**STEM Partner Programs**

Arizona State University is constantly striving to better connect with and contribute to the Science, Technology, Engineering and Math (STEM) community. One way the university is doing this is through partner programs supported by university initiatives or with National Science Foundation funding. ASU’s STEM programs are part of hundreds of community engagement programs across the Valley designed to tap into and inspire early STEM interests, from summer programs to world-class museums, internships, events and K-12 activities and teacher training.

### Arizona Geographic Alliance

The purpose of the Arizona Geographic Alliance (AZGA) is to strengthen geography education in Arizona. The alliance receives support from grants and ASU’s School of Geographical Science and Urban Planning, where the AZGA office is located. AZGA partners with the Arizona Council on Economic Education, Arizona Foundation on Legal Services and Education, and the Arizona Council for the Social Studies, as well as other national and state groups. Membership totals more than 4,300 educators. In the last 15 years, the 520 workshops and 320 online lessons have impacted more than 20,000 teachers, who are instructing 800,000 students. [gcsclance.asu.edu](http://gcsclance.asu.edu)

### Arizona FIRST® LEGO® League

Arizona FIRST® LEGO® League is an exciting and fun, global robotics program created to get children ages 9 to 14 excited about science, technology, engineering, art and math. The league uses theme-based challenges to help young students discover the fun in solving real-world problems through robotics, research projects and teamwork and emphasizes learning, community involvement and friendly sportsmanship. More than 350 teams participated in league activities, and more than 600 students from 98 teams went on to compete at the league championship tournament in 2017, sponsored by the Ira A. Fulton Schools of Engineering. [outreach.engineering.asu.edu/azfll](http://outreach.engineering.asu.edu/azfll)

### Ask A Biologist

Ask A Biologist is a web-based K-12 science education program that has, since 1997, excited the imagination and put learning in the hands of children, teachers, parents, home-schoolers and life-long learners. This award-winning website offers more than 12.2 million visitors a year cutting-edge science and art and profiles of scientists, image galleries, puzzles, coloring pages, podcasts and other activities. At the core of this multimedia program is the “Ask A” question feature, which answers questions (non-homework) posed to Dr. Biology. Dr. Biology is the portal through which working scientists and graduate students volunteer their knowledge and time to support the community’s Q&A activity. Now accessed by every country in the world, this educational resource for students PreK-12, and their teachers and parents is visited by more than 30,000 people daily, has translated materials into Spanish, French and other languages and answered more than 40,000 questions. [askabiologist.asu.edu](http://askabiologist.asu.edu)

### Ask An Anthropologist

Humans aren’t the only animals with complicated social lives. Studying how other primates interact with each other can help us figure out why humans live the way they do. A partner site to Ask A Biologist, Ask An Anthropologist was launched in 2017 and links students, teachers and ASU researchers supported by ASU’s Institute for Human Origins. [askananthropologist.asu.edu](http://askananthropologist.asu.edu)

### ASU Prep Academy

The academy prepares students to partner with ASU researchers to develop real-world solutions to solve issues and create a better world. The academy offers personalized attention in a university-embedded academic program that empowers students to complete college, compete globally and contribute to their communities. A new prep offering, ASU Prep Digital, now offers high school and university learning environment 100 percent online, including full-time or part-time classes. [asuprep.asu.edu](http://asuprep.asu.edu)

### Arizona Brain Fair

The Brain Fair is the brain child of ASU Professor Heather Bimonte-Nelson, director of the Department of Psychology’s Neuroscience of Memory and Aging Lab. As of 2019, this community outreach event has attracted more than 9,000 third and fifth graders from across the valley to learn about brains, neurons and science. The science of the brain goes hand-in-hand with the message that Professor Bimonte-Nelson is trying to get across: "You are responsible for making the decisions which will affect your future. The brain makes those decisions." The event is part of Brain Awareness Week, a series to increase public awareness about the brain, associated with the Society for Neuroscience, [psychology.asu.edu/content/brain-fairs/children](http://psychology.asu.edu/content/brain-fairs/children)

