Center for Talent Development

Summer Program

Rigorous academic challenge with life-changing impact

2014 Program Catalog
Students Age 4 through Grade 12

www.ctd.northwestern.edu
847/491-3782, ext. 2
summer@ctd.northwestern.edu
Welcome to the 2014 Summer Program

The CTD Summer Program allows gifted students to delve deep into a subject of intrigue, 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!

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web: www.ctd.northwestern.edu/summer
“Talent Talk” blog: ctdblog.northwestern.edu
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.
2014 Summer Program
at a Glance

Application period opens January 1, 2014
• Regular application deadline for grade 4–12 programs is May 19, 2014.
• Regular application deadline for age 4–grade 3 Leapfrog program is June 2, 2014.
• $50 late fee applies to applications received after the regular application deadline.

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, 2014)

Leapfrog Program
Leapfrog provides fast-paced enrichment courses for students who have demonstrated a keen, early interest in learning. Half or all-day, one-week courses are offered mornings and afternoons. Detailed program information begins on page 5. The Leapfrog program site locations are listed on the Summer Program website.

New in 2014!
• Afternoon courses in Lake Forest
• Leapfrog Favorites now at Skokie and Chicago sites
• Morning Math Club (early drop off) available in Chicago

Program Dates:
June 23–27
Week 1, Leapfrog Favorites in Skokie, morning only; all-day courses in Elmhurst

June 30–July 3
Week 2, Leapfrog Favorites in Chicago, morning only; all-day courses in Elmhurst (4-day week)

July 7–11
Week 3, all sites except Elmhurst; morning, afternoon and all-day courses*

July 14–18
Week 4, all sites except Elmhurst; morning, afternoon and all-day courses*

July 21–25
Week 5, all sites except Elmhurst; morning, afternoon and all-day courses*

* Availability of afternoon and all-day courses varies by site.

Sites:
Chicago, Elmhurst, Lake Forest, Naperville, Palatine and Skokie
## 2014 Summer Program at a Glance

### GRADES 4–6 (grade level on January 1, 2014)

**Three program options:** Spark (1 week), Solstice (2 weeks) or Apogee (3 weeks)

### Spark Program

Spark is a week of fun, mind-stretching learning experiences. A residential option is available to students who choose the Northwestern University site in Evanston, Illinois. Detailed program information begins on page 19.

<table>
<thead>
<tr>
<th>Location</th>
<th>Program Dates</th>
</tr>
</thead>
</table>
| Elmhurst College, Elmhurst, IL | Monday, June 23–Friday, June 27  
Monday, June 30–Thursday, July 3  
(4-day week) |

<table>
<thead>
<tr>
<th>Location</th>
<th>Program Dates</th>
</tr>
</thead>
</table>
| Northwestern University, Evanston, IL | Sunday, June 29–Friday, July 4  
Sunday, July 6–Friday, July 11 |

### Solstice Program

The Solstice program offers fast-paced enrichment courses in a two-week timeframe perfect for extended study of a subject. Students at the Northwestern University site may choose to live on campus. Detailed program information begins on page 19.

<table>
<thead>
<tr>
<th>Location</th>
<th>Program Dates</th>
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</thead>
<tbody>
<tr>
<td>Elmhurst College, Elmhurst, IL</td>
<td>Monday, July 7–Friday, July 18</td>
</tr>
<tr>
<td></td>
<td>Monday, July 7–Friday, July 18</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Location</th>
<th>Program Dates</th>
</tr>
</thead>
</table>
| Northwestern University, Evanston, IL | Sunday, July 13–Friday, July 25  
Sunday, July 27–Friday, August 8 |

### Apogee Program

The three-week Apogee program gives students the opportunity to take an enrichment course that hones critical academic skills and deepens knowledge and understanding of a particular subject. Students may choose to reside on the Northwestern University Evanston, Illinois campus. Detailed program information begins on page 19.

<table>
<thead>
<tr>
<th>Location</th>
<th>Program Dates</th>
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</thead>
<tbody>
<tr>
<td>Elmhurst College, Elmhurst, IL</td>
<td>Monday, July 7–Friday, July 25</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Location</th>
<th>Program Dates</th>
</tr>
</thead>
</table>
| Northwestern University, Evanston, IL | Sunday, June 29–Friday, July 18  
Sunday, July 20–Friday, August 8 |
2014 Summer Program at a Glance

GRADeS 7 & 8* (grade level on January 1, 2014)

**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. Detailed program information begins on page 28.
*Students in grade 9 may apply; applications will be considered on a case-by-case basis.

Elmhurst College, Elmhurst, IL (commuter only)

**Program Dates:**
Monday, July 7–Friday, July 25

Northwestern University, Evanston, IL (residential and commuter)

**Program Dates:**
Sunday, June 29–Friday, July 18
Sunday, July 20–Friday, August 8

GRADeS 9–12 (grade level on January 1, 2014)

**Equinox Program**
Equinox combines fast-paced, advanced coursework with the chance to explore college and careers in a hands-on way. Courses offer students the opportunity to earn high school credit at the honors and Advanced Placement® (AP) levels. Students can experience life on the Northwestern University Evanston, Illinois campus as a residential participant or commute from home. Detailed program information begins on page 35.

Northwestern University, Evanston, IL (residential and commuter)

**Program Dates:**
Sunday, June 29–Friday, July 18
Sunday, July 20–Friday, August 8
Sunday, June 29–Friday, August 1 (5-week Advanced Placement® science courses)

**Civic Leadership Institute**
The Civic Leadership Institute combines an innovative service-learning curriculum with an unforgettable residential experience in the heart of downtown Chicago. The program helps outstanding high school students develop the knowledge, experience and leadership skills they need to make a positive impact on the world. Details begin on page 42.

Northwestern University, Chicago, IL (Loop Campus; residential only)

**Program Dates:**
Sunday, July 6–Friday, July 25
Leapfrog Program

Age 4 (PreK)–Grade 3
(grade level on January 1, 2014)
Leapfrog engages students age 4 (PreK) through grade 3 in challenging academic adventures. Hands-on activities help children with demonstrated strength in math or verbal areas acquire and practice new concepts in unique and interesting ways. Each half-day Leapfrog course is designed to accommodate two grade levels: PreK/K, K/1, 1/2 or 2/3. This structure provides more course options and allows students with similar skills and abilities to be grouped together. Enrollment in PreK through K/1 courses is approximately 16 students; grades 1/2 and 2/3 courses accommodate approximately 18 students.

Apply Early! Application Period Begins January 1

Courses are offered in Chicago, Elmhurst, Lake Forest, Naperville, Palatine and Skokie. For specific locations, please see the Summer Program website at www.ctd.northwestern.edu/summer. You may enroll your child in one or multiple weeks of Leapfrog courses.

There are three different types of Leapfrog course offerings:

- **Half-day A.M. Courses** meet from 9 a.m. to 12 noon (Monday through Friday).
- **Half-day P.M. Courses** meet from 1 p.m. to 4 p.m. (Monday through Friday).
- **All-day Courses** are available for students in grade 3. Select all-day courses are also available for students in grade 2. All-day courses meet from 9:15 a.m. to 3:45 p.m. with a break for lunch (except in Elmhurst, where courses meet from 8:30 a.m. to 2:45 p.m.). See page 12 for details.

Notes:

- **Enrollment option:** Parents/guardians may enroll their children in an A.M. course, a P.M. course or both.
- **Lunch/recess option:** All students enrolled in both an A.M. course and a P.M. course are automatically enrolled in the 12 noon to 1 p.m. lunch/recess option at no extra cost. During weeks that both A.M. and P.M. courses are offered at a site, students enrolled in an A.M. course only (no P.M. course) may sign up for the lunch/recess option for an extra fee. (See page 16 for details.)
- **Morning Math Club:** At our Chicago site only, students enrolled in A.M. courses may also enroll in Morning Math Club. Students in the club may be dropped off early, between 8-8:15 a.m., and participate in math games and activities until they are walked to class at 9 a.m. (See page 16 for details.)

Program Dates:

- **Week 1:** June 23-27
  Leapfrog Favorites in Skokie & Leapfrog All-day in Elmhurst
- **Week 2:** June 30–July 3
  (4-day week)
  Leapfrog Favorites in Chicago & Leapfrog All-day in Elmhurst
- **Week 3:** July 7–July 11
- **Week 4:** July 14–July 18
- **Week 5:** July 21–July 25

“Leapfrog is academic learning while feeling like play.”

—2013 Leapfrog parent
Leapfrog Half-day Course Reference Chart
Enroll your child in a course for his or her grade level as of January 1, 2014. Select course topics that best fit your child’s academic strengths as determined through test scores and/or other academic measures.

**Leapfrog Favorites**

**Weeks 1 & 2: Half-day Courses**
**June 23–27 & June 30–July 3**

<table>
<thead>
<tr>
<th>COURSE NUMBER (grade Level)</th>
<th>COURSE TITLE</th>
<th>SUBJECT AREA</th>
<th>CH AM</th>
<th>CH PM</th>
<th>LF AM</th>
<th>LF PM</th>
<th>NP AM</th>
<th>NP PM</th>
<th>PA AM</th>
<th>PA PM</th>
<th>SK AM</th>
<th>SK PM</th>
</tr>
</thead>
<tbody>
<tr>
<td>A (PreK/K)</td>
<td>If I Ran the Zoo</td>
<td>English &amp; Writing</td>
<td>X</td>
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<tr>
<td>A (K/1)</td>
<td>Click! Telling Stories with Photos</td>
<td>English &amp; Writing</td>
<td>X</td>
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<tr>
<td>A (1/2)</td>
<td>Comic Book Characters</td>
<td>English &amp; Writing</td>
<td>X</td>
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<tr>
<td>A (2/3)</td>
<td>Life on Mars</td>
<td>English &amp; Writing</td>
<td>X</td>
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<tr>
<td>B (PreK/K)</td>
<td>Playground Math</td>
<td>Mathematics</td>
<td>X</td>
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<tr>
<td>B (K/1)</td>
<td>Blocks &amp; Blueprints</td>
<td>Mathematics</td>
<td>X</td>
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<tr>
<td>B (1/2)</td>
<td>Treasure Maps</td>
<td>Mathematics</td>
<td>X</td>
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<tr>
<td>B (2/3)</td>
<td>Number Devil: Adventures in Math</td>
<td>Mathematics</td>
<td>X</td>
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<td>C (PreK/K)</td>
<td>Big Cats: Lions, Tigers &amp; More</td>
<td>Science</td>
<td>X</td>
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<tr>
<td>C (K/1)</td>
<td>Whale Talk: How Sea Creatures Communicate</td>
<td>Science</td>
<td>X</td>
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<tr>
<td>C (1/2)</td>
<td>Dinosaur Discovery: Paleontology Unearthed</td>
<td>Science</td>
<td>X</td>
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<tr>
<td>C (2/3)</td>
<td>Kitchen Chemistry: Edible Experiments</td>
<td>Science</td>
<td>X</td>
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**Week 3: Half-day Courses**
**July 7–11**

<table>
<thead>
<tr>
<th>COURSE NUMBER (grade Level)</th>
<th>COURSE TITLE</th>
<th>SUBJECT AREA</th>
<th>CH AM</th>
<th>CH PM</th>
<th>LF AM</th>
<th>LF PM</th>
<th>NP AM</th>
<th>NP PM</th>
<th>PA AM</th>
<th>PA PM</th>
<th>SK AM</th>
<th>SK PM</th>
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<tbody>
<tr>
<td>3-A (PreK/K)</td>
<td>Yellow Submarine</td>
<td>English &amp; Writing</td>
<td>X</td>
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<tr>
<td>3-A (K/1)</td>
<td>South Pole: Journey to Antarctica</td>
<td>English &amp; Writing</td>
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<tr>
<td>3-A (1/2)</td>
<td>Survivor: Bermuda Triangle</td>
<td>English &amp; Writing</td>
<td>X</td>
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<tr>
<td>3-A (2/3)</td>
<td>Climbing Mount Everest</td>
<td>English &amp; Writing</td>
<td>X</td>
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<td>3-B (PreK/K)</td>
<td>The Secret Lives of Numbers</td>
<td>Mathematics</td>
<td>X</td>
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<tr>
<td>3-B (K/1)</td>
<td>Extreme Code Breaking</td>
<td>Mathematics</td>
<td>X</td>
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<td>3-B (1/2)</td>
<td>Math for Spies</td>
<td>Mathematics</td>
<td>X</td>
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<td>3-B (2/3)</td>
<td>Hackproof Passwords</td>
<td>Mathematics</td>
<td>X</td>
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<td>3-C (PreK/K)</td>
<td>Zoo Vets</td>
<td>Science</td>
<td>X</td>
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<td>3-C (K/1)</td>
<td>Blood &amp; Bones: The Human Body</td>
<td>Science</td>
<td>X</td>
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<tr>
<td>3-C (1/2)</td>
<td>Grossology: Fascinating Systems of the Human Body</td>
<td>Science</td>
<td>X</td>
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<td>3-C (2/3)</td>
<td>Brain Surgery</td>
<td>Science</td>
<td>X</td>
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<tr>
<td>3-S (PreK/K)</td>
<td>Codes &amp; Symbols Math Studio</td>
<td>Creative Studies</td>
<td>X</td>
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<tr>
<td>3-S (1/2)</td>
<td>Codes &amp; Symbols Math Studio</td>
<td>Creative Studies</td>
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### Week 4: Half-day Courses
**July 14–18**

<table>
<thead>
<tr>
<th>COURSE NUMBER (grade Level)</th>
<th>COURSE TITLE</th>
<th>SUBJECT AREA</th>
<th>CH AM</th>
<th>CH PM</th>
<th>LF AM</th>
<th>LF PM</th>
<th>NP AM</th>
<th>NP PM</th>
<th>PA AM</th>
<th>PA PM</th>
<th>SK AM</th>
<th>SK PM</th>
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</thead>
<tbody>
<tr>
<td>4-A (PreK/K)</td>
<td>Mouse House: Tiny Habitats in Stories &amp; Nature</td>
<td>English &amp; Writing</td>
<td>X</td>
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<tr>
<td>4-A (K/1)</td>
<td>Horses, Wild &amp; Tame</td>
<td>English &amp; Writing</td>
<td>X</td>
<td>X</td>
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<tr>
<td>4-A (1/2)</td>
<td>Shark Attack! Underwater Mythbusting</td>
<td>English &amp; Writing</td>
<td>X</td>
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<td>4-A (2/3)</td>
<td>Sign of the Gorilla: Extraordinary Apes</td>
<td>English &amp; Writing</td>
<td>X</td>
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<td>4-B (PreK/K)</td>
<td>Puzzle Party: Riddles, Mazes &amp; More</td>
<td>Mathematics</td>
<td>X</td>
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<tr>
<td>4-B (K/1)</td>
<td>Think Tank: Games for Brains</td>
<td>Mathematics</td>
<td>X</td>
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<td>4-B (1/2)</td>
<td>Mind Boggles: Predictions &amp; Probability</td>
<td>Mathematics</td>
<td>X</td>
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<tr>
<td>4-B (2/3)</td>
<td>Brain Twisters: Multiplication &amp; Fractions</td>
<td>Mathematics</td>
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<tr>
<td>4-C (PreK/K)</td>
<td>Building Bridges</td>
<td>Science</td>
<td>X</td>
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<tr>
<td>4-C (K/1)</td>
<td>Digging Canals &amp; Tunnels</td>
<td>Science</td>
<td>X</td>
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### Week 5: Half-day Courses
**July 21–25**

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<th>SUBJECT AREA</th>
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<td>5-B (PreK/K)</td>
<td>Coins &amp; Currency: Money in Our World</td>
<td>Mathematics</td>
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<td>Taking Stock: The Ins &amp; Outs of the Stock Market</td>
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<td>5-C (PreK/K)</td>
<td>Surprising Spills &amp; Messes</td>
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<td>5-C (1/2)</td>
<td>Lost &amp; Found: The Best Failed Expeditions</td>
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Leapfrog Half-day Course Descriptions

Week 1: June 23–27
Leapfrog Favorites in Skokie

Week 2: June 30–July 3
Leapfrog Favorites in Chicago
(4-day compacted week)

A select group of our most popular Leapfrog courses will be offered at our Skokie and Chicago locations. All courses meet from 9 a.m. to 12 noon daily. Skokie Favorites run five mornings, Monday through Friday. Chicago Favorites run in a compacted course schedule offered over four mornings, Monday through Thursday, with no class on July 4.

English & Writing Favorites

Students with strong verbal ability may enroll in an English & Writing course. Courses are designed to meet the needs of academically advanced students (performing 1.5 to 2 years above grade level) while allowing them to work with same-age peers. Identify the appropriate section for your child based on his/her grade level on January 1, 2014. The course code and grade level precede each course title.

1-A (2/3) Life on Mars (Skokie)
2-A (2/3) Life on Mars (Chicago)
A space colony is going to be established on Mars. Students take on the roles of young astronauts preparing to live together in space and in a strange new world. What will they need to bring? How will they prepare for their journey? Students work together, researching and writing their ideas and plans, to determine how the colony will be established and then blast off on their imaginary journey.

Mathematics Favorites

Students with an identified strength in math may enroll in a Mathematics course. Identify the appropriate section for your child based on his/her grade level on January 1, 2014. The course code and grade level precede each course title.

1-B (PreK/K) Playground Math (Skokie)
2-B (PreK/K) Playground Math (Chicago)
How many rectangles can be found in a set of monkey bars? How do you measure the angle of a slide and how does the angle of incline help you go down faster (or slower)? Students are introduced to a variety of tools and geometric concepts for hands-on exploration of everyone’s favorite play space: the playground!

1-B (K/1) Blocks & Blueprints (Skokie)
2-B (K/1) Blocks & Blueprints (Chicago)
A blueprint is a drawing that shows the design of a building or an outdoor area. Using blocks and other construction materials, students create models of buildings and spaces, then use geometry tools and concepts to draw blueprints and scaled diagrams of their creations.

Science Favorites

Students with strong math or verbal ability may enroll in a Science course. Identify the appropriate section for your child based on his/her grade level on January 1, 2014. The course code and grade level precede each course title.

1-C (PreK/K) Big Cats: Lions, Tigers & More (Skokie)
2-C (PreK/K) Big Cats: Lions, Tigers & More (Chicago)
As novice zoologists, students explore the captivating world of big cats from lions to jaguars to unique cat hybrids. Students “travel” across the globe in order 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 incredible world of these marvelous mammals and gain an appreciation of wildlife conservation.

1-C (K/1) Whale Talk: How Sea Creatures Communicate (Skokie)
2-C (K/1) Whale Talk: How Sea Creatures Communicate (Chicago)
Can a whale tell a joke or sing a lullaby? 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 use sound to connect and make sense of their world.
Week 3 (July 7–11)
You’re In the Story
Stories are a powerful way to communicate ideas, emotions and information. Settings from the bottom of the ocean to towering mountains provide the backdrop for students to create and act out their own stories. Students strengthen language and literacy skills through dramatic play, creative writing and storytelling, reading and research, and collaborative problem solving.

NEW! 3-A (Pre/K) Yellow Submarine
The words to the Beatles’ song, “Yellow Submarine,” inspire students to play, imagine, draw and write about life under the waves in a sea of green. The class becomes a maritime crew as they learn the roles of pilots, navigators, explorers and scientists. Students hone their language and early writing skills through creative storytelling and dramatization.

NEW! 3-A (K/1) South Pole: Journey to Antarctica
As explorers and scientists “traveling” to the coldest continent on the earth, students learn about the biodiversity of Antarctica and the animals living there, such as penguins and seals. Students imagine and create their own research station at the South Pole and produce guidebooks, articles and stories about Antarctica. Students encounter a variety of challenges that they must research, discuss and solve together.

NEW! 3-A (K/1) Dinosaur Discovery: Paleontology Unearthed (Skokie)
Dinosaurs may have roamed the earth millions of years ago but they are just as fascinating today! Aspiring paleontologists learn about the many species of these “terrible lizards” from the famous T-Rex to the only recently identified Linheraptor. Students unravel the mysteries of how these animals lived, looked and died as they literally and figuratively “dig” deep into the fossil record. Join our expedition!

NEW! 4-A (Pre/K) Mouse House: Tiny Habitats in Stories & Nature
Storybook mice, such as Stuart Little, fascinate readers with their tiny furniture and cozy little living spaces. Students explore how the homes of storybook mice compare to the habitats of real mice. Read-alouds and storytelling combine with an introduction to research skills, critical thinking, and creative writing.

NEW! 4-A (K/1) Horses, Wild & Tame
Long ago, all horses were wild and free but humans have found ways to train these beautiful, strong animals to carry riders and pull heavy loads. Students learn about the ways humans and horses work together by exploring both fiction and nonfiction stories and resources. Creative projects such as writing stories and skits allow students to study all types of horses, from ponies to stallions.

