

Carver E&S Enrichment Newsletter March 2018

SUMMER OPPORTUNITIES

Paid Summer Opportunities – students are paid to participate

Research and Engineering Apprenticeship Program (REAP)

Research & Engineering Apprenticeship Program (REAP) is a summer STEM program that places talented high school students, from groups historically under-represented and underserved in STEM, in research apprenticeships at area colleges and universities. REAP apprentices work under the direct supervision of a mentor on a hands-on research project. REAP apprentices are exposed to the real world of research, they gain valuable mentorship, and they learn about education and career opportunities in STEM. REAP apprenticeships are 5-8 weeks in length (minimum of 200 hours) and apprentices receive a stipend.

Grades targeted: 9, 10,11

Location: University of Pennsylvania

Program Dates: 5-8 weeks during summer

Application Deadline: February 28th

Learn more at: <http://www.usaeop.com/programs/apprenticeships/reap/>

Summer Fellowship Program in Biomedical Research

Wistar's Summer Fellowship Program in Biomedical Research provides an opportunity for students to enhance their understanding of current biological/biomedical theory and research tools and techniques at a nationally recognized nonprofit research institution. Wistar scientists and their laboratory teams serve as program mentors

guiding students through the planning and practice of daily research experiments and activities. Students learn research skills together, taught by a team of mentors, and individually as each student trains in a principal investigator's laboratory for the duration of the program; under the direction of the laboratory head, the student is assigned a unique research project related to the research goals of that particular laboratory. Students are integrated into the daily work of the laboratory, participating in laboratory meetings and gaining exposure to different facets of the laboratory's research. Mentors help students apply their current knowledge and skills and assist them in making the connection between laboratory experience and their academic studies. The program includes a weekly lunchtime seminar series presented by Institute scientists and an introduction to research library skills development.

Grades targeted: Ages 16+

Location: The Wistar Institute, Philadelphia, PA

Program Dates: June 25th - August 17th

Application Deadline: March 30th

Learn more at: <https://www.wistar.org/education-training/high-school-program>

CHOP Neurology High School Scholars Project

The Neurology High School Scholars Program offers the opportunity for three high school students to complete a five-week paid internship (\$1,000 stipend). The internship involves working closely with a neurologist on a basic science or clinical research project, and shadowing physicians in clinic. At the end of the five weeks, students will be expected to prepare a poster presentation outlining their project results.

Grades targeted: 10, 11, 12

Location: Children's Hospital of Philadelphia

Program Dates: July 9th – August 11th

Application Deadline: March 31st

Learn more at: <http://www.chop.edu/pages/neurology-high-school-scholars-project>

Penn Laboratory Experience in Natural Sciences

Students selected for the Penn LENS program will have the opportunity to gain firsthand experience working in a university science laboratory and/or field setting. Under the direction of Penn faculty and their graduate students, they will carry out daily assigned tasks which are essential to the ongoing research efforts. They will gain important skills that involve both laboratory procedures and computer-based data collection and analysis. Supervised by the program coordinator (a high school science teacher), they

will meet weekly as a group for discussions, shared activities and trips. The internship will culminate with a poster about their summer experience, to be shared with others in the program and then taken back to school for display in the fall.

Grades targeted: 10, 11

Location: University of Pennsylvania

Program Dates: July 5th – August 10th

Application Deadline: March 31st

Learn more at: <https://apply.interfolio.com/48783>

Summer Mentorship Program at Penn

The Provost Summer Mentorship Program is an innovative four-week experience, aiming to inspire first-generation and minority students in Philadelphia to view higher education as an achievable and worthwhile goal. Students selected for the program are provided the opportunity to partner with, and learn from the five professional schools here at the University. These include the Penn School of Dental Medicine, Penn Nursing, Penn Engineering, Perelman School of Medicine, and Penn Law. Over the course of the program, admitted high school students gain first-hand experience in chosen academic disciplines and the opportunity to explore a variety of career opportunities.

