CU Science Discovery | Summer 2016

K-12 Experiential STEAM Learning in Boulder and Denver

- Summer Camps
- High School Courses
- Research Experiences

Register online now! science.discovery.colorado.edu
About Us

Founded in 1983, CU Science Discovery collaborates with CU-Boulder faculty to develop and deliver science education programs that heighten curiosity about the natural world and engage students in the scientific process. Our mission is to increase literacy in science, technology, engineering, art and math (STEAM) by providing hands-on experiences that connect students and teachers to current CU science. CU Science Discovery capitalizes on CU-Boulder’s scientific resources, facilities and expertise to excite students about STEM, expose them to a variety of STEM careers and professionals, and inspire a future generation of scientists and engineers.

CU Science Discovery Summer Camps Feature:

• Unique opportunities to explore current CU science
• Hands-on activities that are engaging and informative
• Fun and exciting topics representing a range of STEM disciplines
• Enthusiastic, knowledgeable and experienced instructors, including CU faculty, graduate and undergraduate scientists
• Small camp sizes (maximum ratio 16:2)
• University laboratories, equipment and resources
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Advanced Courses for High School Students
CU Science Discovery offers intensive 1-2 week summer courses for high school students. These courses provide unique opportunities for older students to work in CU laboratories, interact with CU scientists and explore STEM careers.

Camps in Denver
CU Science Discovery is thrilled to be coming to Denver again this year! Denver area camps will be held at two locations:

- Community College of Denver, Auraria Campus
- Anschutz Medical Campus, Aurora
### Boulder Camps 2016

**AM = 9-12, PM = 1-4, ALL = 9-4 (unless otherwise noted)**

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*Please note:* Campers must have reached their 5th birthday by the camp start date.

### 6-8 Years

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**Notes:**
- (EC) = East Campus
- (MC) = Main Campus
- (CP) = Chautauqua Park
- (FB) = Fleming Building, Idea Forge
- (F) = Fiske Planetarium
- (IF) = Isabelle Farm
- (JSCBB) = Jennie Smoly Caruthers Biotechnology Building
- (NCAR) = National Center for Atmospheric Research
- (UCAR) = University Corporation for Atmospheric Research

**Courses with Prices:**
- Amazing Human Body: $205
- Diggin' Dinos: $205
- Flight Club: $165/205
- Nature's Playground: $165/205
- Ocean Discovery: $205
- Rockets for Junior Astronauts: $205
- Super Duper Science: $205
- Things That Go: $165/205
- Tinker Tots: $205
- What's Buggin' You?: $205
- Wonders of Water: $165/205
- Wild in the Woods: $150/185
- Boulder Rocks: $205
- If You Build It: $165/205
- Isabelle Farm: Celebrate Summer: $165
- Kids' Chemistry: $165/205
- Life in Ponds and Streams: $205
- Magic Tree House: Natural Disasters: $205
- Robot Playground: $205
- Science Chefs: $205
- Science Magic: $205
- Science of Toys: $165/205
- Sweet Science: $165/205
- Beading & Jewelry Making of the Sea: $205
- Bounce & Tangle: The World of Polymers: $165/205
- Brainiacs: $205
- Coding Adventures: Dot and Dash in Space: $205
- Fossils, Crystals, and Rocks: $300/375
- Girls in STEM: LEGO Robotics WeDo: $205
- Grossology: $165/205
- Introduction to Pinball Design: $165/205
- Junior Astronomers: Exploring the Universe: $205
- LEGO Robotics WeDo: $165/205
- Life in Ponds and Streams: $205
- Naturalist Notebook: $165/205
- Phun with Physics: $205
- Weather Works: $165/205
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3D Video Game Design
Ages 9-11
Create your own video games! Learn how to make and program 3D shapes in order to develop games and simulations and share your creations with others in the AgentCubes online arcade.

Amazing Human Body
Ages 5-6
Did you know that if you stretched your intestine from end to end, it would be as long as a school bus? Playing games such as Cardiac Four-Square and Immune System Tag will teach us about the different systems of the human body and how everything works together to keep us healthy.

Amazing Race: CU Edition
Ages 9-11
Learn about science at CU as we put our skills to the test in a fun-filled campus scavenger hunt! Each day, we’ll complete a series of hands-on challenges in order to arrive at a special CU destination.

Art of Origami
Ages 8-10
Origami, the ancient Japanese art of paper folding, makes paper come to life! Create traditional favorites such as the crane and star, and then progress to the more complex toy origami, such as the moving lizard.

Beading and Jewelry Making of the Sea
Ages 7-9
Journey into the unknown depths of the ocean and discover strange creatures while turning your knowledge into beautiful pieces of sculptured beads and jewelry!