NEW! 4-A (1/2) Shark Attack! Underwater Mythbusting
Sharks are the most feared creatures in the ocean, but actual shark attacks on people are very rare. As aspiring mythbusters, students research how and why sharks inspire fascination and fear, use critical thinking to determine the real facts, and document their findings and ideas with both words and images.

NEW! 3-A (Pre/K) Extravagant Elephants
Elephants are some of the most fascinating animals in the world. As explorers and scientists “traveling” to various regions, students learn about the lives of these magnificent creatures. Students hone their language and early writing skills through creative storytelling and dramatization.

English & Writing
Students with strong verbal ability may enroll in an English & Writing course. Identify the appropriate section for your child based on his/her grade level on January 1, 2014. The course code and grade level precede each course title.

Week 4 (July 14–18)
Animal Friends & Foes
Mice, horses, sharks and gorillas are all fascinating animals that have been featured in books, articles and stories. Students explore the connections between animals and humans, both real and imagined, as they develop and practice language, research and writing skills.

Week 5 (July 21–25)
Stories, Fact & Fiction
Since the beginning of time, humans have shaped and defined history using their imaginations and influence. As they explore the roots, truths and falsehoods around pirates and monsters, myths and dragons, students sharpen their writing, research and critical-thinking skills. Readings coupled with writing projects, visual displays and drama activities provide students with opportunities to examine facts and fiction.

5-A (Pre/K) Pirates & Treasures
Through fictional and non-fictional literature, students discover pirates and treasures, decipher codes and hunt for clues using readings and maps. Participants study the historical and cultural forces that surrounded pirating in dif-
different parts of the world at different time periods. To develop writing skills, students write, draw and dictate journal entries and stories.

5-A (K/1) Monsters & Mermaids
Students expand their reading, researching and listening skills through the exploration of fantastic tales about mysterious creatures, such as the Loch Ness monster and singing mermaids. Students craft their own accounts of monster sightings in formats such as illustrated newspaper accounts, live reports and short stories, which also develop writing skills.

5-A (1/2) Gods & Goddesses
How did Zeus escape being swallowed by his father? Why is Aphrodite the goddess of love and beauty? In this course, students go back in time to find answers to questions such as these. As participants discuss their readings they strengthen their vocabulary, comprehension and analytical skills. Students create their own stories exploring events and natural phenomena through the actions of gods and goddesses, synthesizing their newly-found knowledge.

5-A (2/3) Castles & Dragons
The colorful history of Medieval England comes alive through the legends and stories of knights and quests. After gaining a base knowledge of medieval history through research, students collaborate to create their own projects representing the ideas and stories that have captured their imaginations.

Mathematics Courses
Students with an identified strength in math may enroll in a Mathematics course. Identify the appropriate section for your child based on his/her grade level on January 1, 2014. The course code and grade level precede each course title.

Week 3 (July 7–11)
Codes & Symbols
The world is full of codes and symbols and math skills help decipher them! From number patterns to complex ciphers, young code breakers develop strategies and discover the secrets behind a fascinating variety of codes.

3-B (PreK/K) The Secret Lives of Numbers
How many different ways can you depict the number three? A digit is just one symbol that represents a numerical concept. Amazing secrets are revealed as students practice identifying and using symbol systems to represent mathematical ideas.

3-B (K/1) Extreme Code Breaking
Breaking a code often involves identifying a pattern. Morse code, for example, is a pattern of dots and dashes. Students identify patterns of numbers, letters, sounds and symbols and use what they have learned to create their own secret codes.

3-B (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.

3-B (2/3) Hackproof Passwords
How do computer passwords work? Why are some passwords better than others? This course explores a variety of methods for using and creating passwords and passcodes, and develops the mathematical and critical-thinking skills necessary to create master passwords.

Codes & Symbols Math Studio (Afternoon only)
3-S (PreK/K)
3-S (1/2)
Students extend their growing knowledge of codes, patterns and sequences through activities such as creating maps, building Rube Goldberg machines, dramatizing story sequences and producing musical patterns.

Week 4 (July 14–18)
Puzzles & Games
Find the right strategy and a solution will emerge! With a focus on logical thinking, young mathematicians use reasoning, estimation and mental math skills as they play games, work through puzzles and tackle word problems.

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

4-B (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.

4-B (1/2) Mind Bogglers: Predictions & Probability
Students’ analytical skills are challenged as they make educated predictions and consider probability—all in the context of word problems, chance games and brainteasers.

4-B (2/3) Brain Twisters: Multiplication & Fractions
Sometimes solving a math problem is like untangling a knot. Sound strategy and persistence are the keys to success! In this class, mathematical challenges keep young minds churning as they use fractions and multiplication to arrive at solutions.

Puzzles & Games Math Studio (Afternoon only)
4-S (PreK/K)
4-S (1/2)
Clay, foam and wood are just three of the materials students use to deepen their understanding of the math concepts related to puzzles and games. Students invent games, build puzzles and analyze the game-like qualities in the world around them.

Week 5 (July 21–25)
Dollars & Cents: Business Basics
Why do you need money? How do you make money? What does it take to create a successful business? From working with budgeting, currencies and systems for tracking success to analyzing profit/loss and supply/demand relationships, participants learn about finance and business while applying their mathematical skills.

5-B (PreK/K) Coins & Currency: Money in Our World
Money doesn’t grow on trees! Students in this course learn where money actually comes from and its role in the world. Course participants strengthen their computation skills as they explore and compare different currencies, learn the basics of exchange and value, and practice counting and making change through games and simulations.

5-B (K/1) Bank on It: Savings & Checking
“A penny saved is a penny earned.” —Benjamin Franklin. Budding bankers explore the concept of a bank and its alternatives. After delving into topics including savings, interest and checking, students practice real-world skills as they establish their own bank and set up different types of bank accounts, make deposits and withdraw money.

“My child loves his regular school, but Leapfrog is what he looks forward to all year.”
—2013 Leapfrog parent
5-B (1/2) Business Start Up
Is your business making money? To answer that question, students create a kid business and set up a budget for their new enterprise. 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 as they learn about building a business budget.

5-B (2/3) Taking Stock: The Ins & Outs of the Stock Market
What is the stock market? Why do people invest money? Students explore these questions and more as they learn about stock shares, dividends, stockbrokers, stockholders and stock exchanges. Computational and critical-thinking skills are employed as students assume roles in a mock stock exchange.

Business Math Studio 🍁
(Afternoon only)
5-S (PreK/K)
5-S (1/2)
Creating a business is more than selling products. Students create an arts-themed business, such as a theater or art gallery. After producing plans and identifying resources, students develop creative projects that demonstrate their learning.

Science Courses
Students with strong math or verbal ability may enroll in a Science course. Identify the appropriate section for your child based on his/her grade level on January 1, 2014. The course code and grade level precede each course title.

Week 3 (July 7–11)
Life Science
What do living things need to survive? How do different body systems work? Through investigations and simulations, course participants explore environments and systems of living things to discover the fascinating processes that keep them alive and thriving. Students are exposed to fundamental principles of life science, preparing them for more advanced explorations in biology and other related fields.

3-C (PreK/K) Zoo Vets
Junior veterinarians classify and compare animals, with a focus on the unique needs and characteristics of wild animals living in zoos. Students also examine the importance of creating zoo habitats and diets that keep them healthy and reflect the animal’s life in the wild.

3-C (K/1) Blood & Bones: The Human Body
Young biologists investigate the systems of cells circulating within humans. Activities range from creating models of cells and organs to using inquiry to explore the effects of exercise on circulation.

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

3-C (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.

Week 4 (July 14–18)
Architecture & Engineering
What principles of physics, architecture and engineering are behind some of the world’s greatest structures? In these courses, activities focus on learning about the origins and construction of existing structures built all around the globe. Through hands-on investigation and inquiry, students are provided with an excellent foundation for future scientific investigations in physics and engineering.

4-C (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.

4-C (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 these critical transportation systems. Students design and construct models and explain their planning process to peers and instructors.

4-C (1/2) Designing Sailing Ships
Following in the footsteps of naval architects, novice designers examine the different methods of assembling ships complete with keels, hulls and masts. Students implement and test their designs, evaluating the strengths and weaknesses of their ships.

4-C (2/3) Raising Skyscrapers & Towers
How do you build a 200-story building so it won’t topple? How does wind influence an architect’s design? Student architects must answer these questions and others as they uncover the engineering and physics behind tall towers and stupendous skyscrapers.

Week 5 (July 21–25)
Brilliant Blunders
Mistakes are essential to scientific progress. Scientists know that we learn more when things go wrong than when everything runs smoothly. Students take a look at the brilliant blunders of successful scientists and create their own amazing messes and disasters through classroom experiments and multi-media research.

NEW! 5-C (PreK/K) Surprising Spills & Messes
Pour! Stir! Spill! Students create their own crazy concoctions, observe the amazing messes that result, and document their discoveries and conclusions. Aspiring scientists explore the properties of liquids and solids, as well as the benefits of unexpected and intriguing outcomes.

NEW! 5-C (K/1) Awesome Explosions & Collisions
Physicists learn about matter by deliberately crashing particles into each other. What else can be learned from collisions and explosions? 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.

NEW! 5-C (1/2) Lost & Found: The Best Failed Expeditions
Did you take a wrong turn? Excellent! You may be surprised by what you discover while lost. Christopher Columbus sailed for Asia but found the Americas along the way. Explorer David Livingstone never found the source of the River Nile but during his journey through Africa he developed a successful treatment for malaria. Students study, map and recreate some of the most amazing outcomes of failed journeys.

NEW! 5-C (2/3) Micro-Mistakes of the Great Scientists
Scientist Alexander Fleming accidentally discovered a medicine that can kill bacteria when mold began to grow on his dirty dishes. Chance, luck and keen observation have led to many important medical breakthroughs. Students research, experiment and document their discoveries about the happy accidents of great doctors and scientists.
Leapfrog All-day Courses

Leapfrog offers all-day courses for students in grades two or three and looking for the chance to study one subject in greater depth. Identify the appropriate course for your student based on his/her grade level on January 1, 2014. Students participate in hands-on experiments and engaging activities. Courses meet from 9:15 a.m. to 3:45 p.m., Monday through Friday (except in Elmhurst, where courses meet from 8:30 a.m. to 2:45 p.m.). The week culminates with an Expo of students’ work the final day of class each week.

All-day Course Reference Chart

Enroll your child in a course for his or her grade level as of January 1, 2014. Select course topics that best fit your child’s academic strengths as determined through test scores and/or other academic measures.

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<th>SUBJECT AREA</th>
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<td>Mathematics</td>
<td>Prove It! Math &amp; the Multimedia Proof (3)</td>
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<td>LEGO® Metropolis: Urban Design &amp; Architecture (3)</td>
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Leapfrog All-day Course Reference Chart Continued

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<td>Masters of Disguise: Animal Camouflage (2/3)</td>
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</table>

Leapfrog All-day Course Descriptions

Mathematics

*Prove It! Math & the Multimedia Proof*

In mathematics a “proof” is a way of showing that something is true. Students play with the concepts of “proof” and “truth”, both in the world of math and in other contexts, as they respond to the question, “How do we prove what we believe?” An inter-disciplinary teaching team leads students in developing “proof” projects that utilize writing, drawing, calculating, dramatizing, debating and sculpting.

LPCH14-1-S(3) Elmhurst (June 23–27)
LPCH14-3-S(3) Chicago (July 7–11)

**NEW! Global Math: Abaci & Other Calculating Tools**

The American way of performing math operations is just one approach to calculating. From Egyptian number hieroglyphs to Napier’s bones, tools from other countries and cultures offer contemporary students a new perspective on math. Even with computers and electronic calculators, using an abacus is a useful method for making quick and accurate calculations. Students learn to manipulate abaci and explore other math tools from many different traditions and cultures.

LPCH14-3-S(3) Chicago (July 7–11)

**Interdisciplinary**

*Rule Your World: Playing & Analyzing Strategy Games*

Games like Ticket to Ride, Settlers of Catan and 7 Wonders develop skills such as making predictions, calculating odds, developing alliances and creating contingency plans. Students play games, discuss and learn strategies and evaluate outcomes.

LPCH14-1-G(3) Elmhurst (June 23–27)
LPCH14-3-G(3) Palatine (July 7–11)
LPCH14-5-G(3) Skokie (July 14–18)

**NEW! LEGO® Metropolis: Urban Design & Architecture**

Introductory urban design and architecture concepts come to life when students collaborate to plan and create buildings, roads and city infrastructures out of LEGO®. Produce blueprints and maps, research urban planning in real cities such as Chicago and brainstorm solutions to engineering challenges.

LPCH14-3-H(2/3) Chicago (July 7–11)
LPPA14-4-H(2/3) Palatine (July 14–18)
LEAP14-5-H(2/3) Skokie (July 21–25)
Hocus Pocus: The Science of Magic Tricks
When magicians perform magic tricks, such as pulling a rabbit out of a hat, they create an illusion that tricks us into believing something that is not true. What happens inside our brains when we observe magic tricks? Students learn the secrets behind magic tricks and optical illusions by studying how the eye and the brain work together to observe and understand what we see.

LPEL14-2-K(3) Elmhurst (June 30–July 3; 4-day week)
LPPA14-3-K(3) Palatine (July 7–11)
LPCH14-5-K(3) Chicago (July 21–25)

NEW! Masters of Disguise: Animal Camouflage
Spotted fur helps leopards hide in the sun-dappled jungle. White-furred polar bears blend into the snow. Giant squid can change color and even the texture of their skin to make themselves invisible to underwater predators. Students study the biology of these excellent disguises through research, experiments and multi-media projects.

NOTE: This course is open to students in grade 2 or grade 3 on January 1, 2014.
LEAP14-3-J(2/3) Skokie (July 7–11)
LPCH14-4-J(2/3) Chicago (July 14–18)
LPPA14-5-J(2/3) Palatine (July 21–25)

Technology
Introduction to Robotics
The LEGO® WeDo robotics system engages students in technology experiments that explore science, mathematics, social studies and language concepts. Using icon-based programming software, students write and download programs to LEGO® robots allowing them to manipulate the movements of their models. There are no prerequisites.

NOTES:
• This course is open to students in grade 2 or grade 3 on January 1, 2014.
• Additional $25 lab fee is required.
LPPA14-3-F(2/3) Palatine (July 7–11)
LPCH14-4-F(2/3) Chicago (July 14–18)
LEAP14-5-F(2/3) Skokie (July 21–25)

NEW! Robotics Lab: Recording & Sharing NXT Experiments
Building and programming robots using LEGO® NXT robotics kits develop engineering and computer science knowledge and skills. Recording and documenting robotics projects, with both words and images, develop introductory scientific research skills. This course is the whole package—hands-on experience with technology and preparation for scientific research and traditional lab experiments. There are no prerequisites.

NOTE: Additional $25 materials fee is required.
LEAP14-5-D(3) Skokie (July 21–25)

Girls Power Animation
This is the same animation course as Tech Power but taught but in a girls-only learning environment. The girls-only format is designed to help develop girls’ leadership skills and encourage achievement in science and technology.

NOTE: Additional $25 lab fee is required.
LEAP14-4-D(3) Skokie (July 14–18)

English & Writing

Story Power Animation
Make your stories come alive with animation! Students write and edit original narratives and record their work as audio tracks. These recordings are then used to create animated shorts based on hand-drawn, collage or computer-generated illustrations.

NOTE: Additional $25 materials fee is required.
LEAP14-5-D(3) Skokie (July 21–25)
Leapfrog Program Details, Fees & Application Procedure

Regular Application Deadline (Postmark) is June 2, 2014
$50 Late Fee Applies After June 2

Additional application information is available on CTD’s website at www.ctd.northwestern.edu/summer.

Application Period
The application period begins January 1, 2014 and applications are reviewed as they are received. Apply early! Although the application deadline is June 2, many courses fill much earlier.

Late Applications
All applications postmarked or submitted online after June 2, 2014 are charged a $50 late fee (see Course Fees section, next page). Although CTD tries to accommodate late applications, enrollment may not be possible.

Application Review Process
Please be sure your application includes all required materials. Applications are reviewed only after they are complete. After the June 2 deadline, applications that remain incomplete will be deemed inactive, will not be reviewed and no follow up contact will be made.

Once the CTD Summer Program office receives a completed application, it is forwarded to the appropriate Leapfrog program coordinator for review. Once an enrollment decision is made, the program coordinator will notify the applicant via e-mail. The process takes approximately four weeks from the time that a completed application is received in the office. Due to the volume of applications, the review process may take longer for applications submitted closer to the application deadline.

NOTES:
- Leapfrog application information is on pages 17 and 18.
- Applicants submit an application online at www.ctd.northwestern.edu/summer. If you are unable to apply online you may request that a paper application be sent to you by contacting the Summer Program office.
- If you have questions, please e-mail Summer Program staff directly: summer@ctd.northwestern.edu.

Course Availability
Complete applications are reviewed in the order received. A course listed as available on the website at the time an application is submitted may be filled before that application is processed, due to the queue of applications awaiting processing.

Eligibility
Leapfrog courses are specifically designed for students age 4 (PreK) through grade 3 who demonstrate exceptional ability and a strong interest in learning. Students should apply for courses that are in their subject area of greatest strength and interest. The focus of the program is on advancing higher-order and creative-thinking skills in students’ talent areas. Courses are fast-paced and the curriculum is designed for students who function at least one or two grade levels above their chronological grade placement. Families should select a course grade band based on age and the grade level on January 1, 2014.

Admission criteria vary by subject area and grade completed, as detailed below.

- FOR ENGLISH AND WRITING COURSES: Students must have a verbal or reading score in the 95th percentile or above on an in-grade, nationally normed standardized achievement test.
- FOR MATH COURSES: Students must have a quantitative or mathematics score in the 95th percentile or above on an in-grade, nationally normed standardized achievement test.
- FOR SCIENCE, TECHNOLOGY OR INTERDISCIPLINARY COURSES: Students may qualify with a quantitative/math or verbal/reading score in the 95th percentile or above.
- NOTE: If your child’s test score report does not include a National Percentile Rank (NPR), ask your school administrator whether or not the information is available. For example, the Illinois Standards Achievement Test (ISAT), no longer lists NPR on test reports for parents, but the information is provided to school districts and may be requested.

Students who participate in Northwestern University’s Midwest Academic Talent Search (NUMATS) in grade 3 may submit EXPLORE® test scores to qualify for Leapfrog courses. Since EXPLORE is an above-grade-level test, students do not need to score in the 95th percentile on the EXPLORE subtests to qualify, though Leapfrog staff reserves the right to request additional information to make an admission decision.

Because many students age 4 through grade 3 do not have the opportunity for achievement testing within their schools, Center for Talent Development has a testing program (see next section). Comparable evaluations by a school psychologist may be used to demonstrate eligibility for the Leapfrog program only if achievement scores in the areas of mathematics and language arts are included in the test report in the form of nationally normed percentiles.

Students in grades 2 or 3 who do not have test scores may choose to submit an Admission Portfolio (see page 17).
Testing for Leapfrog Admission Through CTD
CTD has developed a testing program for students between the ages of four and nine (or not yet in grade 4). The CTD evaluation consists of achievement tests in letter recognition and reading, early mathematics, general information, and abstract representation. Please refer to CTD’s website at www.ctd.northwestern.edu/summer/programs/leapfrog/ for additional information and current fees.

To arrange for testing, contact CTD at 847/491-3782 extension 6. Limited test dates are available, and testing should be completed before the application deadline. Call for testing appointments early as it may be several weeks between when an appointment is requested and the scheduled testing date, due to testers’ availability and the volume of requests. We will do our best to accommodate late tests, but enrollment, particularly in first course choices, may not be possible.

Optional Parent Orientation
An optional parent orientation is held on the first day of each course. The parent orientation provides an overview of program philosophy, procedures and policies, as well as discussion of future program opportunities. More information will be provided in acceptance e-mails.

Free Parent Seminars
Seminars on topics related to giftedness and parenting gifted children are offered at each site during the program. Dates, topics and speakers are made available on the first day of class and will be listed on the CTD website.

Behavioral Expectations
All students are expected to abide by the Leapfrog Honor Code while participating in the program. The Honor Code focuses on respect for self, others and property. It reads, “In order to create a safe and successful learning community, I will be honest and do my own work; treat others with kindness and respect; help keep my classroom and the school grounds clean; and follow the rules and listen to the teachers. I understand that what I do matters to other people and that being part of Leapfrog depends on my following this code.”

Instructors
Center for Talent Development selects instructors based on their mastery of subject matter, experience, enthusiasm and the ability to differentiate instruction. CTD instructors are particularly skilled at providing engaging and thought-provoking learning experiences for academically talented students.

