Center for Talent Development

Summer Program

2017 Program Catalog
Students Age 4 through Grade 12

www.ctd.northwestern.edu
847/491-3782, ext. 2
summer@ctd.northwestern.edu

Bright Thinkers • Future Innovators
Welcome to the 2017 Summer Program

The Center for Talent Development (CTD) Summer Program allows gifted students to delve deep into a subject of interest, build upon their strengths, and connect with a community of peers.

From fast-paced enrichment options to accelerated, credit-bearing offerings, there is something for everyone from age 4 through grade 12.

In this catalog, you will find brief descriptions of each CTD Summer Program, 2017 program dates, and course descriptions.

The catalog is a companion piece to our website. All program details—including eligibility criteria, tuition and fees, admission requirements, financial aid process, and the online application—are located on the CTD website at www.ctd.northwestern.edu. Click on “Programs” in the navigation bar or scroll down the home page to find the Summer Program icon.

Any questions? Please contact us!

Contact Information
Summer Program
Center for Talent Development
Northwestern University

Phone 847/491-8257
Fax 847/467-0880
E-mail summer@ctd.northwestern.edu

Follow Us
Web www.ctd.northwestern.edu/summer
Blog ctd.northwestern.edu/blog
Facebook www.facebook.com/CTDatNU
Twitter @CTDatNU

Center for Talent Development has been accredited as a nonpublic supplementary school by the North Central Association Commission on Accreditation and School Improvement (NCA CASI) since April 1, 1994. NCA CASI is recognized by the U.S. Department of Education and has more than 100 years of experience in improving educational quality.
What Makes the CTD Summer Program the Best Choice for You?

The fun and friendships experienced at CTD are amazing, but there’s so much more. Because CTD is part of Northwestern, a world-class research university, excellence is our standard of program quality.

CTD’s Director, Dr. Paula Olszewski-Kubilius, is a faculty member in Northwestern’s School of Education & Social Policy and an internationally recognized expert in gifted education. CTD is comprised of expert educators and program administrators with the experience, knowledge, and passion to help children develop their exceptional talents in programs tailored to their needs.

- **A unique blend of enrichment and credit-bearing program and course offerings that exemplify CTD’s talent development philosophy.** CTD’s signature approach to talent development provides a personalized approach to student development and academic growth. CTD guides students and families along program pathways, which promote intellectual, emotional, and social growth from emergent talent to expertise.

- **Deep expertise in gifted education.** CTD is a leading gifted education research center. What we know about best practices is applied to all of our programs. Read more about our research at ctd.northwestern.edu/research.

- **Rigorous, accredited courses backed by one of the world’s most respected universities.** CTD is part of Northwestern’s School of Education & Social Policy and is accredited by the North Central Association Commission on Accreditation and School Improvement. Additionally, all Advanced Placement® courses are approved by the College Board.

- **Exceptional educators and a supportive learning community.** CTD instructional staff members are experienced educators and content experts. They are skilled in best practices, including differentiated instruction, curriculum compacting, inquiry-based learning, and content acceleration. All staff, from educators and residential teams to administrators, builds a strong, supportive community of diverse learners from around the United States and the world.

- **Sustained engagement with the CTD community and access to valuable resources.** Enrolled students and their parents receive a one-year subscription to CTD Backpack, an online learning community and resource library curated by CTD staff.
NEW IN 2017

• Applicants for PreK/K courses may apply for admission without submitting test scores. PreK/K courses expose students to creative learning experiences and challenging content, providing students an early opportunity to participate in the engaging and innovative enrichment courses available at CTD, even if they don’t have access to testing.

• Challenge Lab, a makerspace for grades 1-4 will be offered afternoons in Evanston and Palatine.

Choose a program based on your child’s grade as of January 1, 2017.

Age 4 through Grade 4
• Leapfrog & Spark Programs – Half-day and all-day, weeklong courses offered in Chicago, Evanston, Elmhurst (Spark only), Lake Forest, Naperville, and Palatine, Illinois (Page 6)

Grades 4 through 6
• Spark Program – All-day, weeklong courses (grades 3 & 4 only) offered in Chicago, Evanston, Elmhurst, Lake Forest, Naperville, and Palatine, Illinois (Page 6)

• Solstice Program – Two-week enrichment courses (residential or commuter) offered in Evanston, Illinois on the campus of Northwestern University and in Elmhurst, Illinois on the campus of Elmhurst College (Page 17)

• Apogee Program – Three-week, fast-paced enrichment courses (residential or commuter) offered in Evanston, Illinois on the campus of Northwestern University (Page 20)

Grades 7 and 8 (Grade 9 on a case-by-case basis)
• Spectrum Program – Three-week, fast-paced enrichment and honors-level credit courses (residential or commuter) offered in Evanston, Illinois on the campus of Northwestern University (Page 25)

Grades 9 through 12
• Equinox Program – Three-week or five-week accelerated honors and Advanced Placement® courses (residential or commuter) offered in Evanston, Illinois on the campus of Northwestern University (Page 32)

• Civic Leadership Institute – Three-week service-learning and leadership program housed at Northwestern University in Evanston with service and residential activities offering students an unparalleled opportunity to explore Chicago (Page 39)

Students applying to the CTD Summer Program should select courses in a subject area of greatest interest and strength. Course content is advanced, typically one to two years above grade level.

Enjoy reading about this year’s courses! We look forward to receiving your application.
2017 Summer Program at a Glance

Application period opens January 4, 2017. Apply early!
Courses are filled on a first-come, first-served basis and many courses fill well before the application deadline.

STUDENTS AGE 4 (PreK) – GRADE 3 (grade level on January 1, 2017)

Leapfrog Program
Leapfrog provides enrichment courses for students who have demonstrated a keen, early interest in learning. Half-day or all-day, one-week courses are offered mornings and afternoons. Leapfrog program site locations are listed on the website.

New in 2017:
• Changes to eligibility requirements for 4- and 5-year-old children in PreK/K courses. See website for details.
• Challenge Lab expanded to 5 days per week at the Evanston and Palatine program sites.

Program Dates & Locations
June 26–30
Week 1, Leapfrog Favorites in Evanston, Chicago, and Naperville, morning only; afternoon and all-day Leapfrog & Spark courses in Naperville

July 10–14
Week 2, all sites; morning, afternoon, and all-day courses

July 17–21
Week 3, all sites; morning, afternoon, and all-day courses

July 24–28
Week 4, all sites; morning, afternoon, and all-day courses

Sites
Chicago, Evanston, Lake Forest, Naperville, and Palatine. Availability of courses varies by site.
Students in grade 3 may apply for Spark courses. See Spark course information on page 12.

There are multiple program offerings for students in grades 4 through 6 because of the varied academic, social, and developmental needs of students in this broad age group. Select the appropriate program based on your child’s academic needs and social-emotional readiness, particularly when considering the Solstice or Apogee residential program option.

**Spark Program**

Spark is a week of fun, mind-stretching learning experiences for students in grade 3 or 4. Program and course information begins on page 6. Spark program site locations are listed on the website.

**Program Dates & Locations:**

Elmhurst College, Elmhurst, IL
Chicago
Evanston
Lake Forest
Palatine
Monday, July 10 - Friday, July 14
Monday, July 17 - Friday, July 21
Monday, July 24 - Friday, July 28

Naperville

Monday, June 26 - Friday, June 30
Monday, July 10 - Friday, July 14
Monday, July 17 - Friday, July 21
Monday, July 24 - Friday, July 28

**Solstice Program**

The Solstice program offers enrichment courses in a two-week timeframe perfect for extended study of a subject. Students may reside on campus or commute from home. Program and course information begins on page 17.

**Program Dates & Locations:**

Elmhurst College, Elmhurst IL
Monday, July 10 - Friday, July 21
(commuter only)
Monday, July 24 - Friday, August 4
(commuter only)

Northwestern University, Evanston, IL
Sunday, June 25 - Friday, July 7
Sunday, July 9 - Friday, July 21
Sunday, July 23 - Friday, August 4

**Apogee Program**

The three-week Apogee program gives students the opportunity to take a fast-paced course that hones critical academic skills and deepens knowledge and understanding of a particular subject. In 2017, Apogee also includes two graded, high-school-level math and computer science courses (Algebra I & Java). Students may choose to reside on the Northwestern University Evanston, Illinois campus. Program and course information begins on page 20.

**Program Dates**

Northwestern University, Evanston, IL
(residential or commuter)
Sunday, June 25 - Friday, July 14
Sunday, July 16 - Friday, August 4

* Students in grade 3 may apply for Spark courses. See Spark course information on page 12.
Spectrum Program
Spectrum offers three-week, in-depth enrichment and accelerated honors courses that stretch young minds and provide challenge beyond grade level. Honors courses bear high school credit through Center for Talent Development. Program and course information begins on page 25.

*Students in grade 9 may apply; applications will be considered on a case-by-case basis.

Equinox Program
Equinox combines fast-paced, advanced coursework with the chance to explore college and careers in a hands-on way within a community of learners. Equinox’s high school and college-level course offerings provide academic rigor and the opportunity to earn high school credit at the honors and Advanced Placement® (AP) levels through Center for Talent Development. Students can experience life on the Northwestern University, Evanston Illinois campus as a residential participant or commute from home. Program and course information begins on page 32.

Civic Leadership Institute
The Civic Leadership Institute (CLI) is a powerful capstone experience, which engages young leaders in community issues through hands-on service and academic study. CLI offers excellent preparation for college and careers, allowing students to develop the knowledge, experience, and skills they need to make a positive impact on the world. CLI combines an innovative service-learning curriculum with an unforgettable residential experience and an unparalleled opportunity to explore Chicago. Program information begins on page 39.

STUDENTS GRADES 7 & 8* (grade level on January 1, 2017)

Program Dates
Sunday, June 25 - Friday, July 14
Sunday, July 16 - Friday, August 4

STUDENTS GRADES 9-12 (grade level on January 1, 2017)

Program Dates
Sunday, June 25 - Friday, July 14
Sunday, July 16 - Friday, August 4
Sunday, June 25 - Friday, July 28 (5-week courses)

Program Dates
Sunday, June 25 - Friday, July 14

Program Dates
Sunday, June 25 - Friday, July 14
Courses are offered in Chicago, Evanston, Elmhurst (Spark courses only) Lake Forest, Naperville, and Palatine, Illinois. For specific locations, please see the Summer Program website.

There are three different types of course offerings:

- **Half-day Morning** – Leapfrog morning courses meet from 9 a.m. to 12 noon daily for five consecutive days (Monday through Friday).
- **Half-day Afternoon** – Leapfrog afternoon courses meet from 1 p.m. to 4 p.m. daily for five consecutive days (Monday through Friday).
- **All-day** – All-day Leapfrog and Spark courses are available for students in grades 1, 2, or 3. All-day courses meet from 9:15 a.m. to 3:45 p.m. with a break for lunch. Please note: All-day Spark courses at Elmhurst College meet from 8:30 a.m. to 2:45 p.m. with a break for lunch.

Families may apply to a morning course, an afternoon course, or both. All students enrolled in both a morning course and an afternoon course are automatically enrolled in the 12 noon to 1 p.m. lunch/recess at no extra cost.

**New Admission Opportunity for Young Children**
CTD is piloting a new admission option that does not require our youngest students (age 4 or 5 with limited school experience applying to PreK/K courses) to have test scores for admission. This option is intended to provide new enrollment opportunities for families with young children who don’t have ready access to individual testing services. See the Leapfrog Summer Program website for details.

“He LOVED building things and testing them out. The hands-on element was fantastic! … I also loved that they had recess every day! This really helped him bond with the other kids.”

– 2016 parent
Leapfrog Favorites
A select group of our most popular Leapfrog courses will be offered the week of June 26–30 at our Chicago, Evanston, and Naperville locations. In addition, select Spark courses are available for students in grade 3 or 4 in Naperville. See course chart for details.

Week 1: June 26–30
Course Descriptions

English & Language Arts Favorites
Students with strong verbal/reading ability may enroll in an English & Language Arts course. Courses correspond with a child’s grade level as of January 1, 2017.

(PreK/K) Mouse Adventures: Tiny Habitats in Stories & Nature
Storybook mice, such as Stuart Little, fascinate readers with their tiny furniture and cozy living spaces. Students explore how the stories compare to the habitats of real mice. Read-alouds and storytelling are combined with an introduction to research and creative writing.

(K/1) South Pole: Journey to Antarctica
As explorers and scientist “traveling” to the coldest continent on earth, students learn about the biodiversity of Antarctica and the animals living there. Students create their own research station at the South Pole and produce guidebooks, articles and stories.

Science Favorites
Students with strong verbal/reading or math ability may enroll in a Science course. Courses correspond with a child’s grade level as of January 1, 2017.

(PreK/K) Building Bridges
Truss, arch, suspension, and more—young engineers learn about bridge structures and study famous examples from around the world. Students create their own bridge models based on the principles of physics and through the process of scientific inquiry.

(K/1) Digging Canals & Tunnels
From the canals of Italy, Egypt, and Panama to tunnels for cars, water, and power lines, aspiring engineers consider the development of critical transportation systems. Students design and construct models and explain their planning process to peers and instructors.

Leapfrog & Spark
June 26–30 Course Offerings & Locations

<table>
<thead>
<tr>
<th>GRADE LEVEL</th>
<th>COURSE TITLE</th>
<th>SUBJECT AREA</th>
</tr>
</thead>
<tbody>
<tr>
<td>PreK/K</td>
<td>Mouse Adventures</td>
<td>English &amp; Language Arts</td>
</tr>
<tr>
<td>K/1</td>
<td>South Pole</td>
<td>English &amp; Language Arts</td>
</tr>
<tr>
<td>PreK/K</td>
<td>Puzzle Party: Riddles, Mazes &amp; More</td>
<td>Mathematics</td>
</tr>
<tr>
<td>K/1</td>
<td>Think Tank: Games for Brains</td>
<td>Mathematics</td>
</tr>
<tr>
<td>K/1</td>
<td>Extreme Code Breaking</td>
<td>Mathematics</td>
</tr>
<tr>
<td>1/2</td>
<td>Math for Spies</td>
<td>Mathematics</td>
</tr>
<tr>
<td>1/2</td>
<td>Business Start Up</td>
<td>Mathematics</td>
</tr>
<tr>
<td>2/3</td>
<td>Intro to Cryptography</td>
<td>Mathematics</td>
</tr>
<tr>
<td>PreK/K</td>
<td>Building Bridges</td>
<td>Science</td>
</tr>
<tr>
<td>K/1</td>
<td>Digging Canals &amp; Tunnels</td>
<td>Science</td>
</tr>
<tr>
<td>K/1</td>
<td>Awesome Explosions &amp; Collisions</td>
<td>Science</td>
</tr>
<tr>
<td>1/2</td>
<td>Science Spin-Offs</td>
<td>Science</td>
</tr>
<tr>
<td>1/2</td>
<td>Grossology: Fascinating Systems of the Human Body</td>
<td>Science</td>
</tr>
<tr>
<td>2/3</td>
<td>Raising Skyscrapers &amp; Towers</td>
<td>Science</td>
</tr>
<tr>
<td>2/3</td>
<td>Brain Surgery</td>
<td>Science</td>
</tr>
<tr>
<td>PreK/K</td>
<td>Coding Paths &amp; Patterns</td>
<td>Technology</td>
</tr>
<tr>
<td>K/1</td>
<td>Coding Levels &amp; Layers</td>
<td>Technology</td>
</tr>
<tr>
<td>1/2</td>
<td>Learn to Code: Loops!</td>
<td>Technology</td>
</tr>
<tr>
<td>2/3</td>
<td>Coding Scavenger Hunt</td>
<td>Technology</td>
</tr>
<tr>
<td>PreK/K</td>
<td>Robot Chase</td>
<td>Technology</td>
</tr>
<tr>
<td>K/1</td>
<td>Robot Shortcut</td>
<td>Technology</td>
</tr>
<tr>
<td>1/2</td>
<td>Robot Reaction</td>
<td>Technology</td>
</tr>
<tr>
<td>2/3</td>
<td>Robot Games</td>
<td>Technology</td>
</tr>
<tr>
<td>2/3</td>
<td>LEGO® Metropolis: Urban Design &amp; Architecture</td>
<td>Science</td>
</tr>
<tr>
<td>3/4</td>
<td>Introduction to A.I.: EV3 Sensors &amp; More</td>
<td>Technology</td>
</tr>
</tbody>
</table>

Week 1: June 26–30
Course Descriptions

Science Favorites
Students with strong verbal/reading or math ability may enroll in a Science course. Courses correspond with a child’s grade level as of January 1, 2017.

(PreK/K) Building Bridges
Truss, arch, suspension, and more—young engineers learn about bridge structures and study famous examples from around the world. Students create their own bridge models based on the principles of physics and through the process of scientific inquiry.

(K/1) Digging Canals & Tunnels
From the canals of Italy, Egypt, and Panama to tunnels for cars, water, and power lines, aspiring engineers consider the development of critical transportation systems. Students design and construct models and explain their planning process to peers and instructors.

(K/1) Awesome Explosions & Collisions
Physicists learn about matter by deliberately crashing particles into each other. Hands-on science experiments allow students to bump, crash, and jolt a wide variety of materials. Students learn how explosive phenomena such as impact craters, plate tectonics, and particle acceleration reveal a wealth of scientific knowledge about our world.

(1/2) Science Spin-Offs
Did you know scientists have used material made by NASA for tracking missiles in space to design invisible braces for teeth? Many technologies created for one purpose are transformed to benefit people in new ways. Students use their creativity and science skills to reimagine uses for various technologies. Students work together to make their own science spin-offs.

(1/2) Grossology: Fascinating Systems of the Human Body
Gross, grosser, and grossest… The human body conducts fascinating and seemingly repulsive functions, but all serve a valuable purpose! From spit and vomit to sweat and snot, students engage in experiments and activities to study the systems of the human body, the functions they serve, and the outcomes they produce. Research and collaborative projects further challenge students to think critically and synthesize information.

(2/3) Brain Surgery
Young neurologists “go inside” the brain to analyze its systems and understand its connection to the rest of the body. Among other activities, students map the brain, experiment with senses, and use interactive web tools to investigate this amazing and complex organ.
Technology Favorites

Students with strong verbal/reading or math ability may enroll in a Technology course. Courses correspond with a child's grade level as of January 1, 2017.

Coding Constructions

(No coding experience needed for Coding Constructions courses.)

NEW! (PreK/K) Coding Paths & Patterns
Learn introductory coding concepts using apps such as Kodable and Daisy the Dinosaur. Students also use tangible blocks and puzzles to construct 3D roads, paths, and patterns that demonstrate virtual coding concepts.

NEW! (K/1) Coding Levels & Layers
Learn basic coding concepts with ScratchJr, Lightbot, and Toca Builder. Students work in virtual environments using tablets and touch screens, then practice and expand what they’ve learned using 3D construction materials such as wood, foam, and cardboard. Students develop computer science skills as they build increasingly complex structures and stories.

NEW! (1/2) Learn to Code: Loops!
A loop is an essential coding concept in all programming languages. In this course, students use introductory coding apps like ScratchJr to learn how to create loops and other foundational coding strategies. Students deepen and extend their understanding of algorithms by using LEGO® and other 3D construction tools to create tangible representations of virtual concepts.