Grades targeted: 10

Location: University of Pennsylvania

Program Dates: July 9th – August 3rd

Application Deadline: April 6th - forms are also available in Room 110 @ Carver

Learn more at: <https://www.vpul.upenn.edu/eap/smp/>

UNITE Summer Mentorship Program

During the UNITE Summer Mentorship Program (SMP) in Robotics, ninth grade (rising 10th grade) students participate in a four-week engineering course with four instructors and three mentors. Activities include programming lessons, engineering design lessons, engineering projects, robotics competition, career day involving industry speakers, field trips to engineering facilities, and tours of GRASP. Students are supplied with a \$300 stipend, free lunch, and transpasses.

Grades targeted: 9

Location: GRASP Laboratory, University of Pennsylvania

Program Dates: July 9th – August 3rd

Application Deadline: April 6th

Learn more at: <https://www.grasp.upenn.edu/programs/unite-smp-robotics-leadership>

QuarkNet High Energy Physics Experimental Group

The Players: We are looking for four talented rising high school juniors or seniors from the greater Philadelphia area interested in physics or engineering to work alongside teachers and physicists on research projects exploring the hidden nature of matter, energy, space and time.

The Big Questions: What are the origins of mass? Can we come up with a unified theory, which explains the basic forces of nature and how they are related? How did the universe begin and evolve?

The Research: Students will learn how laboratory experiments are designed and how scientists try to answer these big questions. Students will design, construct and use a multiple-plane array of gas-filled ionization detectors for the identification and measurement of cosmic ray tracks. They will use Verilog, a hardware descriptor language (HDL) for designing electronic systems (Field Programmable Gate Arrays) used for data acquisition. They will work with scintillators, oscilloscopes and other electronic instruments, compile and organize data, and write programs to analyze these. They will attend seminars on current methods and experimental work in High Energy Physics, Astrophysics, and Condensed Matter Physics; work with researchers in ongoing projects in High Energy Physics at Penn; present a summary of their work.

Grades targeted: 10, 11

Location: University of Pennsylvania

Program Dates: June 25th – August 3rd

Application Deadline: April 15th

Learn more at: http://www.hep.upenn.edu/HEP_website_09/QuarkNet/Overview.html

ZooCrew

If you've ever wondered what it's like to work in the Philadelphia Zoo and think you might want to a career with animals or conservation, then ZooCREW is the perfect program for you!

The Zoo Champions for Restoring Endangered Wildlife (Zoo CREW) Program is an immersive, award-winning youth program created by Philadelphia Zoo. Teens can become conservation ambassadors, gain experience working with animals, and learn

(and eventually teach) how to take action and protect animals all over the world through conservation.

Grades targeted: Ages 14+
Location: Philadelphia Zoo
Program Dates: Flexible
Application opens on March 1st

Learn more at: <http://www.philadelphiazoo.org/Get-Involved/Volunteer/ZooCREW.htm>

Free Summer Opportunities – no cost or offers full scholarships

Summer Math and Science Honors Academy

The Summer Math and Science Honors Academy (SMASH) is a free of cost, STEM-intensive college preparatory program for underrepresented high school students of color. SMASH boasts a rigorous 5-week, 3-year summer, fully residential STEM enrichment program which provides access to STEM coursework and access to mentors, role models, and support networks of students of color. Each summer, SMASH scholars spend five weeks on a college campus immersed in STEM and live among other high-potential, underrepresented (African American, Latino/a, Native American, Southeast Asian or Pacific Islander, low-income, first-in-family to attend college) high school students.

In addition to their summer courses, SMASH scholars remain engaged during the school year through monthly STEM workshops and academic programming. This includes SAT prep, college counseling, financial aid workshops, and other activities to ensure continued academic success.

Grades targeted: 9
Location: Wharton Business School at University of Pennsylvania
Program Dates: June 30th – August 4th
Application Deadline: March 1st

Learn more at: <http://www.lpfi.org/programs/smash>

Teen Research and Education in Environmental Science (TREES)

The Teen Research and Education in Environmental Science (TREES) program is a unique summer research and mentorship program offering hands-on environmental

research opportunities to motivated high school students. Each summer, approximately eight high-school students work one-on-one with mentors on projects that they choose and design.