Lunch & Recess Option
The lunch/recess option is offered Monday through Friday from 12 noon to 1 p.m. except during Leapfrog Favorites and July 21–25 in Lake Forest and Naperville. Students are supervised by teaching assistants as they eat lunch and participate in games and recreational activities. Parents must provide a bag lunch that does not require refrigeration or heating. More information will be included in the Leapfrog acceptance e-mails.

All-day students in Elmhurst do not need to bring a bag lunch. They will be provided lunch in the Elmhurst College dining hall at no extra charge.

Lunch/Recess Participation
Students enrolled in both a morning and afternoon course are automatically enrolled in the lunch/recess option at no extra charge. Any student enrolled in a morning course only (no afternoon course) for the half-day program may participate in the 12 noon to 1 p.m. lunch/recess option except during Leapfrog Favorites and July 21–25 in Lake Forest and Naperville. Cost for the lunch/recess option is $10 per day. Students who are only participating in an afternoon course are not eligible to participate in the lunch/recess option. Forms and payments by check for the lunch/recess option are due to the site office the Monday of each week.

Early Morning Math Club (Chicago Site Only)
At our Chicago site, any student enrolled in a course may also enroll in Early Morning Math Club. Students in the club may be dropped off between 8 and 8:15 a.m., and participate in math games and activities until they are walked to class at 9 a.m. Cost for Early Morning Math Club is $75 per week. Instructions for online registration for Early Morning Math Club will be sent to Chicago families with the acceptance and welcome e-mails.

Leapfrog Course Fees

<table>
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<th>COURSES</th>
<th>ONE COURSE</th>
<th>TWO COURSES</th>
<th>THREE COURSES</th>
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<td>COURSES</td>
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<td>CH Favorites half-day</td>
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5-Day (full week) Courses

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<tr>
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<td>Total Tuition</td>
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<td>$670</td>
<td>$975</td>
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NOTES:
- Online application requires credit card payment. Contact the Summer Program if you are unable to pay via credit card.
- All Leapfrog applications must include payment for the total tuition plus the nonrefundable $60 application fee.
• Leapfrog students applying for more than one week or more than one course per week pay only one application fee.

• Fees include tuition and basic materials. A few courses require an additional lab or materials fee.

• A late fee of $50 must accompany each application submitted after June 2, 2014.

Refunds & Withdrawals
• All requests for tuition refunds and/or withdrawals must be made in writing and either e-mailed, faxed or mailed to CTD by June 9, 2014.

• If a student withdraws in writing between the June 9 deadline and the start of the course, CTD will refund 50% of the program fees paid, less the $60 application fee.

• Students who withdraw after the start of a course receive no refund.

• Students dismissed for disciplinary reasons are not eligible for any refund.

• The $60 application fee is not refundable except in cases where all the courses applied for are closed or financial aid is not adequate for participation.

• Refund processing may take eight weeks, starting from the time a written request is received by CTD.

Financial Aid
• CTD offers need-based financial aid which is awarded on a rolling basis as requests are received beginning in January 2014. Families are encouraged to apply early as the amount of aid available is limited and is typically exhausted before the June 2 application deadline.

• The aid awards vary from partial to full tuition support. Awards are based on family income and extenuating circumstances (e.g., loss of job, unforeseen medical expenses, etc.). Most families awarded aid have a total household income of less than $50,000.

• Financial aid will be awarded for a maximum of two half-day courses of Leapfrog or one all-day course of Leapfrog per student.

• To be considered for financial aid, families must complete the Financial Aid Application. All required materials (tax information, statement of need, etc.) must be included in the financial aid submission in order for a financial aid application to be considered.

• The amount of financial aid granted and the balance due will be reflected on the invoice included in the acceptance materials. Any outstanding balance must be paid by June 2, 2014.

Evaluations
• Leapfrog courses are for enrichment; students do not receive grades for the course(s) they complete.

• All students are sent a narrative evaluation which includes comments on performance and recommendations for future study.

• Evaluations are sent to families via e-mail after the end of the summer program season, usually by September 15.

Program Application Procedures
You may apply online at www.ctd.northwestern.edu/summer or request that an Application for Admission be sent to you. CTD does not accept faxed applications.

To begin the application process, select the applicant type best suited to you based on the descriptions below.

New Applicant or New Scores
The student must meet one of the following two criteria:

• The student has never attended a Center for Talent Development (CTD) program and has qualifying test scores (see Eligibility section for details).

• The student has previously attended a CTD program, but the student has new test scores qualifying the student in an additional content area.

Returning Applicant
The student must meet both of the following criteria:

• The student has successfully completed a CTD course (within the last 3 years) and the student is applying for a course in the same subject area or one that requires the same qualifying score.

• The student has test scores or an admission portfolio on file at CTD that meets the criteria for the course for which the student is applying.

Admission Portfolio Applicant
The student must meet both of the following criteria:

• The student is in grade 2 or 3 (as of January 1, 2014).

• The student does not have qualifying test scores because the student has
  1) never taken a nationally normed standardized achievement test or
  2) taken this type of test but not achieved a qualifying test score.
**Visa & Passport Requirements for International Applicants (non-U.S. citizens)**

Any admitted student who is not a U.S. citizen, U.S. permanent resident or in another visa category that allows for study, and is applying for more than one half-day Leapfrog course (over 18 hours of study), requires sponsorship for a student visa. Failure to comply may negatively impact a student’s ability to secure another non-immigrant visa in the future.

- For more information visit [www.travel.state.gov/visa/temp/types/types_1268.html](http://www.travel.state.gov/visa/temp/types/types_1268.html).
- All non-U.S. citizens are required to have a passport to attend summer programs in the U.S. The passport must be valid for a minimum of six months after the completion of the program.
- Accepted students who require visa sponsorship may incur additional fees to cover processing and mailing costs. Invoices for any additional fees will be sent via e-mail to families.

**Application Materials Checklist**

Use the following chart to determine what materials are required.

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<thead>
<tr>
<th>APPLICANT TYPE</th>
<th>RETURNING APPLICANT</th>
<th>NEW APPLICANT W/ TEST SCORES</th>
<th>ADMISSION PORTFOLIO APPLICANT</th>
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<td>Two Teacher Recommendations</td>
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**APPLICATION NOTES:**

- Test scores refer to nationally normed standardized achievement tests. For a list of example tests, visit our website at [www.ctd.northwestern.edu/summer/programs/leapfrog/eligibility/](http://www.ctd.northwestern.edu/summer/programs/leapfrog/eligibility/).
- If test scores submitted are more than two years old, CTD may request additional information or updated test scores.
- The report card should be the most recent evaluation of your child’s school performance.
- For portfolio applications, two recommendations are required and they should be from educators able to speak to your child’s abilities in the subject area closest to the Leapfrog course choice. Families will find the link to the teacher recommendation form on the Forms and Downloads page of the Summer Program website.
- All courses are taught in English. Students need a good command of written and spoken English to succeed in the courses.

The online application is available at [www.ctd.northwestern.edu/summer](http://www.ctd.northwestern.edu/summer). You will need a credit card to complete the transaction and submit Part 1 of the application. We recommend that you prepare all necessary supporting documents (test scores, teacher recommendations, etc.) for Part 2 of the application in advance.

Applicants will be e-mailed a confirmation that they have completed Part 1 of the application. The confirmation e-mail will include a student-unique link to Part 2 of the application. Part 2 of the application is where supporting documents (if needed) will be uploaded. The parent e-mail provided in the online application is the address to which all CTD communications will be sent. Please note that applications are not complete nor are they reviewed by program coordinators until all supporting documentation is submitted.

If you are not able to apply online, request that a paper application be sent to you by e-mailing the Summer Program office at summer@ctd.northwestern.edu or calling 847/491-8257.

Be sure to provide us with the following information:

1) Which application form(s) you are requesting (i.e., Leapfrog)
2) How you would like the material sent: e-mail or postal service
3) Address and contact information: name, mailing address (including city, state and zip code) or e-mail address and, in both instances, a phone number in case we need to contact you.

**Summer Program & CTD Communication**

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

When you register your child for a CTD course, you will receive notifications of other programs and services provided by CTD. If you do not wish to receive e-mail messages promoting programs or services from CTD contact us at 847/491-3782 ext. 4.

—I love the focus on responding to students’ individual interests.”

—2013 Leapfrog parent
Spark, Solstice & Apogee

Grades 4, 5 or 6

(grade level on January 1, 2014)

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 a residential program.

Apply Early! Application Period Begins January 1

All three programs—Spark, Solstice and Apogee—are offered at Northwestern University’s Evanston, Illinois campus (residential or commuter) and at Elmhurst College in Elmhurst, Illinois (commuter only). Taking courses on a college campus affords students the opportunity to experience college in a safe and structured way. Recreational activities are available to all students (commuter and residential) at the end of the academic day from 3 p.m. to 5 p.m. at no additional cost.

Spark

Spark is a weeklong program for students in grades 4 or 5 that introduces them to a topic of interest and fosters critical and creative thinking through interactive, project-based activities. Students in the Spark program take a single course that meets approximately five-and-a-half hours a day, allowing for focused study. The Spark program culminates with an Expo! of student work. Please check the details section (page 43) for additional information.

Solstice

Solstice is a two-week program for students in grades 4, 5 or 6 that provides deep exploration of an exciting and complex topic of study. Students problem solve and hone study skills as they complete course projects. 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. Please check the details section (page 43) for additional information.

Apogee

Apogee is a three-week, fast-paced enrichment program for students in grades 4, 5 or 6. Apogee students are introduced to advanced concepts in a particular subject area, helping them to gain new knowledge and develop creative, problem-solving and study skills in a supportive environment. Apogee also offers compacted, full-year math courses for advanced math students wishing to accelerate in school. Apogee students take a single course that meets approximately five-and-a-half hours a day, allowing for focus and depth. The Apogee program culminates with an Expo! of student work and the opportunity to meet individually with course instructors. Please check the details section (page 43) for additional information.

“The teacher inspired the students to expand their knowledge and stretch their imagination in a fun and exciting manner.”

—2013 Spark parent
**SPARK:** Grades 4–5, One-Week Program at Elmhurst College, Elmhurst, IL (commuter only)

Week 1: June 23–June 27

<table>
<thead>
<tr>
<th>COURSE NUMBER</th>
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<tbody>
<tr>
<td>4</td>
<td>Master Disaster</td>
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<tr>
<td>6</td>
<td>Girl Power: Animation &amp; Web Design</td>
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<td>8</td>
<td>How Things Work: Electronics</td>
</tr>
<tr>
<td>10</td>
<td>Cell Biology</td>
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<tr>
<td>12</td>
<td>Circus Physics</td>
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Week 2: June 30–July 3 (4-Day Compressed Course)

<table>
<thead>
<tr>
<th>COURSE NUMBER</th>
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<tbody>
<tr>
<td>2</td>
<td>Pen to Podium: Expert Writing &amp; Speaking</td>
</tr>
<tr>
<td>5</td>
<td>Survivor Math: Extreme Problem Solving</td>
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<tr>
<td>7</td>
<td>Scratch: Computer Programming</td>
</tr>
<tr>
<td>9</td>
<td>Invention Convention: Ingenious Engineering</td>
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**SPARK:** Grades 4–5, One-Week Program at Northwestern University, Evanston, IL (residential or commuter)

Week 1: June 29–July 4

<table>
<thead>
<tr>
<th>COURSE NUMBER</th>
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<tbody>
<tr>
<td>1</td>
<td>Everyday Epics: Oral Storytelling &amp; Performance</td>
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<tr>
<td>3</td>
<td>Crafting a Hero: Art &amp; Literature of the Graphic Novel</td>
</tr>
<tr>
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<td>Survivor Math: Extreme Problem Solving</td>
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<tr>
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<td>How Things Work: Electronics</td>
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<td>10</td>
<td>Cell Biology</td>
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<td>11</td>
<td>The Science of Treasure Hunting</td>
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Week 2: July 6–July 11

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<tr>
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<tbody>
<tr>
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**SOLSTICE:** Grades 4–6, Two-Week Program at Elmhurst College, Elmhurst, IL (commuter only)

July 7–July 18

<table>
<thead>
<tr>
<th>COURSE NUMBER</th>
<th>COURSE TITLE</th>
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<tbody>
<tr>
<td>13</td>
<td>Novel Engineering</td>
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<tr>
<td>18</td>
<td>Minecraft</td>
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<tr>
<td>21</td>
<td>Chem Lab!</td>
</tr>
<tr>
<td>23</td>
<td>Breakout Biology: Infectious Disease</td>
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<tr>
<td>25</td>
<td>Roller Coaster Physics</td>
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</tbody>
</table>

**SOLSTICE:** Grades 4–6, Two-Week Program at Northwestern University, Evanston, IL (residential or commuter)

Session 1: July 13–July 25

<table>
<thead>
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<th>COURSE NUMBER</th>
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<tbody>
<tr>
<td>13</td>
<td>Novel Engineering</td>
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<tr>
<td>15</td>
<td>Money on the Brain: Behavioral Economics</td>
</tr>
<tr>
<td>17</td>
<td>Get Smart! Spies, Gadgets &amp; Intelligence Organizations</td>
</tr>
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<td>19</td>
<td>Math Madness!</td>
</tr>
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<td>20</td>
<td>Cool Chemical Capers</td>
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<tr>
<td>22</td>
<td>Introduction to Genetics</td>
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<td>24</td>
<td>Phun Physics</td>
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Session 2: July 27–August 8

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<thead>
<tr>
<th>COURSE NUMBER</th>
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<tbody>
<tr>
<td>14</td>
<td>Sketch Comedy &amp; Improvisation</td>
</tr>
<tr>
<td>16</td>
<td>Mount Olympus to Asgard: Myth, Legend &amp; Percy Jackson</td>
</tr>
<tr>
<td>18</td>
<td>Minecraft</td>
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<td>Roller Coaster Physics</td>
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</tbody>
</table>
**APOGEE: Grades 4–6, Three-Week Program at Northwestern University, Evanston, IL (residential or commuter)**

**Session 1: June 29–July 18**

<table>
<thead>
<tr>
<th>COURSE NUMBER</th>
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</thead>
<tbody>
<tr>
<td>26</td>
<td>Creative Writing: Short Story</td>
</tr>
<tr>
<td>28</td>
<td>Future Frontiers: Aliens, Robots &amp; Humans Collide!</td>
</tr>
<tr>
<td>30</td>
<td>The 90-Second Newbery: Making Great Movies Out of Great Books</td>
</tr>
<tr>
<td>32</td>
<td>Power &amp; Influence: Practice in Persuasion</td>
</tr>
<tr>
<td>33</td>
<td>Order in the Courtroom: The Law through Fable &amp; Fairy Tale Trials</td>
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<tr>
<td>35</td>
<td>Applied Imagination: Creative Solutions to Big Problems</td>
</tr>
<tr>
<td>37</td>
<td>Math: Puzzles &amp; Games</td>
</tr>
<tr>
<td>38</td>
<td>Pre-Algebra (enrichment)</td>
</tr>
<tr>
<td>40</td>
<td>Algebra I Honors</td>
</tr>
<tr>
<td>41</td>
<td>Bits &amp; Blocks I: Computer Programming</td>
</tr>
<tr>
<td>42</td>
<td>Introduction to Web Design</td>
</tr>
<tr>
<td>43</td>
<td>Robotics</td>
</tr>
<tr>
<td>44</td>
<td>Designing Machines that Work: Engineering &amp; Physics</td>
</tr>
<tr>
<td>46</td>
<td>Up, Up &amp; Away: Aerodynamics Past, Present and Future</td>
</tr>
<tr>
<td>47</td>
<td>Detective Science: An Introduction to Forensics</td>
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<tr>
<td>49</td>
<td>Zoology</td>
</tr>
</tbody>
</table>

**Session 2: July 20–August 8**

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<tr>
<th>COURSE NUMBER</th>
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</thead>
<tbody>
<tr>
<td>27</td>
<td>Creative Writing: The Next Chapter</td>
</tr>
<tr>
<td>29</td>
<td>Writer’s Workshop</td>
</tr>
<tr>
<td>31</td>
<td>From Page to Stage: Writing, Directing &amp; Performing</td>
</tr>
<tr>
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<td>Power &amp; Influence: Practice in Persuasion</td>
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<td>Order in the Courtroom: The Law through Fable &amp; Fairy Tale Trials</td>
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<tr>
<td>34</td>
<td>Open for Business</td>
</tr>
<tr>
<td>36</td>
<td>Design Studio: Illustrating Science</td>
</tr>
<tr>
<td>38</td>
<td>Pre-Algebra (enrichment)</td>
</tr>
<tr>
<td>39</td>
<td>Pre-Algebra Honors (graded)</td>
</tr>
<tr>
<td>41</td>
<td>Bits &amp; Blocks I: Computer Programming</td>
</tr>
<tr>
<td>43</td>
<td>Bits &amp; Blocks II: Logo to Python</td>
</tr>
<tr>
<td>45</td>
<td>ROVing Robotics: Exploring the Technology of Unmanned Vehicles</td>
</tr>
<tr>
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<td>48</td>
<td>Detective Science: An Introduction to Forensics</td>
</tr>
<tr>
<td>50</td>
<td>Astronomy &amp; Astrophysics: Beyond the Milky Way</td>
</tr>
</tbody>
</table>

**APOGEE: Grades 4–6, Three-Week Program at Elmhurst College, Elmhurst, IL (commuter only)**

**July 7–July 25**

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<td>49</td>
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</tr>
</tbody>
</table>

"My daughter really enjoyed being part of a community of students who are curious and interested in learning at a faster pace."

—2013 Apogee parent
Spark Course Descriptions

English, Writing & Humanities

Admission Criteria: EXPLORE® test; OR ≥ 95% national percentile rank in verbal or reading on standardized achievement test; OR Admission Portfolio

NEW! 1. Everyday Epics: Oral Storytelling & Performance

“Sing in me, muse, and through me tell the story…” The Odyssey’s famous opening lines provide the inspiration for students in this course, who study great storytellers past and present to understand how oral storytelling has shaped our world. Students learn oratory vocabulary and techniques, writing and performing original stories both individually and collaboratively. Using techniques from a variety of narrative traditions, students gain confidence by honing their skills as orators and using their stories to influence, persuade and entertain.

OFFERED: NU Week 1

2. Pen to Podium: Expert Writing & Speaking

For a school essay on the importance of the Bill of Rights and the latest pitch to your parents to get you a dog would you use the same approach? Is a well-written essay always an effective oral argument? Essays and speeches must be crafted strategically to have the greatest impact. Pen to Podium students explore rhetorical devices and other techniques for constructing strong written pieces and delivering excellent speeches, including selecting language for its appeal to the ear, heart and mind.

OFFERED: NU Weeks 1 & 2, EC Week 2

NEW! 3. Crafting a Hero: Art & Literature of the Graphic Novel

The graphic novel, an original American art form, has flourished in recent decades, and the genre isn’t just about superpowers and comedy anymore. What can graphic novels do that other books and media cannot? This course analyzes graphic novels, manga and hybrids and explores why they are so effective. Through reading, writing, drawing and discussion, students learn strategies for developing sequential narratives. Hands-on studio sessions break down the composition, narrative flow and graphic style of this complex art form.

OFFERED: NU Week 1

NEW! 4. Master Disaster

Why did it take months to stop the 2010 Deepwater Horizon oil spill in the Gulf of Mexico? How have authorities tried to extinguish the Centralia mine fire that has been burning under Pennsylvania since 1962? Looking at disasters, old and new, human-made and natural, students use creativity and problem-solving skills to analyze the responses to these dilemmas and determine their own recommendations. In a collaborative environment, participants are taught research techniques and given tools to approach a challenge in an imaginative way.

OFFERED: NU Week 2, EC Week 1

Mathematics

Admission Criteria: EXPLORE® test; OR ≥ 95% national percentile rank in quantitative or math on standardized achievement test; OR Admission Portfolio

5. Survivor Math: Extreme Problem Solving

Applying math skills is the key to survival in this creative problem-solving course. Students role-play a variety of exciting scenarios such as marooned on a desert island, trapped in a disabled 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.

OFFERED: NU Weeks 1 & 2, EC Week 2

Technology

Admission Criteria: EXPLORE® test; OR ≥ 95% national percentile rank in quantitative/math or verbal/reading on standardized achievement test; OR Admission Portfolio

6. Girl Power: Animation & Web Design

Learn about two exciting, current technology topics in this girl-positive environment! Using hands-on, project-based approaches, students get to try out fun and powerful software packages, which may include Photoshop, Scratch, Flash and Kompozer®, and delve into the design process. Participants learn basic HTML coding to create a functioning website. No formal computer experience is required.

