2019 Day and Residential Camps for Students Entering Grades 2–12

SCIENCE-U

Penn State Summer Science Camps

www.ScienceCamps.psu.edu

2019 REGISTRATION OPENS
FEB. 5 10:00 A.M.

DISCOVERY HAPPENS HERE!
Welcome to Science-U!

Dear Science-U Campers and Parents,

Welcome to the 2019 Science-U camp season!

We hope you’re ready for another fantastic summer of unforgettable science experiences here at Penn State’s University Park campus! Each of our Science-U camps is designed to take campers through a one-week journey that investigates an area of STEM (science, technology, engineering, and math) in a fascinating and meaningful way. Guided by our passionate staff, Science-U campers are encouraged to ask questions, think critically, and explore all the ways that science can captivate them and make a difference in their everyday lives. Our sincere hope is that every camper comes out of their Science-U experience inspired to stay curious and keep learning about the world around them!

For more information about Science-U and our 2019 camps, please visit www.ScienceCamps.psu.edu. Please also feel free to reach out to us at sciencecamps@science.psu.edu or 814-865-0083 with any questions.

— The Penn State Science Outreach Team

Welcome to Science-U!
ALL PROGRAMS RUN 9:00 A.M.–4:00 P.M. UNLESS OTHERWISE NOTED

Water Heroes
JULY 1–3 • DAY CAMP • GRADES 6-8
We need Water Heroes to solve the water and energy problems of the future! How can we ensure that the next generation of people on our planet has access to clean water? How do we even know if water is clean or not? If water is polluted, how much energy do we need to clean it and where does that energy come from? In this camp, we will investigate sources of water pollution, explore creative methods for cleaning up water, and trace how everyday actions like driving a car and turning on the lights relate to access to clean water. Join Penn State faculty and students in this adventure that will include laboratory experiments that you design and field investigations of real water sources! This is a three-day camp (no camp on July 4th or 5th).

Ecology Camp: The Wild Wonders of Your Own Backyard
JULY 8–12 • DAY CAMP • GRADES 6-8
Ecologists-in-training will spend a week traveling to ecologically important locations in Centre County, exploring unique water resources and ecosystems, and learning about the flora and fauna of our region. Daily, hands-on “Creature Features” will give campers the opportunity to learn to identify fish, amphibians, and reptiles. Campers will also use kick seines and hand nets in streams and ponds to sample, identify, and access invertebrate life as bio-indicators of water quality. During the week, campers will paddle a canoe in our watershed, hike in ecologically significant areas, tour a fish hatchery, identify important trees, learn about acid mine damage to streams, build water filters, and gain awareness, understanding, and appreciation for the wild wonders of Centre County. Please note: Our camp is instructed in local and sometimes remote outdoor environments, including mountain tops, rocky trails, swamps, streams, and lake shore locations. Our activities will include several hikes of 2-3 miles, wading in swamps and streams, and participating in a guided 3.7 mile canoe trip on Bald Eagle Creek from Milesburg to Curtin Village.

Finding Your Roots
JULY 14–19 • DAY AND RESIDENTIAL SPOTS AVAILABLE! • GRADES 6-8
This camp is designed to get campers up close and personal with their own DNA so that they can explore the questions of where they come from and what makes them who they are. Campers will complete a DNA test before camp (secure DNA kits will be sent from Science-U) and will use information from their DNA test to talk about their traits like hair/eye/skin color, smell/taste perception, lactose intolerance, and caffeine metabolism with other campers. During camp, campers will discuss several topics, including inherited traits, evolution, and anthropology. Campers will also conduct genealogical research to learn about family members, their traits, and traditions. This camp is a place where the science is all about you — register today! (Note: The first full day of camp is Monday, July 15th, but all campers will check in for an opening ceremony the evening of Sunday, July 14th.)

CSI: The Case of the Creepy Cottage
JULY 15–19 • DAY CAMP • GRADES 5-7
Something suspicious is going on at the creepy cottage in the middle of campus. It has been sitting, dark and abandoned, when students suddenly start reporting that there are seeing weird lights through the windows and hearing strange noises when they walk by at night. Police suspect a break-in, but students are starting to spread rumors about ghosts. Who - or what - could be the cause? The only way to solve this mystery is to investigate! As a member of a crime scene investigation team, your child will search for clues and gather evidence. The forensic scientists-in-training will then analyze their evidence in a Penn State laboratory and help interview witnesses to figure out what’s really going on. Can your junior crime scene investigator use science and their sleuthing skills to help solve the Case of the Creepy Cottage? Your child, together with Penn State forensic scientists and their new friends, will be the one to find out!