During the first two weeks of the program, students receive hands-on instruction in basic laboratory skills, skills they will use later in their projects. The remainder of the program is an independent research project. Through their projects, scholars learn to take a scientific approach towards an environmental problem, conducting in-depth library research, training in scientific methodology, carrying out hands-on bench science and where possible, fieldwork. Some projects are carried out as team projects involving multiple students. At the end of the program, students write a research report and present their projects to invited guests to a public presentation.

Grades targeted: 9, 10, 11

Location: Perelman School of Medicine at University of Pennsylvania

Program Dates: June 25th – August 13th

Application Deadline: March 1st

Learn more at: <http://ceet.upenn.edu/training-career-development/summer-programs/teen-research-and-education-in-environmental-science/>

Great Jewish Books Summer Program

At the Great Jewish Books Summer Program, rising high school juniors and seniors read selections from important works of modern Jewish literature and consider how they speak to the opportunities and challenges we face today. Under the guidance of college professors, they consider how the rich legacy of modern Jewish literature can inform us in the twenty-first century. Every admitted participant receives a scholarship for the full cost of tuition, room, board, books, and special events.

Grades targeted: 10, 11

Location: Hampshire College, Amherst, MA

Program Dates: Session 1: July 22nd - July 27th

Session 2: July 29th - August 3rd

Application Deadline: March 5th

Learn more at: <https://www.yiddishbookcenter.org/educational-programs/great-jewish-books-summer-program>

iCamp Summer Media Academy

iCamp Summer Media Academy is a week-long summer residential academy at West Chester University (WCU). The academy is ideal for students who want to develop

media skills, i.e., games, video, podcasts and audio, web content, etc., who share an interest in social change and issues of equity, access, and empowerment. iCamp offers an intensive week-long experience for youth to develop media for social change by developing media projects that address issues of impact to their lives and community needs all while experiencing college campus life.

iCamp is a fully funded program with no cost to the students. Youth participants are commissioned to adhere to the expectations of *adult* college students and creative professionals. This means that they must be focused, civil, and able to fully invest in their projects. There will be workshops, design sessions, and hands-on guided teaching facilitated by experts and core faculty. The week will conclude with the 2nd Annual Media Jam exhibition and launch where students will present their media that will be tailored towards issues central to the efforts of partnered local/national organizations.

Grades targeted: 11

Location: West Chester University

Program Dates: July 8th – July 14th

Application Deadline: March 15th

Learn more at: <http://www.icampwcu.org>

Penn Summer Science Initiative (PSSI)

The Penn Summer Science Initiative (PSSI) will accept up to 28 students entering their junior or senior year of high school from the greater Philadelphia region (within a daily commuting distance) for a four-week intensive materials science course. The course will include formal lectures from Penn faculty and affiliated researchers, a materials science workshop, lab report writing seminars, projects, and field trips. Three afternoons per week will be devoted to experimental laboratory work in which the student will be exposed to a variety of materials characterization techniques, such as scanning electron and optical microscopies, thermal analysis techniques, mechanical testing, and x-ray diffraction. Students will be expected to work on lab reports, projects, and other assignments outside of program hours.

Grades targeted: 10, 11

Location: Laboratory for Research on the Structure of Matter (LRSM) building at University of Pennsylvania

Program Dates: July 9th – August 3rd

Application Deadline: April 1st

Learn more at: <https://www.lrsm.upenn.edu/outreach/pssi/>

Engineering Summer Program (ESP)

Engineering Summer Program (ESP) is a fully funded, six-week residential program for current high school sophomores and juniors. The ESP course curriculum includes math, physics, chemistry, engineering, and technical communications. Other structured programming such as industry site visits, field trips, guest lectures, workshops, and faculty mentoring will help students gain a better understanding of the field of engineering and its applications.