NEW! (2/3) Coding Scavenger Hunt
Introductory coding apps like ScratchJr and Hopscotch teach beginning computer science skills as well as introduce more advanced concepts such as conditions and events. In this course, students work at their own pace to create digital games and stories that incorporate a variety of coding strategies and algorithms. Students also practice and expand new skills through 3D construction projects and games that demonstrate and extend coding concepts.

Robot Quest: Program Your Own Adventure

(No coding or robotics experience needed for Robot Quest courses.)

NEW! (PreK/K) Robot Chase
Learn to program educational robots such as Bee-Bots® and robotic mice to follow a path or run a race. Students practice and demonstrate introductory coding concepts such as symbol, sequence, and algorithm as they build spatial reasoning skills.

NEW! (K/1) Robot Shortcut
In the world of coding, a “function” is a shortcut that allows programmers to make their code more efficient or more elegant. In the world of robots, educational devices like the Primo Cubetto and KIBO robots teach children how to use a function command to help their robot friends take a shortcut on their way to fun adventures.

NEW! (1/2) Robot Reaction
How do we tell robots what to do? We give them commands in the form of code. Some robots also have sensors that allow them to see, hear, or sense their environments. In this course, young robotic engineers learn to code educational robots like Ozobots and Hexbugs as they observe and analyze how sensors enhance a robot’s functioning.

NEW! (2/3) Robot Games
Exciting new tangible devices like Sphero, Cubeelets, and Bloxels allow students to learn about both coding and robotic engineering. This course introduces coding, engineering, and spatial reasoning concepts as well as game design. Students use robotic and coding tools to create games that demonstrate design elements such as victory conditions.

Mathematics Favorites

Students with strong math ability may enroll in a Mathematics course. Courses correspond with a child's grade level as of January 1, 2017.

(PreK/K) Puzzle Party: Riddles, Mazes & More
Puzzles, tangrams, mazes, and riddles challenge students to seek solutions using computation, logic, and deduction.

(K/1) Think Tank: Games for Brains
Complex games and tough-to-solve problems are no match for students armed with the estimation and reasoning skills they develop in this course.

(1/2) Math for Spies
There’s more to being a spy than just wearing a disguise. Spies also have to be expert mathematicians. In this course, aspiring spies use math to create secret codes, plot the coordinates of enemy hideouts, and discover—through logical reasoning—the identities of other spies.

(1/2) Business Start Up
Is your business making money? To answer that question, students create a business and set up a budget. From considering supply and demand to calculating costs and paying employees (and, hopefully, turning a profit), students advance their creative-thinking, problem-solving, and computation skills.

(2/3) Intro to Cryptography
Savvy mathematicians protect their secrets from spies and hackers through encryption and passwords. This course introduces cryptography and explores how to create and use strong passwords. Students develop the high-level math and critical thinking skills necessary to consider when and how to use encryption.

All-Day Favorites

See course descriptions on pages 12-13.
Challenge Lab, a CTD Makerspace for Grades 1-4

No test scores or portfolio required for Challenge Lab enrollment. Sessions are offered Monday through Friday afternoons, 1 p.m. to 4 p.m. at our Evanston and Palatine sites. Enroll your child in a single three-hour session or choose multiple sessions.

Description

A “makerspace” is a learning workshop equipped with a variety of materials and tools for making things. Students explore and experiment as they acquire design, engineering, and problem-solving skills. Each unique project reflects the interests and ideas of each maker.

Challenge Lab demonstrates CTD’s commitment to challenge students to reach their greatest potential. In our CTD makerspace, instructors offer questions, choices, and challenges that inspire projects and encourage students to reflect on their process and extend their ideas.

The Challenge Lab space will be divided into work stations such as a digital work station, a woodworking station, a “loose parts” station with plastic and metal materials, and a research and inspiration station.

Challenge Lab Themes

Mondays: Build with Wood
Tuesdays: Tools & Hardware
Wednesdays: Things that Move
Thursdays: Form & Function
Fridays: Teamwork & Collaboration

See page 12 for our new Spark course, Girl Power Makerspace.

Leapfrog Half-day Course Descriptions

Science Courses

Students with strong verbal/reading or math ability may enroll in a Science course. Courses correspond to a child’s grade level as of January 1, 2017.

See course charts for course availability per site and week.

Mad Science & Great Discoveries

NEW! (PreK/K) Magnets & Mirrors: Magical Experiments
Magnets have the power to make objects move as if by magic. Mirrors can play tricks with how we view the world. Hands-on science experiments teach children core concepts of physical science, such as magnetism, gravity, polarity, reflection, and magnification.

(K/1) Fast & Faster: Things that Go
Do you have the need for speed? Engineers use physics and technology to design machines that go incredibly fast. In this active course, students put their pedals to the metal, learning the science behind what propels cars, planes, and other machines to move at extraordinary speeds. Through collaborative building projects and other hands-on activities, students learn basic physics principles around motion and velocity.

NEW! (1/2) Take Apart: Deconstructing Science
Taking apart a clock or a wind-up toy reveals fascinating secrets about how simple machines work and function. Learn about mechanical engineering and introductory physics by deconstructing and analyzing a variety of devices. Students study and observe concepts such as levers and pulleys, screws and springs, power and motion, as well as the structure and function of batteries.

(2/3) Rocket Science: Blast Off with Newton
How do rockets blast off? Why do balloons fly in circles if you let the air out? Junior rocket scientists investigate Newton’s laws of motion through demonstrations, online simulations, and experiments. In small, collaborative groups, students apply what they learn by building and launching their own simple rockets.

Creatures Featured

(PreK/K) Big Cats: Lions, Tigers & More
As novice zoologists, students explore the captivating world of big cats from lions to jaguars to unique cat hybrids. Students “travel” across the globe to observe and discuss how these astounding animals interact with their habitat and each other. Through research and hands-on activities, students are introduced to the world of these marvelous mammals and gain an appreciation of wildlife conservation.

(K/1) Whale Talk: How Sea Creatures Communicate
Whales make amazing sounds to communicate with each other. In this course, mini-marine biologists learn how these intelligent creatures of the deep use echolocation, clicks, whistles, and music-like tones to communicate. Activities and projects introduce students to the incredible ways these marvelous mammals connect and make sense of their world.
(1/2) Dinosaur Discovery: Paleontology Unearthed
Aspiring paleontologists learn about the many species of these “terrible lizards” from the famous T-Rex to the recently identified Sauvannasaurus elliottorum. Students unravel the mysteries of how these animals lived, looked, and died as they literally and figuratively “dig” deep into the fossil record.

(2/3) Birds of Prey: Hunters in the Sky
With great speed and sharp talons, birds of prey stalk both land and sky. There are approximately 10,000 species of birds in the world, each distinctive in its survival methods. What makes birds of prey unique? Young ornithologists engage in research and hands-on activities to investigate winged hunters such as owls, eagles, hawks, and herons.

Insect Architecture
NEW! (PreK/K) Hive Makers: Bees & More
Why do bees build hives out of hexagon-shaped cells? Fascinating science and engineering concepts come to life as students discover how insect architects build hives in nature. Students construct their own models of hives to deepen their understanding of engineering, math, and design principles such as shape and dimension.

NEW! (K/1) Tunnel Diggers: Ants & More
Ants build elaborate underground colonies with networks of tunnels and storage areas. How do tiny insects accomplish these tasks? Students learn about amazing insect communities that use engineering and design techniques to help them survive. Students also design and construct models of tunnels and compare insect engineering to human-made structures.

NEW! (1/2) Web Weavers: Spiders & More
Spiders are skillful engineers that seem to plan their web designs. Why and how do spiders build webs? How does the design help make webs functional and strong? Students study spiders and their web-building skills, and consider how webbed structures are used by humans. Students build their own webbed structures and test the strength of their models.

NEW! (2/3) Tower Builders: Termites & More
A termite is a tiny insect, not much bigger than a grain of rice. But when a million termites work together, they become expert architects, building spectacular mounds made of a complex series of chambers. How do termites build such amazing structures? What purpose do these mounds serve? Students learn about insects and how their feats of engineering can benefit humans.

Technology Courses
CTD Summer Program offers innovative technology courses at all grade levels, starting at PreK. Coding and robotics courses develop a foundation of computer science, engineering, computational thinking, and problem-solving skills. Students spend approximately one-third of each class session using tech devices such as tablets and laptops; the majority of students’ time is spent interacting with other students and engaging in hands-on interdisciplinary projects.

Students with strong verbal/reading or math ability may enroll in a Technology course. Courses correspond to a child’s grade level as of January 1, 2017.

See course charts on page 14 for course availability per site and week.

See page 8 for the Coding Constructions and Robot Quest: Program Your Own Adventure course descriptions. Courses include: Coding Paths & Patterns, Coding Levels & Layers, Learn to Code: Loops!, Cording Scavenger Hunt, Robot Chase, Robot Shortcut, Robot Reaction, and Robot Games.

English & Language Arts Courses
Students with strong verbal or reading ability may enroll in an English & Language Arts course. Courses correspond to a child’s grade level as of January 1, 2017.

You’re in the Story
(PreK/K) If I Ran the Zoo
Students take on the roles of zookeepers and veterinarians to make important decisions about animals in their zoo and how to care for them. Young zookeepers conduct research and design animal habitats, create signs and other zoo literature, and discuss ethical issues related to zoo life and endangered animals. Early literacy skills are developed through drawing, dictation, and emergent writing.

(1/2) Survivor: Ancient Egypt
By creating a story about an ancient community that lives on the Nile River Valley, students investigate the culture and history of Egypt. While role-playing members of Egyptian families, students learn about daily life, agriculture and trade, and hardships such as drought. The creation of text, murals, skits, and posters challenge students to communicate their ideas using a variety of skills and mediums.

Leapfrog Theater
(PreK/K) Puppet Theater Productions
Young story tellers learn about character, sequence, and the structure of puppet plays. Through storytelling, role-playing, and vocabulary activities, students extend their literacy skills as they tell puppet stories.

(2/3) Scene Writing Workshop
From dialogue to stage direction, students sharpen their writing skills for effective scene writing and playwriting. Students study inspiring scenes from movies or plays and use improvisation techniques to write and revise their own pieces for film or stage.

Stories in Many Forms
(PreK/K) Cover to Cover: Make Your Own Book
Young authors discover how thrilling it can be to create their own books, using an illustrated story that they write or dictate. Using story elements such as main idea, sequence, and character, students use their creativity to take their stories from concept to book form.

(K/1) Click! Telling Stories with Photos
Photographs are both inspiration and illustration as students combine words and images in the creation of original stories and poems. Students snap their own photos as well as collect photos from families, magazines, and other sources.

(1/2) Comic Book Characters
Graphic novels and comic books cover topics from superheroes to historical events, capturing complex ideas through a unique combination of text and illustrations. Students create an original story or recount an historical event by combining creative writing skills and drawing techniques.
Mathematics Courses

Students with strong math ability may enroll in a Mathematics course. Courses correspond to a child’s grade level as of January 1, 2017.

See course charts on page 14 for course availability per site and week.

Geometry at Play

(PreK/K) Playground Math
How do you measure the angle of a slide? Will a bigger or smaller angle help you go down faster? What shapes can be found in the monkey bars and the climbing dome? Students are introduced to a variety of geometry concepts and tools to use in exploring the playground first-hand and then designing and building their own model playground.

(K/1) Blocks & Blueprints
Using blocks and other construction materials, students create models of buildings and spaces. Then, they apply geometry concepts and skills—such as measuring perimeter and angles and calculating area and volume—to draft blueprints and scaled diagrams of their creations, deepening their understanding of two and three-dimensionality.

(1/2) Treasure Maps
Making maps, or cartography, is a process that involves many different geometry skills. Adding the excitement of tracking a treasure makes understanding map scale, the compass rose, and celestial navigation even more fun…and rewarding. Students learn what it takes to decipher and use maps as well as to create their own accurate maps using geometry.

(2/3) Geometry Doodle
Recreational mathematician Vi Hart advocates for doodling as an effective method to explore math concepts such as hexaflexagons, binary trees, and fractals. Graphic artist M.C. Escher celebrated geometry concepts in his captivating art. Creating by folding, drawing, and sculpting puts students in touch with fascinating topics in geometry and other areas of mathematics.

Math All around Us

NEW! (PreK/K) Kitchen Math
Measuring, timing, comparing, and computing are on the menu as students do the work of cooks and bakers. Students use mathematical thinking along with kitchen tools to create and execute both recipes and equations.

NEW! (K/1) Math for Sports
What’s the score? Math can tell us that and so much more about athletic performance. Students run, kick, shoot, and score, then measure, calculate, analyze, and estimate to demonstrate how math and sports are on the same team.

(1/2) Math in the Animal World
Could a sprinting cheetah beat a speeding porpoise in a race? How far do geese migrate each year? Animals do amazing things, and learning about their fantastic feats is a great way to practice data comparisons, single-digit multiplication, and algebraic equations. Young mathematicians use numbers to tackle story problems, carry out simple experiments, and describe behavior in the fascinating world of animals.

NEW! (2/3) Math in Space
How long does it take to travel to Mars, and how much fuel is needed? Students apply math concepts such as rates, ratios, and velocity to answer questions about outer space, using exponents and other scientific conventions to represent the large numbers necessary to describe distances in space.

Math Adventures

NEW! (PreK/K) Mini Mathletes
Mathematical thinking involves recognizing patterns, identifying sequences, and deductive reasoning. Through playful, group problem-solving challenges, students apply these skills as they employ new strategies and tools such as number lines and functions.

NEW! (K/1) Math Superheroes
Measurement is the dependable hero of mathematics and science. Students assess the best units and tools for the job, whether it’s how far Superman is jumping when he leaps tall buildings in a single bound or how much faster he is than a speeding bullet. Students take on the heavy lifting of problem solving using estimation and accurate measurement of length, volume, time, and temperature.

NEW! (1/2) Prediction Wizards
Probability may not be magical, but it certainly is powerful. Students learn to use the language and numerical expression of probability, the math behind making predictions. They predict the outcomes of events and test their own predictions through games of chance and other fun challenges. Is it incantation or calculation? Ask the Prediction Wizards.

NEW! (2/3) Math Monsters
Complex problems may seem monstrous, but mathematicians don’t find them scary! Students use number operations in combination to solve problems involving multiplication and fractions. Using games and visual representations, they build mental math skills including estimation and add new math vocabulary and forms of expressions, including decimals and mixed numbers.
Leapfrog & Spark All-day Courses
Grades 1-4
(grade level on January 1, 2017)
Leapfrog and Spark offer weeklong, all-day enrichment courses that introduce a topic of interest and foster critical and creative thinking through interactive, project-based activities. Students in all-day courses take a single course that meets approximately five-and-a-half hours a day, allowing for focused study. Leapfrog and Spark all-day courses culminate with an Expo of student work.

More options for all-day courses! In summer 2017, we are piloting new all-day options for younger students in grades 1 and 2. All-day courses meet from 9:15 a.m. to 3:45 p.m., Monday through Friday, except at the Elmhurst College site, where courses meet from 8:30 a.m. to 2:45 p.m.

All-day Course Descriptions
Science
Students with strong math or verbal/reading ability may enroll in a Science course. Courses correspond to a child’s grade level as of January 1, 2017. See course charts for course availability per site and week.

(1/2) The Science of Treasure Hunting
Are you ready for a science-based treasure hunt? From metal detectors to GPS, students dig deep as they research the world of hidden treasure and treasure-hunting methods. Students study magnets, electricity, and electromagnetism as they work to understand how a metal detector works and solve challenges for building a better treasure-hunting tool. Students use a metal detector and other methods to find hidden treasures.

NEW! (1/2) Volcanoes & Earthquakes
Stand still for a moment—can you tell that Earth’s surface is actually moving? Sometimes slowly and sometimes quickly, Earth’s crust shifts each moment of each day. Young geologists investigate the theory of plate tectonics, and create models and diagrams of volcanoes and earthquakes. Students also discover how scientists use technology to measure and predict eruptions and quakes.

(2/3) Wilderness Challenge: Math & Science Outdoors
Basic needs like water, shelter, and food are opportunities for turning math and science concepts into practical know-how. Students evaluate, analyze, and estimate what is necessary for survival and are put to work building a structure, purifying water, and cooking food with basic supplies and what they can find outdoors. This hands-on course combines classroom time and outdoor learning. Please wear clothes that can get dirty and sturdy shoes.

(2/3) LEGO® Metropolis: Urban Design & Architecture
Imagine a whole city made out of LEGO® bricks! Introductory urban design and architecture concepts come to life when students collaborate to plan and create buildings, roads, and city infrastructures using LEGO® created specially to allow for architecturally accurate construction. Course activities include producing blueprints and maps, learning principles of urban planning, and brainstorming solutions to design and engineering challenges.

NEW! (3/4) 3D Cell Biology
Cells are often described as “the building blocks of life.” In this introductory biology course, use LEGO® bricks and other 3D construction tools to learn about the structure of various living cells and of DNA molecules. Examine cell structures, observe virtual cell reproduction, and discuss the laws of genetic inheritance.

NEW! (3/4) Design Engineering: Chicago
Create models using LEGO® and other materials, and explore the construction of Chicago landmarks including buildings, tunnels, canals, bridges, and highways. Learn how Chicago has engineered solutions throughout its history and consider how to engineer future solutions to today’s problems.

NEW! (3/4) Girl Power Makerspace
This makerspace lets girls interact with open-ended materials to solve problems they have defined and chosen to tackle. The makerspace brings together students’ interests and abilities with theme-related challenges, images and materials for inspiration, supplies, tools, and a skilled facilitator. Girl Power Makerspace engages students in engineering and design work, including opportunities to take a risk, fail, and keep trying.

(3/4) Flight School
Learn the fundamentals of flight and set your course for the skies. Students research the physics of flight, the mechanics of airplanes, the basics of navigation, and the essentials of meteorology, then practice what they’ve learned using flight simulation software and remote control airplanes.

NOTE: Additional $25 lab fee is required.

Technology
Students with strong math or verbal/reading ability may enroll in a Technology course. No coding or robotics experience needed for all-day Leapfrog or Spark Technology courses. Courses correspond to a child’s grade level as of January 1, 2017. See course charts for course availability per site and week.

(2/3) Robotics for Beginners (WeDo)
This course introduces LEGO® robotics to students using icon-based programming and LEGO® WeDo kits. It is a great way for newcomers to learn the basics before using EV3 kits, competing in FIRST LEGO League, or other robotics systems.

NOTE: Additional $25 lab fee is required.

NEW! (2/3) My Robot Arm: Adaptive Technology with LEGO® WeDo
At the age of 14, Easton LaChappelle invented a prosthetic arm using LEGO®, fishing wire, and a 3D printer, significantly improving on existing technologies. In this course, students construct and program robotic arms using LEGO® WeDo kits and engage in open-ended projects inspired by the maker movement and young inventors. Students with previous WeDo experience are challenged to develop their own projects that expand their repertoire.

NOTE: Additional $25 lab fee is required.