NOTE: Additional $35 lab fee is required.

OFFERED: NU Week 1, EC Week 1

Science

Admission Criteria: EXPLORE® test; OR ≥ 95% national percentile rank (see course descriptions for qualifying subject area) on standardized achievement test; OR Admission Portfolio.

8. How Things Work: Electronics

How does a television work? What’s inside your computer or cell phone? We love working and playing with high-tech gadgets, but how often do we stop to think about how these tools actually function? In this inquiry-based course, students safely dismantle consumer electronics to discover how they work. Students also examine the development and use of these items and how they might be improved in the future. Through research, experimentation and discussion, students create and build simple electronic machines and circuits.

QUALIFYING SCORE: Math

NOTE: Additional $35 materials fee is required.

OFFERED: NU Week 1, EC Week 1

9. Invention Convention: Ingenious Engineering

Humans continually invent new ways to make their lives easier, safer and more interesting. We create new and improved toys and games. We figure out more efficient ways to transport our stuff and ourselves. Students channel their creative instincts by brainstorming, designing and constructing inventions that really work. The work begins with the study of great inventors and how and why certain products or machines were invented. After brainstorming ideas, students develop their own invention, plan how to make it, and then create and test their product.

QUALIFYING SCORE: Math

NOTE: Additional $35 materials fee is required.

OFFERED: NU Week 2, EC Week 2
10. Cell Biology
Living things are composed of cells, but just what is a cell? What do they look like and how do they work? Where do cells come from and how do they reproduce? These questions and others are answered in this introductory cell biology course. Students learn laboratory skills as they examine the structures of various living cells, observe cells as they reproduce, and discuss the laws of genetic inheritance. Students create models, research the function and structure of cell parts and compare cells found in plants and animals.

QUALIFYING SCORE: Reading
NOTE: Additional $35 materials fee is required.
OFFERED: NU Week 1 & 2, EC Week 1

11. The Science of Treasure Hunting
From archeologists to geocachers, treasure hunters use science and technology to guide their search for valuables around the globe. Students explore the world of treasure hunting by drawing on concepts from geology, oceanography, meteorology, physics, chemistry and biology. Students conduct hands-on experiments and participate in various types of hunts, honing their navigation skills and using both early search techniques and current technology such as GPS.

QUALIFYING SCORE: Reading
NOTE: Additional $35 materials fee is required.
OFFERED: NU Week 1

NEW! 12. Circus Physics
Ladies and gentlemen, boys and girls, welcome to the greatest show (of science) on Earth! From tightrope walkers to aerialists, jugglers to trapeze artists, circus performers use physics in every amazing movement. The balance, timing and trajectories needed to accomplish their remarkable feats are rooted in math and mechanics. Join us for a spectacular exploration of topics such as vectors, velocity, external torque, static equilibrium, angular momentum and Newton’s first law of motion! After analyzing these dangerous and exciting circus acts and their corresponding physics principles, students develop their own 3-ring science presentation.

NOTE: Additional $35 materials fee is required.
OFFERED: NU Week 2, EC Week 1

Solstice Course Descriptions

English & Writing
Admission Criteria: EXPLORE® test; OR ≥ 95% national percentile rank in verbal or reading on standardized achievement test; OR Admission Portfolio

NEW! 13. Novel Engineering 🎉
Could you draw a Quidditch field? Or design the home of the shipwrecked Swiss Family Robinson? In this arts-integrated literature course, students read fiction selections and imagine they are engineers who can impact the narrative through design. After reading excerpts from novels, students flesh out or design environments not yet realized to extend the stories. Projects include creative writing, drawing, mapping, designing and constructing three-dimensional structures and environments.

OFFERED: NU & EC

14. Sketch Comedy & Improvisation
Are you a class clown or a quick wit? In this class, students use their senses of humor and strong grasp of character to craft comedic scenes and sketches. Through interactive instruction in improvisation and writing assignments that encourage quick thinking, students generate comedic material in a variety of formats, from monologue to multi-person scene. Daily peer critiques help comedians improve their writing and develop trust within the ensemble. Students learn basic comedic vocabulary as they develop timing, confidence, and collaboration.

OFFERED: NU

Humanities & Social Sciences

15. Money on the Brain: Behavioral Economics
Getting something for free can cost you. And, having many options distracts you from making the best choice. While using various research strategies and designing experiments, students explore what happens when psychological influences (like emotions and persuasion) meet market forces. Using statistical analysis to interpret data, students examine the question “do our decisions about money make sense?”

OFFERED: NU

NEW! 16. Mount Olympus to Asgard: Myth, Legend & Percy Jackson
“A myth is a way of making sense in a senseless world.” - Rollo May
In this course, students discover why myths were created by many of the world’s ancient civilizations and how those myths are found in contemporary literature, film and other media of today. How many of those stories were based on real experiences? Students explore the art of storytelling, discuss mythology and examine oral tradition as they experiment with creative performance and come to understand the mythologies of ancient times.

OFFERED: NU

Mathematics & Technology
Admission Criteria: EXPLORE® test; OR ≥ 95% national percentile rank in verbal or reading on standardized achievement test; OR Admission Portfolio

17. Get Smart! Spies, Gadgets & Intelligence Organizations
Human societies have developed intelligence networks to protect domestic secrets and protect themselves against threats. Cryptography and code breaking, remote sensing and surveillance are all a part of the intelligence game. Students explore the unique history, math and science behind intelligence gathering, researching spies and missions and developing their own plans, codes and gadgets to experience the world of espionage.

OFFERED: NU

NEW! 18. Minecraft 🎉
Join classmates in a secure Minecraft world for unique design challenges. Build societies and systems, plan treasure hunts and enhance Minecraft skills. 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. Students who do not have a computer should contact the Solstice Program Coordinator to discuss alternatives.
- Additional $75 materials fee required.

OFFERED: NU & EC
NEW! 19. Math Madness!
Caution: These problems may drive you wild! But, armed with motivation, persistence and problem-solving skills, you’re bound to triumph. Using problems from the Art of Problem Solving and MATHCOUNTS, students learn concepts from pre-algebra, algebra, and geometry and utilize a wide range of problem-solving tactics. Math Madness! activities engage students who love number problems and puzzles, and who seek greater challenges in mathematics.

OFFERED: NU

Science

Admission Criteria: EXPLORE® test; OR ≥ 95% national percentile rank in quantitative/math or verbal/reading on standardized achievement test; OR Admission Portfolio

20. Cool Chemical Capers
How does soap remove dirt? What preserves packaged cupcakes? Students solve everyday mysteries in this inquiry-based introduction to chemistry. Through experimentation, students investigate the properties of various elements and learn what causes or prevents chemical reactions. They also 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.

OFFERED: NU

21. Chem Lab!
Although you may have done laboratory experiments, do you really know what chemistry is or why experiments are necessary? This course answers important questions like, “What makes a chemical a chemical?” and “What do chemists do?” Students are also introduced to core subjects including atomic weight and structure, acids and bases and chemical bonding. Through hands-on experiments in a laboratory setting, students learn important lab techniques and acquire valuable skills.

NOTE: Additional $75 lab & materials fee required.

OFFERED: NU & EC

22. Introduction to Genetics
When someone says, “It’s in the genes” what does it mean? Genes help determine the color of our eyes and hair, our height and our predisposition to certain illnesses. Students tackle genetics concepts and learn how genes and DNA determine traits through experiments and research. Course participants also discuss advances in the field of genetics, including the Human Genome Project, and consider the ethical, legal and medical issues involved.

NOTE: Additional $75 lab & materials fee required.

OFFERED: NU & EC

NEW! 23. Breakout Biology: Infectious Disease
Infectious diseases have plagued and puzzled humanity from the beginning of time. From the common cold to West Nile virus, infectious diseases continue to roam our planet. Students learn about the fields of microbiology, immunology and epidemiology as they are introduced to the microbes that cause diseases, such as bacteria, viruses, parasites, fungi and prions. They also investigate host-agent-environmental relationships and disease causation in an effort to understand how people manage and prevent disease. Students study how the human immune system works to keep us healthy. They look at advances in medical technology that have helped combat disease, eliminated some, and allow us to continue to find cures for others. Students learn to question and hypothesize, identify and manipulate variables, observe, measure and record data, and analyze and interpret results.

NOTE: Additional $75 lab & materials fee required.

OFFERED: NU

NEW! 25. Roller Coaster Physics
Ever wonder how a single amusement park ride can make you feel lighter than air in one moment and pressed heavily down into your seat in the next, all while somehow keeping you safely inside the ride? Careening down a track at 60 miles per hour, sailing through clothoid loops and around hairpin turns may seem like a dangerous way to have fun, but the laws of physics used in roller coasters are only a simulation of danger. Strap yourself in for a fast-paced adventure in the world of forces. 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 rides.

NOTE: Additional $75 lab & materials fee required.

OFFERED: NU & EC

English & Writing

Admission Criteria: EXPLORE® test; OR ≥ 95% national percentile rank in verbal or reading on standardized achievement test; OR Admission Portfolio

26. Creative Writing: Short Story
“If a story is in you, it has got to come out.” So wrote William Faulkner as he described the process underlying the writing of fiction. Students channel their creative ideas utilizing basic elements of a short story and intertwining these elements to form a polished, dynamic whole. By studying professional writing techniques, practicing writing and revising, and presenting their own work, young writers create a portfolio to take home.

OFFERED: NU Session 1

27. Creative Writing: The Next Chapter
Young writers at any stage of book writing—from great idea to the final chapters—are encouraged to join this class where they study examples of successful and well-written novels and plot a course for writing their own pieces. Students identify the elements that make a great novel and apply them to their own process. Daily peer critiques and revision workshops are utilized to help developing writers tap into their creativity and practice the focus, discipline and diligence necessary to complete a novel.

OFFERED: NU Session 2
“I liked how the teacher taught the class; it felt like everyone was family.”
—2013 Apogee student

NEW! 28. Future Frontiers: Aliens, Robots & Humans Collide!
“Fiction is the lie that tells the truth.” - Abraham Rothburg
Science fiction, a unique genre of literature and film, inspires readers to re-imagine their present lives, their relationship to history, and the possibilities of the future. Authors of science fiction are masters of the “what if...?” question and readers of the genre are taught to imagine fantastic futures and how our world might be changed for the better. From Bradbury to Anderson, Asimov to Lowry, students read, analyze and write about classic and contemporary works of science fiction literature and film.
OFFERED: NU Session 1

29. Writer’s Workshop
“The difference between the right word and the almost right word is the difference between lightning and lightning bug,” wrote Mark Twain. Students develop their communication skills as they learn to write various types of essays ranging from expository to persuasive. Through a variety of interactive class and small group activities, students discover how to incorporate feedback from peers and instructors into their writing. They move through drafting and revising stages to produce polished compositions. Students prepare a portfolio of writing samples that they can take home.
OFFERED: NU Session 2

30. The 90-Second Newbery: Making Great Books Into Great Movies
Do you wonder what The Tale of Despereaux would look like in LEGO® stop-motion animation? Do you think Crispin’s story should be told as a Star Wars-esque space odyssey? Even without answering “yes” to the above questions, you’ll still love making your own 90-Second Newbery Film. In this combined literary-analysis and introductory cinematography class, students read Newbery Medal and Honor literature, boil it down to its most essential parts and create short films. Students work in teams as they learn storytelling and video production techniques to craft an original submission for the 90-Second Newbery Film Festival.

NOTES:
- Additional $75 materials fee required.
- Students are required to bring a laptop computer for use in the course. Students who do not have a computer should contact the Apogee Program Coordinator to discuss alternatives.

OFFERED: NU Session 1

NEW! 31. From Page to Stage: Writing, Directing & Performing
Are you the next Julie Taymor, re-envisioning your favorite Disney story for the stage? Have you been crafting your own comedy or drama and want to see it come to life? Students in this course learn about various aspects of a theatrical production, from first inspiration to final bows. They craft effective plots, write for diverse characters, design sets and costumes and bring their stories to life onstage. Through improvisation exercises, students develop confidence in their acting abilities and learn effective staging techniques. Daily critiques help dramatists improve their writing and performance skills, and produce a final, polished piece taken all the way from page to stage!

OFFERED: NU Session 2

Humanities & Social Sciences

Admission Criteria: EXPLORE® test; OR ≥ 95% national percentile rank in verbal or reading on standardized achievement test; OR Admissions Portfolio

32. Power & Influence: Practice in Persuasion
Are you tired of wearing a uniform to school every day? Do you think you need the latest tablet or smartphone? Learn how to convince your parents or school principal to see things from your perspective. This introduction to persuasive speaking develops the skills needed to participate in debate, mock trial and forensic competitions. Students work on developing comfort with delivery as they perform pre-written essays, stories and speeches. They then learn to choose appropriate topics, form compelling introductions and locate convincing evidence to support their claims. Individual and group work will prepare budding debaters to explore their own persuasive voices.

OFFERED: NU Session 1 & 2; EC

33. Order in the Courtroom: The Law through Fable & Fairy Tale Trials
What do Jack and the Beanstalk, Hansel and Gretel and Little Red Riding Hood have in common? Each character is under 12 years old, gifted and capable of tackling extraordinary challenges in order to live “happily ever after.” Through the lenses of law, literature and theater, students 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 students to take on the varied roles of lawyer, witness, juror, and storyteller. Order in the Courtroom focuses on developing advanced skills in oral argument, moral reasoning, mediation, conflict resolution, and the classic art of great storytelling.

OFFERED: NU Sessions 1 & 2

Interdisciplinary Studies

Admission Criteria: EXPLORE® test; OR ≥ 95% national percentile rank in verbal or reading on standardized achievement test; OR Admissions Portfolio

34. Open for Business
Looking to build a booming business? Trying to understand why some businesses fail and others succeed? Students learn about the market system and the choices and risks faced by individuals, businesses and governments looking to provide goods or services. Students learn about scarcity, incentives, trade and market behavior as they study real businesses and simulate their own. This course is for the budding entrepreneur, helping him/her to identify the risks and potential returns of running a business and introducing the skills and background necessary to get started.

OFFERED: NU Session 2

35. Applied Imagination: Creative Solutions to Big Problems
“A problem is a chance for you to do your best.” - Duke Ellington
Problems don’t just show up in math class; they exist in everyday life, can be extremely complex and demand the energy and resources of many people. Creative Problem Solving (CPS) is an approach that teaches students to think critically and creatively about “big” problems. In this course, students work in teams applying the CPS model to generate solutions to real-life dilemmas of past and present. For example, how would you have organized cleanup of the Great Molasses Flood of 1919 when an eight-foot tidal wave of molasses swept through Boston, Massachusetts? Using case studies, students work through challenging problems to develop problem-solving and leadership skills.

OFFERED: NU Session 1
NEW! 36. Design Studio: Illustrating Science

If a mysterious new animal species were discovered in a far away land, thanks to the Internet, you could view a photograph of it almost immediately. But how would you get a visual understanding of a new physics principle or a newly discovered chemical compound? Scientific illustrations represent phenomena we cannot see and communicate complex concepts to the general public. In this course, students experiment with diverse media as they diagram, practice realistic and schematic 2D illustration, model concepts in 3D, and redesign existing scientific representations for a range of audiences.

OFFERED: NU Session 2

Mathematics

Admission Criteria: EXPLORE® test; OR ≥ 95% national percentile rank in math on standardized achievement test; OR Admission Portfolio.

For Pre-Algebra Honors and Algebra I criteria see course descriptions.

37. Math: Puzzles & Games

In a library drop box, there are 8 novels, 8 biographies, and 8 history books. If Jasmine selects two books at random, what is the probability that she will select two different kinds of books in a row? Students in this mathematics course examine a variety of critical math topics through the lens of puzzles and games including chess, Go, Sudoku, modern strategy games and card and carnival games of chance. Concepts come from algebra and geometry and include inductive reasoning and an advanced exploration of probability and statistics. This course culminates with a student-designed carnival applying the statistical and probabilistic concepts learned in class.

OFFERED: NU Session 1

NEW! 38. Pre-Algebra (Enrichment)

This introduction to Pre-Algebra covers 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. Students build arithmetic skills as they apply to algebra. The course is designed specifically for accelerated math students who want a preview of Pre-Algebra for future study.

OFFERED: NU Session 1 & 2

39. Pre-Algebra Honors (Graded)

Prerequisites: EXPLORE Math ≥ 19, OR ACT® M ≥ 19, OR SAT® M ≥ 490 or Admission Portfolio with test scores at the 99% national percentile rank in quantitative or math section on a standardized achievement test.

Pre-Algebra is an advanced instructor-led mathematics course that 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: NU Session 2

40. Algebra I Honors

Prerequisites: EXPLORE® Math ≥ 20, OR SAT® M ≥ 520, OR ACT® M ≥ 20; OR Admission Portfolio with test scores at the 99% national percentile rank in quantitative or math section on a standardized achievement test.

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 equations and functions, properties of real numbers, solving and graphing linear equations and functions, solving and graphing linear inequalities, exponents and exponential functions, polynomials and factoring, quadratic equations and functions, radicals and geometry connections, and rational equations and functions. Students completing this course are prepared for Algebra II.

NOTES:
• Depending on enrollment, the Algebra I class may include both Apogee and Spectrum (grades 7 or 8) students.
• Students who earn a grade of C or better and complete 12 chapters receive 2 semesters of credit through Center for Talent Development. Students who plan to use this course as a replacement for Algebra I in their regular school should communicate with school personnel prior to participating to determine if credit and placement might be acquired.

OFFERED: NU Sessions 1 & 2; EC

42. Introduction to Web Design

Using a hands-on, project-based approach, students learn the terminology, basic concepts and design techniques necessary for the development of a web page. Given a specific project, students consider design issues specific to web-based presentations; learn about effective page layout, navigation games? Students unlock the mysteries behind computer screens as they investigate fundamental concepts in computer programming. Using MicroWorlds software, participants explore and test their ideas and develop their own 2D multimedia projects and computer games, complete with animation, sound effects, movie clips, and music. This course encourages students to use their imagination and math skills, solve problems, and think creatively while developing simple computer programs. Students receive a copy of MicroWorlds.

NOTES:
• Additional $125 equipment & software fee required.
• Students are required to bring a laptop computer for use in the course. Students who do not have a computer should contact the Apogee Program Coordinator to discuss alternatives.
• Eligible for Sandra Dennhardt or Gary Greenberg Technology Scholarship. See p. 47 for details.

OFFERED: NU Sessions 1 & 2; EC
and text, and delve into the design process. Students use Kompozer® and are introduced to an authoring software application and basic Hypertext Markup Language (HTML) as they create a well-designed and properly functioning website. Technical issues such as file size and correct resolution of images are also covered. Photoshop and Flash are used to create images and animation.

NOTE: Additional $125 lab fee required.

OFFERED: NU Session 1

43. Bits & Blocks II: Logo to Python
Prerequisite: Successful completion of Bits & Blocks I or equivalent introduction to computer programming course

Redesign the games you play! Learn how to make tomorrow’s must-have game! This course takes MicroWorlds programming to the next level, helping Logo programmers extend their game design experience into the world of Python. Students participate in case studies and analyze action games looking at levels, character abilities, obstacles and enemies, health and lives, graphics and interface, and scoring and victory. Using their analysis, students use MicroWorlds to reverse engineer or redesign particular games. In the process, students develop deeper understanding of flow control and rudimentary data encapsulation and messaging. This understanding is then applied to game development in a Python programming environment.

NOTES:
• Additional $75 materials and equipment fee is required.
• Students are required to bring a laptop computer for use in the course. Students who do not have a computer should contact the Apogee Program Coordinator to discuss alternatives.
• Eligible for Sandra Dennhardt or Gary Greenberg Technology Scholarship. See p. 47 for details.

OFFERED: NU Session 2

44. Robotics
Have you always wanted a robot to do your chores? Are you fascinated by “smart” technology? In this course students learn the basics of engineering, building and programming robots. Using the LEGO® NXT Robotics Design System, students work in small groups to create robots that perform simple tasks, all while learning basic principles of engineering, honing their math skills and testing their creativity.

NOTE: Additional $125 materials fee is required.

OFFERED: NU Session 1

NEW! 45. ROVing Robotics: Exploring the Technology of Unmanned Vehicles
Is there water on Mars? Yes! But, without the interactive capabilities of the rover, Curiosity, scientists would still be wondering if there was water on the “red planet”. How do unmanned aerial vehicles (UAVs), also known as drones, autonomous underwater vehicles (AUVs) and other remotely operated vehicles (ROVs) work? This course explores how ROVs function and the role they play in space exploration, disaster response, atmospheric readings and agricultural and wildlife surveys. Students program and manipulate quad-copters and other ROVs to discover their capabilities first-hand.