Grades targeted: 10, 11

Location: University of Wisconsin – Madison, Madison, WI

Program Dates: June 16th – July 27th

Application Deadline: April 2nd

Learn more at: <https://www.engr.wisc.edu/academics/student-services/diversity-programs/engineering-summer-program/>

Drexel High School Scholars Program

The High School Scholars Program is a highly selective program that allows high school students to register for college courses – on a space-available basis – at Drexel University’s University City Campus while completing high school. Applicants must demonstrate the responsibility and maturity expected of university students, and have the approval of their high school guidance counselor to participate. It is important to note that this is NOT a dual-enrollment program; the High School Scholars program does not offer high school credit through college courses.

The High School Scholars Program provides a number of advantages to students:

- There is no tuition cost for courses taken through the High School Scholar Program.
- High School Scholars have the ability to earn credits toward a future degree at Drexel, or possibly transfer credits at other universities.
- The High School Scholars program prepares students for the college environment.

Grades targeted: 9, 10, 11

Location: Drexel University

Program Dates: June 25th – September 2nd

Application Deadline: April 15th

Learn more at: <http://drexel.edu/undergraduate-research/high-school-scholars/overview/>

Forensic Sciences Mentoring Institute (FMI)

At the Forensic Sciences Mentoring Institute (FMI) Summer Science Program high school students spend 7 weeks investigating and solving a crime while learning how to be a forensic scientist. Students will analyze crime scene evidence based on actual cases including homicide, sexual assault and drug trafficking investigations under the mentorship of forensic experts. All FMI students learn how to test for DNA and determine the presence of drugs and poisons by examining evidence.

Students in the FMI Summer Science Program will learn through interactive, hands-on experiences using the same state-of-the-art instrumentation and techniques used in forensic laboratories. Throughout the program, students will get oriented to the laboratory and their assigned criminal investigation as they rotate between the three major areas of a crime laboratory: forensic biology, forensic chemistry, and forensic toxicology.

After examining evidence and analyzing the data, students will serve as expert witnesses by presenting their case in front of a judge in a trial setting where their friends and family are invited to watch.

Grades targeted: Must be age 16+ by 6/25/18

Location: Center for Forensic Science and Research Education

Program Dates: June 25th – August 10th

Application Deadline: April 30th

Learn more at: <https://www.frfoundation.org/fmi-summer-sciences-program/>

Penn Summer Prep

The Penn Summer Prep Program allows ambitious students to enroll in two undergraduate-level modules from across disciplines while benefiting from the rich educational resources of the University. Students can also experience college life on Penn's historic campus and explore the vibrant city of Philadelphia.

If you attend a School District of Philadelphia public or charter high school, you may be eligible to attend Penn Summer Prep free of charge with a Penn Summer Scholarship (<http://www.sas.upenn.edu/summer/programs/high-school/tuition/scholarship>).

Grades targeted: 9, 10, 11

Location: University of Pennsylvania

Program Dates: Session A: July 9th – July 21st , Session B: July 23rd – August 4th

Application Deadline: May 1st

Cost: free only with Penn Summer Scholarship (see link above)

Learn more at: <http://www.sas.upenn.edu/summer/programs/high-school/summer-prep>

Penn Summer Academies

Academies are subject-intensive three-week programs that fuse sophisticated scientific or social theory with relevant application. The science academies draw upon Penn's cutting-edge technology and resources to provide innovative lab experiences while the social academies draw upon the rich history and diversity of Philadelphia to provide a sociologically comprehensive summer experience.

If you attend a School District of Philadelphia public or charter high school, you may be eligible to attend Penn Summer Prep free of charge with a Penn Summer Scholarship (<http://www.sas.upenn.edu/summer/programs/high-school/tuition/scholarship>).

Grades targeted: 9, 10, 11

Location: University of Pennsylvania

Program Dates: July 1st – July 21st

Application Deadline: May 1st

Cost: free only with Penn Summer Scholarship (see link above)

Learn more at: <http://www.sas.upenn.edu/summer/programs/high-school/academies>

CampCardiac

Camp Cardiac is a 1-week summer day camp open to all high school students (including Spring/Summer 2018 graduates) 15-18 years of age as of first day of assigned session and currently residing in the US. Although Camp Cardiac's primary focus is on care and maintenance of the heart, it provides an excellent starting point for careers in all fields of medicine.