Life…in space!
JULY 22–26 • DAY CAMP • GRADES 5-7
Until a few years ago, anyone who mentioned aliens as a reality would have been laughed at. But now, astrobiology (the study of life in space) has started to take off! If there is life out there, would we recognize it? Where should we look? What are the chances of finding intelligent life? To answer these questions, campers will peer through telescopes, build rockets, and learn how to analyze alien atmospheres for signs of life. Join this camp if you’re interested in answering the biggest question of all: are we alone in the universe?

Biototechnology Mini Summer School
JULY 30–AUGUST 1
This is an opportunity for high school students who are fascinated by DNA and want to learn about the biotechnology tools and techniques used by scientists and industry researchers to make new products and medicines! During this 3-day program, students will work in the same Biototechnology training lab used by Penn State students and learn how to conduct DNA cloning and polymerase chain reaction (PCR) amplification of DNA. Students will also meet current Biotecnology students and industry professionals who use biotechnology in their daily work. A short application, and more information, will be available at our website in January 2019. (Registration fee will be $100, does not include housing.) Please reach out to us at sciencecamps@science.psu.edu with any questions!

Exploring Virtual Worlds: STEM Camp for High School Students on the Autism Spectrum
AUGUST 5–8
This 4-day camp will be an exploration of how virtual reality works and the exciting ways it can be used to improve how we work, play, and live everyday life! The camp will take place at Penn State’s University Park campus during the National Autism Conference and is designed for college-bound high school students who are on the autism spectrum. The camp is brought to you in partnership with the PA Department of Education, Bureau of Special Education, PaTTAN system. Registration will open in mid-late March and the registration fee is only $25 per camper! (Housing not included.) Please visit our website or reach out to us at sciencecamps@science.psu.edu for more information!
Make It Matter  
JULY 7–12 • DAY AND RESIDENTIAL SPOTS AVAILABLE! • GRADES 9-12

This camp is your gateway to the fascinating world of materials science! Materials scientists have brought us amazing new technologies, such as flexible screens, nanoscale sensors, and self-folding materials – in this camp you’ll explore how researchers take new technologies such as these from initial concept all the way to actual implementation. Through lab visits to meet researchers, demonstrations of cutting-edge tools, and a hands-on challenge to design and prototype your own solution to a pressing societal problem, this camp will bring the research process alive and inspire you to think about the world-changing possibilities of science and engineering in entirely new ways! (Note: The first full day of camp is Monday, July 8th, but all campers will check in for an opening ceremony the evening of Sunday, July 7th.)

Science Leadership  
JULY 21–26 • DAY AND RESIDENTIAL SPOTS AVAILABLE! • GRADES 10-12

Do you think the world needs more leaders in science? The Science Leadership Camp is designed to prepare participants to successfully build futures that combine science with their desire to make a difference. During this experience, campers will be challenged to think about issues in their communities and articulate a vision for how they can make a difference with their leadership and scientific abilities. They will also learn from the leadership experiences of Penn State science students and faculty, explore cutting-edge scientific research, and engage in activities that will challenge them to think innovatively and creatively. Come join us at University Park for an experience you can take with you through high school, college, and beyond! (Note: The first full day of camp is Monday, July 22nd, but all campers will check in for an opening ceremony the evening of Sunday, July 21st. Please also note that the camp includes a moderately strenuous hiking experience and a canoe experience at Bald Eagle Creek or Black Moshannon State Park.)

Penn State Pre-Med Academy  
JULY 28–AUGUST 2 • DAY AND RESIDENTIAL SPOTS AVAILABLE! • GRADES 9-12

Explore the human body and the limitless options within the medical field at Penn State Pre-Med Academy! Together, we will navigate through the wonderful world of the human body to learn important anatomical and physiological structures. We won’t just learn WHAT is inside your body, but WHY it is there and HOW it works (and how it can malfunction)! Our journey into the health field will include performing our own dissections using animal tissue as well as hands-on experiences with human cadavers in Penn State’s Biology Lab. You’ll have the opportunity to learn medical techniques, use medical equipment, and gain exposure to the amazing specialties and career possibilities that await in the medical field! (Hint: Being a doctor is not the only option!) So, what are you waiting for? Join us for our first-ever Penn State Pre-Med Academy for high school students! (Note: The first full day of camp is Monday, July 29th, but all campers will check in for an opening ceremony the evening of Sunday, July 28th. Please also note that campers will be working with preserved animal and human tissue, and/or fresh (non-preserved) animal tissue on a daily basis.* As a result, we recommend this experience only for students who are comfortable working with animal and human tissue. Human tissue is sourced from individuals who have donated their bodies to science. We observe the highest standards when working with their tissue and maintain high expectations for respect in our labs. Please contact Science-U if you have any specific questions about the camp.)