Birds, Beaks and Beyond
Ages 8-10
Gain a deeper interest in birds and an appreciation for the need for conservation. We’ll visit local trails, streams, wetlands and ponds as we discover and identify birds living in our midst.

Boulder Rocks
Ages 6-8
Grab your collecting bags! Bring your love of rocks and join us as we explore the geology of the Flatirons and Boulder area.

Bounce and Tangle: The World of Polymers
Ages 7-9
Polymers are all around us, from bubble gum to plastics. Explore polymers through experimentation, making Jell-O and slime, creating polymer clay art and using a 3D printer.

Brainiacs
Ages 7-9
My brain told me to do it! Learn about the interesting ways our brain works with our body (or against it) as we move, groove and wander our way through life.

Chain Reactions
Ages 8-10
Explore the world of simple machines as we design, build and test some fantastical contraptions! We’ll look at how things work as we design chain reactions in which one event leads to another.

Chemistry Lab
Ages 9-11
Through experiments, making models and watching things explode, we’ll learn about the nature of chemistry and science - including chemical and physical reactions, acids, bases, pH and the properties of polymers.

Coding Adventures: Dot and Dash in Space
Ages 7-9
Develop coding skills as we help our robots, Dot and Dash, navigate through outer space to complete a series of intergalactic missions. We’ll learn coding fundamentals using visual programming apps.

Craft Technology
Ages 8-10
Use conductive materials such as specialty threads, Play-Doh, Little Bits and conductive paint to blend art and electronics into various artistic masterpieces.
Diggin’ Dinos
Ages 5-6
Calling all junior paleontologists! Learn about various dinosaurs, where they lived, what they ate and how we know so much about them today.

Digital Photography
Ages 9-11
Take better pictures with your digital camera! This photographic exploration will cover fundamentals of exposure, photo editing, layout and design.

Engineering is Everywhere
Ages 9-11
Blend science and engineering practices with cutting-edge technology and 21st century materials. Explore engineering through polymers, bacteria, electricity, mechanics and 3D printing.

Fibonacci and the Golden Mean
Ages 9-11
Fibonacci ‘patterns’ can be used to describe seashells, trees and other patterns in nature. Search for these numbers in nature, make your own art and find the Golden Mean in your own body!

Flight Club
Ages 5-6
Learn how something as heavy as an airplane seems to defy gravity and fly. Make gliders, kites and other flyers as we learn the laws of physics that help things fly and float.

Fossil Hunters
Ages 9-11
Explore the best places to uncover fossils in Colorado! Grab your rock hammer and hand lens and join us as we search for and identify fossils and learn how on earth they made their way to the mountains many millions of years ago.

Fossils, Crystals and Rocks
Ages 7-9
Attention budding geologists: Spend a week exploring the world of minerals and fossils! After learning simple tests to identify common rocks and minerals, we’ll make our own fossils, go on rock and fossil hunts and try indoor rock climbing.

Green Power
Ages 8-10
Oil, gas and coal—the world’s main energy sources—create a lot of pollution and won’t last forever. Explore alternative and renewable energy using a fun, project-based approach.

Grossology
Ages 7-9
What better way to spend the day than creating the ickiest, grossest, slimiest of body secretions in the classroom! Concoct fake blood, gooey snot, vile vomit and boogers on a stick—all while learning about why and how our bodies produce these gross, but oh-so-important substances.

If You Build It
Ages 6-8
LEGO Structures and Keva planks provide the engaging framework to understand what forces make structures and buildings stand up or fall down. Bring your design ideas and creativity for a fulfilling week of design and build adventures!

iMovie
Ages 9-11
Using digital camcorders and Apple’s iMovie software, we will work to produce several short iMovies. This is a great opportunity to get filmmaker experience while balancing creativity, planning and teamwork!

Introduction to Pinball Design
Ages 7-9
Build, test and modify a non-electronic pinball machine to create a toy that meets certain specifications. Explore gravity, potential and kinetic energy, inclined planes and the Engineering Design Process.

Please visit sciencediscovery.colorado.edu for complete descriptions.
Girls in STEM: Chain Reactions
Ages 8-10
Explore the world of simple machines as we design, build and test some fantastical contraptions! We’ll look at how things work as we design chain reactions in which one event leads to another.

Girls in STEM: Craft Technology
Ages 8-10
This is where art and electronics collide! Use conductive materials and Makey-Makeys to control your computer and learn circuit basics as you design light-up Play-Doh sculptures. Hack your toys with Little Bits and create projects with conductive paint.

Girls in STEM: Creative Coders
Ages 8-10
Imagine, create and share your own interactive art, stories, music and games both on the screen and off. Use Scratch’s interactive building blocks to develop colorful landscapes, sound effects, game themes and personal avatars.