Grades targeted: Must be age 15+ on first day of camp

Location: Sidney Kimmel Medical College at Thomas Jefferson University

Program Dates: July 16th – July 20th

Spots are limited and filled on a rolling, first-come, first-serve basis.

Scholarship Application Deadline: April 2nd

Cost: Scholarships available, \$700 without scholarship

Learn more at: <http://www.campcardiac.org/>

CampNeuro

Camp Neuro is a 1-week summer day camp open to all high school students (including Spring/Summer 2018 graduates) 15-18 years of age as of first day of assigned session and currently residing in the US. Although Camp Neuro's primary focus is on care and maintenance of the brain as well as psychology, it provides an excellent starting point for careers in all fields of medicine.

Grades targeted: Must be age 15+ on first day of camp

Location: Sidney Kimmel Medical College at Thomas Jefferson University

Program Dates: July 23rd – July 27th

Spots are limited and filled on a rolling, first-come, first-serve basis.

Scholarship Application Deadline: April 2nd

Cost: Scholarships available, \$700 without scholarship

Learn more at: <http://www.campneuro.org/>

For Cost Summer Opportunities – students must pay to participate

Pennsylvania Free Enterprise Week (PFEW) Summer Program

Did you ever wonder what it would be like to run a business? Are you a Pennsylvania high school sophomore or junior who dreams of being your own boss someday?

Pennsylvania Free Enterprise Week (PFEW) is a week-long, summer opportunity for you to find the answers to these questions and so much more!

PFEW is your chance to take a step towards your future and to show your future employer that you are not your ordinary high school student. At PFEW, you will have the chance to turn an imaginary company into a financial success! You and your group of peers will act as an executive management team and take a hands-on approach as you face the decisions real life CEOs face every day! You will be given a taste of the American free enterprise system as you run your student "company", all while experiencing college life and competing for prizes.

Cost: \$285 registration fee, financial assistance may be available.

Grades targeted: 10, 11

Location: Lycoming College, Williamsport, PA or Pennsylvania College of Tech, Williamsport, PA

Program Dates: Week 1 - July 1-7 (Lycoming College)

Week 2 - July 8-14 (Lycoming College)

Week 3 - July 22-28 (Lycoming College)

Week 4 - July 29 - Aug. 4 (Lycoming or Pennsylvania College of Technology)

Application Deadline: April 6th

Learn more at: <https://www.pfew.org/students.php>

USNA Summer Seminar

The United States Naval Academy Summer Seminar is a fast-paced, six-day experience for high achievers who have completed their junior year (rising seniors) in high school. Summer Seminar teaches you about life at the Naval Academy, where academics, athletics, and professional training play equally important roles in developing our nation's leaders. If you think that you may be interested in pursuing an appointment to one of the nation's service academies and serving your country as an officer, you should really consider attending the Naval Academy's Summer Seminar.

Cost: \$525

Grades targeted: 11

Location: United States Naval Academy, Annapolis, MD

Program Dates: Session 2: June 9th - 14th

Session 3: June 16th - 21st

Application Deadline: March 31st

Learn more at: <https://www.usna.edu/Admissions/Programs/NASS.php#fndtn-panel1-Steps-For>

USNA Summer STEM Program

STEM Program attendees engage in project-based modules and hands-on design activities. This program will bring the latest in technological advances to the classroom and lab sessions with topics such as: Energy and Light, Infrastructure, Transportation and Cybersecurity, Simulation and Modeling, Flight and Fluids, Biometrics and Robotics, and Automation. During the Summer STEM Program, students will be exposed to all of the available STEM majors at USNA.

Cost: \$550, Limited need-based scholarships are available.

Grades targeted: 9, 10

Location: United States Naval Academy, Annapolis, MD

Program Dates: Session 2: June 11th -16th ,

Session 3: June 18th - 22nd
Application Deadline: March 31st

Learn more at: <https://www.usna.edu/Admissions/Programs/STEM.php#fndtn-panel1-Attending>

Please contact Ms. Jamokha, Carver Partnerships Coordinator, with any questions.
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