(2/3) Tech Power Animation: Scratch & More
In this hands-on course, students learn fundamental computer animation using the Scratch programming language. Students gain skills in basic drawing tools, simple animations, graphic morphing, and graphic layering and create an animation program as a culminating project. After completing this course, students are prepared for more advanced animation and program design work.

NOTE: Additional $25 lab fee is required.
NEW! (3/4) Introduction to AI: EV3 Sensors and More
Building and programming LEGO® EV3 robots helps students develop engineering and computer science knowledge. This course focuses on the EV3 sensors and how the robots respond to their environment, and hands-on experience with sensors leads to a discussion of artificial intelligence (AI) and the traits of “intelligent” machines. Students with previous EV3 experience are challenged to apply their existing engineering and coding skills to new ideas and projects.

NOTE: Additional $25 lab fee is required.

(3/4) Pen to Podium: Expert Writing & Speaking
Would you express yourself the same way when writing a book report and when trying to convince your parents to get you a dog? A well-constructed essay doesn’t always translate to great oratory. Each must be crafted carefully to have the greatest impact. Explore rhetorical devices and other techniques for producing strong written pieces and delivering excellent speeches, including selecting language for its appeal to the ear, heart, and mind.

NOTE: Additional $25 lab fee is required.

(3/4) Survivor Math
Applying math skills is the key to survival in this creative problem-solving course. Students role-play a variety of exciting scenarios, such as being marooned on a desert island, trapped in a space station, cornered by an enemy army, or stranded in a deadly snowstorm. Geometry, algebraic thinking, probability, and measurement are just a few of the mathematical concepts used to save the day.

NOTE: Additional $25 lab fee is required.

(3/4) Creative Writing
Are you the next J.K. Rowling? Students learn the elements of fiction writing while practicing the habits of successful authors. Daily writing activities will complement lively class discussion and debate, and students will leave the course with original work they can continue to develop at home.

NOTE: Additional $25 lab fee is required.

Mathematics
Students with strong mathematical ability may enroll in a Mathematics course. Courses correspond to a child’s grade level as of January 1, 2017. See course charts for course availability per site and week.

(3/4) Survivor Math
Applying math skills is the key to survival in this creative problem-solving course. Students role-play a variety of exciting scenarios, such as being marooned on a desert island, trapped in a space station, cornered by an enemy army, or stranded in a deadly snowstorm. Geometry, algebraic thinking, probability, and measurement are just a few of the mathematical concepts used to save the day.

NOTE: Additional $25 lab fee is required.
Weeks 2-4: Leapfrog & Spark Half-day & All-day Course Reference Chart

Select a course matching your child's grade level as of January 1, 2017. Select course topics that best fit your child's academic strengths as determined through test scores and other academic measures. **Week 1 courses are listed on page 7.**

Week 2: July 10-14

<table>
<thead>
<tr>
<th>GRADE LEVEL</th>
<th>COURSE TITLE</th>
<th>SUBJECT AREA</th>
<th>CH AM</th>
<th>CH PM</th>
<th>CH ALL</th>
<th>ELM ALL</th>
<th>EV AM</th>
<th>EV PM</th>
<th>EV ALL</th>
<th>LF AM</th>
<th>LF PM</th>
<th>LF ALL</th>
<th>NP AM</th>
<th>NP PM</th>
<th>NP ALL</th>
<th>PA AM</th>
<th>PA PM</th>
<th>PA ALL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gr. 1-4</td>
<td>Challenge Lab</td>
<td>Science</td>
<td></td>
<td></td>
<td>*</td>
<td></td>
<td></td>
<td></td>
<td>*</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PreK/K</td>
<td>If I Ran the Zoo</td>
<td>English &amp; Language Arts</td>
<td></td>
<td></td>
<td>*</td>
<td></td>
<td></td>
<td></td>
<td>*</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>K/1</td>
<td>African Safari</td>
<td>English &amp; Language Arts</td>
<td></td>
<td></td>
<td>*</td>
<td></td>
<td></td>
<td></td>
<td>*</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1/2</td>
<td>Comic Book Characters</td>
<td>English &amp; Language Arts</td>
<td></td>
<td></td>
<td>*</td>
<td></td>
<td></td>
<td></td>
<td>*</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2/3</td>
<td>Life on Mars</td>
<td>English &amp; Language Arts</td>
<td></td>
<td></td>
<td>*</td>
<td></td>
<td></td>
<td></td>
<td>*</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PreK/K</td>
<td>Playground Math</td>
<td>Mathematics</td>
<td></td>
<td></td>
<td>*</td>
<td>*</td>
<td>*</td>
<td></td>
<td>*</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>K/1</td>
<td>Blocks &amp; Blueprints</td>
<td>Mathematics</td>
<td></td>
<td></td>
<td>*</td>
<td></td>
<td></td>
<td></td>
<td>*</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1/2</td>
<td>Treasure Maps</td>
<td>Mathematics</td>
<td></td>
<td></td>
<td>*</td>
<td></td>
<td></td>
<td></td>
<td>*</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2/3</td>
<td>Geometry Doodle</td>
<td>Mathematics</td>
<td></td>
<td></td>
<td>*</td>
<td></td>
<td></td>
<td></td>
<td>*</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PreK/K</td>
<td>Big Cats: Lions, Tigers &amp; More</td>
<td>Science</td>
<td></td>
<td></td>
<td>*</td>
<td></td>
<td></td>
<td></td>
<td>*</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>K/1</td>
<td>Whale Talk; How Sea Creatures Communicate</td>
<td>Science</td>
<td></td>
<td></td>
<td>*</td>
<td></td>
<td></td>
<td></td>
<td>*</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1/2</td>
<td>Dinosaur Discovery: Paleontology Unearthed</td>
<td>Science</td>
<td></td>
<td></td>
<td>*</td>
<td>*</td>
<td>*</td>
<td></td>
<td>*</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2/3</td>
<td>Birds of Prey: Hunters in the Sky</td>
<td>Science</td>
<td></td>
<td></td>
<td>*</td>
<td></td>
<td></td>
<td></td>
<td>*</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PreK/K</td>
<td>Coding Paths &amp; Patterns</td>
<td>Technology</td>
<td></td>
<td></td>
<td>*</td>
<td></td>
<td></td>
<td></td>
<td>*</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>K/1</td>
<td>Coding Levels &amp; Layers</td>
<td>Technology</td>
<td></td>
<td></td>
<td>*</td>
<td></td>
<td></td>
<td></td>
<td>*</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1/2</td>
<td>Learn to Code: Loops!</td>
<td>Technology</td>
<td></td>
<td></td>
<td>*</td>
<td></td>
<td></td>
<td></td>
<td>*</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2/3</td>
<td>Coding Scavenger Hunt</td>
<td>Technology</td>
<td></td>
<td></td>
<td>*</td>
<td></td>
<td></td>
<td></td>
<td>*</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PreK/K</td>
<td>Robot Chase</td>
<td>Technology</td>
<td></td>
<td></td>
<td>*</td>
<td></td>
<td></td>
<td></td>
<td>*</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>K/1</td>
<td>Robot Shortcut</td>
<td>Technology</td>
<td></td>
<td></td>
<td>*</td>
<td></td>
<td></td>
<td></td>
<td>*</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1/2</td>
<td>Robot Reaction</td>
<td>Technology</td>
<td></td>
<td></td>
<td>*</td>
<td></td>
<td></td>
<td></td>
<td>*</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2/3</td>
<td>Robot Games</td>
<td>Technology</td>
<td></td>
<td></td>
<td>*</td>
<td></td>
<td></td>
<td></td>
<td>*</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1/2</td>
<td>The Science of Treasure Hunting</td>
<td>Science</td>
<td></td>
<td></td>
<td>*</td>
<td></td>
<td></td>
<td></td>
<td>*</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2/3</td>
<td>My Robot Arm</td>
<td>Technology</td>
<td></td>
<td></td>
<td>*</td>
<td></td>
<td></td>
<td></td>
<td>*</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2/3</td>
<td>Digital Game Design</td>
<td>Technology</td>
<td></td>
<td></td>
<td>*</td>
<td></td>
<td></td>
<td></td>
<td>*</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2/3</td>
<td>Girl Power Animation: Scratch &amp; More</td>
<td>Technology</td>
<td></td>
<td></td>
<td>*</td>
<td></td>
<td></td>
<td></td>
<td>*</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2/3</td>
<td>Wilderness Challenge: Math &amp; Science Outdoors</td>
<td>Science</td>
<td></td>
<td></td>
<td>*</td>
<td></td>
<td></td>
<td></td>
<td>*</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3/4</td>
<td>Design Engineering Chicago</td>
<td>Science</td>
<td></td>
<td></td>
<td>*</td>
<td></td>
<td></td>
<td></td>
<td>*</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3/4</td>
<td>Invention Convention: Ingenious Engineering</td>
<td>Science</td>
<td></td>
<td></td>
<td>*</td>
<td></td>
<td></td>
<td></td>
<td>*</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3/4</td>
<td>3D Cell Biology</td>
<td>Science</td>
<td></td>
<td></td>
<td>*</td>
<td></td>
<td></td>
<td></td>
<td>*</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3/4</td>
<td>Girl Power Makerspace</td>
<td>Science</td>
<td></td>
<td></td>
<td>*</td>
<td></td>
<td></td>
<td></td>
<td>*</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3/4</td>
<td>How Things Work: Electronics</td>
<td>Science</td>
<td></td>
<td></td>
<td>*</td>
<td></td>
<td></td>
<td></td>
<td>*</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3/4</td>
<td>Survivor Math</td>
<td>Mathematics</td>
<td></td>
<td></td>
<td>*</td>
<td></td>
<td></td>
<td></td>
<td>*</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3/4</td>
<td>Creative Writing</td>
<td>English &amp; Language Arts</td>
<td></td>
<td></td>
<td>*</td>
<td></td>
<td></td>
<td></td>
<td>*</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3/4</td>
<td>Robotics Lab: Recording &amp; Sharing EV3 Experiments</td>
<td>Technology</td>
<td></td>
<td></td>
<td>*</td>
<td></td>
<td></td>
<td></td>
<td>*</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>GRADE LEVEL</td>
<td>COURSE TITLE</td>
<td>SUBJECT AREA</td>
<td>CH AM</td>
<td>CH PM</td>
<td>CH ALL</td>
<td>ELM ALL</td>
<td>EV AM</td>
<td>EV PM</td>
<td>LF AM</td>
<td>LF PM</td>
<td>LF ALL</td>
<td>NP AM</td>
<td>NP PM</td>
<td>NP ALL</td>
<td>PA AM</td>
<td>PA PM</td>
<td>PA ALL</td>
<td></td>
</tr>
<tr>
<td>-------------</td>
<td>------------------------------------</td>
<td>-------------------------------</td>
<td>-------</td>
<td>-------</td>
<td>--------</td>
<td>---------</td>
<td>-------</td>
<td>-------</td>
<td>-------</td>
<td>-------</td>
<td>--------</td>
<td>-------</td>
<td>-------</td>
<td>--------</td>
<td>-------</td>
<td>-------</td>
<td>--------</td>
<td></td>
</tr>
<tr>
<td>Gr. 1-4</td>
<td>Challenge Lab</td>
<td>Science</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PreK/K</td>
<td>Puppet Productions</td>
<td>English &amp; Language Arts</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2/3</td>
<td>Life on Mars</td>
<td>English &amp; Language Arts</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2/3</td>
<td>Scene Writing Workshop</td>
<td>English &amp; Language Arts</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PreK/K</td>
<td>Kitchen Math</td>
<td>Mathematics</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td></td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>K/1</td>
<td>Math for Sports</td>
<td>Mathematics</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td></td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1/2</td>
<td>Math in the Animal World</td>
<td>Mathematics</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td></td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2/3</td>
<td>Math in Space</td>
<td>Mathematics</td>
<td>•</td>
<td></td>
<td>•</td>
<td></td>
<td>•</td>
<td></td>
<td>•</td>
<td>•</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PreK/K</td>
<td>Hive Makers</td>
<td>Science</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td></td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>K/1</td>
<td>Tunnel Diggers</td>
<td>Science</td>
<td>•</td>
<td></td>
<td>•</td>
<td></td>
<td>•</td>
<td></td>
<td>•</td>
<td>•</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1/2</td>
<td>Dinosaur Discovery</td>
<td>Science</td>
<td>•</td>
<td></td>
<td>•</td>
<td></td>
<td>•</td>
<td></td>
<td>•</td>
<td>•</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1/2</td>
<td>Web Weavers</td>
<td>Science</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td></td>
<td></td>
<td></td>
<td>•</td>
<td>•</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2/3</td>
<td>Tower Builders</td>
<td>Science</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td></td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PreK/K</td>
<td>Coding Paths &amp; Patterns</td>
<td>Technology</td>
<td>•</td>
<td></td>
<td>•</td>
<td></td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>K/1</td>
<td>Coding Levels &amp; Layers</td>
<td>Technology</td>
<td>•</td>
<td></td>
<td>•</td>
<td></td>
<td>•</td>
<td></td>
<td>•</td>
<td>•</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1/2</td>
<td>Learn to Code: Loops!</td>
<td>Technology</td>
<td>•</td>
<td></td>
<td>•</td>
<td></td>
<td>•</td>
<td></td>
<td>•</td>
<td>•</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2/3</td>
<td>Coding Scavenger Hunt</td>
<td>Technology</td>
<td>•</td>
<td></td>
<td>•</td>
<td></td>
<td>•</td>
<td></td>
<td>•</td>
<td>•</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PreK/K</td>
<td>Robot Chase</td>
<td>Technology</td>
<td>•</td>
<td></td>
<td>•</td>
<td></td>
<td>•</td>
<td></td>
<td>•</td>
<td>•</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>K/1</td>
<td>Robot Shortcut</td>
<td>Technology</td>
<td>•</td>
<td></td>
<td>•</td>
<td></td>
<td>•</td>
<td></td>
<td>•</td>
<td>•</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1/2</td>
<td>Robot Reaction</td>
<td>Technology</td>
<td>•</td>
<td></td>
<td>•</td>
<td></td>
<td>•</td>
<td></td>
<td>•</td>
<td>•</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2/3</td>
<td>Robot Games</td>
<td>Technology</td>
<td>•</td>
<td></td>
<td>•</td>
<td></td>
<td>•</td>
<td></td>
<td>•</td>
<td>•</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1/2</td>
<td>Volcanoes &amp; Earthquakes</td>
<td>Science</td>
<td>•</td>
<td></td>
<td>•</td>
<td></td>
<td>•</td>
<td></td>
<td>•</td>
<td>•</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2/3</td>
<td>LEGO® Metropolis</td>
<td>Science</td>
<td>•</td>
<td></td>
<td>•</td>
<td></td>
<td>•</td>
<td></td>
<td>•</td>
<td>•</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2/3</td>
<td>My Robot Arm</td>
<td>Technology</td>
<td>•</td>
<td></td>
<td>•</td>
<td></td>
<td>•</td>
<td></td>
<td>•</td>
<td>•</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2/3</td>
<td>Digital Game Design</td>
<td>Technology</td>
<td>•</td>
<td></td>
<td>•</td>
<td></td>
<td>•</td>
<td></td>
<td>•</td>
<td>•</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2/3</td>
<td>Tech Power Animation</td>
<td>Technology</td>
<td>•</td>
<td></td>
<td>•</td>
<td></td>
<td>•</td>
<td></td>
<td>•</td>
<td>•</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3/4</td>
<td>Girl Power: Web Design</td>
<td>Technology</td>
<td>•</td>
<td></td>
<td>•</td>
<td></td>
<td>•</td>
<td></td>
<td>•</td>
<td>•</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3/4</td>
<td>Pen to Podium: Expert Writing &amp; Speaking</td>
<td>English &amp; Language Arts</td>
<td>•</td>
<td></td>
<td>•</td>
<td></td>
<td>•</td>
<td></td>
<td>•</td>
<td></td>
<td>•</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3/4</td>
<td>Design Engineering Chicago</td>
<td>Science</td>
<td>•</td>
<td></td>
<td>•</td>
<td></td>
<td>•</td>
<td></td>
<td>•</td>
<td>•</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3/4</td>
<td>3D Cell Biology</td>
<td>Science</td>
<td>•</td>
<td></td>
<td>•</td>
<td></td>
<td>•</td>
<td></td>
<td>•</td>
<td>•</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3/4</td>
<td>Girl Power Makerspace</td>
<td>Science</td>
<td>•</td>
<td></td>
<td>•</td>
<td></td>
<td>•</td>
<td></td>
<td>•</td>
<td>•</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3/4</td>
<td>Survivor Math</td>
<td>Mathematics</td>
<td>•</td>
<td></td>
<td>•</td>
<td></td>
<td>•</td>
<td></td>
<td>•</td>
<td>•</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3/4</td>
<td>Girl Power Robotics Lab</td>
<td>Technology</td>
<td>•</td>
<td></td>
<td>•</td>
<td></td>
<td>•</td>
<td></td>
<td>•</td>
<td>•</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3/4</td>
<td>Robotics Lab</td>
<td>Technology</td>
<td>•</td>
<td></td>
<td>•</td>
<td></td>
<td>•</td>
<td></td>
<td>•</td>
<td>•</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
“My son came home able to explain Newton’s laws, potential and kinetic energy, etc….. I liked that he didn’t feel discouraged when something didn’t work right the first time and understood that it was part of the process to go back and figure out a better way.”