Girls in STEM: LEGO Robotics WeDo
Ages 7-9
Using LEGO WeDo Kits, we will learn the basics of robotics including the logic of programming and how gears, axles and motors work. We’ll be using motion and tilt sensors on our LEGO robots to make them perform basic functions, such as jumping, snapping and rocking.

Girls in STEM: Maker Space
Ages 9-11
A materials scientist investigates how materials are put together, how they can be used, and how they can be changed or improved to do even more amazing things. Tinker with an assortment of tools and materials as we design, test and refine our own creations.

Girls in STEM: Model Rockets
Ages 8-10
Build your own model rocket and blast it off high above Boulder. Learn the physics behind how rockets function and the basics of safe and fun model rocketry.

Girls in STEM: Visual-Matics
Ages 8-10
Explore the mathematics of patterns, scale, fractals and infinity using the art of M.C. Escher, origami, Fibonacci numbers and the Golden Ratio. Put away the calculator and get ready to paint, fold, color, tape and create a whole new world of mathematics!

Please visit sciencediscovery.colorado.edu for complete descriptions.
Isabelle Farm: Celebrate Summer
Ages 6-8
Spend the week at Isabelle Farm, Waneka Lake Park and Thomas Open Space in Lafayette. We will learn about food, farming, gardening and life on the farm and in the park as we search for insects, create community garden plots and harvest vegetables.

LEGO Robotics WeDo
Ages 7-9
Using LEGO WeDo kits, we will learn the basics of robotics including the logic of programming and how gears, axles and motors work. We will use motion and tilt sensors on our LEGO robots to make them perform basic functions, such as jumping, snapping and rocking.

Life in Ponds and Streams
Ages 6-8 and 7-9 and 8-10
What secrets lie beneath the surface of our streams? What kinds of wildlife stalk the shoreline? Plunk about in Boulder’s ponds and streams while learning about our local aquatic and water-loving wildlife.

Magic Tree House: Natural Disasters
Ages 6-8
Travel with Jack and Annie to investigate the science behind extreme weather events and natural disasters. Design an earthquake-proof tower, simulate tsunami formation and impact, and erupt a volcano!

Maker Space
Ages 9-11
Develop your inner engineer as you design products that are wilder, faster, greener, colder and safer! We’ll tinker with an assortment of tools and materials as we design, test and refine our creations.

Making Miniatures: Fairy House and Gnome Essentials
Ages 8-10
From fairy house and gnome essentials, to furniture design and models, this camp will explore “making” in miniature with a laser cutter and 3D printer!
Marine Biology
Ages 8-10
Join us as we investigate marine plants and animals and the world they call home! From the sandy shores to the deepest, darkest depths, we’ll learn about a wide variety of specimens within each zone.

Muggle Magic: Advanced Wizards-in-Training
Ages 8-10
In this Muggle Magic extension, we’ll examine wizard and muggle genealogies and explore the science behind Skele-Gro and invisibility. We’ll play with optics and develop our GPS skills as we further expand our wizardry skills.

Martian Adventures
Ages 9-11
What does it take to survive on Mars? We’ll put you in the big chair at NASA, allowing you to solve problems and make mission-critical decisions like plotting a safe route through a Martian sandstorm, designing a mission and even launching a rocket.

Muggle Magic: The Science of Harry Potter
Ages 8-10
Join your fellow wizards-in-training as we participate in several favorite Hogwarts classes and games—including Potions, Herbology, Astronomy and Quidditch. Throughout the week, we’ll make (and sample!) our favorite treats from Honeydukes!

Math Games and Puzzles from Around the World
Ages 9-11
Experience math in a whole new way! Play fun and challenging problem-solving games and puzzles from around the world. Try out toothpick, tangram and logic puzzles, play strategy games and unravel the secret of the ancient Chinese magic square.

Math Magic
Ages 8-10
Learn to play math tricks on your friends and family. Use card tricks, secret numbers and mind games to perform math magic. Math and science will be used to unravel famous mysteries, puzzles and problems.

Math Games and Puzzles from Around the World
Ages 9-11
Experience math in a whole new way! Play fun and challenging problem-solving games and puzzles from around the world. Try out toothpick, tangram and logic puzzles, play strategy games and unravel the secret of the ancient Chinese magic square.

Minecraft Mods and More!
Ages 8-10
Expand your knowledge of Minecraft programming. Create “mods” and make your own customized edition of Minecraft. No coding experience is necessary—just an active imagination!

Mines of Colorado
Ages 8-10
Spend a week exploring the history of mining in Colorado! We have some of the most interesting and diverse geology of any place in the world. Learn about mine reclamation, water rights, shovel justice, and explore a real mine!

