laws of physics that govern what chain reactions can be created with materials and movement.

Qualifying Area: Reading OR Math

SUBJECTS: Science; Technology & Engineering

The Miniature Effect

Students build and measure their world as they investigate the concepts of building and scale. Explore and construct 2D and 3D projects using paper and/or digital renderings. Create your own miniature art and design projects using a range of modeling and building strategies. Explore the world of measurement, scale and perspective through this practical application of fractions.

Qualifying Area: Math

SUBJECT: Mathematics

Game Design and Construction

Designing a great game requires creativity as well as logic, analysis and innovation. Designers must think about what makes a game appealing and what keeps it engaging. Students apply principles of design such as prototyping, testing, and gathering feedback. While utilizing the iterative process, they choose and refine their own game themes and mechanics to maximize the fun. Young designers will create a variety of games, such as board games, card games, and/or digital games.

Qualifying Area: Reading OR Math

Subject: Technology & Engineering

Grades 5 – 6

Medical Science and Engineering

How do we apply human-centered design to patient care? Learn how engineering principles and the design process can improve challenges faced by the human body. Through research and analysis, students design solutions. Then, they build, test and evaluate models, and practice communicating scientific information to their peers. Apply real-world research and scientific inquiry to gain the skills necessary to be successful in higher level science courses.

Qualifying Area: Reading OR Math

SUBJECTS: Science; Technology & Engineering

Road to Capitol Hill

Investigate how to run a campaign and examine the rules and requirements for becoming a senator and/or member of Congress while engaging in a simulated campaign cycle. In this election simulation, students craft a candidacy and platform, create a donor acquisition plan, prepare for and participate in debates, and write a stump speech to court the most voters and win a seat on Capitol Hill. Students analyze historical examples in addition to following one or more 2024 campaigns to assess the effectiveness and rationale of the candidates' strategies.

Qualifying Area: Reading

SUBJECTS: English & Language Arts; Social Sciences and Humanities

Big Data: Math, Computers & Analysis

Corporations, non-profits, governmental agencies, and other analysts use "big data" to better understand everything from politics to sports, creating descriptive and predictive models to make sense of events and trends. This course explores the world of data science through a range of applications and expressions. Surveying theories of probability, students will learn how to turn data into descriptive trends and to use algorithms to make better decisions. Through case studies and individual research, students identify, collect and interpret data to generate proposals for action,

Qualifying Area: Math

SUBJECTS: Mathematics; Technology & Engineering

FUSE Studio Design Challenge

Complete design challenges developed by Northwestern University and foster problem solving, creativity, and persistence skills.

Projects span fields such as electronics, robotics, biotechnology, architecture, sound mixing, and fashion design. With the help of an expert facilitator, use STEAM-based practices to produce and present artifacts for peer review, remixing, and expert feedback.

Qualifying Area: Reading OR Math

SUBJECT: Technology & Engineering

Grades 7 – 8

Outbreak: Immunology and Infectious Disease

How does the human body fight an infection? This hands-on course explores the human body and the different mechanisms that allow us to fight diseases and everyday pathogens. Investigate different infectious diseases, the history of deadly outbreaks across the globe, and the diseases scientists are fighting today. The class focuses on both historical and current events while investigating what causes different diseases, the mechanisms behind how they spread, and how the human immune system works to keep us healthy.

Qualifying Area: Reading OR Math

SUBJECT: Science

Creative Writing: Creating Real and Imagined Places

How can a location or place play the same role as a character in a story? When we read powerful stories that resonate with us, we are often transported to distinct, believable places from the comfort of our homes. How do authors create those spaces, be they real or imagined, and how do those spaces impact the stories and characters as deeply as they do? Through research, literary analysis, and writers workshop strategies, students create written works of places they know well, places they wish to see, and places seen only in their own imaginations.

Qualifying Area: Reading

SUBJECT: English & Language Arts

Entrepreneurship and Design Thinking

How do you get from an idea to an effective, marketable solution? Engineers and designers use Design Thinking to develop products that address user needs and solve real-life problems. Combining empathy, ideation, prototyping and testing, students gain experience with identifying and addressing problems experienced by those around them. Students conduct interviews and research and apply creative problem solving and determination to develop their own prototype of an improved product of their choosing.

Qualifying Area: Reading OR Math

SUBJECT: Entrepreneurship and Economics; Technology & Engineering

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Qualifying Area: Reading OR Math

SUBJECT: Technology & Engineering