– 2016 parent

### Week 4: July 24-28

<table>
<thead>
<tr>
<th>GRADE LEVEL</th>
<th>COURSE TITLE</th>
<th>SUBJECT AREA</th>
<th>CH AM</th>
<th>CH PM</th>
<th>CH ALL</th>
<th>ELM ALL</th>
<th>EV AM</th>
<th>EV PM</th>
<th>LF AM</th>
<th>LF PM</th>
<th>LF ALL</th>
<th>NP AM</th>
<th>NP PM</th>
<th>NP ALL</th>
<th>PA AM</th>
<th>PA PM</th>
<th>PA ALL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gr. 1-4</td>
<td>Challenge Lab</td>
<td>Science</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PreK/K</td>
<td>Cover to Cover: Make Your Own Book</td>
<td>English &amp; Language Arts</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>K/1</td>
<td>Click! Telling Stories with Photos</td>
<td>English &amp; Language Arts</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1/2</td>
<td>Survivor: Ancient Egypt</td>
<td>English &amp; Language Arts</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1/2</td>
<td>Comic Book Characters</td>
<td>English &amp; Language Arts</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2/3</td>
<td>Journalism 101</td>
<td>English &amp; Language Arts</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PreK/K</td>
<td>Mini Mathletes</td>
<td>Mathematics</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>K/1</td>
<td>Measurement Superheroes</td>
<td>Mathematics</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1/2</td>
<td>Prediction Wizards</td>
<td>Mathematics</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2/3</td>
<td>Math Monsters</td>
<td>Mathematics</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PreK/K</td>
<td>Magnets &amp; Mirrors: Magical Experiments</td>
<td>Science</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>K/1</td>
<td>Fast &amp; Faster: Things that Go</td>
<td>Science</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1/2</td>
<td>Take Apart: Deconstructing Science</td>
<td>Science</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2/3</td>
<td>Rocket Science: Blast Off with Newton</td>
<td>Science</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PreK/K</td>
<td>Coding Paths &amp; Patterns</td>
<td>Technology</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>K/1</td>
<td>Coding Levels &amp; Layers</td>
<td>Technology</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1/2</td>
<td>Learn to Code: Loops!</td>
<td>Technology</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2/3</td>
<td>Coding Scavenger Hunt</td>
<td>Technology</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PreK/K</td>
<td>Robot Chase</td>
<td>Technology</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>K/1</td>
<td>Robot Shortcut</td>
<td>Technology</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1/2</td>
<td>Robot Reaction</td>
<td>Technology</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2/3</td>
<td>Robot Games</td>
<td>Technology</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1/2</td>
<td>The Science of Treasure Hunting</td>
<td>Science</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2/3</td>
<td>Volcanoes &amp; Earthquakes</td>
<td>Science</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2/3</td>
<td>My Robot Arm</td>
<td>Technology</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2/3</td>
<td>LEGO® Metropolis: Urban Design &amp; Architecture</td>
<td>Science</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2/3</td>
<td>Robotics for Beginners (WeDo)</td>
<td>Technology</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2/3</td>
<td>Girl Power Animation: Scratch &amp; More</td>
<td>Technology</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2/3</td>
<td>Tech Power Animation: Scratch &amp; More</td>
<td>Technology</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2/3</td>
<td>Digital Game Design</td>
<td>Technology</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3/4</td>
<td>Pen to Podium: Expert Writing &amp; Speaking</td>
<td>English &amp; Language Arts</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3/4</td>
<td>How Things Work: Electronics</td>
<td>Science</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3/4</td>
<td>Invention Convention: Ingenious Engineering</td>
<td>Science</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3/4</td>
<td>3D Cell Biology</td>
<td>Science</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3/4</td>
<td>Girl Power Makerspace</td>
<td>Science</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3/4</td>
<td>Survivor Math</td>
<td>Mathematics</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3/4</td>
<td>Flight School</td>
<td>Science</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3/4</td>
<td>Design Engineering Chicago</td>
<td>Science</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Solstice Program

Grades 4-6
(grade level on January 1, 2017)

Solstice is a two-week enrichment program for students in grades 4, 5, or 6 that provides deep exploration of a rich, interdisciplinary topic of study. Students in the Solstice program take a single course that meets approximately five-and-a-half hours a day, allowing for focus and depth. The Solstice program culminates with an Expo! of student work.

Solstice is offered at Elmhurst College in Elmhurst, Illinois and at Northwestern University’s Evanston, Illinois campus. While Elmhurst College is a commuter-only site, the Evanston campus offers both a residential and commuter option. Taking courses while residing on a college campus affords students ready for a residential experience the chance to be introduced to college in a safe and structured way.

Apply early!
Application period begins January 4, 2017.

Elmhurst College, Elmhurst, IL (commuter only)

<table>
<thead>
<tr>
<th>Session 1: July 10 – July 21</th>
<th>Session 2: July 24 – August 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Breakout Biology: Infectious Disease</td>
<td>Introduction to Genetics</td>
</tr>
<tr>
<td>Cool Chemical Capers</td>
<td>Sports in Motion</td>
</tr>
<tr>
<td>Phun Physics: Industrious Engineering</td>
<td>Real-World Math</td>
</tr>
<tr>
<td>Android Applications &amp; Computer Programming</td>
<td>Minecraft</td>
</tr>
</tbody>
</table>

Northwestern University, Evanston, IL (residential or commuter)

<table>
<thead>
<tr>
<th>Session 1: June 25 – July 7</th>
<th>Session 2: July 9 – July 21</th>
<th>Session 3: July 23 – August 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Novel Engineering</td>
<td>The Art of Texting</td>
<td>Debate &amp; Discourse: Current Events</td>
</tr>
<tr>
<td>Debate &amp; Discourse: Current Events</td>
<td>Sketch Comedy &amp; Improvisation</td>
<td>Math Madness!</td>
</tr>
<tr>
<td>Brain Science</td>
<td>Introduction to Genetics</td>
<td>Breakout Biology: Infectious Disease</td>
</tr>
<tr>
<td>Phun Physics: Industrious Engineering</td>
<td>Sports in Motion</td>
<td>Roller Coaster Physics</td>
</tr>
<tr>
<td>Android Applications &amp; Computer Programming</td>
<td>Get Smart! Spies, Gadgets, &amp; Intelligence Organizations</td>
<td>The Science of Fiction</td>
</tr>
<tr>
<td>Pre-Algebra Preview</td>
<td>Real-World Math</td>
<td>MIDI Mania: Computer Music &amp; Composition</td>
</tr>
<tr>
<td>Minecraft</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
English & Language Arts

ADMISSION CRITERIA: EXPLORE® test OR PSAT 8/9 OR ≥ 90th national percentile rank in verbal or reading on standardized achievement test OR Admission Portfolio

Novel Engineering
What does a Quidditch field look like? What would the shipwrecked Swiss Family Robinson need to keep in mind as they designed their new home? In this arts-integrated literature course, read fiction selections and imagine being an engineer who can impact the narrative by designing environments not yet realized to extend the stories. Projects involve creative writing, drawing, and constructing three-dimensional structures.

OFFERED: NU

NEW! The Art of Texting
Do you know how to persuasively and successfully write a business plan? An op-ed? A tweet? How about writing for blog readers? This course analyzes the successes and shortcomings of writing outside the standard school essay. Receive feedback by presenting your work to the class and submitting it to appropriate forums.

NOTE: This course requires students to bring either a laptop computer or a tablet for research and writing.

OFFERED: NU

Sketch Comedy & Improvisation
Put your sense of humor to work and craft comedic scenes and sketches with strong characters, plots, and dialogue. Through improvisation and writing, generate comedic material in a variety of formats. Develop your ideas through peer critiques, learn basic comedic vocabulary, and develop timing, confidence, and collaborative skills.

OFFERED: NU

Arts, Social Sciences & Humanities

ADMISSION CRITERIA: EXPLORE® test OR PSAT 8/9 OR ≥ 90th national percentile rank in verbal or reading on standardized achievement test OR Admission Portfolio

Debate & Discourse: Current Events
Learn the art of public speaking and debate as you sharpen your presentation skills, refine your arguments, and broaden your thinking. Research positions on important issues and current events, and learn to present your ideas effectively by exploring different debate styles and analyzing professional debates. Examine examples such as Intelligence Squared and presidential debates.

NOTE: This course requires students to bring either a laptop computer or a tablet for research and writing.

OFFERED: NU

Get Smart! Spies, Gadgets & Intelligence Organizations
Human societies have developed intelligence networks to protect domestic secrets and themselves against threats using cryptography and code breaking, remote sensing, and surveillance. If you are interested in the world of espionage, you will enjoy exploring the history, math, and science behind intelligence gathering, researching spies and famous missions, and developing your own plans, codes, and gadgets.

QUALIFYING SCORE: Math or Verbal/Reading

OFFERED: NU

Science

ADMISSION CRITERIA: EXPLORE® test OR PSAT 8/9 OR ≥ 90th national percentile rank on standardized achievement test (see course descriptions for qualifying subject area) OR Admission Portfolio

NEW! Brain Science
Discover the secrets of “the most complex thing in the universe”: your own brain, a three-pound mass of miles of nerve fibers and millions of nerve endings that controls everything you do and the way you react to the world. Learn how the brain impacts your decisions, controls how memory works, influences your mood, and much more in this mind-blowing new course!

NOTES:
• Additional $75 lab & materials fee required.
• This course uses classroom and laboratory space at Roycemore School.

QUALIFYING SCORE: Verbal/Reading

OFFERED: NU

NEW! The Science of Fiction
What goes into a successful Polyjuice potion? Are alternate dimensions or time travel possible? Could civilization exist underground? Through inquiry, discussion, and experimentation, explore the science behind the fictional worlds of Harry Potter, A Wrinkle in Time, When You Reach Me, Zita the Spacegirl, City of Ember, and more.

QUALIFYING SCORE: Verbal/Reading

OFFERED: NU

Sports in Motion
It takes more than muscle to be an athlete. From the best angle for a punt, to the role of geometry in dance, sports and science are intertwined. Learn how physics, biology, chemistry, and math all factor into how your favorite sports stars play at their maximum potential. Hands-on experiments, research, and problem solving all play a part in this winning course.

QUALIFYING SCORE: Math

OFFERED: NU & EC

Cool Chemical Capers
How does soap remove dirt? What preserves packaged cupcakes? These and other everyday mysteries are the basis of this inquiry-based introduction to chemistry. Investigate the properties of elements and learn what causes or prevents chemical reactions through hands-on lab experiments. Learn how substances can be classified by their properties, including melting temperature, density, hardness, and thermal and electrical conductivity.

NOTE: Additional $75 lab & materials fee required.

QUALIFYING SCORE: Math

OFFERED: EC
“This program is amazing due to the fact that people from all around the world come to be a part.”

– 2016 Solstice student

Breakout Biology: Infectious Disease
Infectious diseases have plagued and puzzled humanity from the beginning of time, and from the common cold to Ebola they continue to roam our planet. Question and hypothesize, identify and manipulate variables, observe, measure and record data, and analyze and interpret results as you learn about the fields of microbiology, immunology, and epidemiology and investigate how the human immune system works to keep us healthy.

NOTES:
• Additional $75 lab & materials fee required.
• At the Northwestern University location, this course uses classroom and laboratory space at Roycemore School.

QUALIFYING SCORE: Verbal/Reading
OFFERED: NU & EC

Introduction to Genetics
What does it mean when someone says, “it’s in the genes?” Genes help determine the color of our eyes and hair, our height, and our predisposition to certain illnesses. Learn how genes and DNA determine individual traits, discuss advances in the field of genetics (including the Human Genome Project), and consider the ethical, legal, and medical issues involved in genetic modification.

NOTES:
• Additional $75 lab & materials fee required.
• At the Northwestern University location, this course uses classroom and laboratory space at Roycemore School.

QUALIFYING SCORE: Verbal/Reading
OFFERED: NU & EC

Phun Physics: Industrious Engineering
How would you create a high-flying projectile launcher or the farthest rolling mousetrap car? Put your ideas to the test in this hands-on introduction to physics and engineering! In individual and group build projects, explore physics concepts such as force, acceleration, potential and kinetic energy, and torque and apply them to the creation of cars, bridges, catapults, and more. This class is a great preparatory experience for students interested in Science Olympiad events.

NOTE: Additional $75 lab & materials fee required.

QUALIFYING SCORE: Math
OFFERED: NU & EC

Roller Coaster Physics
How does an amusement park ride make you feel lighter than air in one moment and press you down into your seat in the next, all while keeping you safely inside the ride? Strap yourself in for a fast-paced adventure in the world of physics and investigate topics such as the law of inertia, centripetal acceleration, centrifugal force, and g’s as you design and build a variety of amusement park thrills.

NOTE: Additional $75 lab & materials fee required.

QUALIFYING SCORE: Math
OFFERED: NU

Technology, Computer Science & Engineering

ADMISSION CRITERIA: EXPLORE® test OR PSAT 8/9 OR ≥ 90th national percentile rank in verbal/reading in quantitative or math on standardized achievement test OR Admission Portfolio

MIDI Mania: Computer Music & Composition
Drop the bass! Learn how modern musicians, producers, and DJs use technology and programming to create the music you hear every day. Then, create your own music, using a variety of electronic production suites and applying the basic principles of music theory. Whether an avid listener or an experienced performer, advance your musical skills with cutting-edge technology.

NOTES:
• Students are required to bring a laptop computer for use in the course.
• Additional $75 materials fee required.

OFFERED: NU

Android Applications & Computer Programming
From Facebook to Angry Birds, mobile applications are used every minute of the day. Learn key programming concepts and develop proficiency in drag-and-drop computer programming languages such as Scratch, Alice, and Snap, then apply and extend your learning to build apps of your own.

NOTE: Students are encouraged to bring a personal Android device (such as a tablet or smartphone), but it is not required.

OFFERED: NU & EC

Mathematics

ADMISSION CRITERIA: EXPLORE® test OR PSAT 8/9 OR ≥ 90th national percentile rank in verbal/reading in quantitative or math on standardized achievement test OR Admission Portfolio

NEW! Real-World Math
Paper or plastic, financial markets, population growth...real-world issues big and small are understood and addressed through math! Learn to apply exponents, percentages, multi-step equations, and more to devise solutions for some of the most complicated issues facing the planet.

OFFERED: NU & EC

Get Smart! Spies, Gadgets & Intelligence Organizations
See course description in the Arts, Social Sciences & Humanities section.

Pre-Algebra Preview
This introduction to Pre-Algebra surveys traditional topics such as properties of rational numbers, algebraic equations, geometric figures, ratio, proportion, percent, exponents and radicals, inequalities, the coordinate plane, areas and volumes, probability, and statistics. This course is intended specifically for students who want a preview of Pre-Algebra for future study.

OFFERED: NU

Math Madness!
Caution: the problems in this course may drive you wild! Armed with motivation, persistence, and problem-solving skills, you’re bound to triumph. Learn concepts ranging from pre-algebra to geometry and utilize a wide range of problem-solving tactics to tackle problems from the Art of Problem Solving series.

OFFERED: NU

Minecraft
Join classmates in a secure Minecraft world for unique design challenges. Build societies and systems, plan treasure hunts, and use Minecraft to gain deeper knowledge of a wide variety of traditional academic content areas, including math (spatial reasoning, geometry), sociology (city planning, societal structures), and science (geology, circuitry). Previous experience with Minecraft is helpful, but not necessary.

NOTES:
• Students are required to bring a laptop computer for use in the course.
• Additional $75 materials fee required.

OFFERED: NU & EC
Apogee Program

Grades 4-6
(grade level on January 1, 2017)

Apogee is a three-week intensive program for students in grades 4, 5, or 6. Apogee courses introduce students to advanced concepts in a particular subject area, helping them to gain new knowledge and develop creative, problem-solving, and study skills in a rigorous, supportive learning environment. Apogee students take a single course that meets five-and-a-half hours a day, allowing for focus and depth. A residential option is available. Taking courses while living on the campus of Northwestern University affords students ready for a residential program the opportunity to experience college in a safe and structured way.

There are two different course types offered in Apogee:

- **Enrichment Intensive** (fast-paced, rigorous, non-credit courses designed to allow students to explore specialized subjects in depth)
- **Credit Intensive** (compacted high school honors courses designed to help students accelerate in a particular subject area) Credit Intensive courses include the compacted, full-year Algebra course and Introduction to Java Programming.


<table>
<thead>
<tr>
<th>Session 1: June 25 – July 14, 2017</th>
<th>Session 2: July 16 – August 4, 2017</th>
</tr>
</thead>
<tbody>
<tr>
<td>Creative Writing: Short Story</td>
<td>Creative Writing: The Next Chapter</td>
</tr>
<tr>
<td>Jugando con el Lenguaje</td>
<td>From Page to Stage: Writing, Directing &amp; Performing</td>
</tr>
<tr>
<td>Otherworldly! Science Fiction &amp; the Graphic Novel</td>
<td>Modern Magazine</td>
</tr>
<tr>
<td>Power &amp; Influence: Practice in Persuasion</td>
<td>War Games: Playing Through History</td>
</tr>
<tr>
<td>Order in the Courtroom: The Law Through Fable &amp; Fairy Tale Trials</td>
<td>Start Up Strategies: Business &amp; Design Workshop</td>
</tr>
<tr>
<td>Zoology: From Classification to Dissection</td>
<td>Butterfly Effect: Entomology and Climate Change</td>
</tr>
<tr>
<td>Detective Science: An Introduction to Forensics</td>
<td>Chem Lab: It's Elemental</td>
</tr>
<tr>
<td>Stop Motion Animation Studio</td>
<td>Mural Makers: Public Art from Michelangelo to Banksy</td>
</tr>
<tr>
<td>Robotics: Some Assembly Required</td>
<td>Robotics: Some Assembly Required</td>
</tr>
<tr>
<td>Aerospace Engineering &amp; The Science of Flight</td>
<td>DIY Robotics</td>
</tr>
<tr>
<td>Designing Machines that Work: Engineering &amp; Physics</td>
<td>Designing Machines that Work: Engineering &amp; Physics</td>
</tr>
<tr>
<td>Python Programming: From Games to Google</td>
<td>Python Programming: From Games to Google</td>
</tr>
<tr>
<td>Introduction to Java Programming Honors</td>
<td>Introduction to Java Programming Honors</td>
</tr>
<tr>
<td>Risky Business: Math Puzzles &amp; Games</td>
<td>Calculating the Universe</td>
</tr>
<tr>
<td>Pre-Algebra Honors</td>
<td>Algebra I Honors</td>
</tr>
<tr>
<td>Algebra I Honors</td>
<td>Algebra I Honors</td>
</tr>
</tbody>
</table>


Course Descriptions

English & Language Arts

ADMISSION CRITERIA: EXPLORE® test OR PSAT 8/9 OR ≥ 95th national percentile rank in verbal or reading on standardized achievement test OR Admission Portfolio

Creative Writing: Short Story
In this writing workshop, learn to channel your creative ideas into polished, dynamic short stories. Study and analyze professional writing techniques, practice writing and revising, and present your work to an audience. Combining elements of great storytelling and the short fiction form, create your own portfolio to take home.

NOTE: A laptop or tablet is highly encouraged for this course.

OFFERED: Session 1

Creative Writing: The Next Chapter
From developing great ideas to completing final chapters, the process of writing a novel can be exciting and daunting. Study examples of successful, well-written novels and plot a course for writing your own pieces. Daily peer critiques, writing activities, and revision workshops are utilized to help tap into your creativity and practice the focus, discipline, and diligence necessary to complete a novel.

NOTE: A laptop or tablet is highly encouraged for this course.

OFFERED: Session 2

NEW! Playing with Language
¡NUEVO! Jugando con el Lenguaje
Ven a jugar con nosotros en este curso de improvisación de doble inmersión, donde hablan español y de inglés actúan como modelos de un idioma y, al mismo tiempo, aprenden el otro. Gana confianza en tus habilidades como hablante a medida que desarrollas tu presencia escénica y sincronización, así como tu habilidad de tomar riesgos en el escenario. Participa en discusiones lingüísticas sobre cómo expresar diferentes ideas en cada lengua y cómo tu traducción puede afectar las representaciones. ¡La clase culmina con una improvisación teatral en los dos idiomas!

NEW! Otherworldly! Science Fiction & the Graphic Novel
Love Zita the Spacegirl? Want to join Emily and Navin as they navigate a strange land with a magical amulet? The graphic novel has become a popular storytelling format, and the genre of science fiction has taken flight along with it. Compare popular graphic novels to comics and traditional works of fiction, and gain a practical understanding of how to utilize visual literacy techniques to create a graphic novel of your own!

NOTE: A laptop computer is required for this course.

OFFERED: Session 1

From Page to Stage: Writing, Directing & Performing
Are you the next Lin-Manuel Miranda, envisioning your favorite story for the stage? Have you been crafting your own comedy or drama and want to see it come to life? In this collaborative course, learn about theatrical production from first inspiration to final bows. Through improvisation exercises, develop confidence in your acting abilities and learn effective staging techniques. Improve writing and performance skills through daily critiques. Finally, produce a polished piece taken all the way from page to stage.