Multi-Stagers
Ages 8-13
If you’ve mastered Model Rockets and Rocket Design, then come join us! Get ready for a bigger challenge and more spectacular flights as we increase the thrust of our model rockets for greater performance. Multi-Stagers is for students who have taken an advanced rocketry camp or have designed their own model rockets.

Math Magic
Ages 8-10
Learn to play math tricks on your friends and family. Use card tricks, secret numbers and mind games to perform math magic. Math and science will be used to unravel famous mysteries, puzzles and problems.

Math Games and Puzzles from Around the World
Ages 9-11
Experience math in a whole new way! Play fun and challenging problem-solving games and puzzles from around the world. Try out toothpick, tangram and logic puzzles, play strategy games and unravel the secret of the ancient Chinese magic square.

Model Rockets
Ages 8-10
Build your own model rocket and blast it off high above Boulder. Learn the physics behind how rockets function and the basics of safe model rocketry.
Camp Descriptions 2016  |  Elementary School  |  5-11 Years

Naturalist Notebook
Ages 7-9
Observe the wonders of nature and document those observations using drawing, painting, poetry and more! We’ll become experts in bird, plant, flower, insect and track identification with our own, handmade field notebook to prove it!

Nature’s Playground
Ages 5-6
Explore the Front Range ecology behind the songs of Jeff and Paige through hands-on arts, crafts and interactive games. The music of Jeff and Paige bring science and nature to life through kid-delighting music and stories.

NCAR Weather Experience
Ages 9-11
Join UCAR educators for explorations in how we understand weather. Use instruments to measure the weather, investigate thunderstorms and tornadoes and explore how we model the Earth’s system to better forecast weather and climate.

Ocean Discovery
Ages 5-6
Learn how waves work, why sharks are so awesome, why oceans are getting saltier and what kinds of bizarre wildlife make the ocean their home. Explore deep-sea ecosystems, bioluminescence and the everyday household products that come from the sea.

Optics: The Science of Light
Ages 9-11
Learn all about light, including how different wavelengths of light influence what we see. We’ll look at developments in imaging science and how new technologies are rapidly expanding our ability to see things that are very small or far away.

Phun with Physics
Ages 7-9
Inquiring minds invited! Join us as we explore our physical world with magnets, air pressure, friction, gravity and other forces. We’ll design the perfect egg drop case and try our hand at bending light!

Robot Playground
Ages 6-8
Through a combination of “unplugged” coding and craft activities, we’ll play with, code and create robots that make lights, sound, draw and move. We’ll even design our own robot to help the Earth, using recycled materials to build it!

Rocket Design
Ages 8-10
Explore advanced rocketry techniques as we design, build, test and fly our own rockets. Learn about the use of staging and using multiple engine clusters to enhance rocket performance.

Rockets for Junior Astronauts
Ages 5-6
Spend the week at Fiske Planetarium as we learn about rocket flight, rocket design and life as an astronaut. We’ll finish the week by blasting off to outer space in our own handmade, life-size rocket!

Science Chefs
Ages 6-8
If you love to experiment in the kitchen, join us as we chop, stir, sift, mix and knead our way to discovering the science behind cooking.

Science Detectives
Ages 9-11
To solve a mystery, detectives need to search for clues, analyze data and draw conclusions based on evidence. These are the same skills that scientists use! In this mystery-filled camp, we’ll become forensic scientists and solve various crimes.

Please visit sciencediscovery.colorado.edu for complete descriptions.
Science Magic
Ages 6-8
Many chemical and physical reactions appear to be magic. Learn to perform mystifying tricks that can be explained by scientific principles.

Science of Art
Ages 9-11
Enter the scientific world of art! Learn color theory, make paint, jump into the world of dyeing, make a musical instrument and make metal-plated jewelry. Join us at the intersection of science and art!

Science of Toys
Ages 6-8
Take a fascinating journey through the science behind our favorite toys. Construct airplanes, rockets, cars, boats, musical instruments and hula hoops while learning the science behind how they work.

SciGirls
Ages 9-11
This is not your brother’s science camp! SciGirls explore science, technology, engineering and math in their everyday lives through hands-on investigations.

Please visit sciencediscovery.colorado.edu for complete descriptions.

Spy School
Ages 8-10
Put your STEM skills to the test as we complete a series of Spy School missions! Design a disguise, construct special spy gadgets, navigate a laser maze, write in invisible ink and master secret codes.

Smart Garments: Creating E-Textiles
Ages 9-11
Learn the fundamentals of programming, circuitry and electronics in a lively, project-driven environment. Add some pizzazz to your clothing and accessories by using conductive materials.

