THE UNIVERSITY OF ARIZONA

KEYS Research Internship

TRAINING A PREPARED AND DIVERSE STEM WORKFORCE

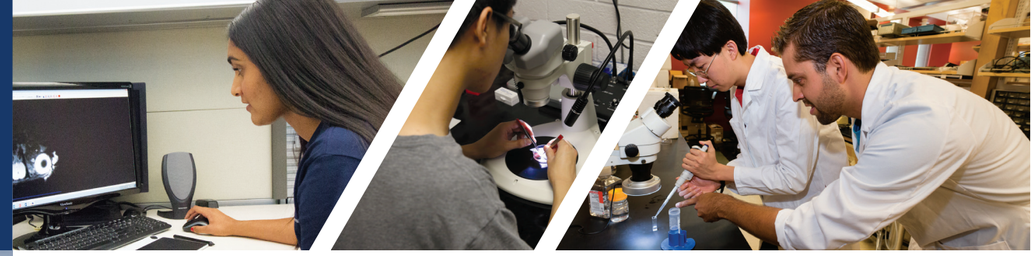
+

BUILDING A PIPELINE OF TALENT INTO UARIZONA

NEW
KNOWLEDGE

NEW
SKILLS

AUTHENTIC
SELF-CONFIDENCE

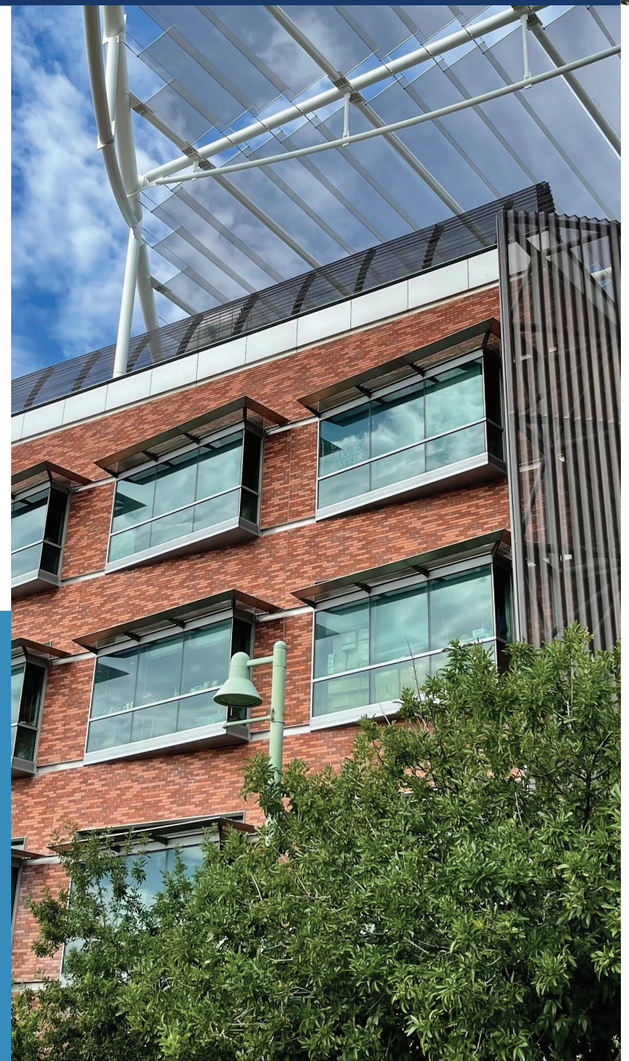


The BIO5 Institute's annual KEYS Research Internship is one of Arizona's premier training programs for high school students interested in developing STEM skills. Interns gain experience working on immersive, real-world projects under the mentorship of University of Arizona scientists.

During the seven-week summer program, KEYS empowers interns to explore their passion for scientific discovery while advancing their academic, professional, and personal goals.

> "Whenever I'm asked why I am involved in research, my first response is always KEYS. KEYS provided hands-on experience in scientific research that I don't believe I could have received anywhere else."