NOTE: Additional $150 materials fee required.

OFFERED: NU Session 2

Science

Admission Criteria: EXPLORE® test; OR ≥ 95% national percentile rank (see course descriptions for qualifying subject area) on standardized achievement test; OR Admission Portfolio.

46. Designing Machines That Work: Engineering & Physics
How do machines work? How do you build the strongest bridge with the lightest building material? In this active classroom environment, students learn about the fundamentals of physics as they investigate engineering concepts such as the conservation of energy, Newton’s law of gravity, and the theory of motion. They test these theories—and their own ingenuity—by generating creative alternatives to practical problems faced in scientific and technological fields today. To complement the lab work, field trips and presentations serve as catalysts for new ideas.

NOTE: Additional $125 materials fee required.

QUALIFYING SCORE: Math

OFFERED: NU Sessions 1 & 2

47. Up, Up & Away: Aerodynamics Past, Present & Future
The mysteries of flight have intrigued human beings for centuries. Like the Wright brothers and Charles Renard, students study the principles that underlie aerodynamics—motion, force, energy, density and the work of Galileo, Newton and Bernoulli—and apply these concepts daily in lab and project work. Students follow the historical development of flying machines by constructing their own kites, parachutes, hot air balloons, gliders, helicopters, planes and rockets, and also fly unmanned aerial vehicles (UAVs, aka drones). With each project, students create hypotheses, observe the machines in the air and compose lab reports to understand the physics and engineering principals behind this rising science.

NOTE: Additional $125 materials fee required.

QUALIFYING SCORE: Math

OFFERED: NU Sessions 1 & 2

48. Detective Science: An Introduction to Forensics
“Eliminate all other possible solutions to the crime and there’s only one left; it must be the answer, no matter how absurd.” This was a guiding philosophy of Sherlock Holmes and still is for the detectives of popular TV dramas. In this course, students learn the forensic science involved in solving crimes, including how to collect fingerprints, crack secret codes and examine corrosion evidence. Earth sciences, technology, life sciences, psychology and physical sciences are combined to solve new mysteries every day. The course also includes studying detective fiction from writers such as Blue Balliett and Ellen Raskin.

NOTE: Additional $125 materials fee required.

QUALIFYING SCORE: Reading/Verbal

OFFERED: NU Sessions 1 & 2

49. Zoology
Lions and tigers and bears, oh my! The animal kingdom is vast and often mysterious. Participants learn the basics of animal biology related to structure and physiology. Students investigate evolutionary mechanisms that lead to the diversity of vertebrate and invertebrate animals. While conducting hands-on and virtual dissections and fieldwork, students identify, compare, and contrast the critical features used to classify animals into major groups.

NOTE: Additional $125 lab & materials fee required.

QUALIFYING SCORE: Reading/Verbal

OFFERED: NU Session 1; EC

50. Astronomy & Astrophysics: Beyond the Milky Way
Explore the properties of stars, black holes, galaxies and more; learn about the continuous expansion of the universe; and consider the possibility of extraterrestrial life! Students learn basic physics and mathematical concepts while studying topics such as stellar evolution and classification, solar physics and relativity. Students research planets, galaxies and contemporary theories about life and communication in the cosmos while learning about the tools and methods used to collect data in space.

QUALIFYING SCORE: Reading/Verbal

OFFERED: NU Session 2
Spectrum Program

Students in Grade 7 or 8*

(grade level on January 1, 2014)
Spectrum is a great opportunity for students in grade 7 or 8 on January 1, 2014 to study one subject in depth with peers who share similar interests and abilities.

There are two different course types offered:

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

Apply Early! Application Period Begins January 1

* Students who are in grade 9 on January 1, 2014 may apply for Spectrum courses. Applications will be considered on a case-by-case basis.

Spectrum is offered at Northwestern University’s Evanston, Illinois campus (residential or commuter) and at Elmhurst College in Elmhurst, Illinois (commuter only).
Taking courses on a college campus affords students the opportunity to experience college in a safe and structured way.

Students take a single course that meets approximately five-and-a-half hours a day, allowing for focus and depth. Recreational activities are available to all students at the end of the academic day from 3 p.m. to 5 p.m. Please check the details section (page 43) for additional information.

“I’m so thankful for CTD! Because of this course, my daughter wants to pursue science & potentially medicine.”

—2013 Spectrum parent
**SPECTRUM:** Grades 7 & 8 at Elmhurst College, Elmhurst, IL *(commuter only)*

July 7–July 25

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**SPECTRUM ENRICHMENT COURSES:** Grades 7 & 8 at Northwestern University, Evanston, IL *(residential or commuter)*

Session 1: June 29–July 18

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**SPECTRUM ACCELERATED HONORS COURSES:** Grades 7 & 8 at Northwestern University, Evanston, IL *(residential or commuter)*

Session 1: June 29–July 18

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Enrichment Course Descriptions

Though not offered for credit, enrichment courses are rigorous and taught at the high school level. They are designed to engage students in a specialized, often interdisciplinary topic of interest and to allow in-depth study.

51. Law & Order: Popular Trials
“If we do not maintain justice, justice will not maintain us.” — Francis Bacon
Students in Law & Order learn about the law and its evolution through historical and contemporary lenses as they examine decisions in several famous U.S. trials, such as the Salem Witch Trials, Brown v. Board of Education, Plessy v. Ferguson, and in more recent decisions such as National Federation of Independent Business et al v. Sebelius (Obamacare). Through activities, including mock trial, students present facts based on legal statutes and court rulings. Law & Order is recommended for students who are interested in law or American history. This course hones writing and speaking skills.

SUBJECT: Humanities
OFFERED: NU Session 1
ADMISSION CRITERIA: SAT Crit. R ≥ 440; ACT R ≥ 19; or Admission Portfolio

NEW! 52. Live Lit!
Have you ever wanted to be able to spell-bind an audience when telling a story? In this course, participants learn to tell stories that enlighten, reveal new truths, and convince their audience of both truth and fiction. Through reading, analysis, and discussion of contemporary monologists, solo performers, and playwrights such as Eric Bogosian, Anna Deavere Smith, Spalding Gray, and Mike Daisey, students learn basic tenets and outlines of effective storytelling. Students also study 21st Century storytelling through This American Life, The Moth, and Chicago’s 2nd Story. Projects include student-generated stories involving research, writing, and performance techniques. This course is perfect for students interested in developing powerful public speaking and communication skills.

SUBJECT: Humanities, English & Writing
OFFERED: NU Session 2
ADMISSION CRITERIA: SAT Crit. R ≥ 440; ACT R ≥ 19; or Admission Portfolio

53. 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 problems. 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: Math
OFFERED: NU Session 1
ADMISSION CRITERIA: SAT M ≥ 460; ACT M ≥ 18; or Admission Portfolio

54. Forensic Science
The word “forensic” comes from the Latin word meaning “before the forum.” Forensic Science examines the application of science to the criminal justice system. Utilizing lecture and laboratory-related activities, students collect, preserve, and analyze crime scene evidence. The hands-on experience provides a perfect venue for learning scientific methods, 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: NU Sessions 1 & 2
ADMISSION CRITERIA: SAT Crit. R ≥ 440; ACT R ≥ 19; ACT S ≥ 19; or Admission Portfolio

Accelerated Honors Course Descriptions

Accelerated honors courses are rigorous, fast-paced courses where students earn grades and are expected to complete a semester or year’s worth of curriculum in three weeks. Courses are taught at the high school honors level, and each 3-week course carries one or two semesters of high school credit offered through Center for Talent Development (CTD).

English & Writing
Admission Criteria: SAT Crit. R ≥ 470; ACT R ≥ 22; or Admission Portfolio

NOTE: For all English & Writing courses, students are highly encouraged to bring either a personal laptop computer or a tablet. Residential students are encouraged to bring a small personal printer as well.

55. Introduction to Creative Writing Honors
PREREQUISITE: Graded creative writing assignment
In this course, students learn to read, write and think like writers 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. The elements of effective writing are learned and applied in focused writing exercises, peer group response, literary analysis and instruction in craft. Class participants develop a portfolio of their own work. This course allows students to become more astute readers of literature and to understand more clearly how a writer employs aspects of craft to their creative advantage.

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

56. Intermediate Creative Writing Honors
PREREQUISITE: Graded creative writing assignment; previous course or workshop in Creative Writing
Intermediate Creative Writing Honors provides students an opportunity to develop more advanced writing techniques and concepts. Students experiment with increasingly complex character and plot development, alternate points of view, style and themes in their fiction writing. Poetry writing incorporates more advanced poetic devices and forms. Students are expected to produce a significant amount of work (approximately 20 to 30 pages of writing) for their portfolios.

NOTE: Most students are placed in Introduction to Creative Writing Honors if attending first session and given a pre-assessment at the start of the class. Students are then assigned to the Intermediate course based on CTD instructor assessment.

OFFERED: NU Session 1
HIGH SCHOOL CREDIT OFFERED: 1 semester

57. Science Fiction & Fantasy Writing Honors
PREREQUISITE: Graded creative writing assignment
Science fiction and fantasy writers create new, extraordinary worlds, allowing readers to imagine things that never were but might be some day. Through readings, discussion, movie excerpts, writing exercises and workshops, students learn how to use character development, point of view, plot and setting effectively to produce a text in this genre. Students read novels and short stories from authors such as Jules Verne, H.G. Wells, Nancy Farmer and Terry Pratchett. By the end of the course students gain a better understanding of the science fiction and fantasy genre within a
historical context, improve their writing and editing skills and produce their own short story and dramatic presentation.

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

58. Non-Fiction Writing Honors: The Art of the Essay
PREREQUISITE: Graded writing assignment
“The role of a writer is not to say what we all can say, but what we are unable to say.” — Anaïs Nin
Exceptional essayists use the written word to present a point a view, prompt a reader to action, or bring an issue to life. In this intensive writing course, students learn the fundamentals of effective essay writing, becoming better readers and critical thinkers in the process. Using a range of essays as models, students discuss and practice essay writing, focusing on the persuasive, critical, narrative and personal forms. Students learn about audience, purpose, point of view and more. This class prepares students for advanced high school writing and AP® English courses.

OFFERED: NU Session 1
HIGH SCHOOL CREDIT OFFERED: 1 semester

59. Non-Fiction Writing Honors: From Structure to Style
PREREQUISITE: Graded writing assignment
In this intensive writing course, students master the fundamentals of several key forms of writing required for success at the high school level. Students learn methods of organization and practice myriad academic writing forms, including Document Based Question (DBQ) response, research writing, scientific reports and literature review. Students develop a deeper understanding of grammatical structure and writing styles and learn how to express voice within formulaic constructs. This class prepares students for advanced high school writing and AP® English courses.

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

60. Literary Analysis Honors: Urban Dystopias
PREREQUISITE: Graded writing assignment
What themes do Fahrenheit 451 and The Hunger Games have in common? What techniques make a literary work powerful and “timeless”? Students in this course read, discuss and write about popular stories of urban dystopias—future societies with fatal flaws—as they learn to analyze literary works critically and coherently. While placing each text in its biographical, historical and cultural context, students learn about literary techniques utilized in these works and analyze their impact. This class is an excellent prelude to high school honors and AP® literature courses.

OFFERED: NU Session 1
HIGH SCHOOL CREDIT OFFERED: 1 semester

NEW! 61. Literary Analysis Honors: Tragedy & Revenge
PREREQUISITE: Graded writing assignment
What fate befell Medea, Hamlet, Sweeney Todd and Carrie? Each became victim to the destructive powers unleashed when the emotions that drive revenge took hold. Students read, discuss and write essays and short stories focused on the age-old motivation of retribution as they learn to analyze literary works critically and coherently. In addition to placing each text in its historical, biographical and cultural context, students identify aesthetic and literary characteristics and techniques. Students further develop their reading comprehension and their ability to write with clarity and purpose. This class is an excellent prelude to high school honors and AP® literature courses.

OFFERED: NU Session 2; EC
HIGH SCHOOL CREDIT OFFERED: 1 semester

Humanities & Social Science

Admission Criteria: SAT Crit. R ≥ 470; ACT R ≥ 22; or Admission Portfolio
NOTE: For all Humanities and Social Science courses, students are highly encouraged to bring either a personal laptop computer or a tablet. Residential students are encouraged to bring a small personal printer as well.

62. Taking Action: Leadership & Service Honors
Each year, more than three million Americans experience homelessness. 15 million go hungry and one in five children live in poverty. Why does this happen? What can young people do about it? An offering of CTD’s Civic Education Project, this innovative curriculum integrates academic study with meaningful community service for an experience that participants describe as “eye-opening” and “life-changing”. Students divide their time between the classroom and supervised hands-on service projects with community organizations ranging from homeless shelters to Head Start programs to top political offices. Through academic research, small group work and facilitated reflection, students investigate the root causes and proposed solutions of pressing social problems. Young student leaders gain a deeper understanding of complex social issues and learn how to make a difference in communities. This course enhances communication, critical thinking and problem-solving abilities and prepares students for a lifetime of leadership and civic engagement.

OFFERED: NU Session 1
HIGH SCHOOL CREDIT OFFERED: 1 semester

NOTE: Additional $65 field study fee required
OFFERED: NU Sessions 1 & 2; EC
HIGH SCHOOL CREDIT OFFERED: 1 semester

63. Persuasion & Debate Honors
Effective listening is critical to effective speaking—a persuasive communicator needs both abilities. Persuasion & Debate Honors is grounded in rhetorical tradition, modern theories and practices in the language arts. Students address salient 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 that students will encounter in school and in life. After completing this course, students will be prepared for advanced study in honors English, humanities, and social sciences and will be able to participate in various forms of competitive debate.

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

64. Bubbles & Crashes: Introduction to Economics Honors
Is Apple® stock overvalued? Why did the Facebook IPO not meet expectations? How do natural disasters such as hurricanes impact the local, national and international economy? Through readings by prominent economists, discussions and case studies, students examine economic booms and crises of the past and present, focusing on concepts such as supply and demand, the law of diminishing returns, marginal utility and the theory of the firm and industry. This course develops critical-thinking skills through discussion and writing experiences and is intended for students interested in future coursework in economics, political science, international relations, or other advanced social science courses.

OFFERED: NU Session 1
HIGH SCHOOL CREDIT OFFERED: 1 semester

NEW! 65. Human Rights & Foreign Policy Honors
PREREQUISITE: Graded writing assignment
From the end of WWII, global international relations have been dominated by U.S. foreign policy leaving the United States both admired and reviled. This course provides an introduction to foreign policy issues via the study of media, theories and the role of international organizations. Students analyze means of communication, critical thinking and problem-solving abilities and prepares students for a lifetime of leadership and civic engagement.

OFFERED: NU Session 1
HIGH SCHOOL CREDIT OFFERED: 1 semester

NOTE: Additional $65 field study fee required
OFFERED: NU Sessions 1 & 2; EC
HIGH SCHOOL CREDIT OFFERED: 1 semester
such as the recent Arab Spring uprisings, drone strikes in Pakistan and the continuing rapid growth of China into both an economic and political powerhouse. Readings and discussions are complemented by guest presentations, field trips and structured writing experiences in order to help students hone their critical-thinking and persuasive-writing abilities.

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

66. Brain & Behavior: Introduction to Psychology Honors
Why do people do what they do? Why are we the way we are? What makes some behavior “normal” and other behavior “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. By participating in dynamic lectures, group activities, debates and hands-on projects, students examine key theories, individuals and experiments in the field of psychology in order to gain a better understanding of scientific research and psychological thought. This is an excellent introduction for students interested in behavioral science or advanced-level psychology courses.

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

NEW! 67. Visual Communication through 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, Flash and iMovie, students build a foundation in design for print, online and multi-platform visual communication. Complementing the technical portion of the course, students will have a daily sketchbook activity and readings on global design and branding. Guest speakers, films and readings will help students explore the challenges faced by 21st Century designers.

NOTES:
• Additional $125 lab fee required.
• Students are required to bring a laptop computer for use in the course.

OFFERED: NU Session 1
ADMISSION CRITERIA: SAT Crit. R ≥ 470; ACT R ≥ 22; or Admission Portfolio
HIGH SCHOOL CREDIT OFFERED: 1 semester

NEW! 68. 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. The course will explore and evaluate 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. Students 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:
• Special partnership course—please see tuition chart for more information
• Students are required to bring a laptop computer for use in the course.
• For information about the Segal Design Institute, please see page 41

OFFERED: NU Session 2
ADMISSION CRITERIA: SAT Crit. R ≥ 470; ACT R ≥ 22; or Admission Portfolio
HIGH SCHOOL CREDIT OFFERED: 1 semester

NEW! 69. Geometry in Construction with the original GiC of Loveland, Colorado
From A-frames to door frames, spiral staircases to breakfast nooks, geometry and construction are inextricably linked. As the world’s urban population grows, the need for smaller, affordable and environmentally sustainable housing will increase substantially. Students learn to use geometry and other advanced mathematics skills that are contextually infused into construction projects. Participants work collaboratively to develop real world constructions. Green techniques are explored to emphasize a balance between sustainability and profitability. This is a great prelude to Geometry or Algebra II.

NOTE: Additional $125 lab fee required.
OFFERED: NU Session 1
ADMISSION CRITERIA: SAT M ≥ 520; ACT M ≥ 20; or Admission Portfolio
HIGH SCHOOL CREDIT OFFERED: 1 semester

ABOUT THIS PARTNERSHIP: Geometry in Construction was developed by Scott Burke and Tom Moore and teaches students a complete geometry curriculum through the natural progression of building a home. Annually, each cohort of students constructs one complete home for a local family in need. In addition to learning real world lessons for deep level math understanding, these students also learn the importance of giving back to their own communities. Originally developed in Colorado, this program has been replicated in over 125 high schools nationwide. For more information please visit: www.geometryinconstruction.org

NEW! 70. Documentary Filmmaking: The Language of Now
Blackfish dove into the underwater world of killer whales, while Gasland dug into the controversial underground practice of fracking. Documentaries provide filmmakers with the perfect medium to convey a timely and important message to the masses in order to enlighten and affect change. In this course students examine contemporary examples of the medium, analyze their structure and select a topic to develop in collaboration with a group. Participants film and collect materials to incorporate into a short documentary, use current technology to assemble and edit their mini-documentaries and present their final products.

NOTE: Students are required to bring a laptop computer for use in the course.
OFFERED: NU Session 2
ADMISSION CRITERIA: SAT Crit. R ≥ 470; ACT R ≥ 22; or Admission Portfolio
HIGH SCHOOL CREDIT OFFERED: 1 semester
Mathematics

Admission Criteria: SAT M ≥ 520; ACT M ≥ 20; or Admission Portfolio

71. Algebra I Honors
This course is intended for students who have already studied the introductory ideas of algebra and are ready to extend their knowledge in an intensive, full-year course. Algebra I Honors covers equations and functions, properties of real numbers, solving and graphing linear equations and functions, solving and graphing 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 a full-year high school course in an accelerated format. This course is intended for students who are ready to accelerate and plan to enroll in Algebra II or Geometry in the fall.

NOTE: A graphing calculator is required.
OFFERED: NU Sessions 1 & 2
HIGH SCHOOL CREDIT OFFERED: 2 semesters

72. 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 in an accelerated format. This course is intended for students who are ready to accelerate and plan to enroll in a pre-calculus course in the fall.

NOTE: A graphing calculator is required.
OFFERED: NU Sessions 1 & 2; EC
HIGH SCHOOL CREDIT OFFERED: 2 semesters

NEW! 69. Geometry in Construction with the original GIC of Loveland, Colorado
See course description on page 32 for this exciting interdisciplinary, hands-on math course.

73. 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 in an accelerated format. This course is intended for students who are ready to accelerate and plan to enroll in the next level course in their school.

NOTE: A graphing calculator is required.
OFFERED: NU Sessions 1 & 2; EC
HIGH SCHOOL CREDIT OFFERED: 2 semesters

Technology

Admission Criteria: SAT M ≥ 520; ACT M ≥ 20; or Admission Portfolio

74. Introduction to Computer Programming Honors: Java
PREREQUISITE: Algebra I
Students learn computer programming using the Java programming language. Utilizing a PC-compatible computer, a Java compiler, and the logical and problem-solving capabilities of Java, students investigate mathematical concepts. They also explore progressively more sophisticated mathematical ideas drawn from number theory, statistics and probability and other areas of mathematics. This class prepares students to take AP Computer Science A.