NOTE: A laptop or tablet is highly encouraged for this course.

OFFERED: Session 2
NEW! Modern Magazine
At 16 years old, Tavi Gevison started Rookie, a digital magazine for teens. Unleash your creativity in Modern Magazine. Develop fundamental journalism skills and expand your knowledge of online digital media tools. Take photos and learn how to use color and composition to add visuals to your story. Research current teen magazines, analyze submission materials, and develop your own material to submit. Finally, collaborate to create a modern magazine of your own!

NOTES:
• A tablet (with photo-taking capability) or laptop computer is required for this course.
• If a laptop is the student’s preferred technology, a smartphone with a built-in camera is encouraged.

OFFERED: Session 2

Arts, Social Sciences & Humanities
ADMISSION CRITERIA: EXPLORE® test OR PSAT 8/9 OR ≥ 95th national percentile rank in verbal or reading on standardized achievement test OR Admission Portfolio

Power & Influence: Practice in Persuasion
Are you tired of wearing a uniform to school every day? Do you need the latest tablet or smartphone? Learn how to convince your parents or school principal to see things from your perspective. Develop the skills needed to participate in debates and mock trials while developing comfort with delivery as you perform essays, stories, and speeches. Then, learn to choose appropriate topics, form compelling introductions, and locate convincing evidence to support your claims.

OFFERED: Session 1

UPDATED FAVORITE! War Games: Playing through History
In this simulation and game-based course, you won’t just learn about history, you’ll play it out. Learn about different civilizations, examine turning points in history that led to war, and take the perspective of important historical figures. Play out decisions, consider strategies, analyze primary and secondary sources, and apply your learning to propose solutions to the complex problems faced by your civilization.

OFFERED: Session 2

Order in the Courtroom: The Law through Fable & Fairy Tale Trials
Through the lenses of law, literature, and improvisation, explore the moral dilemmas at the core of traditional tales. Is Jack guilty of manslaughter? Does Rumpelstiltskin deserve a pile of gold for breach of contract? An interdisciplinary mix of speaking and writing activities prepares you to take on the roles of lawyer, witness, juror, and storyteller. Develop advanced skills in oral argument, moral reasoning, mediation, conflict resolution, and the classic art of great storytelling.

OFFERED: Session 2

NEW! Mural Makers: Public Art from Michelangelo to Banksy
The city of Chicago has declared 2017 the “Year of Public Art.” This course teaches the history, purpose, and benefits of public art, as well as the practical process and skills required to develop a mural from ideation to installation. Master skills in collaborative art-making and learn how to make artistic choices through research, analysis, and discussion. Tour mural sites in Chicago neighborhoods to gain inspiration and survey the history of mural artists as you make your mark on the world!

NOTE: Additional $75 materials fee required.

OFFERED: Session 2

Science
ADMISSION CRITERIA: EXPLORE® test OR PSAT 8/9 OR ≥ 95th national percentile rank (see course descriptions for qualifying subject area) on standardized achievement test OR Admission Portfolio

Zoology: From Classification to Dissection
From a bat the size of a raspberry to a bird-eating vampire frog, new animal species are discovered nearly every day. How do scientists classify these new species? In this laboratory-based course, learn the basics of animal biology related to structure and physiology. Investigate evolutionary mechanisms that lead to the diversity of vertebrate and invertebrate animals. While conducting hands-on and virtual dissections and fieldwork, identify, compare, and contrast the key features used to classify animals into major groups.

QUALIFYING SCORE: Reading/Verbal

NOTES:
• Additional $125 lab & materials fee required.
• This course uses classroom and laboratory space at Roycemore School.

OFFERED: Session 1

NEW! Butterfly Effect: Entomology & Climate Change
For the first time ever, seven species of bees are on the endangered species list. In this course, discover connections between climate change and the rapidly changing behaviors and ecosystems of bugs. Investigate data on the indicators of climate change to develop an understanding of how humans impact the environment. Research and propose potential solutions that could change the world!

QUALIFYING SCORE: Reading/Verbal

NOTES:
• Additional $125 lab & materials fee required.
• This course uses classroom and laboratory space at Roycemore School.

OFFERED: Session 2

Start Up Strategies: Business & Design Workshop
Do you dream of presenting and defending your invention to the Shark Tank panel? In this project-based course, work on collaborative teams to develop, test, and market your problem-solving products. Through workshops and simulations, develop an understanding of product needs, marketing, materials, engineering, design, and business presentation skills. Readings and discussions build knowledge of fundamental economics concepts and entrepreneurship terminology.

OFFERED: Session 2
Detective Science: An Introduction to Forensics
“It is a capital mistake to theorize before one has data. Insensibly one begins to twist facts to suit theories, instead of theories to suit facts.” This was a guiding philosophy of Sherlock Holmes. Learn the forensic science involved in solving crimes, including how to collect fingerprints, crack secret codes, and examine corrosion evidence. Topics from earth sciences, technology, life sciences, psychology, literary analysis, and physical sciences are combined to create and solve complex mysteries.

QUALIFYING SCORE: Reading/Verbal
NOTE: Additional $125 materials fee required.
OFFERED: Session 1

Chem Lab: It’s Elemental
You may know what happens when you combine baking soda (a bicarbonate) and vinegar (an acetic acid), but have you ever seen a gummy bear dance with potassium chlorate? Discover how chemistry explains—and impacts—the world around us and learn about core subjects including atomic weight and structure, acids and bases, stoichiometry, and chemical bonding. Working in a laboratory setting, learn to design experiments, evaluate results, and construct lab reports.

QUALIFYING SCORE: Math
NOTE: Additional $125 lab & materials fee required.
OFFERED: Session 2

Aerospace Engineering & The Science of Flight
How do the fundamental forces of flight (lift, drag, thrust, and weight) work to get a giant machine off the ground? Apply the principles of aerodynamics to your own designs and constructions, including kites, hot air balloons, gliders, and rockets. Learn about the history of flight, and through hands-on experiments, create hypotheses, observe your flying machines in the air, and compose lab reports to understand the physics principles behind the science. Apply the six steps of the engineering process as you learn the role of an aeronautical engineer.

QUALIFYING SCORE: Math
NOTE: Additional $125 materials fee required.
OFFERED: Session 1
Introduction to Java Programming Honors

ADMISSION CRITERIA: EXPLORE® M ≥ 17 OR PSAT 8/9 M ≥ 460 OR ACT® M ≥ 22 OR SAT® M ≥ 520 (taken before March 2016) OR SAT® M ≥ 550 (taken March 2016 or later) OR Admission Portfolio with test scores at the 99th national percentile rank in quantitative or math on a standard achievement test.

PREREQUISITES: Pre-Algebra AND demonstrated experience in one programming language. Utilizing the Greenfoot programming environment, employ sophisticated data structures and coding strategies to create games, agent-based simulations, and applications. Explore foundational programming concepts applicable to other object-oriented languages including Python, C++, and C#. Use the NetBeans programming environment to develop, review, document, and publish interactive math-oriented applications. This class prepares you to take more advanced programming courses, including Programming in C++ and AP® Computer Science A.

NOTES:
• Students are required to bring a laptop computer for use in the course.
• This is a high-school level, graded course cross-listed with Spectrum.
• Eligible for Sandra Dennhardt or Gary Greenberg Technology Scholarship; see the Summer Program website for more information.

OFFERED: Session 1 & 2

Mathematics

ADMISSION CRITERIA: For Risky Business: Math Puzzles & Games and Calculating the Universe: EXPLORE® test OR PSAT 8/9 OR ≥ 95th national percentile rank in math on standardized achievement test OR Admission Portfolio
For Pre-Algebra Honors (Graded) and Algebra I Honors (Graded): EXPLORE® M ≥ 17 OR PSAT 8/9 M ≥ 460 OR ACT® M ≥ 22 OR SAT® M ≥ 520 (taken before March 2016) OR SAT® M ≥ 550 (taken March 2016 or later) OR Admission Portfolio with test scores at the 99th national percentile rank in quantitative or math section on a standardized achievement test

UPDATED FAVORITE! Risky Business: Math Puzzles & Games

ADMISSION CRITERIA: EXPLORE® test OR PSAT 8/9 OR ≥ 95th national percentile rank in math on standardized achievement test OR Admission Portfolio
In a carnival raffle, there are 1,137 tickets, 12 of which belong to you. If we select two tickets at random, what is the probability you will win? Students in this course examine critical math topics through the lens of puzzles and games including chess, modern strategy, and games of chance. Concepts come from algebra and geometry and include an advanced exploration of probability and statistics. Apply the concepts of experimental probability, risk analysis, expected value, and expected outcomes to create your own game and predict the success of the players!

OFFERED: Session 1

UPDATED FAVORITE! Calculating the Universe

ADMISSION CRITERIA: EXPLORE® test OR PSAT 8/9 OR ≥ 95th national percentile rank in math on standardized achievement test OR Admission Portfolio
Did Vermeer use mathematics, mirrors, and physics to create his paintings? Should we consider his process art or science? Throughout the centuries, musicians, artists, and poets have used math and science to develop beautifully complex works. In this STEAM class, solve problems through the lens of art forms, all while unraveling big questions about the mysteries of our universe. Uncover the science of sound, the mathematics of painting, the iambic pentameter in poetry, and the art in patterns found in nature.

NOTE: A scientific or graphing calculator is required for this course.

OFFERED: Session 2

Pre-Algebra Honors (Graded)

Pre-Algebra Honors covers a yearlong pre-algebra curriculum, including traditional topics such as properties of rational numbers, algebraic equations, geometric figures, ratio, proportion, percent, exponents and radicals, inequalities, the coordinate plane, areas and volumes, probability, and statistics. This course builds upon the essential skills of arithmetic as they apply to algebra and is designed for accelerated math students who are looking to take Algebra I in the fall. Students completing Pre-Algebra are prepared for Algebra I.

OFFERED: Session 1

Algebra I Honors (Graded)

PREREQUISITES: Completion of a full-year Pre-Algebra curriculum

This course is intended for students who have already studied the introductory ideas of algebra and are ready to extend their knowledge in a full-year course. Algebra I Honors is an honors-level high school mathematics course covering properties of real numbers; solving and graphing linear equations, functions, and linear inequalities; exponents and exponential functions; polynomials and factoring; quadratic equations and functions; radicals and geometry connections; and rational equations and functions. Students who complete this course are prepared for Algebra II.

NOTE: This course is cross-listed with Spectrum.

OFFERED: Session 1 & 2
Spectrum Program

Grades 7 & 8*
(grade level on January 1, 2017)
*Students in grade 9 are eligible to apply and will be considered on a case-by-case basis.

Spectrum provides students a unique opportunity to study one subject at a pace equal to their abilities alongside peers who share similar interests and talents. Spectrum students take a single course that meets five-and-a-half hours a day for three weeks, allowing for focus and depth. A residential option is available. Taking courses while living on the campus of Northwestern University affords students ready for a residential program the opportunity to experience college in a safe and structured way.

There are two different course types offered in Spectrum:

- **Enrichment Intensive** (fast-paced, rigorous, non-credit courses designed to allow students to explore specialized subjects in depth)
- **Credit Intensive** (compacted high school honors courses designed to help students accelerate in a particular subject area)


“The best part was seeing how excited my daughter was due to the curriculum and daily activities.”

– 2016 Spectrum parent
Northwestern University, Evanston IL (residential or commuter)

**Enrichment Intensive Courses**

<table>
<thead>
<tr>
<th>Session 1: June 25 – July 14, 2017</th>
<th>Session 2: July 16 – August 4, 2017</th>
</tr>
</thead>
<tbody>
<tr>
<td>MegaGames: The Die is Cast</td>
<td>Voldemort Lives: Fanfiction Resurrection!</td>
</tr>
<tr>
<td>Forensic Science</td>
<td>Competition Math</td>
</tr>
<tr>
<td>Taking Action: Leadership and Service</td>
<td>Taking Action: Leadership and Service</td>
</tr>
<tr>
<td>FUSE Studio Design Challenges</td>
<td>FUSE Studio Design Challenges</td>
</tr>
</tbody>
</table>

**Credit Intensive Honors Courses**

<table>
<thead>
<tr>
<th>Session 1: June 25 – July 14, 2017</th>
<th>Session 2: July 16 – August 4, 2017</th>
</tr>
</thead>
<tbody>
<tr>
<td>Creative Writing Honors</td>
<td>Creative Writing Honors</td>
</tr>
<tr>
<td>Wicked Smart: Research Writing Honors</td>
<td>Literary Analysis Honors: The Turing Test, Artificial Intelligence &amp; the Human Program</td>
</tr>
<tr>
<td>Human Rights &amp; Foreign Policy Honors</td>
<td>Non-fiction Writing Honors: The Art of the Essay</td>
</tr>
<tr>
<td>Persuasion &amp; Debate Honors</td>
<td>Persuasion &amp; Debate Honors</td>
</tr>
<tr>
<td>Brain &amp; Behavior: Introduction to Psychology Honors</td>
<td>Brain &amp; Behavior: Introduction to Psychology Honors</td>
</tr>
<tr>
<td>Fundamental Physics Honors: Force &amp; Motion</td>
<td>Physics First Honors</td>
</tr>
<tr>
<td>Topics in Chemistry Honors</td>
<td>Topics in Chemistry Honors</td>
</tr>
<tr>
<td>Introduction to Biomedicine Honors</td>
<td>Introduction to Biomedicine Honors</td>
</tr>
<tr>
<td>Biology Honors</td>
<td>Biology Honors</td>
</tr>
<tr>
<td>Data Science Honors: The Metrics of Change</td>
<td>From the Ground Up: Small Business Honors</td>
</tr>
<tr>
<td>Introduction to Java Programming Honors</td>
<td>Introduction to Java Programming Honors</td>
</tr>
<tr>
<td>HTML &amp; CSS Honors</td>
<td>C++ Programming Honors</td>
</tr>
<tr>
<td>Robotics Honors: VEX® the Competition</td>
<td>Robotics Honors: VEX® the Competition</td>
</tr>
<tr>
<td>3D Printing &amp; Product Design with the Segal Design Institute</td>
<td>Visual Communication Honors: Graphic Design</td>
</tr>
<tr>
<td>Algebra I Honors</td>
<td>Algebra I Honors</td>
</tr>
<tr>
<td>Algebra II &amp; Trigonometry Honors</td>
<td>Algebra II &amp; Trigonometry Honors</td>
</tr>
<tr>
<td>Geometry Honors</td>
<td>Geometry Honors</td>
</tr>
</tbody>
</table>

*Spectrum Enrichment Intensive Course Descriptions*

Though not offered for credit, Enrichment Intensive courses are rigorous, fast-paced, and cover high school level content. They are designed to engage students in a specialized, often interdisciplinary topic of interest and to allow in-depth study while applying critical and creative thinking skills.

**ADMISSION CRITERIA FOR ENRICHMENT INTENSIVE COURSES**

For MegaGames: The Die is Cast; Voldemort Lives: Fanfiction Resurrection; Forensic Science; and Taking Action: Leadership & Service:
- EXPLORE® R ≥14 OR
- SAT Crit. R ≥440 (taken before March 2016) OR SAT R ≥24 (taken March 2016 or later) OR
- ACT R ≥19 OR
- Admission Portfolio

For Competition Math:
- EXPLORE® M ≥15 OR
- SAT M ≥460 (taken before March 2016) OR SAT M ≥500 (taken March 2016 or later) OR
- ACT M ≥18 OR
- Admission Portfolio

For FUSE Studio: Design Challenges:
- EXPLORE® M ≥15 OR R ≥14 OR
- SAT M ≥460 or Crit. R ≥440 (taken before March 2016) OR SAT M ≥500 OR SAT R ≥24 (taken March 2016 or later) OR
- ACT M ≥18 OR ACT R ≥19 OR
- Admission Portfolio
MegaGames: The Die is Cast
From military training to Fortune 500 staff development, games and simulations are used to teach strategic leadership and problem-solving skills and to understand human reactions to complex situations. MegaGames is a worldwide phenomenon in which teams of players take on specific roles—for example, a national government—and interact with other teams representing their opponents or allies. In this course, learn game construction and project management while experiencing MegaGames first-hand. Discover the history of tabletop and roleplaying game design while transporting to different worlds as both player and game master. Focusing on two distinct historical periods, students work in teams to research, create, and run their own original MegaGame.

SUBJECT: Social Science & Humanities
OFFERED: Session 1

Voldemort Lives: Fanfiction Resurrection!
If you have not read the story about Harry and Katniiss defeating Jacob's pack despite Bella's tearful objections, it is only because you have not written it yet. Grab your keyboard, let your imagination run wild, and become the newest author in the exploding online genre of fanfiction. Hone your writing and storytelling skills by reading published pieces and identifying the keys to success in this unique genre. Learn to weave your favorite characters into new stories that stay true to their origins but effectively ask and answer the question, “What if the twin did meet?” A piece ready for publication serves as the capstone project.

SUBJECT: English & Language Arts
OFFERED: Session 2

Forensic Science
Despite what you may see on TV, a lot more than an hour of commercially interrupted hard science goes into cracking any case. Forensic Science examines the application of science to the criminal justice system. Utilizing mini-lectures, in-class discussion, and hands-on activities, students collect, preserve, and analyze crime scene evidence. Experiments and fieldwork provide perfect venues for learning scientific methods, lab procedures, and techniques. Labs may include trace analysis of hair, fiber, stain, epithelial cells, fingerprints, and DNA. This class is an excellent prelude to future science and laboratory coursework.

NOTE: Additional $125 lab fee required.

SUBJECT: Science
OFFERED: Session 1

NEW! FUSE Studio Design Challenges
Select design challenges from a variety of fields, such as electronics, robotics, biotechnology, architecture, sound mixing, or fashion design to create products that use STEAM-based practices (science, technology, engineering, arts/design and mathematics) and develop problem solving, creativity, and persistence. The challenges, developed by researchers and educators in the School of Education & Social Policy at Northwestern University, are open-ended and student-driven, encouraging independent and collaborative problem solving. With the help of an expert facilitator, produce and present digital media artifacts for peer review, remixing, and expert feedback.

NOTE: • Additional $125 materials fee required.
• Laptop computer required.

SUBJECT: Technology, Computer Science & Engineering
OFFERED: Session 1 & 2

Competition Math
Do you participate in MATHCOUNTS® or have an interest in competition-based problem solving? Even if you have not joined a math team yet, this course will introduce you to the concepts and techniques of applied math and solving competition math puzzles. Examples of these are seen in AMC, the Art of Problem Solving, and other national math contests. This course covers the major areas of competition math—algebra, geometry, number theory, counting, and probability—and is ideal for students who enjoy math and solving challenging problems.

SUBJECT: Mathematics
OFFERED: Session 2

Taking Action: Leadership & Service
Each year, three million Americans experience homelessness, 15 million go hungry, and one in five children lives in poverty. Why? What can young people do about it? An offering of CTD’s Civic Education Project, Taking Action integrates academic study with meaningful community service. Divide time between the classroom and supervised hands-on service projects with community organizations such as homeless shelters, Head Start programs, or top political offices. Gain a deeper understanding of complex issues and learn how to make a difference. This course enhances communication, critical thinking, and problem-solving abilities and prepares students for a lifetime of leadership and civic engagement.