StARCHITECTS: Green Building for the Future
Ages 9-11
Learn the concepts of sustainability and “green” architecture while designing your own Net-Zero building. We will add renewable energy components such as solar and wind to complete our projects.

Stop-Motion Animation
Ages 9-11
Utilizing stop-motion animation, we will make movies using LEGOs, clay, gummis bears or anything our heart desires. We will write our own short movie, build characters and sets and then film and edit the movie.

Improving Our Future Through Music and Movement
Ages 9-11 and 11-13
Learn the science of climate and energy through the creative process of staging a musical performance. ‘Shine: A Musical Performance for Youth Authored Resilience’ weaves climate science and artist expression into a funny and powerful story that conveys how humanity and climate are interrelated. We will rehearse our own unique version of this original new musical (no memorizing lines!) and develop a set and props that reflect our community. Rehearsing each part of the musical will lead us through different aspects of science, from dancing the various phases of photosynthesis to drawing the ways in which our city utilizes fossil fuels. We will walk away from this camp experience with a better understanding of how climate science affects our daily lives and how small changes can make a world of difference. No performance experience is required.
Structured Mechanics with LEGOs
Ages 8-10
The worlds of LEGO Structures and LEGO Mechanics have merged! We’ll design, create and test mash-ups of simple machines and structural engineering.

Super Duper Science
Ages 5-6
In this science ‘grab bag’ camp, we will wear the hats of junior entomologists, paleontologists, physicists, chemists and astronomers!

Sweet Science
Ages 6-8
Explore the exciting scientific phenomena behind our favorite sugary treats. We will grow rock candy crystals, make liquid nitrogen ice cream and learn about the science (and art!) of chocolate.

Terrari-dome: Exploring Earth’s Spheres
Ages 9-11
Go on an excursion through the four important ‘spheres’ that make up our world: the geosphere, biosphere, hydrosphere and atmosphere. Hunt for the unique characteristics of each and discover what composes them and how they influence the world.

Things That Go
Ages 5-6
Favorite storybooks will spark our imaginations as we explore the world around us. We’ll engineer new toys, design our own roller coasters and build unique toy boats.

Tinker Tots
Ages 5-6
Spend the week exploring different feats in engineering as we develop our building skills. We’ll be introduced to design thinking and problem-based activities while using a wide variety of materials.

Urban Forest
Ages 9-11
Learn to identify specific tree species starting with general leaf characteristics and moving up to whole tree morphology. We’ll collect species diversity data from all around CU’s Main Campus and end the week climbing trees!

Visual-Matics
Ages 8-10
Explore the mathematics of patterns, scale, fractals and infinity using the art of M.C. Escher, origami, Fibonacci numbers and the Golden Ratio. Get ready to see mathematics in a whole new way!

Weather Works
Ages 7-9
Clouds in a jar! Human Sundial! We’ll use our senses to make observations about the daily weather, learn what marshmallows and air pressure have in common, and build our own home weather station.

What’s Buggin’ You?
Ages 5-6
Investigate the anatomy, life cycles and products we use from insects. We’ll collect and identify our own insect collection from specimens we gather in fields and streams on campus.

Wild in the Woods
Ages 5-7
Join us at Chautauqua Park as we run through the forest, soak our feet in the stream and play among the trees. Investigate the birds, wildflowers, insects, mammals, grasses and trees around the Flatirons.

Wonders of Water
Ages 5-6
Dive into what makes water so special that it supports life on Earth. Explore the characteristics of water through experimentation and use water to create art!
3D Video Game Design
Make and program 3D shapes in order to develop games and simulations and share your creations with others in the AgentCubes online arcade.

Advanced 3D Video Game Design
Explore the 3D and first-person actions of the gaming world. AgentCubes software will help us design all these and more.

Aerodynamics of Flight
Explore the aerodynamics of different flying objects using the laws of physics. Investigate helicopters, boomerangs, and other things that fly, float and soar.

Amusement Park Physics
Explore fundamental physics concepts as we use K’Nex to design, build and test everything from roller coasters to pirate ships.

AnatoME: Humerus-ly Integrating Physiology and Structure
This body-centered camp will cover the major systems of the human body and the applications of anatomy in medicine, anthropology and technology.

Applied Physics
Join us as we deepen our understanding of the physical world while exploring mechanics, electricity, magnetism and more!

Architectural Design Using CAD
Computer-aided design (CAD) software will be used to guide us through the world of building construction and how they fit into the fabric of our communities.

Beneath the Surface: The World of Aquatic Ecology
Discover the hidden world that lies just under the surface of ponds and rivers around Boulder.