NOTES:
• Students are required to bring a PC-compatible laptop computer for use in the course.
• Eligible for Sandra Dennhardt or Gary Greenberg Technology Scholarship. See p. 47 for details.
OFFERED: NU Session 1
HIGH SCHOOL CREDIT OFFERED: 1 semester

NEW! 75. Ruby on Rails: Web Apps for Everyone with the Starter League
Have you ever had an idea for an app but didn’t know how to begin building it? In this course, students will learn enough about HTML, CSS, Ruby, APIs, and SQL to build real, functional prototypes. The course is project-based; students will build an app that shows videos friends share, a database-backed app that bookmarks and shares favorite pictures and more. No technical experience is required, just a strong desire to learn and practice application programming!

NOTES:
• Special partnership course—please see tuition chart for more information
• Students are required to bring a laptop computer for use in the course.
• For information about the Starter League, please see p. 39
• Eligible for Sandra Dennhardt or Gary Greenberg Technology Scholarship. See p. 47 for details.
OFFERED: NU Session 2
HIGH SCHOOL CREDIT OFFERED: 1 semester

Science

Admission Criteria varies by course; please see individual course descriptions

77. 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), physics on the large scale (planets and stars) and everything in between. This course explores a variety of fascinating phenomena in the physical world and the way in which physics explains the motion of large and tiny objects. This includes electrons in an electrical circuit, roller coasters, planets and even the light that we use to see each day. 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.
OFFERED: NU Session 1
ADMISSION CRITERIA: SAT CRIT. R ≥ 470 + SAT M ≥ 520; ACT R ≥ 22 + ACT M ≥ 20; ACT S ≥ 20; or Admission Portfolio
HIGH SCHOOL CREDIT OFFERED: 1 semester

78. Non-Calculus Based Physics Honors
PREREQUISITE: Algebra I
“Enhance the way you see the physical world.” —Paul G. Hewitt, physicist. In this course students build a strong conceptual understanding of physical principles ranging from force and motion to classical mechanics. With this foundation, students are equipped to understand
the equations and formulas of physics and to make connections between concepts and their everyday world. This course is a full-year physics curriculum intended for students who attend schools with a physics first science sequence and who 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. Non-Calculus Based Physics Honors prepares students for more advanced physics topics and AP® Physics.

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

OFFERED: NU Session 2

ADMISSION CRITERIA: SAT Crit. R ≥ 510 + SAT M ≥ 540; ACT R ≥ 24 + ACT M ≥ 21; ACT S ≥ 22; or Admission Portfolio

HIGH SCHOOL CREDIT OFFERED: 1 semester

ABOUT THIS PARTNERSHIP: This course is offered in partnership with the Chemistry Department at Elmhurst College. The Chemistry Department at Elmhurst College offers a wide range of courses and programs for students that integrate a study of chemistry with real-world applications and the development of skills in communication, quantitative reasoning, instrumentation and problem solving. Chemistry of Color is one of the most popular courses the Department offers during the school year.

80. Introduction to Biomedicine Honors
For millions of years the human body has been evolving, yet it still presents many challenges and mysteries. The industry of biomedicine is growing rapidly as scientists research how to understand disorders and cure diseases. In this course, students explore 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. Through readings, discussions and some laboratory work, students are introduced to the fundamentals of this specialized branch of science and develop their laboratory techniques. Examination of essential biochemical reactions that occur in the body acquaint students with topics in chemistry; physics is included in the form of investigating biomechanics; and areas of biology such as cell biology are explored. This course is an excellent introduction for students interested in the study of medicine or advanced laboratory courses.

NOTES:
- Additional $125 lab fee required.
- The NU course will be using classroom and laboratory space at Roycemore School.

OFFERED: NU Session; EC

ADMISSION CRITERIA: SAT Crit. R ≥ 470; ACT R ≥ 22; ACT S ≥ 20; or Admission Portfolio

HIGH SCHOOL CREDIT OFFERED: 1 semester

81. Topics in Biology Honors
Biology is the study of living organisms, progressing from the molecular level to cellular on through organism, ecosystem to entire biosphere. Students practice lab design and presentations, problem-based and project-based experiments. Among the topics explored are experimental method, biochemistry, cell structure, cellular reproduction, evolution, and ecology. This course is recommended for students with some knowledge of laboratory techniques or those who have not had a full year of high school laboratory science. Topics in Biology prepares students for high school biology.

NOTES:
- Additional $125 lab fee required.
- This course will be using classroom and laboratory space at Roycemore High School.

OFFERED: NU Session 1

ADMISSION CRITERIA: SAT Crit. R ≥ 470; ACT R ≥ 22; ACT S ≥ 20; or Admission Portfolio

HIGH SCHOOL CREDIT OFFERED: 1 semester

NEW! 84. Chemistry of Color: From Fireworks to Gemstones Honors with Elmhurst College
This course explores the natural world through the theme of color. The chemistry behind the color of everyday objects such as neon lights, fireworks, natural and synthetic dyes and gemstones is used to introduce fundamental chemical concepts that include atomic structure, chemical bonding, chemical reactions, solutions, structures of molecules and solids and organic functional groups. The relationship of chemistry to other fields such as physics, life sciences, earth science, art, and modern technology are discussed throughout the course. This course provides students with an introduction to chemistry lab procedures and lab reports, and is excellent preparation for Honors Chemistry.

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

OFFERED: EC

ADMISSION CRITERIA: SAT Crit. R ≥ 470 + SAT M ≥ 520; ACT R ≥ 22 + ACT M ≥ 20; ACT S ≥ 20; or Admission Portfolio

HIGH SCHOOL CREDIT OFFERED: 1 semester

ABOUT THIS PARTNERSHIP: This course is offered in partnership with the Chemistry Department at Elmhurst College. The Chemistry Department at Elmhurst College offers a wide range of courses and programs for students that integrate a study of chemistry with real-world applications and the development of skills in communication, quantitative reasoning, instrumentation and problem solving. Chemistry of Color is one of the most popular courses the Department offers during the school year.
Equinox & Civic Leadership Institute

Grades 9–12

(grade level on January 1, 2014)

High school students have two different CTD Summer Program options from which to choose. The Equinox Program provides advanced courses in a variety of subject areas (e.g., humanities, technology, science, etc.). The Civic Leadership Institute (CLI) is a leadership and service-learning program that combines academic study with hands-on education and meaningful service.

Apply Early! Application Period Begins January 1

Equinox

Equinox creates a rigorous, fast-paced learning environment for academically talented students in grades 9 through 12 (as of January 1, 2014). Equinox courses cover advanced high school and college-level subjects and provide students the opportunity to earn credit through Center for Talent Development. Students take a single course that meets approximately five and a half hours per day, five days per week. Please check the Details sections (page 43) for additional information.

Most Equinox courses are three weeks in length, but because of changes from the College Board, AP® Chemistry and AP® Biology are offered as five-week courses. This allows for the completion of all required lab experiences and better AP exam preparation.

Advanced Placement® (AP®) courses: The College Board requires course review and approval for all institutions offering AP courses. Because the approval timeline is later than our publication deadline, not all courses have completed the approval process by the time this brochure is printed. We will update AP approvals on the Center for Talent Development website by October 15, 2014 at www.ctd.northwestern.edu/summer.

Career Exploration & Partnership Courses

Collaborations in high-interest, high-demand fields provide exciting course options not typically available to high school students. Collaborators include:

• The Starter League, a training ground for programmers and web designers housed at 1871 in the famed Merchandise Mart, the hub of Chicago’s entrepreneur community

• Northwestern University’s Segal Design Institute on the Evanston campus

• Northwestern University’s Shah Research Lab on the Chicago campus

• The Chicago Botanic Gardens in Glencoe, Illinois
**EQUINOX**: Grades 9–12 at Northwestern University, Evanston and Chicago, IL (residential and commuter)

**Session 1: June 29–July 18**

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**Session 2: July 20–August 8**

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* AP® Chemistry and Biology courses are five weeks in length (June 29–August 1)

**CIVIC LEADERSHIP INSTITUTE**: Grades 9–12 at Northwestern University’s Loop Campus, Chicago, IL (residential only)

**July 6–July 25**

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<td>Service, Leadership &amp; Community Transformation Honors</td>
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</table>
Equinox Course Descriptions

English & Writing
Admission Criteria: SAT Crit. R ≥ 510; ACT R ≥ 24; or Admission Portfolio
NOTE: For all English & Writing courses, residential students are strongly encouraged to bring a small printer.

85. Creative Writing Honors
PREREQUISITE: Graded writing sample, preferably creative writing
To write well, one needs to read well. Reading contemporary literature, students refine their critical-thinking and writing skills through analysis, discussion and extensive writing exercises. Students focus on structure, imagery, detail, dialogue and narrative across genres, including poetry, fiction and creative non-fiction. Student-created pieces are critiqued in small-group workshops and complemented by teacher feedback. The final project consists of a portfolio of student work created during the course.
OFFERED: Sessions 1 & 2
HIGH SCHOOL CREDIT OFFERED: 1 semester

88. College Composition & Rhetoric
PREREQUISITE: Graded writing assignment; one year of high school honors English
In this college level course students develop essays that demonstrate good rhetorical choices and communicate appropriately in different academic contexts. Covering personal, observation, argument and other types of essays, students read and analyze a variety of complex texts and synthesize information to create cogent arguments. Working closely with peers and the instructor, students finish the course with a portfolio of essays worthy of any college classroom.
OFFERED: Session 1 & 2
HIGH SCHOOL CREDIT OFFERED: 1 semester

89. Economics of Everything Honors
PREREQUISITE: Graded writing assignment
If, as Levitt and Dubner (Freakonomics) have proposed, economics is the study of human behavior, then is your life governed by the economic choices you make? Economics of Everything introduces students to economic theory, including incentives, supply and demand, competition, markets and prices, and the role of government in economic systems. Students apply their knowledge to contemporary case studies, reading, analyzing, and discussing authors such as Levitt, Dubner, Schelling, Becker, Ehrenreich and others. This course is an excellent foundation for students interested in international studies, economics, and business.
OFFERED: Session 2
HIGH SCHOOL CREDIT OFFERED: 1 semester

Humanities & Social Sciences

86. Advanced Creative Writing Honors
PREREQUISITE: Graded creative writing sample with teacher comments; some workshop experience or previous creative writing course preferred
Designed for students with some experience and considerable interest in creative writing, this course pairs adventurous reading with rigorous writing in a variety of genres, including poetry, fiction and creative non-fiction. Assignments advance students’ skills through intensive attention to imagery, voice, setting, character and narrative. Student writing benefits from daily large- and small-group critique sessions. Students study college-level texts and learn and employ high-level analytical skills. Final projects consist of one extended piece of creative writing or several smaller pieces.
OFFERED: Session 1
HIGH SCHOOL CREDIT OFFERED: 1 semester

NEW! 87. Advanced Science Fiction, Fantasy & Mystery Writing Honors
PREREQUISITE: Graded creative writing sample with teacher comments; some workshop experience or previous CTD science fiction creative writing course preferred
Students learn to build and populate worlds, retell classic tales and develop sophisticated, entertaining plots that draw on the literary writing skills they sharpened in Creative Writing Honors. Students in this course begin by reading and examining a number of literary fantasy, science fiction and mystery stories to understand the elements of these genres before planning and writing their own stories. Students workshop their stories with an eye to genre and literary conventions.
OFFERED: Session 1
HIGH SCHOOL CREDIT OFFERED: 1 semester

91. Law & Politics Honors
PREREQUISITE: Graded writing assignment
Students analyze, discuss and research the history and significance of the U.S. Constitution, the Supreme Court and federal structure, and gain an appreciation for the interplay of law and politics in American society. The course provides an in-depth analysis of several Amendments to the Constitution and allows students to interpret current events using the Bill of Rights as a backdrop. In a final project, students participate in a moot court to apply the principles and theories they have researched and discussed.
OFFERED: Session 1
HIGH SCHOOL CREDIT OFFERED: 1 semester

NEW! 93. Gender Studies
PREREQUISITES: Graded writing sample
How do stars like Miley Cyrus get our attention, and what do you have to say about it? In this exciting college-level course, students learn how to talk about gender, sexuality and power dynamics in the spheres of history, art, popular culture and personal experience.
Students survey the women’s rights, civil rights and gay rights movements and use their understanding of history and critical theory to examine a problem or issue they define for themselves.

OFFERED: Session 1
HIGH SCHOOL CREDIT OFFERED: 1 semester

94. Ethics & Contemporary Issues Honors
PREREQUISITE: Graded writing assignment
How do citizens of this world make ethically sound choices? Students study the dilemmas and disagreements provoked by current events and global issues. Examining ideas such as moral relativism and objectivism, as well as utilitarianism, virtue ethics and duty theories, students grapple with ethical theories and their relationship to world events. Participants examine interactions of social movements, dissent and scientific study in an effort to understand how these movements impact views of ethical behavior. This course enriches students’ understanding of science, medicine and public policy.

OFFERED: Session 2
HIGH SCHOOL CREDIT OFFERED: 2 semesters

NEW! 97. Digital Journalism & Media Honors
“The revolution will not be televised,” mused Gil Scott-Heron, and it’s not likely to be Tweeted five years from now, either. In this project-based course, students learn how to prepare for the future of journalism and anticipate the skills that will make them relevant in the journalism marketplace of the future. Students also develop the research, reporting and multimedia packaging skills they need to publish and promote web content. Students research topics of interest and examine the legal and ethical questions germane to their investigation and publication. Students collaborate to produce a multi-media web platform that promotes a topic of their choosing.

OFFERED: Session 1
HIGH SCHOOL CREDIT OFFERED: 1 semester

117. Service, Leadership & Community Transformation
Students interested in service and social issues should consider the Civic Leadership Institute. See page 42 for details.

Mathematics
Admission Criteria: SAT M ≥ 520; ACT M ≥ 20; or Admission Portfolio

98. Algebra II & Trigonometry Honors
PREREQUISITE: Algebra I
This course focuses on topics of 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 is a full-year high school course presented in an accelerated format, and successful completion of the course prepares students for the next level of math coursework in their school’s math sequence.

NOTE: A graphing calculator is required.
OFFERED: Sessions 1 & 2
HIGH SCHOOL CREDIT OFFERED: 2 semesters

99. Pre-Calculus Honors
PREREQUISITES: Algebra I and II with Trigonometry; Geometry
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 in functions and graphs, trigonometry and discrete mathematics are also covered. Pre-Calculus Honors is a full-year high school course in an accelerated format, and prepares students for taking AP® Calculus AB and/or BC.

NOTE: A graphing calculator is required.
OFFERED: Sessions 1 & 2
HIGH SCHOOL CREDIT OFFERED: 2 semesters

100. AP® Calculus AB (designation pending)
PREREQUISITES: Algebra I, Algebra II with Trigonometry, Geometry and Pre-Calculus or Pre-Calculus equivalent
Rocket scientist or brain surgeon, architect or engineer, the study of calculus is the foundation for many professional endeavors. This college-level calculus 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. Upon successful completion, students are prepared to take the AP® Calculus AB exam.

NOTE: A graphing calculator is required.
OFFERED: Session 1
HIGH SCHOOL CREDIT OFFERED: 2 semesters

101. AP® Statistics (designation pending)
PREREQUISITES: Algebra I and II
Collecting, analyzing, and drawing conclusions from data are skills required in virtually every discipline. In this non-calculus-based course students explore the theory of probability, descriptions of statistical measurements, probability distributions and experimental and statistical inference. Students 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. Upon completion, students are prepared to take the AP® Statistics exam.

NOTE: A TI-84 or statistics-based calculator is required.
OFFERED: Session 2
HIGH SCHOOL CREDIT OFFERED: 2 semesters
“When the teacher cares so much about the course itself, it makes everything so much easier and fun to understand.”

—2013 Equinox student

102. League of Extraordinary Mathletes

PREREQUISITES: Algebra I and II with Trigonometry

Summer may be the “off-season” for competitive mathematicians, but constant training is required to keep skills sharp and mind-musculature from withering. Join other passionate math competitors to attack advanced problems and learn new skills and techniques for finding solutions. Students work with an experienced coach successful in preparing teams for competitions such as AMC 10 & 12, AIME, USAMO, and ARML.

OFFERED: Session 2
HIGH SCHOOL CREDIT OFFERED: 1 semester

103. HTML & CSS Intensive with The Starter League

PREREQUISITES: Algebra II and Trigonometry

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. Students will learn HTML and CSS elements, structures and design patterns. The course begins with 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.

OFFERED: Session 1
HIGH SCHOOL CREDIT OFFERED: 1 semester

NOTES:
- This course is in partnership with The Starter League, an innovative company in residence at 1871 in the historic Merchandise Mart in Chicago which trains aspiring programmers and web designers and is “where people from all over the world come to learn how to code, design, and ship web apps” (www.starterleague.com). Starter League courses are taught by coding and web development professionals and focus on the critical skills students need to be successful in programming.
- Residential students are required to bring their own laptop computer (not a tablet) for work outside of class; commuter students must have access to a computer in their home.
- Residential students will live on campus and travel on the CTA purple line each day to the Merchandise Mart for class.
- Eligible for Sandra Dennhardt or Gary Greenberg Technology Scholarship. See p. 47 for details.

104. AP® Computer Science A (designation pending)

PREREQUISITES: Algebra II; demonstrated experience in one programming language

Java is used in industries ranging from retail to finance to medicine. Students 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. Students do not need prior experience with Java, but should have previous programming or computer language experience. This course prepares students for the AP® Computer Science exam.

NOTES:
- Students are required to bring a laptop (not a tablet) computer for use in the course.
- Eligible for Sandra Dennhardt or Gary Greenberg Technology Scholarship. See p. 47 for details.

OFFERED: Session 2
HIGH SCHOOL CREDIT OFFERED: 1 semester

105. Physics Honors

PREREQUISITES: Algebra I and II with Trigonometry

Physics helps explain, predict and control physical phenomena. This course emphasizes fundamental principles of nature through the study of classical physics. Via lecture, discussion, demonstration, video, laboratory work and collaborative problem solving, students explore topics including linear, rotational, and wave motion; force; momentum; energy; and electrostatics and circuits. Physics Honors is a demanding a full-year high school course in an accelerated format.

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

OFFERED: Sessions 1 & 2

ADMISSION CRITERIA: SAT Crit. R ≥ 510 + SAT M ≥ 540; ACT R ≥ 24 + ACT M ≥ 21; ACT S ≥ 22; or Admission Portfolio

HIGH SCHOOL CREDIT OFFERED: 2 semesters

NEW! 106. Waves, Fields & Particles: Quantum Mechanics & Relativity Honors

PREREQUISITES: Physics Honors; Algebra I & II with Trigonometry

Newtonian physics is an excellent model for almost everything that happens in the world around us. But what do you get when you go beyond Newton? Relativity and quantum mechanics challenge our intuitions and experience in stunning, even baffling ways. What are waves like? What are particles like? How can space and time be woven together into spacetime? This course offers a mix of readings, experiments, simulations, writing, problems and discussion. Students begin by re-affirming their understanding of classical physics. Investigations of the evidence challenging those models are followed by building an understanding of the models of relativity and quantum mechanics. A glimpse of Quantum Field Theory, the Standard Model, Quantum Gravity and String Theory round out this college-level course.

NOTE: Additional $150 lab fee required.

OFFERED: Session 2

ADMISSION CRITERIA: SAT Crit. R ≥ 510 + SAT M ≥ 540; ACT R ≥ 24 + ACT M ≥ 21; ACT S ≥ 22; or Admission Portfolio

HIGH SCHOOL CREDIT OFFERED: 1 semester

107. Chemistry Honors

PREREQUISITES: Biology Honors OR Physics Honors; Algebra I & II

How does an atom account for the nature of matter? In this course, participants 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, thermochemistry, and oxidation-reduction. Through experiments, students 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 scientific calculator is required.
- Additional $150 lab fee required.

OFFERED: Sessions 1 & 2

ADMISSION CRITERIA: SAT Crit. R ≥ 510 + SAT M ≥ 540; ACT R ≥ 24 + ACT M ≥ 21; ACT S ≥ 22; or Admission Portfolio

HIGH SCHOOL CREDIT OFFERED: 2 semesters

108. AP® Chemistry (designation pending)
This course runs for five weeks and attendance for all weeks is required.

PREREQUISITE: One year of Chemistry Honors; 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 scientific calculator is required.
- Additional $150 lab fee required.

OFFERED: June 29–August 1

ADMISSION CRITERIA: SAT Crit. R ≥ 510 + SAT M ≥ 540; ACT R ≥ 24 + ACT M ≥ 21; ACT S ≥ 22; or Admission Portfolio

HIGH SCHOOL CREDIT OFFERED: 2 semesters

109. 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. As a supplement to class discussion, text readings, and demonstrations, students spend class 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 either Introduction to Biomedicine Honors or Topics in Biology Honors. This course prepares students for honors Human Biology and AP® Biology.