NOTE: Additional $125 field study fee required.

SUBJECT: Leadership & Service
OFFERED: Sessions 1 & 2

Credit Intensive Course Descriptions
Credit Intensive courses are rigorous, fast-paced courses taught at the honors level. Students earn grades and are expected to complete a semester or one full academic year’s worth of curriculum in three weeks. Each three-week course carries one or two semesters of high school credit offered through Center for Talent Development (CTD).

English & Language Arts
ADMISSION CRITERIA:
• EXPLORE® R ≥16 OR
• SAT Crit. R ≥510 (taken before March 2016)
OR SAT R ≥28 (taken March 2016 or later) OR
• ACT R ≥22 OR
• Admission Portfolio

NOTE: For all English & Language Arts courses, residential students are highly encouraged to bring a small personal printer.

Creative Writing Honors
PREREQUISITE: Graded creative writing assignment
Learn to read, write, and think like a writer through the study of different creative genres that may include fiction, poetry, and short story. Topics and inspiration are gathered from a variety of sources and activities such as writing prompts, open discussions, and field trips. Explore and apply the elements of effective writing through focused academic exercises, peer group response, literary analysis, and instruction in craft. Develop a number of creative pieces for a portfolio reflecting your growth as both a writer and thinker. This course allows developing writers to become more astute readers of literature and to understand more clearly how a writer employs aspects of craft to their creative advantage.

HIGH SCHOOL CREDIT OFFERED: 1 semester
OFFERED: Sessions 1 & 2

Literary Analysis Honors: The Turing Test, Artificial Intelligence & the Human Program
PREREQUISITE: Graded writing assignment
From the ancient Greeks onward, authors have explored the ethical dilemmas presented by artificial intelligence. Through close readings, lively debates, and writing activities, examine what it means to be intelligent, what it means to have a mind, and the implications of creating “intelligent” machines while developing essential literary analysis skills. Readings may include Greek myths and authors such as Mary Shelley, Isaac Asimov, Arthur C. Clarke, and Terry Pratchett, and scientific articles about artificial intelligence. This course is great preparation for high school, the critical reading and
writing sections of the SAT, and the English and Reading sections of the ACT.
HIGH SCHOOL CREDIT OFFERED: 1 semester
OFFERED: Session 2

NEW! Wicked Smart: Research Writing Honors

PREREQUISITE: Graded writing assignment
Do evil geniuses have more fun? Are they simply born bad or enculturated over time in a petri dish of life experience? What typically leads to their undoing, and how are they brought to justice? In this course, study dastardly characters, both real and imagined. Hone your research, analytical, and writing skills as you look for patterns in criminal pathology to persuade your readers of the best way to understand these fiends and from whence they came. Students use philosophy, history, literary analysis, and criminology to assert their position.
HIGH SCHOOL CREDIT OFFERED: 1 semester
OFFERED: Session 1

Non-Fiction Writing Honors: The Art of the Essay

PREREQUISITE: Graded writing assignment
Exceptional essayists use the written word to present a point of view, prompt a reader to action, or bring an issue to life. In this intensive writing course, learn the fundamentals of effective essay writing and become a better reader and critical thinker in the process. Using a range of essays as models, discuss and practice essay writing, focusing on the persuasive, critical, narrative, and personal forms. Learn about audience, purpose, point of view, and more. This class is great preparation for advanced high school writing and AP® English courses.
HIGH SCHOOL CREDIT OFFERED: 1 semester
OFFERED: Session 2

Human Rights & Foreign Policy Honors
Since the conclusion of WWII, global relations have been dominated by US foreign policy, leaving the United States both admired and reviled by other nations. This course provides an introduction to foreign policy issues via the study of media, theories, and the role of international nation states and actors. Analyze means of international cooperation, such as economic globalization, international legal frameworks, environmental agreements, and diplomacy. Study competing issues of civil conflict, national security, and human rights in the context of contemporary global topics such as the challenges in the Middle East, emerging economies, and climate change. Readings and discussions are complemented by guest presentations, field trips, and structured writing experiences in order to help hone critical-thinking and persuasive-writing abilities.
HIGH SCHOOL CREDIT OFFERED: 1 semester
OFFERED: Session 1

NEW! Supreme Decisions: Law of the Highest Order
In this course, learn why the US Constitution is considered a living document, what it means to be an originalist, and what is meant by judicial activism. Analyze how various approaches to reading the Constitution affect the current and future understanding of “right” and “wrong”. This course provides an in-depth analysis of several Amendments to the Constitution and allows you to view current events using the Bill of Rights as a starting point. As a final project, experience a moot court as both petitioner and jurist while applying the theories and principles you have researched and discussed.
HIGH SCHOOL CREDIT OFFERED: 1 semester
OFFERED: Session 2

Brain & Behavior: Introduction to Psychology Honors
Why do people do what they do? What makes some behaviors “normal” and others “abnormal”? This course focuses on the structures and functions of the brain, neurons, and nervous system; the relationship between brain activity and thought and behavior; and the role of biological, environmental, social, and individual factors in psychological experience. Examine key theories, experiments, and individuals in the field of psychology through dynamic lectures, group activities, debates, and hands-on projects to gain a better understanding of scientific research and psychological thought. This course is an excellent introduction to behavioral science or advanced-level psychology courses.
HIGH SCHOOL CREDIT OFFERED: 1 semester
OFFERED: Sessions 1 & 2

Arts, Social Sciences & Humanities

ADMISSION CRITERIA:
• EXPLORE® R ≥16 OR
• SAT Crit. R ≥510 (taken before March 2016)
  OR SAT R ≥28 (taken March 2016 or later) OR
• ACT R ≥22 OR
• Admission Portfolio

NOTE: For all Social Science & Humanities courses, residential students are strongly encouraged to bring a small personal printer.

Persuasion & Debate Honors
In Persuasion & Debate Honors, examine salient social issues and develop skills in critical thinking, public speaking, argumentation, and writing through lectures and discussions, reflective writing, persuasive essays, speeches, and structured debates. This course focuses on the principles and practices of effective communication in a variety of speaking situations encountered in school and later in life as an adult. After completing this course, students are prepared for advanced study in honors English, humanities, and the social sciences, and are ready to participate in various forms of competitive debate.
HIGH SCHOOL CREDIT OFFERED: 1 semester
OFFERED: Sessions 1 & 2

EXPLORE® is a registered trademark of ACT, Inc.
Bubbles & Crashes: Introduction to Economics Honors
Is Apple® stock overvalued? When will the Dow take us for another roller coaster ride? How do decisions by individuals, corporations, and governments affect markets? Through readings by prominent economists, discussions, and case studies, examine economic booms and crises of the past and present, focusing on concepts such as risk, supply and demand, marginal utility, and the fundamentals of investing. This course develops critical-thinking skills through discussion and writing experiences and is intended for students interested in future study in economics, political science, international relations, or other advanced social science courses.

HIGH SCHOOL CREDIT OFFERED: 1 semester
OFFERED: Session 1

From the Ground Up: Small Business Honors
In this course, work with partners to develop a solid, professional plan for a small business start up. Research the various requirements and costs associated with opening a new business, meet and learn tips of the trade from local entrepreneurs, and gain invaluable experience with business planning and decision making processes. The course concludes with a simulation of operations and reactions to variables, using techniques and tools to track and analyze business performance. Ultimately, your team’s objective is to survive your first year of operation, and, if possible, earn a profit.

HIGH SCHOOL CREDIT OFFERED: 1 semester
OFFERED: Session 2

Science
ADMISSION CRITERIA: Varies by course; please note the requirements for each course below.

For Fundamental Physics Honors: Force & Motion and Topics in Chemistry Honors:
- EXPLORE® R ≥14 + EXPLORE® M ≥17 OR SAT Crit. R ≥440 + SAT M ≥520 (taken before March 2016) OR SAT R ≥24 + SAT M ≥550 (taken March 2016 or later) OR
- ACT R ≥19 + ACT M ≥22 OR
- ACT S ≥23 OR
- Admission Portfolio

For Physics First Honors:
- EXPLORE® R ≥16 + EXPLORE® M ≥17 OR SAT Crit. R ≥510 + SAT M ≥520 (taken before March 2016) OR SAT R ≥28 + SAT M ≥550 (taken March 2016 or later) OR
- ACT R ≥22 + ACT M ≥22 OR
- ACT S ≥23 OR
- Admission Portfolio

For Introduction to Biomedicine Honors and Biology Honors:
- EXPLORE® R ≥16 OR SAT Crit. R ≥510 (taken before March 2016) OR SAT R ≥28 (taken March 2016 or later) OR
- ACT R ≥22 OR
- ACT S ≥23 OR
- Admission Portfolio

Fundamental Physics Honors: Force & Motion
PREREQUISITE: Algebra I
Since Newton, force has been one of the most important concepts in physics. Force is fundamental to physics on the small scale (subatomic particles), large scale (galaxies and stars), and everything in between. Explore a variety of fascinating phenomena in the physical world and the way physics explains the motion of objects. This includes electrons in an electrical circuit, roller coasters, planets, the light that we use to see, and the sounds we hear. Hands-on lab exercises complement the course material and allow for the derivation of important physics concepts. Fundamental Physics Honors is excellent preparation for more advanced physics coursework such as Physics Honors and AP® Physics.

NOTES:
- A scientific or graphing calculator is required.
- Additional $125 lab fee required.

HIGH SCHOOL CREDIT OFFERED: 1 semester
OFFERED: Session 1

Physics First Honors
PREREQUISITE: Algebra I
Build a strong conceptual understanding of physical principles ranging from force and motion to classical mechanics. This course is a full-year physics curriculum intended for students who attend schools with a Physics First science sequence and plan to accelerate through the high school science curriculum. Students who plan to take Physics at their academic year school are encouraged to take Fundamental Physics Honors: Force & Motion. Physics First Honors prepares students for more advanced physics topics and AP® Physics.

NOTES:
- A scientific or graphing calculator is required.
- Additional $125 lab fee required.

HIGH SCHOOL CREDIT OFFERED: 2 semesters
OFFERED: Session 2

Topics in Chemistry Honors
PREREQUISITE: Algebra I
Expand your understanding of the chemistry in everyday surroundings. Through laboratory experiments, learn the fundamentals of chemistry, including atomic theory, stoichiometry, chemical reactions, intermolecular forces, periodic trends, and acids and bases, and develop proper lab technique. Explore concepts, adjust variables independently and use your findings to determine next steps. This inquiry-based course provides a foundation for advanced studies in chemistry.

NOTES:
- A scientific or graphing calculator is required.
- Additional $125 lab fee required.

HIGH SCHOOL CREDIT OFFERED: 1 semester
OFFERED: Session 1 & 2

Introduction to Biomedicine Honors
For millions of years, the human body has been evolving, yet it still presents mysteries. Explore the connections between groundbreaking medical research that has revealed insights into the body’s molecular and cellular processes and how that knowledge is applied to medical practice and treatments. Get acquainted with topics in chemistry by examining essential biochemical reactions that occur in the body, learn about physics while investigating biomechanics, and explore biology at the cellular level. This course is an excellent introduction to the study of medicine or advanced laboratory courses.

NOTES:
- Additional $125 lab fee required.
- This course uses classroom and laboratory space at Roycemore School.

HIGH SCHOOL CREDIT OFFERED: 1 semester
OFFERED: Sessions 1 & 2

“The pace was unlike anything I had done before and challenged me to the point where I independently wanted to learn more.”

– 2016 Spectrum student
Biology Honors

**PREREQUISITE:** Completion of a laboratory science course

Biology comes alive in this fast-paced high school honors course, emphasizing the principles that apply to plants and animals. In addition to participating in class discussion, text readings, and demonstrations, spend time in a laboratory performing experiments and learning methods of scientific investigation. Biology Honors is a full-year course in an accelerated format and is designed for students who intend to accelerate in science. Students who plan to take biology at their academic-year school are encouraged to enroll in Introduction to Biomedicine Honors or one of our Physics or Chemistry courses. This course prepares students for Human Biology, Neuroscience, and AP® Biology.

**NOTES:**
- Additional $150 lab fee required.
- This course uses classroom and laboratory space at Raycemore School.

**HIGH SCHOOL CREDIT OFFERED:** 2 semesters

**OFFERED:** Sessions 1 & 2

Technology, Computer Science & Engineering

**ADMISSION CRITERIA:** Varies by course; please note the requirements for each course below.

For Data Science Honors: The Metrics of Change, Introduction to Java Programming Honors, HTML & CSS Honors, C++ Programming Honors, and Robotics Honors: VEX® the Competition:
- EXPLORE® R ≥17 OR
- SAT M ≥520 (taken before March 2016) OR SAT M ≥550 (taken March 2016 or later) OR
- ACT M ≥22 OR
- Admission Portfolio

For 3D Printing & Product Design with the Segal Design Institute and Visual Communication Honors: Graphic Design:
- EXPLORE® R ≥16 OR
- SAT Crit. R ≥510 (taken before March 2016) OR SAT R ≥28 (taken March 2016 or later) OR
- ACT R ≥22 OR
- Admission Portfolio

**NEW! Data Science Honors: The Metrics of Change**

**PREREQUISITE:** Algebra I

Nate Silver of ESPN’s FiveThirtyEight uses big data to analyze everything from politics to sports, modeling predictions both news analysts and regular folk can use daily. This course explores the newly articulated world of data science in its full range of applications and expressions. Surveying theories of probability, learn how to turn data into algorithms for making better decisions. Through case studies and individual research, identify, collect, and interpret data using computer programming toward proposals for action.

**NOTES:** A laptop computer (not a tablet) is required for this course.

**HIGH SCHOOL CREDIT OFFERED:** 1 semester

**OFFERED:** Session 1

**Introduction to Java Programming Honors**

**PREREQUISITES:** Pre-Algebra AND demonstrated experience in one programming language Utilizing the Greenfoot programming environment, employ sophisticated data structures and coding strategies to create games, agent-based simulations, and applications. Explore foundational programming concepts applicable to other object-oriented languages including Python, C++, and C#. Use the NetBeans programming environment to develop, review, document, and publish interactive math-oriented applications. This class prepares you to take more advanced programming courses, including Programming in C++ and AP® Computer Science A.

**NOTES:**
- A laptop computer (not a tablet) is required for this course.
- This course is cross-listed with Apogee.
- Eligible for Sandra Dennhardt Technology Scholarship; see the Summer Program website for more information.

**HIGH SCHOOL CREDIT OFFERED:** 1 semester

**OFFERED:** Sessions 1 & 2

**HTML & CSS Honors**

**PREREQUISITE:** Algebra I

HTML and CSS are the two dominant languages of the web and the backbone of all websites. Having a proficient understanding of HTML and CSS provides the ability to build and maintain websites. In this course, learn HTML and CSS elements, structures, and design patterns. Study begins with the fundamentals of front-end web development, then moves into more advanced topics, including semantic front-end coding techniques and practices, CSS3 transitions, transforms and animations, building mobile responsive pages with CSS, media queries, and more.

**NOTES:**
- A laptop computer (not a tablet) is required for this course.
- Eligible for Sandra Dennhardt Technology Scholarship; see the Summer Program website for more information.

**HIGH SCHOOL CREDIT OFFERED:** 1 semester

**OFFERED:** Session 1

**C++ Programming Honors**

**PREREQUISITE:** Algebra I AND demonstrated experience in one programming language

In C++, learn to write your own code from scratch. Key concepts include problem solving, design strategies and methodologies, algorithms, inheritance, polymorphism, encapsulation, common data structures, and the class-object relationship. In addition to learning the language of C++, engage in discussion of the ethical and social implications of programming, spanning from the hacker culture of the 1960s to today’s open source movement.

**NOTES:**
- A laptop computer (not a tablet) is required for this course.
- Eligible for Sandra Dennhardt Technology Scholarship; see the Summer Program website for more information.

**HIGH SCHOOL CREDIT OFFERED:** 1 semester

**OFFERED:** Session 2

**Robotics Honors: VEX® the Competition**

**PREREQUISITE:** Algebra I

VEX EDR® is a robotics system consisting of modular hardware, sensors, and programming software, which are combined to create custom machines able to execute tasks. While utilizing all facets of STEM curriculum, work in teams of three to analytically, strategically, and cooperatively design, engineer, build, program, test, and operate a competition robot. Take on complicated robotics challenges and square off against your classmates in a battle of creativity, design, and execution using Cortex Microcontrollers, a VEXnet® Joystick and the VEXnet® Wireless link. This course provides exposure to contemporary examples of robotics technology and pressing questions raised by their application. Used in the world-famous FIRST® Tech and Robotics challenges, VEX® robotics teaches students engineering, design, building, and collaborative skills crucial in emerging design and engineering careers.

**NOTE:** Additional $150 materials fee required.

**HIGH SCHOOL CREDIT OFFERED:** 1 semester

**OFFERED:** Sessions 1 & 2
Mathematics

ADMISSION CRITERIA:
- EXPLORE® M ≥17 OR
- SAT M ≥520 (taken before March 2016) OR
  SAT M ≥550 (taken March 2016 or later) OR
- ACT M ≥22 OR
- Admission Portfolio

NOTE: A graphing calculator is required for all mathematics courses.

Algebra I Honors

PREREQUISITE: Pre-Algebra
This course is intended for students who have already studied the introductory ideas of algebra and are ready to extend their knowledge in a full-year course. Algebra I Honors is an honors-level high school mathematics course covering properties of real numbers; solving and graphing linear equations, functions, and linear inequalities; exponents and exponential functions; polynomials and factoring; quadratic equations and functions; radicals and geometry connections; and rational equations and functions. Algebra I Honors is intended for students who are ready to accelerate and plan to enroll in the next course in their district's mathematics sequence in the fall.

NOTE: This course is cross-listed with Apogee.

HIGH SCHOOL CREDIT OFFERED: 2 semesters
OFFERED: Sessions 1 & 2

Algebra II & Trigonometry Honors

PREREQUISITE: Algebra I
Algebra II & Trigonometry Honors covers systems, equations, polynomial arithmetic, complex numbers, solutions of quadratic equations, exponential and logarithmic functions, sequences, series, graphs of polynomial functions, conic sections, and concepts in trigonometry, including trigonometric identities. Algebra II & Trigonometry Honors is a full-year high school course intended for students who are ready to accelerate and plan to enroll in the next course in their district's mathematics sequence in the fall.

HIGH SCHOOL CREDIT OFFERED: 2 semesters
OFFERED: Sessions 1 & 2

Geometry Honors

PREREQUISITE: Algebra I
Geometry Honors covers formal proofs, logic and deductive reasoning, constructions, congruence and similarity, parallels and perpendiculars, polygons and circles, transformations and problem solving using advanced technology. Geometry Honors is a full-year high school course and is intended for students who are ready to accelerate and plan to enroll in the next course in their school.

HIGH SCHOOL CREDIT OFFERED: 2 semesters
OFFERED: Sessions 1 & 2

3D Printing & Product Design with the Segal Design Institute

Design and prototype a product of your own creation in this hands-on design studio course offered in partnership with the Segal Design Institute at Northwestern University. This course explores and evaluates Northwestern University’s own rapid prototyping services in the context of the human-centered design process. Learn the fundamentals of 3D design through physical and digital modeling, prototyping, and discussion. Use 3D printing to evaluate design ideas, provide user testing, and get feedback as well as test product readiness for distribution through Shapeways, an online 3D printing marketplace.