Registration Guidelines
An Eberly College of Science guideline for Science-U camps authorizes only students attending school in the United States to register for camps. As in previous years, parents/guardians are required to identify their child’s school/school district during registration. Registrations that do not identify a U.S. school or school district will not be accepted.

Residential Program Information
Students entering grades 5-12 may choose to stay at Penn State for any camp that has a designated residential component. Campers stay in the University Residence Halls on campus from Sunday evening until Friday when camp closes (camp schedules vary). Evening mentors supervise activities and outings.

Extended Care Option
Two sessions of extended care are offered for campers entering grades 2-8, and the cost is $30/week for the morning session, $30/week for the afternoon session, or $60/week for both morning and afternoon extended care. Morning care is available Tuesday-Friday with drop-off as early as 7:45 a.m., and afternoon extended care is available Monday–Thursday with pick-up as late as 5:15 p.m. **Extended care will not be provided on Monday morning or Friday afternoons. Week-long camps begin with an opening ceremony on Monday and conclude with camp-specific closing ceremonies on Friday afternoons. Campers will be dismissed immediately after the closing ceremonies.

Penn State Pre-Med Academy
JULY 28–August 2 9:00 A.M.–4:40 P.M.*

New! CAMPS FOR KIDS ENTERING GRADES 9-12 IN FALL 2019

ALL PROGRAMS RUN 9:00 A.M.–4:00 P.M. UNLESS OTHERWISE NOTED

2019 Camp Prices

<table>
<thead>
<tr>
<th>CAMP</th>
<th>DATES/TIMES</th>
<th>By March 19th</th>
<th>After March 19th</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wizards, Olympians, and Science Heroes</td>
<td>June 24–28 9:00 A.M.–4:00 P.M.</td>
<td>$365</td>
<td>$395</td>
</tr>
<tr>
<td>Designing the Future</td>
<td>June 24–28 9:00 A.M.–4:30 P.M.</td>
<td>$365</td>
<td>$395</td>
</tr>
<tr>
<td>Water Heroes (3-Day Camp)</td>
<td>July 1–3 9:00 A.M.–4:00 P.M.</td>
<td>$220</td>
<td>$250</td>
</tr>
<tr>
<td>Nature Explorers: Habitat Quest (4-Day Camp)</td>
<td>July 1–3, 5 9:00 A.M.–4:00 P.M.</td>
<td>$295</td>
<td>$325</td>
</tr>
<tr>
<td>Make It Matter</td>
<td>July 7–12 9:00 A.M.–4:00 P.M.*</td>
<td>$365</td>
<td>$815</td>
</tr>
<tr>
<td>NittanyBots: LEGO Robotics – The Journey to Master Builder</td>
<td>July 8–12 9:00 A.M.–4:00 P.M.</td>
<td>$365</td>
<td>$395</td>
</tr>
<tr>
<td>Ecology Camp: The Wild Wonders of Your Own Backyard</td>
<td>July 8–12 8:30 A.M.–4:45 P.M.</td>
<td>$440</td>
<td>$470</td>
</tr>
<tr>
<td>Finding Your Roots</td>
<td>July 14–19 9:00 A.M.–4:00 P.M.</td>
<td>$425</td>
<td>$850</td>
</tr>
<tr>
<td>CSI: The Case of the Creepy Cottage</td>
<td>July 15–19 9:00 A.M.–4:00 P.M.</td>
<td>$365</td>
<td>$395</td>
</tr>
<tr>
<td>Science Leadership</td>
<td>July 21–26 9:00 A.M.–5:00 P.M.*</td>
<td>$410</td>
<td>$815</td>
</tr>
<tr>
<td>Life…in Space!</td>
<td>July 22–26 9:00 A.M.–4:00 P.M.</td>
<td>$365</td>
<td>$395</td>
</tr>
<tr>
<td>Penn State Pre-Med Academy</td>
<td>July 28–August 2 9:00 A.M.–4:40 P.M.*</td>
<td>$365</td>
<td>$815</td>
</tr>
</tbody>
</table>

*High school camps that have residential spots may have evening activities scheduled that are open to and recommended for all campers! These evening activities will be communicated to registered campers as soon as possible and flexible arrangements can be made for day campers if they are unable to stay for evening activities.