NOTES:
- Additional $150 lab fee required.
- This course will be using classroom and laboratory space at Roycemore School

OFFERED: Session 1

ADMISSION CRITERIA: SAT Crit. R ≥ 510; ACT R ≥ 24; ACT S ≥ 22; or Admission Portfolio

HIGH SCHOOL CREDIT OFFERED: 2 semesters

110. Animal Behavior Honors
PREREQUISITE: One year of Biology Honors
Our understanding of animals and their relationships to each other is ever changing. This is a college-level course in the study of the mechanisms and evolution of animal behavior. Topics include methods for the observation and quantification of behavior, natural selection and the evolution of behavior, behavioral genetics, neural and physiological mechanisms of behavior, communication, aggression, sexual reproduction, parental investment, and mating systems. Throughout the course students will conduct independent research at Lincoln Park Zoo culminating in an original research project and presentation.

NOTES:
- This course will be using a classroom and lab space at Roycemore School. Residential students will live on campus and take a short bus ride daily to class.
- Students will frequently travel to the Lincoln Park Zoo for observations and will also travel to the Shedd Aquarium for aquatic animal observation.
- Additional $150 lab fee required.

OFFERED: Session 1

ADMISSION CRITERIA: SAT Crit. R ≥ 510; ACT R ≥ 24; ACT S ≥ 22; or Admission Portfolio

HIGH SCHOOL CREDIT OFFERED: 2 semesters

111. Human Biology: Anatomy & Physiology Honors
PREREQUISITE: One year of Biology Honors
This course covers 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. Students perform dissections, as well as experiments in molecular genetics, histology and chemical composition of cells. This course is ideal for students interested in medicine and provides preparation for AP® Biology.

NOTES:
- This course will use a classroom and lab space at Roycemore School. Residential students will live on campus and take a short bus ride daily to class.
- Additional $150 lab fee required.

OFFERED: Session 2

ADMISSION CRITERIA: SAT Crit. R ≥ 510; ACT R ≥ 24; ACT S ≥ 22; or Admission Portfolio

HIGH SCHOOL CREDIT OFFERED: 1 semester

NEW! 112. AP® Biology
(designation pending)
This course runs for five weeks and attendance for all weeks is required.

PREREQUISITE: One year of Biology Honors
How do stem cells differentiate into a diverse range of cell types? In AP® Biology, coursework is centered on three general areas: molecules and cells; heredity and evolution; and organisms and populations. Students develop a framework for understanding modern biology and engage in the scientific process through lab experiments, readings, lecture, and discussion. AP® Biology is a full-year high school course in an accelerated format designed to be the equivalent of an introductory, college-level biology course, and prepares students to take the AP® Biology test.

NOTES:
- This course will use a classroom and lab space at Roycemore School. Residential students will live on campus and take a short bus ride daily to class.
- Additional $150 lab fee required.

OFFERED: June 29–August 1

ADMISSION CRITERIA: SAT Crit. R ≥ 510; ACT R ≥ 24; ACT S ≥ 22; or Admission Portfolio

HIGH SCHOOL CREDIT OFFERED: 2 semesters

113. Engineering Design with Northwestern University’s Segal Design Institute
(Prerequisite: Algebra II)
How do we look at problems, large and small, and create designs that solve them? What does it take to move from problem to ideation to product? In small, flexible teams, students work with clients to solve authentic problems using human-centered design. Teams design a unique solution following a series of steps, including study and frame the problem, collect data through user observation and testing, prototype, iterate and tell the story. The goal of the course is to create a functioning prototype that is a solution to the presented problem. Students in this course spend time in the design shop at the Ford Motor Company Engineering Design Center.

Engineering, Design & Interdisciplinary Courses

Admission Criteria: SAT Crit. R ≥ 510 + SAT M ≥ 540; ACT R ≥ 24 + ACT M ≥ 21; ACT S ≥ 22; or Admission Portfolio

NEW! 112. AP® Biology (designation pending)
This course runs for five weeks and attendance for all weeks is required.

PREREQUISITE: One year of Biology Honors
How do stem cells differentiate into a diverse range of cell types? In AP® Biology, coursework is centered on three general areas: molecules and cells; heredity and evolution; and organisms and populations. Students develop a framework for understanding modern biology and engage in the scientific process through lab experiments, readings, lecture, and discussion. AP® Biology is a full-year high school course in an accelerated format designed to be the equivalent of an introductory, college-level biology course, and prepares students to take the AP® Biology test.

NOTES:
- This course will use a classroom and lab space at Roycemore School. Residential students will live on campus and take a short bus ride daily to class.
- Additional $150 lab fee required.

OFFERED: June 29–August 1

ADMISSION CRITERIA: SAT Crit. R ≥ 510; ACT R ≥ 24; ACT S ≥ 22; or Admission Portfolio

HIGH SCHOOL CREDIT OFFERED: 2 semesters

113. Engineering Design with Northwestern University’s Segal Design Institute
Prerequisite: Algebra II
How do we look at problems, large and small, and create designs that solve them? What does it take to move from problem to ideation to product? In small, flexible teams, students work with clients to solve authentic problems using human-centered design. Teams design a unique solution following a series of steps, including study and frame the problem, collect data through user observation and testing, prototype, iterate and tell the story. The goal of the course is to create a functioning prototype that is a solution to the presented problem. Students in this course spend time in the design shop at the Ford Motor Company Engineering Design Center.
on campus and work with Northwestern instructors and design engineers.

**OFFERED:** Session 1

**HIGH SCHOOL CREDIT OFFERED:** 1 semester

**ABOUT THIS PARTNERSHIP**
The Segal Design Institute at Northwestern is a nationally renowned group of designers and faculty who, “…see design as the deliberate shaping of the environment in ways that satisfy individual and societal needs. It is a process as much as an outcome, helping to identify core issues, addressing both current and future needs.” (Segal Design Institute website: www.segal.northwestern.edu/about/)

**NEW! 114. Tissue Engineering & Regenerative Medicine with the Shah Research Lab & the McCormick School of Engineering**

**PREREQUISITES:** Honors Biology; Algebra II

Creating and regenerating human tissue to treat disease has been the realm of speculative science fiction, but researchers are getting closer to making this dream a reality. This course introduces students to the fundamental concepts involved in tissue engineering and regenerative medicine. Students become familiar with different molecular, cellular and biomaterial engineering approaches used to regenerate tissue and treat disease. Specific emphasis is placed on biomaterial design, fabrication and characterization methods, as well as different strategies used to enhance regeneration. Students in this course have the opportunity to observe and participate in hands on experiences in the Northwestern Shah Group Tissue Engineering and Additive Manufacturing Lab on the Chicago campus.

**NOTE:** Students in this course will travel daily to Northwestern’s Chicago campus for class and lab work via NU Shuttle Service.

**OFFERED:** Session 2

**HIGH SCHOOL CREDIT OFFERED:** 1 semester

**ABOUT THIS PARTNERSHIP**
The Shah Lab at Northwestern is dedicated to developing new strategies for creating novel and practical biomaterials for the repair and regeneration of tissues damaged by disease or traumatic injury. In particular, researchers focus on the development of bioactive scaffolds having varying mechanical and biological properties sufficient for the regeneration or augmentation of a variety of tissue types including musculoskeletal tissues (cartilage, bone, meniscus, tendon, and ligament) and liver tissue. Research investigation involves the development of soy-based biomaterials and self-assembling hybrid materials; the use of tissue engineering scaffolds for cellular reprogramming; and mechanical and ultrasonic stimulation of cells in scaffolding systems.

**NEW! 115. Conservation Science & Geospatial Technology with the Chicago Botanic Garden**

**PREREQUISITES:** Honors Biology; Algebra I & II

As our world becomes increasingly interconnected, nearly all organisms are affected by spatial, location-based relationships with other biotic and abiotic things. In this college level course, students use geospatial technology such as global positioning systems (GPS), geographic information systems (GIS), and remote sensing (RS) to illuminate patterns in ecological data collected by Chicago Botanic Garden research scientists, and illustrate how geospatial technology contributes to ongoing regional conservation efforts. Through lecture, discussion, demonstration, computer lab and field work, students explore cartographic map production, spatial analysis of ecological data, and changes in plant distributions due to climate change. Students utilize the emerging, high-growth field of GIS as a core tool for proposing hypotheses, collecting field data, choosing and using tools for data analysis, and presenting scientific information in dynamic, cartographical formats.

**NOTE:** Students in this course will travel daily to the Chicago Botanic Garden by bus. Outside field work and intensive lab work are key components of this course and will be conducted on site.

**OFFERED:** Session 1

**HIGH SCHOOL CREDIT OFFERED:** 1 semester

**ABOUT THIS PARTNERSHIP**
The Chicago Botanic Garden is one of the world’s greatest living museums and conservation science centers. Uniquely situated on 385 acres of land on and around nine islands in Glencoe, Illinois, the Garden also encompasses nine laboratories where scientists and graduate students conduct a wide array of research. CTD students will have unique access to cutting edge technology, research, and active science, and the opportunity to contribute to high-level scientific work in process.

**NEW! 116. Mini MBA**

**PREREQUISITES:** Graded writing assignment; Algebra I & II

What does it take to manage a company successfully? This course is designed to introduce students to the fundamentals of business: strategic planning for growth, leadership, organizational design, project management, finance and accounting, marketing, business operations and human resources. Students also study analytic tools for decision making and frameworks to communicate effectively and implement strong decisions. Finally, students learn how to prepare business reports and presentations for stakeholders and to develop a business plan. Drawing from the backgrounds and skills of each student involved, participants deepen their collaborative presentation and leadership skills, learn to think strategically and cross-functionally and integrate ambiguity and uncertainty into their project management. The Mini MBA is an interdisciplinary course for students from all backgrounds.

**OFFERED:** Session 2

**HIGH SCHOOL CREDIT OFFERED:** 1 semester
Civic Leadership Institute

A service-learning program in downtown Chicago
Sunday, July 6 – Friday, July 25, 2014

Make Chicago your classroom this summer!
• Learn about social issues
• Serve communities in need
• Develop leadership skills
• Make a difference

Change the world. Start here.

Northwestern University’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 frequently describe as “life-changing”.

117. Service, Leadership & Community Transformation Honors
Young people often receive the message that they can’t make a difference. That they don’t have the knowledge, skills or motivation 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. Four college students started a sit-in that fueled the civil rights movement, and thousands of young people powered the peaceful protests that ended legal segregation. One 13-year-old, with a group of 7th grade classmates, founded a youth-led organization that has fought against child labor and built schools and health clinics in villages around the world. Those are just a few examples.

What power, passion and resources do you possess? At the Civic Leadership Institute, you’ll begin your discovery.

CLI 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.

Experience Chicago

CLI participants live and learn in the heart of downtown Chicago. Classes are held at Northwestern University’s Chicago Loop Campus and students live at the University Center Residence Hall. This ideal central location offers unparalleled access to Chicago’s Loop and historic neighborhoods throughout the city. Service experiences immerse students in vibrant communities like Bronzeville, Chinatown and Pilsen; while recreational activities allow students to explore cultural sites and tourist attractions like Navy Pier, Millennium Park and the Magnificent Mile. Living downtown provides students with an exceptional opportunity to experience all that this incredible city has to offer!

Notes:
• Service-learning credit offered: 25 to 100 hours
• Residential students only
• Admission Criteria: Talent Search participation (above-grade-level ACT® or SAT®) OR achievement in the 90th percentile or above in reading or verbal on any nationally normed standardized achievement test; OR an Admission Portfolio
• High school credit offered: 1 semester

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

“I learned how to make my voice heard and how to be a more effective leader.”

—2013 Civic Leadership Institute student

For students completing grades 7 or 8 interested in service-learning, please consider:
62. Taking Action: Leadership & Service Honors
(Please see detailed course description on page 31.)
Enrichment Courses

Eligibility
Spark, Solstice, Apogee and Spectrum all offer fast-paced enrichment courses. Students must be prepared to handle the rigor of the course content and the rapid pace of instruction. The preferred documentation for enrichment courses is an above-grade-level test score (i.e., EXPLORE®, ACT® or SAT® taken through NUMATS in grades 4 through 9), which provides a more accurate picture of students’ academic needs and readiness for advanced coursework than grade-level assessments. For more information on benefits of, research behind, and how to qualify for enrichment courses is an above-grade-level test score. still, program staff reserves the right to request additional information to make an admission decision.

Enrichment Course Test Score Requirements
Grades 4–6, Spark, Solstice & Apogee: Above-grade-level testing or nationally normed, grade-level achievement test

- Above-grade-level testing: Because qualification to take the above-grade-level EXPLORE®, ACT® and SAT® tests is typically 95th percentile or above on a grade-level assessment, no specific score on these tests is required. Still, program staff reserves the right to request additional information to make an admission decision.
- Nationally normed, grade level achievement test (e.g., ISAT, MAP, ITBS, etc.):
  - English & writing and social sciences courses: 95th percentile or above national percentile rank in verbal/reading subtest
  - Mathematics and science courses: 95th percentile or above national percentile rank in quantitative/math subtest
  - Technology, interdisciplinary or creative studies courses: 95th percentile or above national percentile rank, subtest requirements vary by course (see course description for specifics)
- Note: If your child’s test score report does not include a National Percentile Rank (NPR), ask your school administrator whether or not the information is available. For example, the Illinois Standards Achievement Test (iSAT), no longer lists NPR on test reports for parents, but the information is provided to school districts and may be requested.

Grades 7 & 8, Spectrum: Above-grade-level testing
- Courses at the Spectrum level require above-grade-level testing on the EXPLORE®, ACT® or SAT®. Score requirements vary by course. See course descriptions for details.

Students without Test Scores
If no test scores are available or scores do not meet requirements listed in the course description sections, applicants may submit an Admission Portfolio. For details on what to include in a portfolio, see the Admission Portfolio Applicant section on page 48.

English Language Requirements
Because courses are taught in English, test scores are used to assess proficiency and assist in course placement. TOEFL/TOEFL Jr. is required of students for whom English is not the first language. If testing is not available, students should submit a portfolio that includes the following materials to demonstrate proficiency:

- English Language Portfolio Form
- Teacher Recommendation completed by an educator who instructs the student in English
- Writing sample or interview

Please contact the Summer Program staff if you would like to be sent information on completing an English Language Portfolio.

Prerequisites
Some courses require that students complete prerequisites in order to qualify for admission. Prerequisites are listed at the beginning of each course description. Students must submit proof of prerequisites (e.g., transcripts, report card, etc.) in order to be considered for course enrollment.

Performance Evaluations, Transcripts & Syllabi
Students in enrichment courses do not receive grades.

Evaluations
Students completing a Summer Program course receive a narrative evaluation. The evaluation includes a rubric rating the student’s skills in core areas, comments on the student’s performance in class and recommendations for future study. Evaluations are sent to families via e-mail, usually around September 15.

Transcripts
Students in enrichment courses typically do not require transcripts, since no grades or credit are awarded. Still, students may request that CTD send an official transcript to their school on the program application.

Syllabi
Families will receive a course syllabus on Opening Day. As syllabi are in development until just prior to the first day of class, most are not available until Opening Day. Syllabi for select courses held in 2013 are available on the CTD website.
Credit-Bearing Courses

Eligibility
Apogee, Spectrum, Equinox and Civic Leadership Institute each offer accelerated courses for credit at the honors or Advanced Placement level. Students need to be prepared to complete a semester or year’s worth of coursework during the 3-week session.

The preferred documentation is an above-grade-level test score (e.g., EXPLORE®, ACT® or SAT® test taken in grades 4 through 9), which provides a more accurate picture of students’ academic needs and readiness for advanced coursework than grade-level assessments. For more information on benefits of, research behind, and how to register for above-grade-level testing, visit www.ctd.northwestern.edu/numats. Spring test dates are available. If you plan to participate in Northwestern University’s Midwest Academic Talent Search for the purpose of 2014 Summer Program participation, please be sure to check the timeline for receipt of official scores to assure that they will be available by May 19.

Students without Above-Grade-Level Test Scores
If above-grade-level test scores are not available, applicants may submit an Admission Portfolio. For details about applying by portfolio, see the Admission Portfolio Applicant section on page 48. Civic Leadership Institute applicants may also submit a nationally normed grade-level test score at the 90th percentile or above (verbal/reading).

Credit-Bearing Course Test Score Requirements
Applying as a student with qualifying test scores requires participation in above-grade-level testing through Northwestern University’s Midwest Academic Talent Search or another similar program (e.g., CTY, Duke-TIP, etc.). Score requirements listed with the course descriptions refer to EXPLORE taken in grades 4 through 6. Score requirements listed for SAT or ACT are for tests taken in grades 6 through 9, not in grades 10 through 12.

English Language Requirements
Because courses are taught in English, TOEFL/TOEFL Jr. or IELTS scores are required of students for whom English is not the first language to assess proficiency and assist in course placement. If testing is not available, students should submit a portfolio that includes the following materials to demonstrate proficiency:

- English Language Portfolio Form
- Teacher Recommendation completed by an educator who instructs the student in English
- Writing sample or interview

Please contact the Summer Program staff if you would like to be sent information on completing an English Language Portfolio.

Prerequisites
Some courses require that students complete prerequisites in order to qualify for admission. Prerequisites are listed at the beginning of each course description. Students must submit proof of prerequisites (e.g., transcripts, report card, etc.) in order to be considered for course enrollment.

Performance Evaluations, Transcripts & Syllabi
Students in the Apogee Algebra I course receive a grade and credit through Center for Talent Development if they complete the course successfully. Students in Apogee Pre-Algebra receive a grade only. Students in Spectrum accelerated honors courses and all Equinox and Civic Leadership Institute students receive grades and credit through CTD for courses they complete successfully.

For all credit-bearing courses at CTD, a grade of C or better is considered successful completion. As CTD is accredited through the North Central Association Commission on Accreditation and School Improvement (NCA CASI), students may be able to earn credit at their academic year schools for courses successfully completed through CTD.

NOTE: The acceptance of CTD credit(s) at a student’s academic-year school depends on that school’s institutional policy about the recognition of credit from outside institutions. Students who are interested in pursuing credit for a CTD course at their academic-year school should discuss this option with their academic counselor or school administrator BEFORE applying to the Summer Program.

Evaluations
Students completing a Summer Program course receive a narrative evaluation. The evaluation includes course grades and number of high school credits earned through CTD (if applicable), comments on the student’s performance in class and recommendations for future study. Evaluations are sent to families via e-mail, usually around September 15.

Transcripts
Students may request that CTD send their evaluation and an official transcript to their school by indicating this on the program application. Additional transcripts (for college applications, scholarships, etc.) may be requested for a fee using the Transcript Request Form, which is available on the CTD website on the Forms and Downloads page.

Syllabi
Students will receive a course syllabus on Opening Day. As syllabi are in development until just prior to the first day of class, most are not available until Opening Day. Syllabi for select courses held in 2013 are available on the CTD website.
Campus Life Details for All Programs

Program Experience
The programs provide learning experiences matched to students’ identified abilities, inspire a love of learning, and offer a community of intellectual peers.

Typical Daily Schedule
(times may be earlier or later depending on the program)

<table>
<thead>
<tr>
<th>Time</th>
<th>Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>7:15 a.m.</td>
<td>Breakfast</td>
</tr>
<tr>
<td>8:15 a.m.</td>
<td>Commuter students arrive/walk to class</td>
</tr>
<tr>
<td>8:30 a.m.</td>
<td>Class starts</td>
</tr>
<tr>
<td>11:15 a.m.</td>
<td>Lunch</td>
</tr>
<tr>
<td>12:15 p.m.</td>
<td>Class continues</td>
</tr>
<tr>
<td>2:45 p.m.</td>
<td>Class ends/commuter students may depart</td>
</tr>
<tr>
<td>3:00 p.m.</td>
<td>Afternoon activity (commuters encouraged to participate)</td>
</tr>
<tr>
<td>5:00 p.m.</td>
<td>Commuters picked up from activities</td>
</tr>
<tr>
<td>5:30 p.m.</td>
<td>Dinner (optional for commuters)</td>
</tr>
<tr>
<td>6:30 p.m.</td>
<td>Evening study sessions (commuters invited but not required to participate)</td>
</tr>
<tr>
<td>8:15 p.m.</td>
<td>Evening activity</td>
</tr>
<tr>
<td>10:00 p.m.</td>
<td>Students must be in their own rooms</td>
</tr>
</tbody>
</table>

Activities
Activities are an important part of the experience, and they help provide a healthy balance of work and play. After class students may participate in a variety of afternoon and evening activities (selections vary by program). Favorites include visiting the beach on Lake Michigan, playing Capture the Flag, visiting the University Student Center, participating in Ultimate Frisbee and soccer games, and engaging in various crafts. Quiet time is an option for students who wish to study or relax with friends.