NOTES:
- Additional $150 materials fee required.
- A laptop computer (not a tablet) is required for this course.

HIGH SCHOOL CREDIT OFFERED: 1 semester
OFFERED: Session 1

Visual Communication Honors: Graphic Design

Explore the fundamental elements of visual communication from typography to branding to product design. Through a series of real-world exercises and hands-on studio sessions using Adobe Illustrator, Photoshop, and Adobe InDesign, build a foundation for print, online, and multi-platform visual communication. Complementing the technical portion of the course, experience daily sketchbook activities and readings on design history, contemporary design, and global brand awareness. Field trips, films, and readings help you explore the challenges faced by twenty-first-century designers.

NOTES:
- Additional $125 lab fee required.
- A laptop computer (not a tablet) is required for this course.

HIGH SCHOOL CREDIT OFFERED: 1 semester
OFFERED: Session 2
Equinox Program

Grades 9–12
(grade level on January 1, 2017)

Equinox creates a rigorous, fast-paced learning community for academically advanced students in grades 9 through 12. Equinox courses provide students the opportunity to earn high school credit for advanced high school and college-level subjects through the Center for Talent Development. Students take a single course that meets five-and-a-half hours per day, five days per week.

Most courses are three weeks in length, but there are also two five-week course options. To comply with College Board standards, AP® Chemistry is offered as a five-week course. This allows for the completion of all required lab experiences and good AP® exam preparation. We also offer our advanced Summer Writers’ Workshop as a five-week course to allow dedicated, passionate writers the space to develop under our instructor’s master mentorship.


Northwestern University, Evanston IL, (residential or commuter)

<table>
<thead>
<tr>
<th>Session 1: June 25 – July 14, 2017</th>
<th>Session 2: July 16 – August 4, 2017</th>
<th>5 Week Session: June 25 – July 28</th>
</tr>
</thead>
<tbody>
<tr>
<td>Screenwriting Seminar</td>
<td>Creative Writing Seminar</td>
<td>Summer Writers’ Workshop</td>
</tr>
<tr>
<td>College Composition &amp; Rhetoric</td>
<td>International Relations &amp; the Politics of Global Migration</td>
<td>AP® Chemistry</td>
</tr>
<tr>
<td>AP® Psychology</td>
<td>Critical Discourse: Tackling Big Questions with Confidence</td>
<td>Civic Leadership Institute:</td>
</tr>
<tr>
<td>City Council to Supreme Court: United States Law &amp; Politics</td>
<td>The Economics of Everything</td>
<td>Session 1: June 25 - July 14</td>
</tr>
<tr>
<td>Black History: Race &amp; the American Experiment</td>
<td>Self-Released: Songwriting &amp; Production for the Digital Marketplace</td>
<td>See p. 39 for details</td>
</tr>
<tr>
<td>Sports Business &amp; Entertainment Academy</td>
<td>Imaging the Universe</td>
<td>Service, Leadership &amp; Community Transformation</td>
</tr>
<tr>
<td>Chemistry Honors</td>
<td>Chemistry Honors</td>
<td></td>
</tr>
<tr>
<td>Physics Honors</td>
<td>Physics Honors</td>
<td></td>
</tr>
<tr>
<td>The Biology of Cancer</td>
<td>Neuroscience</td>
<td></td>
</tr>
<tr>
<td>Human Biology: Anatomy &amp; Physiology</td>
<td>Biotech Lab: From Microbes to Genomes</td>
<td></td>
</tr>
<tr>
<td>AP® Computer Science A</td>
<td>AP® Computer Science A</td>
<td></td>
</tr>
<tr>
<td>iOS Bootcamp &amp; Swift Development with Mobile Makers Academy</td>
<td>SustainableXDesign: Design Challenge 2017 with Chicago Architecture Foundation</td>
<td></td>
</tr>
<tr>
<td>AP® Statistics</td>
<td>Data Science: An Introduction to Statistics</td>
<td></td>
</tr>
<tr>
<td>Algebra II &amp; Trigonometry Honors</td>
<td>Algebra II &amp; Trigonometry Honors</td>
<td></td>
</tr>
<tr>
<td>Pre-Calculus Honors</td>
<td>Pre-Calculus Honors</td>
<td></td>
</tr>
<tr>
<td>AP® Calculus AB</td>
<td>AP® Calculus BC</td>
<td></td>
</tr>
</tbody>
</table>
Equinox Course Descriptions

English & Language Arts

ADMISSION CRITERIA:
• Above-grade-level Tests: (taken in or before the 9th grade year): SAT Crit. R ≥510 (taken before March 2016) OR SAT R ≥28 OR ACT R ≥22
• On-level Tests: (taken in the 10th or 11th grade year): SAT Crit. R ≥700 (taken before March 2016) OR SAT Evidence-Based Reading & Writing ≥700 (taken March 2016 or later) OR ACT R ≥32
• If test scores are not available, or do not meet the criteria, students are welcome to apply via Admission Portfolio.

RETURNING FAVORITE! Screenwriting Seminar

PREREQUISITE: Graded writing sample, preferably creative writing
Calling gamers, thespians, aspiring UX designers, and film directors: join us to refine your scene craft in this writing workshop. Analyze seminal films and binge-worthy television to identify and practice skills such as narrative structure, character, dialogue, format, voice, scope, pace, and setting. Critique and practice screenplay adaptation from other genres. Workshop original scenes and write a short screenplay as a final project.

HIGH SCHOOL CREDIT OFFERED: 1 semester
OFFERED: Session 1

Creative Writing Seminar

PREREQUISITE: Graded writing sample, preferably creative writing
Refine critical reading and creative writing skills through discussion of contemporary literature and extensive writing output, focusing on revision. Develop skill with sentence and narrative structure, imagery, cadence, voice, and dialogue across genres, including poetry, fiction, and creative nonfiction. Receive feedback in a workshop format, producing a final portfolio of original work.

HIGH SCHOOL CREDIT OFFERED: 1 semester
OFFERED: Session 2

College Composition & Rhetoric

PREREQUISITES: Graded writing assignment AND one year of high school honors English
In this intensive, process-driven course, learn to write persuasively for a range of audiences. Conduct field research, analyze interdisciplinary readings, and synthesize information to deliver compelling arguments. Workshop original pieces for revision and submit a portfolio worthy of any college classroom.

HIGH SCHOOL CREDIT OFFERED: 1 semester
OFFERED: Session 1

Summer Writers’ Workshop

PREREQUISITES: Graded creative writing sample AND one year of high school honors English (previous writing workshop experience preferred)
Designed for students with experience and considerable interest in creative writing, this course pairs adventurous reading with prodigious writing across genres, including poetry, fiction, and creative nonfiction. Advance skills in imagery, voice, setting, character, and narrative. Practice daily reading and writing, peer review and revision, and focus output in a preferred genre. Develop a portfolio of serious original work ready for publication.
NOTE: This course runs for five weeks. Attendance for all five weeks is required.

HIGH SCHOOL CREDIT OFFERED: 2 semesters
OFFERED: June 25–July 28

Arts, Social Sciences & Humanities

ADMISSION CRITERIA:
• Above-grade-level Tests: (taken in or before the 9th grade year): SAT Crit. R ≥510 (taken before March 2016) OR SAT R ≥28 OR ACT R ≥22
• On-level Tests: (taken in the 10th or 11th grade year): SAT Crit. R ≥700 (taken before March 2016) OR SAT Evidence-Based Reading & Writing ≥700 (taken March 2016 or later) OR ACT R ≥32
• If test scores are not available, or do not meet the criteria, students are welcome to apply via Admission Portfolio.

RETURNING FAVORITE! AP® Psychology

PREREQUISITE: Graded writing assignment
Understanding the relationship between the brain and behavior is crucial to medicine, manufacturing, marketing, education, economics, and entertainment. AP® Psychology surveys the biological basis of behavior, sensation and perception, cognition, personality, social psychology, and abnormal psychology. Students review case studies, analyze experiment design, and learn strategies toward strong performance on the AP® Psychology exam.

HIGH SCHOOL CREDIT OFFERED: 2 semesters
OFFERED: Session 1

NEW! Black History: Race & the American Experiment

PREREQUISITE: Graded writing assignment
From the African Diaspora to Black Lives Matter, from Phillis Wheatley to Ta-Nehisi Coates, profile key figures within critical moments in the development of Black American citizenship. Examine the Black experience in the United States through the ideals and practices of freedom and justice; democracy and citizenship; and political organizing and social protest. Analyze historical documents, parse political theory, and apply logic to passionate rhetoric. Apply research, critical reading, and argumentative writing skills to write and defend a college-level essay.

HIGH SCHOOL CREDIT OFFERED: 1 semester
OFFERED: Session 1

Critical Discourse Honors: Tackling Big Questions with Confidence

PREREQUISITE: Graded writing assignment
In a time when many important topics are obscured by emotional and reductive thinking, this course digs beneath the surface. This college-level survey of the most prominent ethical theories (e.g. consequentialism, Kantianism, moral relativism) lends depth and scope to contemporary issues such as right to privacy, artificial intelligence, and genetic engineering. Argue issues from multiple sides, and analyze and practice various modes of appeal in a debate-centric and discussion-rich environment.

HIGH SCHOOL CREDIT OFFERED: 1 semester
OFFERED: Session 2

“Awesome teacher, cool activities, awesome classmates.”
– 2016 Equinox student
This course explores the ways in which migration and local, national, and international responses of nations around the world. In an era of rapid globalization, human migration is clearly at the forefront of domestic and international politics. This course examines the ways in which migration shapes political, economic, and social policy, as well as the experience of migrants themselves. Through intensive reading, writing, discussion, debate, and simulations, learn the fundamental principles in the field of international relations, which helps frame our analysis of local, national, and international responses to global migration.

HIGH SCHOOL CREDIT OFFERED: 1 semester
OFFERED: Session 2

The Economics of Everything

PREREQUISITE: Graded writing assignment
If, as Freakonomics authors Levitt and Dubner have proposed, economics is the study of human behavior, then is your life governed by the economic choices you make? Take a deep dive into economic theory, including incentives, supply and demand, competition, markets and prices, game theory, and the role of government in economic systems. Apply your knowledge to contemporary case studies, reading, analyzing, and discussing authors such as Levitt, Dubner, Schelling, Becker, Ehrenreich, Fukuyama, and Fehr.

HIGH SCHOOL CREDIT OFFERED: 1 semester
OFFERED: Session 2

NEW! Sports Business & Entertainment Academy

PREREQUISITE: Algebra I
Join forces with students from across the US and around the world to investigate fundamental topics such as sponsorship, agency representation, fantasy gaming, ownership, revenue sharing, league and team finance, collegiate sports, media licensing, and more. With experienced faculty at the highest levels of the sports and entertainment field and the support of groups such as the Bears, Bulls, White Sox, Cubs, Blackhawks, ESPN, Roc Nation Sports, the Big10 Conference, Gatorade, Intersport, and Starcom Worldwide, tour the Chicago market and make your mark, culminating in a research presentation on a topic of your choosing.

NOTES:
• This course travels around the city frequently via the Chicago CTA.
• This is a Partnership course. See the Tuition & Fees page on our website for details.
• A laptop computer (not a tablet) is required for this course.
• A special scholarship is available for this course. See our website for more information.

HIGH SCHOOL CREDIT OFFERED: 1 semester
OFFERED: Session 1

ABOUT THIS PARTNERSHIP: CTD is proud to deliver this elite opportunity to leverage the assets of the Chicago sports and entertainment business community in service of our aspiring leaders and entrepreneurs. CTD partners with T. Derrick Heggans—Founder and CEO of Team Turnaround, which supports opportunities and access for underserved students of color—to offer this unique course. T. Derrick Heggans formerly served as an attorney at the National Football League, General Manager of AOL Sports, and Managing Director of the Wharton Sports Business Initiative, and currently serves as Assistant Professor at the Robert H. Smith School of Business, University of Maryland.

NEW! Self-Released: Songwriting & Production for the Digital Marketplace

PREREQUISITES: Demonstrated experience with at least one instrument via a video audition; experience in songwriting encouraged but not required
From mixtapes to Tidal® exclusives, musicians create and sell their records in a market free from record labels and storefronts. In this collaborative, skill-honing workshop, create, record, and copyright original music; study and apply music theory; and receive feedback and develop a delivery strategy for your music under the guidance and mentorship of artists and music business professionals.

NOTES:
• This course may use classroom space, rehearsal space, and recording studio time off of Northwestern's Evanston campus.
• A laptop computer (not a tablet) is required for this course.
• Students must bring their preferred instrument with them to campus.
• This is a Partnership course. See the Tuition & Fees page on our website for details.

HIGH SCHOOL CREDIT OFFERED: 1 semester
OFFERED: Session 2
Leadership & Service
Service, Leadership & Community Transformation
Students interested in developing leadership skills through community service and hands-on study of social issues should consider the Civic Leadership Institute. For admission criteria and details, see page 39.

Science

ADMISSION CRITERIA: Varies by course; please note the requirements for each course below.

For Physics Honors, Imaging the Universe, Chemistry Honors, and AP® Chemistry:
• Above-grade-level Test (taken in or before the 9th grade year): SAT R ≥510 + SAT M ≥520 (taken before March 2016) OR SAT R ≥28 + SAT M ≥550 (taken March 2016 or later) OR ACT R ≥22 + ACT M ≥22 OR ACT S ≥23
• On-level Test (taken in the 10th or 11th grade year): SAT Crit. R ≥700 + SAT M ≥710 (taken before March 2016) OR SAT Evidence-Based Reading & Writing ≥700 + SAT M ≥740 (taken March 2016 or later) OR ACT R ≥32 + ACT M ≥30 OR ACT S ≥30
• If test scores are not available, or do not meet the criteria, students are welcome to apply via Admission Portfolio.

For The Biology of Cancer, Human Biology: Anatomy & Physiology, Neuroscience, and Biotech Lab: From Microbes to Genomes:
• Above-grade-level Test (taken in or before the 9th grade year): SAT R ≥510 (taken before March 2016) OR SAT R ≥28 (taken March 2016 or later) OR ACT R ≥22 OR ACT S ≥23
• On-level Test (taken in the 10th or 11th grade year): SAT Crit. R ≥700 (taken before March 2016) OR SAT Evidence-Based Reading & Writing ≥700 (taken March 2016 or later) OR ACT R ≥32 OR ACT S ≥30
• If test scores are not available, or do not meet the criteria, students are welcome to apply via Admission Portfolio.

Physics Honors
PREREQUISITES: Algebra I & II with Trigonometry AND one year of lab science
Physics helps explain, predict, and control physical phenomena. This full-year, accelerated course emphasizes fundamental principles of nature through the study of classical physics. Via lecture, discussion, demonstration, video, laboratory work, and collaborative problem solving, explore topics including linear, rotational, and wave motion; force; momentum; energy; and electrostatics and circuits. This course prepares students for AP® Physics and advanced topical studies in physics such as astrophysics and particle physics.

NOTES:
• A graphing calculator is required.
• Additional $150 lab fee required.

HIGH SCHOOL CREDIT OFFERED: 2 semesters
OFFERED: Sessions 1 & 2

NEW! Imaging the Universe
PREREQUISITES: Physics Honors (or Physics First course)/one semester Introduction to Physics and Algebra II
Future NASA and SpaceX scientists and engineers, this course is for you! In this introductory undergraduate-level class, learn the principles of observational astronomy with an emphasis on critical thinking and analysis of astronomical data. Plan and analyze your own observations using a computer-controlled telescope and CCD camera. While studying the solar system, investigate the height of lunar features, explore the surface of Mars, determine the mass of Jupiter, study solar rotation, solar flares, and sunspots. Moving into stellar research, measure variable stars and the properties of star clusters. With an emphasis on independent scientific research, data analysis, and scientific writing, this course gives nascent astronomers a taste of what real astronomical research is all about.

NOTES:
• A graphing calculator is required.
• Additional $150 lab fee required.

HIGH SCHOOL CREDIT OFFERED: 1 semester
OFFERED: Session 2

Chemistry Honors
PREREQUISITES: Algebra I AND Biology Honors OR Physics Honors
How does an atom account for the nature of matter? In this course, study the modern principles of chemistry, including atomic models, valence and ionization, bonding, nomenclature of formulas, moles, stoichiometry, gas laws, molecular forces, polarity, solutions, equilibrium, acids and bases, thermodynamics, and oxidation-reduction. Through experiments, learn to use proper lab technique, record and analyze data and produce scientific lab reports. Chemistry Honors is a full-year course in an accelerated format.

NOTES:
• A graphing calculator is required.
• Additional $150 lab fee required.

HIGH SCHOOL CREDIT OFFERED: 1 semester
OFFERED: Sessions 1 & 2

“Since the class included many people of different ethnic and cultural backgrounds, we were able to have very thoughtful discussions.”

– 2016 Equinox student
AP® Chemistry

PREREQUISITE: Chemistry Honors AND Algebra I & II
This course focuses on thermodynamics, thermochemistry, the physical behavior of gases, states and structure of matter, chemical equilibrium and kinetics, and various chemical reactions. Daily laboratory work emphasizes competency in solving chemical calculations and problems. In the accelerated format, this rigorous and lab-heavy course requires significant study and dedication. Upon successful completion, students are prepared to take the AP® Chemistry exam.

NOTES:
• A graphing calculator is required.
• Additional $150 lab fee required.
• This course runs for five weeks. Attendance for all five weeks is required.

HIGH SCHOOL CREDIT OFFERED: 2 semesters
OFFERED: This course runs for five weeks, June 25 – July 28.

NEW! The Biology of Cancer

PREREQUISITE: Biology Honors
In his Pulitzer Prize-winning book, Siddhartha Mukherjee asserts that “cancer cells can grow faster, adapt better. They are more perfect versions of ourselves.” In this one-semester laboratory course, explore what the National Cancer Institute calls the first question in understanding the biology of cancer: what is normal cellular behavior? Investigate the impact of genetics and epigenetics on cellular expression and metastasis. Review various therapies and clinical interventions available with a focus on precision medicine and the future of oncology, including the potential of bioinformatics.

NOTES:
• Additional $150 lab fee required.
• This course uses classroom and laboratory space at Roycemore School.

HIGH SCHOOL CREDIT OFFERED: 1 semester
OFFERED: Session 1

Human Biology: Anatomy & Physiology

PREREQUISITE: Biology Honors
Examine the chemistry of cellular life, cell structure and function, human organization, major systems of the human body, human and medical genetics, DNA and biotechnology, human evolution, ecology, and population concerns. To develop lab skills required for advanced study in biology, perform dissections, as well as experiments in molecular genetics, histology, and the chemical composition of cells.

NOTES:
• Additional $150 lab fee required.
• This course uses classroom and laboratory space at Roycemore School.