Fee Schedule

<table>
<thead>
<tr>
<th>Session</th>
<th>Day Price</th>
<th>Resident Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>9:00 A.M.–4:00 P.M.</td>
<td>$365</td>
<td>$395</td>
</tr>
<tr>
<td>9:00 A.M.–4:30 P.M.</td>
<td>$365</td>
<td>$395</td>
</tr>
<tr>
<td>9:00 A.M.–5:00 P.M.*</td>
<td>$410</td>
<td>$815</td>
</tr>
<tr>
<td>8:30 A.M.–4:45 P.M.</td>
<td>$440</td>
<td>$470</td>
</tr>
<tr>
<td>9:00 A.M.–4:00 P.M.</td>
<td>$425</td>
<td>$850</td>
</tr>
<tr>
<td>9:00 A.M.–4:00 P.M.</td>
<td>$365</td>
<td>$395</td>
</tr>
<tr>
<td>9:00 A.M.–4:00 P.M.</td>
<td>$365</td>
<td>$395</td>
</tr>
</tbody>
</table>

Extended Care Option
Two sessions of extended care are offered for campers entering grades 2-8, and the cost is $30/week for the morning session, $30/week for the afternoon session, or $60/week for both morning and afternoon extended care. Morning care is available Tuesday-Friday with drop-off as early as 7:45 a.m., and afternoon extended care is available Monday–Thursday with pick-up as late as 5:15 p.m. Extended care will not be provided on Monday mornings or Friday afternoons. Week-long camps begin with an opening ceremony on Monday and conclude with camp-specific closing ceremonies on Friday afternoons. Campers will be dismissed immediately after the closing ceremonies.
Financial Aid Available!
Financial aid is available to help families cover the cost of Science-U camp registration! To apply for financial aid, please indicate during registration that you will be applying and you will not be required to submit registration payment at that time. You will then submit a short application to our office. Applications will be accepted on a first-come, first-served basis, and aid will be awarded until funds are exhausted. Because of limited funds, a child can receive financial aid for only one camp each summer; however, more than one child in a family may receive a financial aid award each summer. For more information on how to apply for financial aid, please visit https://www.sciencecamps.psu.edu/registration.

Apply for a Scholarship!
Science Leadership Scholarship: In partnership with Science-U, Penn State’s Center for Nanoscale Science has created this scholarship to cover the full residential registration cost for Science Leadership camp for qualified students. The scholarship is open to motivated high school students (grades 10-12) from diverse backgrounds who have a sincere interest in learning about science, technology, engineering, or math (STEM)! Applications are due by January 10th, 2019. For more information on how to apply for a Science Leadership Scholarship, please visit http://www.sciencecamps.psu.edu/registration/science-leadership-camp-scholarship-process.

AAUW Merit-Based STEM Scholarship for Girls in Centre County: In partnership with Science-U, the AAUW State College Branch has created this camp scholarship for girls entering grades 6-12 who reside in or attend a school district within Centre County, including the State College, Bellefonte, Bald Eagle, Penns Valley, and Philipsburg-Osceola area school districts. Recipients will receive a full scholarship for a Science-U day camp of their choice. Applications are due by January 10th, 2019. For more information on how to apply for AAUW STEM Scholarship for Girls in Centre County, please visit http://www.sciencecamps.psu.edu/registration/aauw-scholarship.

Commitment to Youth Safety
The Pennsylvania State University is committed to providing a safe environment for all youth participating in activities offered through the University. All Penn State youth programs have policies in place to ensure the safety of youth participating in our programs and to ensure safety is not compromised. All camp staff are trained in emergency protocols and all relevant internal, external and parental requirements.

Parents are encouraged to notify the Eberly College of Science Outreach staff immediately at outreach@science.psu.edu / 814-865-0083 if they, or their child, are experiencing problems, difficulties, or concerns with the camp, other youth in the camp and/or camp staff. You may also contact Sandy Weaver, youth programs compliance specialist at stw126@psu.edu / 814-865-8785 or call the University's Ethics Hotline at 1-800-560-1637.

Science-U is an outreach program of the Eberly College of Science at Penn State
This publication is available in alternative media on request. Penn State is an equal opportunity, affirmative action employer, and is committed to providing employment opportunities to all qualified applicants without regard to race, color, religion, age, sex, sexual orientation, gender identity, national origin, disability or protected veteran status. U.Ed. SCI 19-34 MPC150943
The Pennsylvania State University encourages qualified persons with disabilities to participate in its programs and activities. If you anticipate needing any type of accommodation or have questions about the physical access provided, please call 814-865-0083 in advance of your participation or visit.