Chemical Reactions
Dive into the exciting world of chemistry through a variety of hands-on experiments.

CO2 Dragster Design
Design and build a prototype of an actual CO2-powered dragster and race it!

Craft Technology
Gain exposure to computer aided drawing (CAD) software, laser cutters and electronics as we design, build and test our own cardboard robots!

CSI (Crime Scene Investigations)
Become a forensic scientist for the week and use your science skills to solve a variety of crimes.

CU Science: Behind the Scenes
Explore exciting new scientific research being conducted right here at CU! We’ll complete hands-on activities that help us understand the research and take tours of research laboratories on campus.

Engineering Design Challenge
Use creative solutions to work through a series of engineering design activities, solving a different engineering challenge each day.

Engineering Solutions for a Better World
Learn how engineers ‘make a world of difference’ as we design solutions for real-world problems related to sustainability and environmental health.

EV3 Missions to Space
Learn about robotics through a very current and real-world theme – traveling to and living in space!

Girls in STEM: Computer Science
Explore the world of computer science as we choose the type of game we would like to create; adding our own backgrounds, challenges, characters and more.

Girls in STEM: LEGO Mindstorms EV3
This hands-on LEGO robotics adventure will enable us to build, program and test our solutions based on real-life robotics technology.

Improving Our Future Through Music and Movement
See page 16 for description.

Isabelle Farm: Food, Farming and Fun
Step into the shoes of a modern day farmer! Learn to create your own community garden plot, study soil and water chemistry, and help out at the farm stand!
Learn It, Make It, Take It
Explore the next generation of photo-origami and Pop-Up engineering by making self-assembling toys, microlenses and other STEAM projects.

LEGO Mindstorms EV3
This hands-on LEGO robotics adventure will enable us to build, program and test our solutions based on real-life robotics technology.

Map Masters
Learn the basics of maps and navigation through the use of compasses, GPS units, GIS systems and geocaching.

Medieval Siege
Utilizing basic drafting and engineering skills, we’ll design, construct and test castles, battering rams, siege towers, trebuchets and ballistas.

Model Rockets
Build your own model rocket and blast it off high above Boulder. Learn the physics behind how rockets function and the basics of safe and fun model rocketry.

Modern Material Marvels
Explore cutting-edge materials science and 21st Century engineering as we create 3D and 4D objects through the use of 3D printers and photo-origami.

Multi-Stagers
If you’ve mastered model rocketry, then get ready for a challenge as we increase the thrust of our model rockets for greater performance.

Nature Photography
Combine your love of photography and the great outdoors and join us for a week of nature photography throughout Boulder.

NCAR Weather Experience (Advanced)
NCAR educators will guide us through research labs to gain a deeper understanding of weather.

Panem Uprising: The Science of The Hunger Games
May the odds be ever in your favor as we explore the science behind the jabberjay, botanical medicine and edible plants, archery and climate change.

Programming with Alice
Explore the world of programming and 3D animation, and create a one of a kind 3D animated story!

Programming with Python
Using the basic principles of programming with Python, we’ll create our own game.

Rocket Design
Explore advanced rocketry techniques, learn what can enhance rocket performance and investigate ways to modify already built rockets.

Science in Motion
Apply creativity, physics, chemistry, engineering, and problem solving to build a Rube Goldberg machine.

Solar Racers
Gain an understanding of physics, electronics and engineering as you design and build a solar car!

SparkFUN!
This POWER packed, direct current adventure will spark excitement and introduce us to the world of electronics engineering!

There’s an App for That!
Use App Inventor to add new features to existing apps as well as create your own from scratch.

Zombie Survival Camp
Learn key tactics for surviving the impending horde! Explore the neuroscience behind zombie behaviors, wilderness survival skills and methods of communication.

Please visit sciencediscovery.colorado.edu for complete descriptions.
Aerospace Engineering
Learn what it takes to be an Aerospace Engineer! Meet scientists from LASP (Laboratory for Atmospheric and Space Physics), learn about astrobiology and plan a mission to Mars. See one of only a few university-based Mission Operations Centers, where LASP scientists perform mission operations for NASA satellites, and get a behind-the-scenes tour of the US Air Force Academy!

Biomedical Research
Meet and interact with professionals in the health care, academia, engineering and sport performance industries. Get a glimpse of what working in a STEM field may be like and further your interest in vocations in the physical sciences. Excursions will include a brain imaging center, laboratories researching human health and developing medical technologies, and a possible visit to an athlete nutrition and sports performance center.

Biotechnology
Over the past few decades, our understanding of molecular biology and genetics has enabled us to transform the face of food production and drastically improve human therapies. In the near future, it may help us mitigate the looming energy crisis. This laboratory course will introduce us to current biotechnologies and lab procedures, with a focus on genetically modified organisms (GMOs).