Students in residential programs enjoy a broad range of activities, such as off- and on-campus theater, concerts, movies, museums, dances and talent shows. The learning that occurs outside of class, through casual conversation, study periods, and recreational activities, is just as important as that which occurs in class. For this reason, we require residential students to remain with the Summer Program throughout each session, including weekends and holidays. If you are not comfortable having your child remain in the program over the weekend, enroll him/her as a commuter student. Due to safety and supervision concerns, weekend activities are offered to residential students only.

Instructors
Center for Talent Development selects instructors based on their mastery of subject matter, experience, enthusiasm and the ability to differentiate instruction. CTD instructors are particularly skilled at providing engaging and thought-provoking learning experiences for academically talented students.

Residential Life (Northwestern University and CLI)
For students who prefer to experience a residential living and learning community, the Summer Program provides a residential option:

- Students reside and eat in university residence halls under the supervision of specially trained residential staff.
- Students in Spark, Solstice, Apogee, Spectrum and CLI are housed by age and by gender and, when possible, by discipline. Students in Equinox are housed by course (males and females are on the same floor/wing but have separate rooms and bathroom facilities).
- A residential coordinator in each program oversees residential life including staff, activities, health and social issues. Residential assistants are assigned to supervise small groups of students.

Commuters
Students who prefer to reside at home may commute. (CLI students may not be commuters.) Commuters may choose to participate in afternoon activities and evening study sessions.

- Commuters are dropped off and picked up at a central location monitored by CTD staff members. Equinox commuters may be dropped off at a spot convenient to their classroom, take public transportation or drive themselves to campus.
- Lunch is provided to commuter students in a university dining hall.
- Commuters participating in an evening study session may stay for dinner for a per meal fee (Northwestern site only).
- For the convenience of its commuter students, CTD provides a carpool list for those who request to be included on it. Please indicate your interest in being placed on this list by checking the carpool list box on the Summer Program Application.

Computers
Residential students in Apogee and Spectrum are encouraged to bring their own laptops or tablets with them while attending CTD to assist them with their coursework. Some Apogee and Spectrum courses require students to bring a computer. Check course descriptions for details.

Students in Equinox are required to have a laptop or tablet with word processing software and the ability to connect to the Internet. Equinox courses make frequent use of technology. A portable printer is particularly helpful for students in writing and humanities courses.

Civic Leadership Institute students are not required to bring a laptop or tablet.

Because of the short duration of our programs, neither CTD nor Northwestern University provides technical support, including e-mail or Internet accounts, for personal computers. Students are given access to the free Northwestern wireless network on campus after arrival and orientation.
2014 Summer Program Fees & Application Procedure (All Grade 4–12 Programs)

**Application Deadline (postmark) is May 19, 2014**

Complete applications are reviewed as they are received starting January 1. Courses are filled on a first-come, first-served basis. Although the regular application deadline is May 19, many courses fill earlier. Early application is strongly encouraged.

Applications postmarked or submitted online after May 19 are subject to a $50 late fee and tuition must be paid in full. Although CTD tries to accommodate late applications, enrollment may not be possible. Please be sure to send a complete application packet, including all supporting materials, as applications are reviewed only after they are complete. After the May 19 deadline, applications that remain incomplete will be deemed inactive, will not be reviewed and no follow up contact will be made.

**NOTES:**

- Applications are completed online or by requesting that a paper application be sent to you.
- If you have questions, please e-mail Summer Program staff directly: summer@ctd.northwestern.edu.

**Application Review Process**

Once the Summer Program office receives a completed application (which means all supporting materials have been received), it is forwarded to the appropriate Program Coordinator for review. Once an enrollment decision is made, families are notified. The process takes approximately four weeks from the time a completed application is received (incomplete applications are not reviewed). Due to the volume of applications, the review process may take longer closer to the application deadline.

**Course Availability**

Applications are reviewed in the order received. A course listed as available on the website at the time an application is submitted may be filled before that application is processed due to the queue of applications awaiting processing.

**Program Fees (Per Session)**

### Spark (4-day program, June 30–July 3) at Elmhurst College

<table>
<thead>
<tr>
<th></th>
<th>COMMUTER FEES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tuition</td>
<td>$600</td>
</tr>
<tr>
<td>Application Fee</td>
<td>$ 60</td>
</tr>
<tr>
<td>Total Tuition</td>
<td>$660</td>
</tr>
</tbody>
</table>

### Spark (1-week program) Elmhurst and NU sites

<table>
<thead>
<tr>
<th></th>
<th>RESIDENTIAL FEES</th>
<th>COMMUTER FEES</th>
</tr>
</thead>
<tbody>
<tr>
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<td>$1,285</td>
<td>$750</td>
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<tr>
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<tr>
<td>Total Tuition</td>
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<td>$810</td>
</tr>
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</table>

### Solstice (2-week program)

<table>
<thead>
<tr>
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<th>RESIDENTIAL FEES</th>
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</tr>
</thead>
<tbody>
<tr>
<td>Tuition</td>
<td>$2,375</td>
<td>$1,380</td>
</tr>
<tr>
<td>Application Fee</td>
<td>$ 60</td>
<td>$ 60</td>
</tr>
<tr>
<td>Total Tuition</td>
<td>$2,435</td>
<td>$1,440</td>
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</table>

### Apogee (3-week program)

<table>
<thead>
<tr>
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<th>RESIDENTIAL FEES</th>
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</thead>
<tbody>
<tr>
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<td>$ 60</td>
</tr>
<tr>
<td>Total Tuition</td>
<td>$3,535</td>
<td>$2,060</td>
</tr>
</tbody>
</table>

In addition to standard courses, Spectrum and Equinox offer several unique, cooperative courses with Northwestern University departments and external organizations. Equinox also includes 5-week AP Science courses. Tuition for these specialized offerings varies by course; see below for details.

### Spectrum & Equinox Standard Courses (3-week)

<table>
<thead>
<tr>
<th></th>
<th>RESIDENTIAL FEES</th>
<th>COMMUTER FEES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tuition</td>
<td>$3,475</td>
<td>$2,000</td>
</tr>
<tr>
<td>Application Fee</td>
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<td>$ 60</td>
</tr>
<tr>
<td>Total Tuition</td>
<td>$3,535</td>
<td>$2,060</td>
</tr>
</tbody>
</table>

### Spectrum: Ruby on Rails; 3D Printing & Product Design

### Equinox: Engineering Design; Tissue Engineering; Conservation Science with Botanic Garden (3-week)

<table>
<thead>
<tr>
<th></th>
<th>RESIDENTIAL FEES</th>
<th>COMMUTER FEES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tuition</td>
<td>$3,950</td>
<td>$2,500</td>
</tr>
<tr>
<td>Application Fee</td>
<td>$ 60</td>
<td>$ 60</td>
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<tr>
<td>Total Tuition</td>
<td>$4,010</td>
<td>$2,560</td>
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</table>

### Equinox: AP® Biology & AP® Chemistry (designation pending) (5-week)

<table>
<thead>
<tr>
<th></th>
<th>RESIDENTIAL FEES</th>
<th>COMMUTER FEES</th>
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</thead>
<tbody>
<tr>
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<td>$ 60</td>
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<tr>
<td>Total Tuition</td>
<td>$5,035</td>
<td>$2,610</td>
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### Spectrum: HTML & CSS (3-week)

<table>
<thead>
<tr>
<th></th>
<th>RESIDENTIAL FEES</th>
<th>COMMUTER FEES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tuition</td>
<td>$3,950</td>
<td>$2,500</td>
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<tr>
<td>Application Fee</td>
<td>$ 60</td>
<td>$ 60</td>
</tr>
<tr>
<td>Total Tuition</td>
<td>$4,010</td>
<td>$2,560</td>
</tr>
</tbody>
</table>

### Equinox: AP® Biology & AP® Chemistry (designation pending) (5-week)

<table>
<thead>
<tr>
<th></th>
<th>RESIDENTIAL FEES</th>
<th>COMMUTER FEES</th>
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<tbody>
<tr>
<td>Tuition</td>
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<td>Application Fee</td>
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<td>Total Tuition</td>
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</table>
Program Fees (Per Session) Continued

<table>
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<tr>
<th></th>
<th>Residential Fees</th>
<th>Commuter Fees</th>
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</thead>
<tbody>
<tr>
<td>Tuition</td>
<td>$4,050</td>
<td>N/A</td>
</tr>
<tr>
<td>Application Fee</td>
<td>$60</td>
<td>N/A</td>
</tr>
<tr>
<td>Total Tuition</td>
<td>$3,945</td>
<td>N/A</td>
</tr>
</tbody>
</table>

NOTES:

- Residential fees cover tuition; room and board; books; basic materials; and health center fees.
- Commuter fees include tuition, books, basic materials, and lunch.
- Selected courses carry a lab or materials fee; amounts vary by course (see course descriptions for fee details).
- All applications must be accompanied by a $60 non-refundable application fee and a $200 tuition deposit for a total of $260. Payment in full and a non-refundable late fee of $50 must accompany each application submitted after May 19, 2014.
- Students applying for more than one session need pay only one application fee, but must pay tuition deposits for each session.
- Tuition balances must be paid by check, money order or credit card within 30 days of acceptance in the program. For students who receive their program acceptance after May 19, the final payment is due upon notification of acceptance. Students with an outstanding balance after June 9, 2014 may lose their place in the program.
- A five-month payment plan is available. To apply, you must submit the payment plan application form available on our website. The payment plan application is due within 30 days of receiving your acceptance notification. The fee for using the payment plan is $50. Families that are eligible for financial aid will not be assessed the service charge for using the payment plan.

Program Application Procedures

The application deadline for domestic applicants is May 19, 2014. CTD strongly recommends international students who require visa sponsorship apply before April 1, 2014 as it may take 8 to 10 weeks to secure a student visa. CTD is not responsible for an accepted student’s ability to secure a student visa.

If English is not your child’s primary language, submit TOEFL, TOEFL Jr., or IELTS scores. Students need a good command of written and spoken English to succeed in the fast-paced, intensive courses. For information about TOEFL or TOEFL Jr. tests, contact TOEFL/TSE services at www.ets.org. For information about IELTS, contact IELTS services at www.ielts.org. If testing is not possible, students are required to submit an English Language Portfolio, consisting of the following:

- English Language Portfolio form
- Teacher recommendation form completed by an educator who instructs the student in English
- Recorded speaking sample or Skype interview

Please contact the Summer Program staff if you would like to be sent information on completing an English Language Portfolio.

Financial Aid & Scholarships

CTD offers need-based financial aid awarded as requests are received, starting in January. Families are encouraged to apply early as the amount of aid available is limited and is often exhausted before the May application deadline.

- For students enrolling in 3-week program computer technology courses (e.g., Bits & Blocks, Java, HTML/CSS etc.), two need-based scholarship opportunities exist: The Sandra Dennhardt Scholarship and the Gary Greenberg Scholarship. For information on application procedures visit the financial aid section of the Apogee, Spectrum or Equinox program website. The application deadline for these scholarships is April 15.
- The amount of financial aid awarded varies from partial to full tuition, and awards are based on family income and extenuating circumstances (e.g., loss of job, unforeseen medical expenses, etc.). Most families awarded aid have a total household income of less than $50,000.
- Financial aid is awarded for one program and one session per child.
- To be considered for financial aid, families must complete the Financial Aid Application, available once a family has applied through the online application. All supporting materials (tax information, statement of need, etc.) must be included in the financial aid submission in order for an application for financial aid to be considered.
- The amount of financial aid granted and the balance due are reflected on an invoice included in program acceptance materials. Any outstanding balance must be paid by June 9, 2014, unless arrangements have been made with CTD for a payment plan.

Refunds & Withdrawals

- All requests for tuition refunds and/or withdrawals must be made in writing and either e-mailed, faxed or mailed to CTD by June 9, 2014. Check with CTD to confirm receipt of request.
- The tuition deposit is non-refundable after June 9, 2014.
- If a student withdraws in writing between the June 9 deadline and the start of the program, CTD will refund 50% of the program fees paid, less the deposit.
- Students who withdraw after the start of a program receive no refund.
- Students dismissed for disciplinary reasons are not eligible for any refund.
- The $60 application fee is not refundable except in cases where all course choices are closed or financial aid is not adequate for participation.
- Refund processing may take eight weeks, starting from the time a written request is received by CTD.

Visa & Passport Requirements

The CTD Summer Program has been identified by the Student and Exchange Visitor Program (SEVP) and Northwestern University as an academic program that requires a student visa for any non-U.S. citizen/ permanent resident. Any admitted student who is not a U.S. citizen, U.S. permanent resident or in another visa category that allows for study, requires sponsorship for a student visa. Failure to comply may negatively impact a student’s ability to secure another non-immigrant visa in the future.

- Non-U.S. citizens are required to have the appropriate student visa (for more information visit www.travel.state.gov/visa/temp/types/types_1268.html).
- All non-U.S. citizens are required to have a passport to attend summer programs in the U.S. The passport must be valid for a minimum of six months.
months after the completion of the program. Accepted students who require visa sponsorship may incur additional fees to cover processing and mailing costs. Invoices for additional fees will be sent via e-mail to families and payment is due upon receipt.

- Accepted students must report to the Northwestern University international office with their visa paperwork and passport to complete check-in paperwork.

Getting Started: Applicant Types

You may apply online at www.ctd.northwestern.edu/summer or contact the CTD Summer Program office to request an application form be sent to you.

**NOTE:** CTD’s Summer Program does not accept faxed applications.

To begin the application process, select the applicant type best suited to you based on the descriptions below.

New Scores Applicant:

You must meet any one of the following three criteria.

- You have never attended a Center for Talent Development (CTD) program and you have qualifying test scores. (Spectrum and Equinox require above-grade-level test scores: ACT® or SAT® taken in grades 6, 7, 8 or 9.)

- You have previously attended a CTD program, but you are now applying for a course in a subject area different than the course you successfully completed and you have new qualifying test scores.

- You attended Apogee, Saturday Enrichment Program or Gifted LearningLinks but are now applying for Spectrum or Equinox and you have the requisite above-grade-level scores.

Returning Applicant:

You must meet both of the following criteria.

- For Spark, Solstice or Apogee: successful completion of a previous Leapfrog, Saturday Enrichment, Gifted LearningLinks, Spark, Solstice or Apogee course. For Spectrum or Equinox: successful completion of a previous Spectrum or Equinox course of the same course type (i.e., credit bearing or accelerated enrichment).

- You are applying for a course in the same subject area as the course you previously completed.

Admission Portfolio Applicant:

You must meet the following criterion.

- You do not have qualifying test scores because either you have (1) never taken a nationally normed standardized achievement test or, for Spectrum or Equinox an above-grade-level test such as the ACT® or SAT® in grades 6 through 9 OR (2) you have taken a nationally normed standardized test, or for Spectrum or Equinox, an above-grade-level test, but have not achieved a qualifying test score.

Application Information

- The $60 non-refundable application fee and $200 tuition deposit (total $260) should be made by credit card, check or money order payable to Northwestern University. (If applying after May 19, submit full tuition plus $50 late fee.) Only one application fee is required per student, regardless of the number of sessions for which a student applies.

- The essay (approximately 250 words) must be wholly conceived of and written by the applicant on the topic for the program selected.

- Prerequisites, if required, are listed in the program pages at the beginning of the course description. Send in proof of prerequisite completion for your first-choice course.

- Above-grade-level test scores refer to the ACT® or SAT® taken in grades 6 through 9. Grade-level standardized test scores should be nationally normed tests taken within the last two years (i.e., Terra Nova, ISAT, Iowa Test of Basic Skills, etc.).

- The report card or transcript (Spectrum and Equinox) you provide should be the most recent evaluation of your child’s school performance.

- Two teacher recommendations are required for the Admission Portfolio. At least one recommendation should be from the current year teacher. Recommendations should be from teachers who can speak directly to your child’s abilities in the subject area closest to the first-choice course (e.g., the current year science teacher for a Chemistry course). The link to the online recommendation form is available on the Forms and Downloads page of the Summer Program website. Applicants are responsible for sending the link to their recommending teachers. Applications to the program are not complete or reviewed until recommendations are complete.

“The comfortable atmosphere allowed us all to bond.”

—2013 Spectrum student
Application Materials Checklist
Use the following charts to determine what materials are required.

Spark, Solstice, Apogee or Civic Leadership Institute

<table>
<thead>
<tr>
<th>Material</th>
<th>RETURNING APPLICANT</th>
<th>NEW SCORES APPLICANT</th>
<th>ADMISSION PORTFOLIO APPLICANT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Application Form</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Application Fee</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Tuition Deposit</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Statement &amp; Essay</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Proof of Prerequisites (see course description for 1st choice course)</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Test Scores</td>
<td></td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Report Card</td>
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</tr>
<tr>
<td>Two Teacher Recommendations</td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>TOEFL/TOEFL Jr. scores or English language Portfolio*</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
</tbody>
</table>

* Students whose first language is not English

Spectrum or Equinox

<table>
<thead>
<tr>
<th>Material</th>
<th>RETURNING APPLICANT</th>
<th>NEW SCORES APPLICANT</th>
<th>ADMISSION PORTFOLIO APPLICANT</th>
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</thead>
<tbody>
<tr>
<td>Application Form</td>
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<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Application Fee</td>
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<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Tuition Deposit</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Statement &amp; Essay</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Copy of Above-Grade-Level Test Scores (ACT® or SAT®)</td>
<td></td>
<td>X</td>
<td>X (if available)</td>
</tr>
<tr>
<td>Copy of Grade-Level Standardized Test Scores</td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Transcript (unofficial or official)</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Writing Sample, if required (check course description for your 1st choice course)</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Two Teacher Recommendations</td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>TOEFL/TOEFL Jr. scores or English language Portfolio*</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
</tbody>
</table>

* Students whose first language is not English

Essay Questions
All students are required to submit a brief statement (1 to 2 sentences) indicating why they are interested in their selected course and an essay (approximately 250 words) conceived and written by the applicant.

Spark, Solstice & Apogee Essay Topic:
How do you define determination? What have you done (for example, a hobby, school project, contest) that required determination? Tell us about that experience, why it was challenging and how determination impacted the outcome.

Spectrum Essay Topic:
“Genius is one percent inspiration… ninety-nine percent perspiration.”—Thomas Alva Edison
Describe a time when a great idea you had ended up requiring a lot more time and effort than you had anticipated.

Equinox Essay Topic:
“One’s philosophy is not best expressed in words; it is expressed in the choices one makes, and the choices we make are ultimately our responsibility.”—Eleanor Roosevelt
Describe someone in your life (can be a public figure) whom you have gotten to know by observing their actions and choices. What impact has this made on your life?

Civic Leadership Institute Essay Topic:
CLI is a service-learning program focused on social issues, leadership and civic engagement. What do you hope to gain from your participation in CLI?
**Submitting the Application**

The online application is available at [www.ctd.northwestern.edu](http://www.ctd.northwestern.edu) for the summer. You will need a credit card to complete the transaction and submit Part 1 of the application. We recommend that you prepare all necessary supporting documents (test scores, essay, prerequisite materials, etc.) for Part 2 of the application in advance.

Applicants will be e-mailed a confirmation that they have completed Part 1 of the application. The confirmation e-mail will include a unique link to Part 2 of the application. Part 2 of the application is where supporting documents and essays will be uploaded. The parent e-mail provided in the online application is the address all CTD communications will be sent to. Please note that applications are not complete nor are they reviewed by Program Coordinators until all supporting documentation is submitted.

If you are not able to apply online, request that a paper application be sent to you.

Provide the following information if contacting CTD to request an application:

1) Which program application form(s) you are requesting
2) How you would like the material sent: e-mail or postal service
3) Address and contact information: name, mailing address (including city, state and zip code) or e-mail address and, in both instances, a phone number in case we need to contact you.

**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

As a program participant, you 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.

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**Center for Talent Development, Northwestern University**

**Dynamic Pathways for Gifted Learners**

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 28 from 1 to 5 p.m. on Northwestern University’s Evanston Campus.

**Sign up on the Summer Program Application form.**

All details, including speakers, workshop sessions and fees will be posted on the CTD website in January: [www.ctd.northwestern.edu/ctd/outreach/#family](http://www.ctd.northwestern.edu/ctd/outreach/#family).

**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**

Individualized pathways through online learning that expand access to advanced subject matter and foster 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.

**Civic Education Project**

Pathway to leadership and civic engagement that combines service-learning with academic study and reflection. Bright, impassioned students engage in social issues first-hand and develop skills to change 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](http://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, sexual orientation, gender identity, gender expression, parental status, marital status, age, disability, citizenship, or veteran status in matters of admissions, employment, housing, or services or in the educational programs or activities it operates.

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.
Center for Talent Development

2014 Summer Program
For academically gifted students age 4–grade 12

Center for Talent Development
Summer Program
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