### ASU Open Door

With more than 360 activities and performances in a festival of the sciences, culture, engineering, humanities, health and the arts, ASU Open Door is held in February on the Downtown Phoenix, Polytechnic, Tempe and West campuses. A signature event of the Arizona SciTech Festival and rated one of the top events since it was founded in 2012, each outing offers a window into the creative energy that powers a world-class university. More than 1,500 student, faculty and staff volunteers offer experiences and hands-on activities. Visitors can expect to see cutting-edge science, math, physics, green energy, biomedicine, forensics, pottery-making, art and robotics, space exploration, nursing and more. This free event attracts more than 40,000 members of the community to the ASU campuses each year. [opendoor.asu.edu](http://opendoor.asu.edu)

### ASU Brain Fair

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### ASU Prep Academy

Whether it’s building a robot, creating a solar machine or developing solutions to save the earth’s resources, ASU Prep’s 2,100 students are working to solve real challenges and offering research-based alternatives. The ASU Preparatory Academy Charter School is an innovative K-12 charter school. The academy prepares students to partner with ASU researchers to develop real-world solutions to solve issues and create a better world. The academy offers personalized attention in a university-embedded academic program that empowers students to complete college, compete globally and contribute to their communities. A new prep offering, ASU Prep Digital, now offers high school and university learning environment 100 percent online, including full-time or part-time classes. [asuprep.asu.edu](http://asuprep.asu.edu)

### Biodiversity Knowledge Integration Center

The center works to generate comparative knowledge of life’s diversity, promotes use of informatics tools and fosters direct and virtual learning experience with biodiversity data and specimens. ASU’s Natural History Collections are some of the best in the world, and boast nearly 1.8 million specimens among nine collections. One of the largest is the Frank Hasbrouck Insect Collection, with close to one million specimens, and the Vascular Plant and Lichen Herbaria, with more than 400,000. Fossil plants, shells, reptiles, fish, birds and mammals are also represented. The center hosts research and teaching facilities, including K-12 resources. [biokic.asu.edu](http://biokic.asu.edu)
and platforms to immerse learners in farmers. “We develop games, apps stakeholders like loggers, fishers and balancing the needs of the community the Taiga River. The goal is to restore scientific investigation where he students supported by well-prepared to teach students, ages 10 to 14, produced the Mystery of Taiga River, directed by Professor Sasha Barab, works with schools in Arizona to technology and computer sciences. aptitude and interest among girls in key areas of social justice to boost of advanced computational skills with for girls from grades 8 to 12, responsive technology program An award-winning, culturally cryptorally-2018 student poster session. math.asu.edu/ rally competitions, student, teachers CryptoRally teams. Following the for college and high school teams, Mathematical and Statistical Sciences, associate professor in the School of cryptography, the science of making and breaking codes and ciphers, helps protect personal, financial, proprietary and defense-related information. Designed by Nancy Childress, associate professor in the School of Mathematical and Statistical Sciences, 29 teams competed in a competition for college and high school teams, including eight middle school “Junior Cryptorally” teams. Following the rallying competitions, student, teachers and faculty attend a lecture and student poster session. math.asu.edu/ cryptorally-2018 Engineering Projects in Community Service is a national award-winning social entrepreneurship program. Teams design, build and deploy systems to solve engineering-based problems for charities, schools and other not-for-profit organizations. ASU engineering students aren’t waiting to graduate to make a difference—they are tackling real-world problems today. ASU also hosts EPICS@High@ASU with STEM students from 28 Arizona high schools. These students become part of a multidisciplinary teams that take EPICS courses, design projects to tackle a real-world problem, build communication skills and develop STEM and service learning. engineering.asu.edu/Mars Education Program ASU Mars Education is the formal education partner of the NASA Jet Propulsion Laboratory (JPL) Mars Education Program. ASU’s Mars Education is housed at the prestigious Mars Space Flight facility at ASU and provides workshops, field trips and other opportunities for teachers and students to join with scientists and assist the research process through contributing efforts within the excitement of Mars exploration. In addition, the program offers professional development conferences to train teachers how they can use space exploration to ignite their students’ imaginations, while at the same time integrating STEM themes and inquiry-based learning into the curriculum. marston.asu.edu
SolarSPELL

Many islands in the Pacific Ocean lack two things that are essential for accessing information and performing educational pursuits: a library and the internet. Without this access, many teachers are without strong lesson plans or curriculum and community members lack books and multimedia. However, Associate Professor Laura Hosman in ASU’s Ira A. Fulton Schools of Engineering and the School for the Future of Innovation in Society created a digital library that doesn’t depend on existing internet connectivity. The library houses thousands of educational resources, including videos, ranging from math and English lessons to agricultural information to overviews of climate change, all curated by Hosman. There are now more than 200 SolarSPELL devices in the Pacific Islands, with many devices being managed by active Peace Corps volunteers.