Creative Communications: Infographic Design
In a world in which we are constantly bombarded with information, it can be challenging to make sense of it all. Infographics are a creative and visually appealing way to present large amounts of quantitative and qualitative data about current issues. Learn how to navigate through information overload to extract, consolidate and effectively present meaningful data about a science related topic that interests you. NOTE: Scholarship only.

Environmental Engineering
Learn how engineers ‘make a world of difference’ as we design solutions for real-world problems related to sustainability and environmental health. Environmental engineers address issues all over the world, making this an important and exciting field.

Forensic Science
Everyone loves a good mystery – and in this course, we’ll use biology, chemistry and physics to help us solve a few! From the crime scene to the lab, we’ll put science to use as we collect and analyze evidence, interview suspects and attempt to solve each crime.

Materials Science: Biomimicry
How does the nanoscale structure of a gecko’s foot allow it to cling to walls? Materials Science integrates engineering, physics, biology and chemistry to better understand the unique properties of different materials. In this course, we’ll use inspiration from natural materials to develop solutions to modern engineering problems. NOTE: This is a 2-week course.

Microbiology
Many of the world’s smallest organisms have very large impacts! We’ll explore the fascinating effects microbes have on human health, the natural world and modern industry. We’ll tour cutting edge microbiology research labs, consider the exciting future of microbiology and perform real-world microbiology experiments.

Nursing School Experience
Nurses are on the front lines in medicine and play a vital role in the health care team. Learn about the nursing process for patient care and fundamental skills such as creating thorough care plans, taking vital signs, assessing a patient head-to-toe, administering treatments, drawing blood, first-aid and CPR. We’ll review body systems such as cardiovascular, musculoskeletal, endocrine, gynecological and mental health. By the end of this course, we’ll have a good understanding of the art and science of nursing.

Oceanography
This introductory course is designed to give us an appreciation of the great diversity of life found under the surface of the sea. This program will use identification charts, buoyancy experiments and dissections to study Mollusks, Echinoderms and other major marine phyla. If you want to see, hold and touch marine life, this is the course for you!
Three-Week STEM Academies:
June 27-July 15 | $950-$1,100

Non-credit STEM Academies are open to high school students completing grades 9, 10, and 11. Taught by CU Boulder faculty and graduate students, Academies include guided laboratory work, field trips, guest lectures and discussion groups. These full-day, 3-week long programs are designed for highly motivated high school students looking to delve deeper into a specific STEM field. Each program includes morning and afternoon sessions split by a midday lunch break at CU Boulder’s incredible dining hall, the Center for Community (C4C), where students will get a taste of college life (daily lunch included in course registration fee).

2016 STEM Academy topics include:
- Aerospace Academy
- Biotechnology Academy
- The Brain Academy
- Chemistry Academy
- Earth Science Academy
- Explore Engineering Academy
- Hacker Space Academy
- Maker Technology Academy
- Programming and Robotics Academy
- Social Media Archeology Academy

For complete course descriptions and registration information, please visit our website.

Interested in the Field of Medicine?
This summer, we are offering two courses related to careers in health and medicine at the University of Colorado Denver’s Anschutz Medical Campus:

Medical Research Matters | $550
Medical School Experience | $550

Please visit our website for complete course descriptions and registration information.

Mountain Research Experience
August 1-5 | $595

Come spend a week living and working as a scientist at 9,500 feet! In this five-day residential field course, we will stay at CU’s Mountain Research Station, an active field research station located near Nederland. We will work with CU researchers on a variety of research projects that include ecology and evolutionary biology, entomology, geosciences, limnology, plant ecology and climate science.
We are once again bringing experiential STEM learning to the Community College of Denver! For full camp descriptions, please see our website.

**Beneath the Surface: The World of Aquatic Ecology**  
Ages 11-13 | June 27-July 1 | 9am-12pm | $195  
Discover the hidden world that lies under the surface of ponds and rivers around Denver. Learn about aquatic plants, animals and everything in between.

**Map Masters**  
Ages 11-13 | June 27-July 1 | 1-4pm | $195  
Never get lost again! Learn the basics of maps and navigation through the use of compasses, GPS units, GIS systems and geocaching. Survival skills and backcountry navigation will be introduced.

**Medieval Siege**  
Ages 11-13 | July 5-8 | 1-4pm | $160  
Utilizing basic drafting and engineering skills, we’ll design, construct and test castles, battering rams, siege towers, trebuchets and ballistas.