HIGH SCHOOL CREDIT OFFERED: 1 semester
OFFERED: Session 1

Neuroscience

PREREQUISITE: Biology Honors
Explore the complex systems of the human brain, drawing on the interdisciplinary principles of biology, chemistry, anatomy, physiology, and psychology. Topics include neural systems and behavior; the embryonic developments of the central and peripheral nervous systems; study of sensory and motor systems; changes in brain chemistry; aspects of learning and memory; and disorders of the nervous system. In addition to lectures and discussions, participate in laboratory dissections and experiments.

NOTES:
• Additional $150 lab fee required.
• This course uses classroom and laboratory space at Roycemore School.

HIGH SCHOOL CREDIT OFFERED: 1 semester
OFFERED: Session 2

Biotech Lab: From Microbes to Genomes

PREREQUISITES: Biology Honors AND additional full year of lab science (Chemistry Honors preferred)
Using your genetic information and current biotechnology techniques, scientists can identify and potentially eliminate genetic diseases, design personalized medicines, and even engineer microorganisms to do their bidding. Practice laboratory techniques utilized in both research and industrial settings, including gene cloning, DNA and protein electrophoresis, chromatography, protein purification, enzyme and immunology assays, and bacterial cell culture. Through case studies and individual research, discuss the potentially contentious ethical and social implications raised by the current and future applications of biotechnology.

NOTES:
• Additional $150 lab fee required.
• This course uses classroom and laboratory space at Roycemore School.

HIGH SCHOOL CREDIT OFFERED: 1 semester
OFFERED: Session 2
Technology, Computer Science & Engineering

ADMISSION CRITERIA: Varies by course; please note the requirements for each course below.

For AP® Computer Science A and iOS Bootcamp & Swift Development with Mobile Makers Academy:
- Above-grade-level Test (taken in or before the 9th grade year): SAT M ≥520 (taken before March 2016) OR SAT M ≥550 (taken March 2016 or later) OR ACT M ≥22
- On-level Test (taken in the 10th or 11th grade year): SAT M ≥710 (taken before March 2016) OR SAT M ≥740 (taken March 2016 or later) OR ACT M ≥30
- If test scores are not available, or do not meet the criteria, students are welcome to apply via Admission Portfolio.

For SustainableXDesign: Design Challenge 2017 with the Chicago Architecture Foundation:
- Above-grade-level Test (taken in or before the 9th grade year): SAT R ≥510 + SAT M ≥520 (taken before March 2016) OR SAT R ≥28 + SAT M ≥550 (taken March 2016 or later) OR ACT R ≥22 + ACT M ≥22 OR ACT S ≥23
- On-level Test (taken in the 10th or 11th grade year): SAT Crit. R ≥700 + SAT M ≥710 (taken before March 2016) OR SAT Evidence-Based Reading & Writing ≥700 + SAT M ≥740 (taken March 2016 or later) OR ACT R ≥32 + ACT M ≥30 OR ACT S ≥30
- If test scores are not available, or do not meet the criteria, students are welcome to apply via Admission Portfolio.

AP® Computer Science A
PREREQUISITES: Algebra I & II AND demonstrated experience in one programming language
Java is used in industries ranging from retail to finance to medicine. Learn to program in Java using keywords, operators and data types to develop solutions to problems, and subsequently to code and compile programs, as well as to compose command line programs, basic graphics and simple games. Prior experience with Java is not required, but you must have previous programming or computer language experience. This course prepares students for the AP® Computer Science exam.

NOTES:
- A laptop computer (not a tablet) is required for this course.
- Eligible for Sandra Dennhardt Technology Scholarship; see the Summer Program website for more information.

HIGH SCHOOL CREDIT OFFERED: 2 semesters
OFFERED: Sessions 1 & 2

iOS Bootcamp & Swift Development with Mobile Makers Academy

PREREQUISITES: Algebra I AND demonstrated programming experience
Do you have an idea for the next killer app? Or, do you want to know how apps are made? In this course, build apps using Swift, Apple's latest development language for the iPhone and iPad. In a workshop environment, learn how to build apps and utilize tools such as Agile Project Management and pair programming. Provide and receive critique on your code, learning how to justify your syntax and problem-solve in a collaborative environment that facilitates insight and innovation. By the end of the course, have the skills to build your own apps, and improve your teamwork and time management skills. This course is taught by professional mobile app developers for a true boot-camp experience.

NOTES:
- All students are required to bring their own Mac laptop computer (not a tablet) for this course. An iOS mobile device is also recommended (such as an iPod Touch, iPhone, or iPad).
- Eligible for Sandra Dennhardt Technology Scholarship; see the Summer Program website for more information.
- Residential students live on campus and may travel via CTA to class each day.
- Partnership course tuition rate. See the Tuition & Fees webpage for details.

HIGH SCHOOL CREDIT OFFERED: 1 semester
OFFERED: Session 1

NEW! SustainableXDesign: Design Challenge 2017 with the Chicago Architecture Foundation

PREREQUISITES: Algebra II AND one year of honors level English

“Sustainability can’t be like some sort of a moral sacrifice or political dilemma or a philanthropical cause. It has to be a design challenge.” —Bjarke Ingels

In this thrilling partnership with Chicago Architecture Foundation, tour iconic local skyscrapers, residences, and design firms, and investigate national and international case studies, in search of solutions to the challenge of sustainable design. Under the guidance of local architects and designers, learn the fundamentals of architecture and the design process including sketching, model-making, mapping, and research. Use SketchUp, CAD, and Autodesk Revit BIM to develop fluency with software for building, structural design, MEP engineering, and construction. Create an original design and prototype and receive critique in the final showcase from renowned architects and designers.

NOTES:
- A laptop computer (not a tablet) is required for this course.
- Residential students will live on campus and travel via public transit to class downtown.

HIGH SCHOOL CREDIT OFFERED: 1 semester
OFFERED: Session 2

ABOUT THIS PARTNERSHIP: The Chicago Architecture Foundation is a leading organization devoted to celebrating and promoting Chicago as a center of architecture innovation. As Chicago’s forum for the exchange of ideas on urban design, CAF inspires people to participate in the building of vibrant, sustainable communities and to demand the highest standard in urban design. CAF awakens young people to achieve their potential through the discovery of architecture, engineering and design.
Mathematics

ADMISSION CRITERIA:

- Above-grade-level Test (taken in or before the 9th grade year): SAT M ≥520 (taken before March 2016) OR SAT M ≥550 (taken March 2016 or later) OR ACT M ≥22
- On-level Test (taken in the 10th or 11th grade year): SAT M ≥710 (taken before March 2016) OR SAT M ≥740 (taken March 2016 or later) OR ACT M ≥30
- If test scores are not available, or do not meet the criteria, students are welcome to apply via Admission Portfolio.

NOTE: For the following courses, a graphing calculator is required in addition to a laptop computer or tablet.

Data Science: An Introduction to Statistics

PREREQUISITE: Algebra I

Nate Silver of ESPN’s FiveThirtyEight uses big data to analyze politics and sports, modeling predictions news analysts and regular folk use daily. This course explores the newly articulated world of data science in its full range of applications and expressions. Surveying theories of probability, learn how to turn data into algorithms for making better decisions and best predictions. Evaluate data sets for analysis, and use the R programming language to interpret data in order to make predictions and proposals for action.

NOTE: A laptop computer (not a tablet) is required for this course.

HIGH SCHOOL CREDIT OFFERED: 1 semester
OFFERED: Session 2

AP® Statistics

PREREQUISITES: Algebra I & II
Collecting, analyzing, and drawing conclusions from data are skills required in virtually every discipline. Prepare to take the AP® Statistics exam in this non-calculus-based course. Explore theories of probability, descriptions of statistical measurements, probability distributions, and experimental and statistical inference. Develop research proposals, collect and analyze data, and complete a comprehensive statistical project. AP® Statistics is a full-year course taught in an accelerated format. It lays the foundation for advanced studies in data analytics, engineering, and the actuarial sciences.

HIGH SCHOOL CREDIT OFFERED: 2 semesters
OFFERED: Session 1

Algebra II & Trigonometry Honors

PREREQUISITE: Algebra I
Algebra II & Trigonometry Honors covers systems, equations, polynomial arithmetic, complex numbers, solutions of quadratic equations, exponential and logarithmic functions, sequences, series, graphs of polynomial functions, conic sections, and concepts in trigonometry, including trigonometric identities. Algebra II & Trigonometry Honors is a full-year high school course intended for students who are ready to accelerate and plan to enroll in the next course in their district’s mathematics sequence in the fall.

HIGH SCHOOL CREDIT OFFERED: 2 semesters
OFFERED: Sessions 1 & 2

Pre-Calculus Honors

PREREQUISITES: Geometry AND Algebra I & II with Trigonometry
Pre-Calculus Honors builds upon advanced algebra. Topics include linear, quadratic, polynomial, exponential, logarithmic, and trigonometric functions. Students apply vectors, sequences, series, and matrices to solve problems. Advanced topics include functions and graphs, trigonometry, and discrete mathematics. Pre-Calculus Honors is a full-year high school course in an accelerated format and prepares students for taking AP® Calculus AB.

HIGH SCHOOL CREDIT OFFERED: 2 semesters
OFFERED: Sessions 1 & 2

AP® Calculus AB

PREREQUISITES: Geometry AND Algebra I & II with Trigonometry AND Pre-Calculus
Rocket scientist or brain surgeon, architect or engineer, the study of calculus is the foundation for many professional endeavors. This college-level course covers analytic geometry, functions, limits, continuity, derivatives, integrals, and their applications. It explores symbolic differentiation and integration utilities as students apply these skills to solve problems. AP® Calculus AB is a full-year high school course in an accelerated format and prepares students to take the AP® Calculus AB exam.

HIGH SCHOOL CREDIT OFFERED: 2 semesters
OFFERED: Session 1

AP® Calculus BC

PREREQUISITES: Geometry AND Algebra I & II with Trigonometry AND Pre-Calculus
Analyze functions and planar curves graphically, numerically, and verbally. Through collaborative inquiry and direct instruction, further develop your abilities with differentiation and applications of derivatives, differential equations, and techniques of anti-differentiation such as integration by parts, partial fractions, and improper integrals. Also included are numerical and polynomial approximations and series. This is the two-semester capstone of advanced high school mathematics and readies students for advanced calculus at the university level and prepares them to take the AP® Calculus BC exam.

HIGH SCHOOL CREDIT OFFERED: 2 semesters
OFFERED: Session 2
Civic Leadership Institute

Grades 9-12
(grade on January 1, 2017)

The Civic Education Project’s Civic Leadership Institute (CLI) combines hands-on education, meaningful service, powerful speakers and seminars, and an unforgettable residential experience for a summer that students describe as life-changing.

Civic Leadership Institute
Northwestern University, Evanston IL
Session 1
June 25 - July 14, 2017

Change the world. Start here.
• Serve communities
• Develop leadership skills
• Learn about social issues
• Make a difference

Experience Chicago

On Northwestern University’s Evanston Campus, CLI participants experience college life at a world-class institution. The campus is a beautiful 240 acres on the shore of Lake Michigan, with views of the Chicago skyline, and access to shops and restaurants in one of America’s top college towns.

Meanwhile, academic and residential activities offer students an unparalleled opportunity to explore Chicago. Several times a week, class groups engage in powerful, hands-on service experiences in vibrant neighborhoods throughout the city, like Bronzeville, Chinatown, and Pilsen. On the weekends, students explore the city’s top museums and cultural sites. This one-of-a-kind campus experience combines the best of a college town and a global city.

NOTES:
• Service learning hours offered
• Residential students only

ADMISSION CRITERIA: Above-grade-level SAT or ACT test; OR ≥90th percentile rank in verbal or reading on standardized achievement test OR an Admission Portfolio

For More Information
Civic Education Project
Phone: 847/467-2572
E-mail: cep@northwestern.edu
Web: cep.northwestern.edu

For students in grades 7 or 8 interested in service and leadership, consider:
Taking Action: Leadership & Service
Please see detailed course description on page 27.

“We help you discover yourself and become more aware of problems in the world. It’s an eye-opening program.”
—2016 Civic Leadership Institute student

Service, Leadership & Community Transformation

The Civic Leadership Institute is a powerful capstone experience that prepares you to be a leader in your high school, college, and career.

Young people often believe that they can’t make a difference. That they don’t have the knowledge, skills, or capacity to influence issues like poverty, healthcare, education, or the environment. That they’re powerless to create change. Yet there are countless stories that prove this is not the case.

Civic Leadership Institute students explore the complex challenges that affect our communities, and develop the knowledge, experience, and leadership skills they need to make a positive impact on the world.

What power, passion, and resources do you possess? Begin your discovery at the Civic Leadership Institute (CLI)!
Application Process

The online application is available at my.ctd.northwestern.edu. Complete applications (including all supporting documents) are reviewed as they are received starting January 4, 2017. Courses are filled on a first-come, first-served basis.

The application period will close on June 10, 2017, which is also the withdrawal deadline for full fee refunds (less a $60 processing fee). Although CTD tries to accommodate late applications, enrollment may not be possible.

Please be sure to complete the application online, including all supporting materials, as applications are reviewed only after all supporting documents and information have been received. Incomplete applications are not reviewed nor do they “hold a spot” in the desired course, regardless of whether or not payment is included.

Once the Summer Program receives a completed application, it is forwarded to the appropriate admission staff or Program Coordinator for review. Once an enrollment decision is made, the admission staff or Program Coordinator will notify the applicant via e-mail using the primary e-mail address provided in the application. Application decisions will also be posted in students’ MyCTD account. The process takes approximately four weeks from the time a completed application is received. Due to the volume of applications, the review process may take longer in April, May, and June.

Program Tuition & Fees

Tuition rates vary by program, program length, course requirements, and application date. Basic tuition information at the application rate through May 14, 2017 is provided below. Detailed information about tuition, payments, and refund and withdrawal policies is on the CTD website at www.ctd.northwestern.edu/tuition-fees.

**Leapfrog & Spark**
Tuition ranges from $300 for a half-day, four-day Leapfrog program to $650 for an all-day, weeklong Leapfrog or Spark program. Challenge Lab tuition is $65 for a single, three-hour session.

**Solstice**
Tuition ranges from $1,550 (commuter, per session) to $2,660 (residential, per session).

**Apogee**
Tuition ranges from $2,150 (commuter, per session) to $3,750 (residential, per session).

**Spectrum, Equinox & Civic Leadership Institute**
Tuition ranges from $2,150 (commuter, per 3-week session) to $5,350 (residential, per 5-week session).

**PLEASE NOTE:**
- Some courses require specialized equipment and/or a lab or materials fee. See individual course descriptions for details.
- Residential fees cover tuition, room and board, books, basic materials and activities, and health center fees.
- Commuter fees include tuition, books, basic course materials, lunch (for Solstice, Apogee, Spectrum & Equinox commuters only), and activities (optional, weekdays after class).
- Spectrum and Equinox students are required to bring a laptop computer or tablet for use in class, because many instructors make use of technology for teaching. Some specialized courses (Solstice through Equinox) require a laptop computer; please see course descriptions for details. All laptops and tablets must have word-processing capability and be WiFi enabled.

Financial Aid & Payment Plan

Need-based financial aid is available for Summer Program courses. Early application is encouraged for families requesting financial aid, as funds are limited and granted on a rolling basis. The financial aid application deadline is April 14, 2017.

A $60 deposit is required to complete the online application. The deposit will be refunded if the student is not admitted or if the aid award offered is not sufficient to meet the family’s financial need.

A five-month payment plan is available. To apply, you must submit the payment plan application form available on our website.

Students enrolling in select technology courses may be eligible for the Sandra Dennhardt or Gary Greenberg Technology Scholarships. Details on eligibility and application process are on the website under Enrollment, Scholarship Opportunities.

Contacting the Summer Program & Future Communication from CTD

**Phone:** 847/491-8257 (Summer Program direct line)
**E-mail:** summer@ctd.northwestern.edu
**Fax:** 847/467-0880

Program participants will receive notifications of other programs and services provided by CTD. We hope you enjoy hearing about other opportunities. If you do not wish to receive e-mail messages promoting programs or services from CTD, contact us at 847/491-3782 ext. 4 to request that your name be removed from our e-mail lists.
Center for Talent Development, Northwestern University

Bright Thinkers. Future Innovators.

Center for Talent Development (CTD) at Northwestern University is dedicated to helping gifted students, age 4 through grade 12, reach full potential. We provide research-based assessment, advanced programs, and resources to enhance a child’s schooling. Our signature approach to talent development delivers personalized options and guidance for young people with high ability. Program pathways lead students on a journey of intellectual, emotional, and social growth. By extending support to families and educators, we help exceptional students discover their unique voice, explore opportunities, cultivate a love of learning, and become bold, creative achievers and contributors.

Special Event for Families:
Opportunities for the Future Family Conference

CTD hosts a family conference just prior to the start of the Summer Program. It offers parents the chance to learn from experts in gifted education about talent development, social and emotional issues, and educational options. Students in grades 4 through 12 attend workshops on their favorite subjects and explore career paths.

Date, Time & Location: Saturday, June 24 from 1 to 5 p.m. on Northwestern University’s Evanston campus.

All details, including speakers, workshop sessions, and fees will be posted on the CTD website in January: www.ctd.northwestern.edu

Northwestern University’s Midwest Academic Talent Search (NUMATS)
The foundation for a lifelong journey of achievement and fulfillment. Research-based assessments identify exceptional academic ability and connect students to tailored programs and opportunities. Parents and educators gain invaluable information to create challenging, dynamic pathways that nurture individual potential.

Gifted LearningLinks
Personalized online learning that provides access to advanced subject matter and supports personal interests. Motivated students progress at the time, place, and pace right for them and enjoy one-on-one engagement with instructors.

Weekend Enrichment Programs
Weekend opportunities for discovery that allow gifted students to focus their curiosity and passion on a specific interest area. A wide variety of advanced and unique courses range in duration from a single weekend to eight consecutive Saturdays or Sundays.

Civic Education Project
Pathways to leadership and civic engagement that combine hands-on service with academic study and reflection. Bright, impassioned students engage in social issues first-hand and develop leadership skills necessary to make change in the world.

National Association For Gifted Children
The National Association for Gifted Children (NAGC) is an organization of parents, teachers, administrators, other professionals and community leaders addressing the unique needs of children and youth with demonstrated gifts and talents as well as those children who may be able to develop their talent potential with appropriate educational experiences. Visit the NAGC website to join this organization and add your name to the ranks of supporters working to raise awareness of the needs of gifted learners nationwide. Learn more at www.nagc.org.

Students associated with Center for Talent Development are held to all responsibilities of members of the Northwestern University community. Northwestern University and Center for Talent Development reserve the right to change without notice any statement in this brochure concerning, but not limited to, rules, policies, tuition, fees, courses, and faculty.

Northwestern University does not discriminate or permit discrimination by any member of its community against any individual on the basis of race, color, religion, national origin, sex, pregnancy, sexual orientation, gender identity, gender expression, parental status, marital status, age, disability, citizenship status, veteran status, genetic information, or any other classification protected by law in matters of admissions, employment, housing, or services or in the educational programs or activities it operates. Harassment, whether verbal, physical, or visual, that is based on any of these characteristics is a form of discrimination.

For advice or assistance regarding this policy, contact the Office of Equal Opportunity and Access, 720 University Place, Evanston, Illinois 60208-1145. Phone: 847/491-7458.