Summer Program at ASU

ASU offers a range of summer STEM programs and more for youth, from sixth grade to high school. There are SummerUP camps where high school students experience life as a college student and do college-level coursework in 10 academic tracks, from sustainability and coding to forensics. There is ASU’s Digital Culture Summer Institute, the Young Writer’s Institute, iD Tech Camps and the Young Writer’s Institute. The Summer Experience at West. In engineering, the High School Summer Academy offers an App Camp, Robotics and Game Camp. There is also Barrett Summer Scholars designed for academically-talented and motivated students. 

Sustainability Teacher’s Academy

The goal of the National Sustainability Teachers’ Academy is to equip K-12 teachers with the knowledge, skills and tools to become agents of change. By infusing sustainability concepts and practices into schools, teachers can have a profound impact on motivating future leaders to create and innovate solutions to the economic, social and environmental challenges of our world. Teachers who participate in the intensive, five-day professional development workshop, upon completion, return with a site-specific action plan for promoting sustainability in their schools and communities. They also receive a suite of lesson plans and student activities based on real science, aligned to Common Core and Next Generation Science Standards, and easily adaptable to any class. sustainability.solutions.asu.edu/programs/teachersacademy

Young Engineers Shape the World

Young Engineers Shape the World is a two-year program offered by ASU’s Ira A. Fulton Schools of Engineering that takes place during out-of-school time. The program seeks to help high school students view engineering as a socially relevant profession. Through a variety of weekend events, participants spend time exploring individual fields of engineering through hands-on activities that are developed to help shape their engineering identity. Aimed at attracting female students, first-generation students and those with financial need that are in 10th to 11th grade, the program seeks to increase the diversity of students pursuing engineering. yongengineers.engineering.asu.edu
STEM Enrollment Trends
Arizona State University has seen extreme growth in STEM-related disciplines. In fall 2004, STEM-related disciplines had a total enrollment of 13,278 students. These numbers roughly doubled by 2017, with enrollment topping 27,278 students. Minority enrollment has more than tripled over this time period and enrollment by women has nearly doubled.

Enrollment in STEM-related disciplines*

<table>
<thead>
<tr>
<th>Year</th>
<th>All students</th>
<th>Minority students</th>
<th>Female students</th>
<th>First-time freshmen</th>
</tr>
</thead>
<tbody>
<tr>
<td>2004</td>
<td>13,278</td>
<td>3,086</td>
<td>5,196</td>
<td>1,729</td>
</tr>
<tr>
<td>2017</td>
<td>27,278</td>
<td>9,493</td>
<td>9,955</td>
<td>4,483</td>
</tr>
</tbody>
</table>

*Includes Computer Science, Engineering, Mathematics, Psychology, Sciences (life/biological sciences, geosciences, physical sciences), and Technologies (engineering technology, science technology, educational technology, digital communication).

Enrollment counts are based on IPEDS campus reporting.

Degrees Awarded Trends
With continual increases in enrollment, the STEM-related degrees awarded have also steadily increased. In the 2008-2009 academic year, the total degrees awarded was 3,392 (2,314 undergraduate and 1,078 graduate). In 2016-2017, STEM-related degrees awarded nearly doubled with 6,257 degree awarded (4,195 undergraduate and 2,062 graduate). This represents more than a third of the 18,261 degrees awarded in 2016-2017.

Degrees* awarded in STEM-related disciplines

<table>
<thead>
<tr>
<th>Year</th>
<th>Bachelor</th>
<th>Master</th>
<th>Doctor</th>
</tr>
</thead>
<tbody>
<tr>
<td>2008-09</td>
<td>2,314</td>
<td>840</td>
<td>238</td>
</tr>
<tr>
<td>2016-17</td>
<td>4,195</td>
<td>4,038</td>
<td>286</td>
</tr>
</tbody>
</table>

*Degree counts are based on IPEDS campus reporting.