**Phun with Physics**  
Ages 8-10 | July 5-8 | 9am-12pm | $160  
Inquiring minds invited! Join us as we explore our physical world with magnets, air pressure, friction, gravity and other forces. We’ll design the perfect egg drop case and try our hand at bending light!

**Science Detectives**  
Ages 8-10 | July 5-8 | 1-4pm | $160  
To solve a mystery, detectives need to search for clues, analyze data and draw conclusions based on evidence. These are the same skills that scientists use! In this mystery-filled camp, we’ll become forensic scientists and solve various crimes.

**Science of Toys**  
Ages 8-10 | June 27-July 1 | 1-4pm | $195  
Take a fascinating journey through the science behind our favorite toys. Construct airplanes, rockets, cars, boats, musical instruments and hula hoops while learning the science behind how they work.

**Terrari-dome: Exploring Earth’s Spheres**  
Ages 11-13 | July 5-8 | 9am-12pm | $160  
Go on an excursion through the four important ‘spheres’ that make up our world: the geosphere, biosphere, hydrosphere and atmosphere. Hunt for the unique characteristics of each and discover what composes them and how they influence the world.

**Visual-Matics**  
Ages 8-10 | June 27-July 1 | 9am-12pm | $195  
Explore the mathematics of patterns, scale, fractals and infinity using the art of M.C. Escher, origami, Fibonacci numbers and the Golden Ratio. Get ready to see mathematics in a whole new way!

Please visit scisencediscovery.colorado.edu for complete descriptions.
Registration Options

1. Online Registration
We highly recommend using this option, as it provides immediate feedback of camp availability with email confirmation.
sciencediscovery.colorado.edu

2. Mail-in
- Download registration form and mail
- Make checks payable to University of Colorado SD
- Send to:
  CU Science Discovery, 446 UCB, University of Colorado, Boulder, CO 80309-0446

3. By Phone
- Call our office (303) 492-7188
- All major credit cards accepted with this option

PLEASE NOTE: For all online registrations, full payment must be provided at the time of registration. If you are in need of alternate payment arrangements, please call our registration line.

Scholarships
Thanks to the support of generous donors, CU Science Discovery provides limited scholarships based upon financial need. Requests are evaluated on a first-come, first-served basis. Please submit your application as soon as possible. For a downloadable scholarship application, visit our online registration page.

Age Policy
Careful consideration is used to determine age levels for camps. To provide the highest quality experience for all students, the set age limits are respectfully required. If it is found that a parent/guardian purposefully violated the age policy, they will be held responsible for all fees associated with subsequent cancellations.

Confirmaions
- All online registrations will receive immediate email confirmation and camp location map.
- All other registration options will receive a confirmation and map sent out by mail within two weeks of processing. The confirmation will indicate your child’s status in each camp. If you include your email on the registration form, the confirmation will be sent via email immediately upon processing.

Refund and Cancellation Policy
- Cancellations made more than 15 business days prior to the start of the camp will incur a $35 administrative fee.
- NO REFUNDS will be given for cancellations made within 15 business days of the start of the camp.
- CU Science Discovery reserves the right to cancel a camp due to low enrollment or other unforeseen circumstances. In the event that a camp is cancelled, registrants will receive a full refund.
- Transfer requests made up to 15 business days prior to the start of the camp will incur a $15 administrative fee.
- Transfer requests made within 15 business days of the start of the camp will incur a $35 administrative fee.

PLEASE NOTE
- Free supervised lunch for CU Boulder and Community College of Denver Campuses will be available for students enrolled in an AM and PM camp on the same day and the same campus. You must sign up at the time of registration.
- CU Science Discovery frequently takes photographs and video of camp activities for use in brochures, advertisements and social media. Please notify us in writing if you do NOT wish to have CU Science Discovery use photographs or video of your child in printed or online materials. Please note: All identifying information is removed from photos prior to use.
- CU Science Discovery reserves the right to remove any student from the program if s/he displays any behavior that is disruptive to the camp.
- For all camps, please include a snack, and if all day, please send your child with a sack lunch.
- For all field camps, students will be transported in university vans with a trained driver. Students need sturdy walking shoes, hat, daypack, waterproof windbreaker, water bottle, a snack and lunch (for full-day camps only) each day, as well as pre-applied sunscreen and repellent.
- All campers under 8 years of age participating in field camps and being transported by Science Discovery staff will be required to utilize a booster seat.

Campus Maps Maps to all camp locations and parking will be included in the confirmation email received upon registration. In addition, they can be located on our website under Connect with Us/Find Camp Locations.
Summer Camp Program
University of Colorado-Boulder
446 UCB
Boulder, Colorado 80309-0446
Tel: (303) 492-7188
Fax: (303) 735-6443

sciencediscovery.colorado.edu

Connect with us on Facebook!