STEM Enrollment Trends

Enrollment trends by STEM-related disciplines*

<table>
<thead>
<tr>
<th>Year</th>
<th>Computer Science</th>
<th>Mathematics</th>
<th>Psychology</th>
<th>Sciences</th>
<th>Technologies</th>
</tr>
</thead>
<tbody>
<tr>
<td>2004</td>
<td>1,147</td>
<td>425</td>
<td>2,149</td>
<td>3,670</td>
<td>1,112</td>
</tr>
<tr>
<td>2017</td>
<td>4,355</td>
<td>790</td>
<td>4,355</td>
<td>7,828</td>
<td>790</td>
</tr>
</tbody>
</table>

*Includes Computer Science, Engineering, Mathematics, Psychology, Sciences (life/biological sciences, geosciences, physical sciences), and Technologies (engineering technology, science technology, educational technology, digital communication).

Enrollment counts are based on IPEDS campus reporting.

Degrees* awarded to minorities in STEM-related disciplines

<table>
<thead>
<tr>
<th>Year</th>
<th>Bachelor</th>
<th>Master</th>
<th>Doctor</th>
</tr>
</thead>
<tbody>
<tr>
<td>2008-09</td>
<td>564</td>
<td>697</td>
<td>32</td>
</tr>
<tr>
<td>2016-17</td>
<td>1,494</td>
<td>326</td>
<td>32</td>
</tr>
</tbody>
</table>

*Degree counts are based on IPEDS campus reporting.
What makes ASU exceptional?

ASU is No. 1 for Innovation in the U.S.

This is where Nobel laureates and Pulitzer Prize winners teach master learners. ASU’s world-class faculty is rated in the top 11 in the nation for “unusually strong commitment to undergraduate teaching,” ahead of Yale, Harvard and Columbia universities (U.S. News & World Report 2019).

No. 1 public university chosen by international students

This is where nationally ranked and internationally ranked programs prepare next-generation innovators to thrive while advancing pioneering research, strategic partnerships, entrepreneurship and economic development.

No. 4 in the U.S. for online bachelor’s degree programs

It’s also about accessibility, affordability and diversity. ASU is No. 4 in the U.S. for online bachelor’s degree programs and pioneered the ASU-Starbucks’ partnership in online college achievement. ASU is also a top producer of Fulbright Student Scholars and Peace Corps Volunteers – students come to ASU to make a difference in the world.

Top 10 in the nation in research

From engineering to earth sciences

The National Science Foundation placed anthropology No. 1; geological and earth sciences, No. 2; social sciences, No. 4; and electrical, electronic and communications engineering No. 9 in research expenditures in the nation. ASU was also in the top 10 nationally for NASA-funded expenditures, ahead of Stanford, UCLA, Georgia Tech and Columbia, and No. 9 for Health and Human Services expenditures.

Among the best graduate schools in the U.S.

U.S. News & World Report (2018) ranked the Ira A. Fulton Schools of Engineering graduate online engineering programs in the top 11 and No. 13 in environmental and environmental health engineering. ASU was also No. 8 in environmental policy and management and No. 15 in earth sciences in the School of Earth and Space Exploration. Thunderbird School for Global Management was also ranked No. 7 as a best business school - international specialty in 2019.

Joining more than 500,000 ASU alumni positions you to be an agent for change.

Where we are

Arizona State University is located in the Phoenix metropolitan area. As the six-largest city in the United States, Phoenix offers big-city amenities like sports venues, cultural attractions, restaurants and shopping in a breathtaking desert backdrop.

Phoenix is ranked among the 10 best cities for new graduates because of its well-paying jobs, affordable lifestyle and active social scene, according to Kiplinger. And Forbes ranks Arizona the best in the nation for future job growth.

Distinctive campuses across metro Phoenix

While each ASU campus is a unique learning environment, each one offers contemporary classrooms and laboratory space, state-of-the-art libraries, fitness and dining facilities, and student support services. All share the same commitment to excellence in academics. campus.asu.edu

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