2012 KEYS ALUM



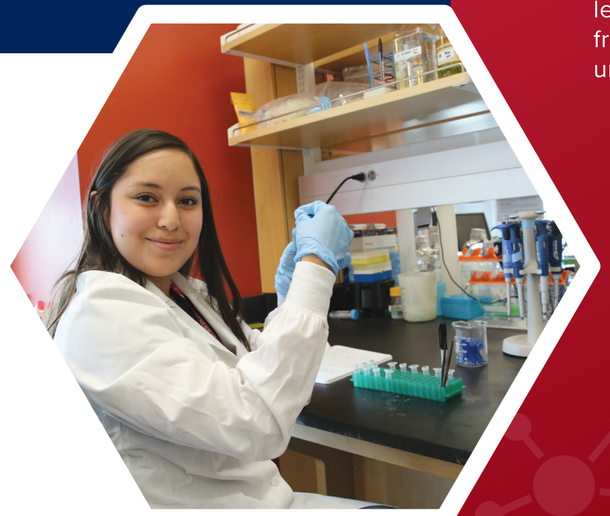
KEYS aims to increase and diversify the talent pool of those pursuing STEM degrees and careers and influence promising young people to attend in-state public universities and enter the Arizona workforce.

- Interns receive three undergraduate credits upon completion of the program and are automatically accepted into the W.A. Franke Honors College if they select UArizona for their undergraduate studies.
- 16 program alumni have gone on to be awarded the coveted Flinn Scholarship, which covers tuition, fees, housing, meals, and study abroad at one of Arizona's public universities for four years.
- The inaugural six-student cohort in the new Accelerated Pathway to Medical Education (APME) program at the UArizona College of Medicine – Tucson included four KEYS alumni.
- Past interns amplify the KEYS experience by presenting their work at conferences, producing data for research grant applications, being included as authors on publications, and continuing to work in their labs after KEYS.

THE HISTORY OF KEYS

KEYS began as a pilot project in 2006, then co-led by the UArizona College of Pharmacy Southwest Environmental Health Sciences Center (SWEHSC) and the BIO5 Institute, with a founding goal of allowing high school students from across Arizona to actively participate in real-world research. In 2007, KEYS became a permanent STEM research internship on the University of Arizona campus.

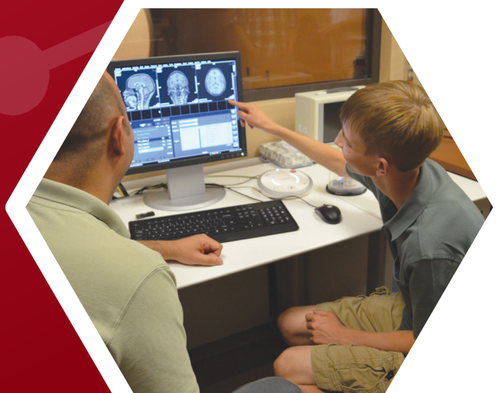
Today, BIO5 continues to lead and manage the program keeping the original goal as the driving programmatic force, while UArizona partner colleges help sustain KEYS through financial and in-kind support as well as by encouraging their faculty researchers to mentor interns.



KEYS TO THE FUTURE

KEYS has continued to evolve from the inaugural cohort of nine interns in 2007 to 55 interns for a first of its kind dual track (in-person and virtual) in 2022. With the completion of the 2022 program, KEYS will boast 631 alumni representing 96 Arizona high schools.

In line with BIO5's mission to prepare next-generation scientists, the exceptional KEYS program staff is committed to carrying the original tradition of excellence and inclusivity into the future, with a particular focus on providing transformative learning opportunities to those from backgrounds traditionally underrepresented in STEM fields.



"KEYS is the opportunity of a lifetime to experience real science."

TAYLOR WINGFIELD
2013 KEYS ALUM

WHAT KEYS MEANS TO STUDENTS

AUGMENTING CLASSROOM LEARNING

Typical high school students don't often have the opportunity to apply the knowledge they learn from science textbooks to solve real-world problems.

KEYS interns not only gain experience in interdisciplinary bioscience, biomedical science, biostatistics, biomedical engineering, data science, or environmental health research, but also train in biotechnology skills, science literacy, ethics, and communications that they typically wouldn't learn in the classroom.

In order to become leaders of tomorrow, today's students need determination, curiosity, and a mindset that embraces teamwork, creativity, problem solving, and emotional competence. These are all capabilities reinforced through the KEYS experience.

WORKING IN UARIZONA LABS

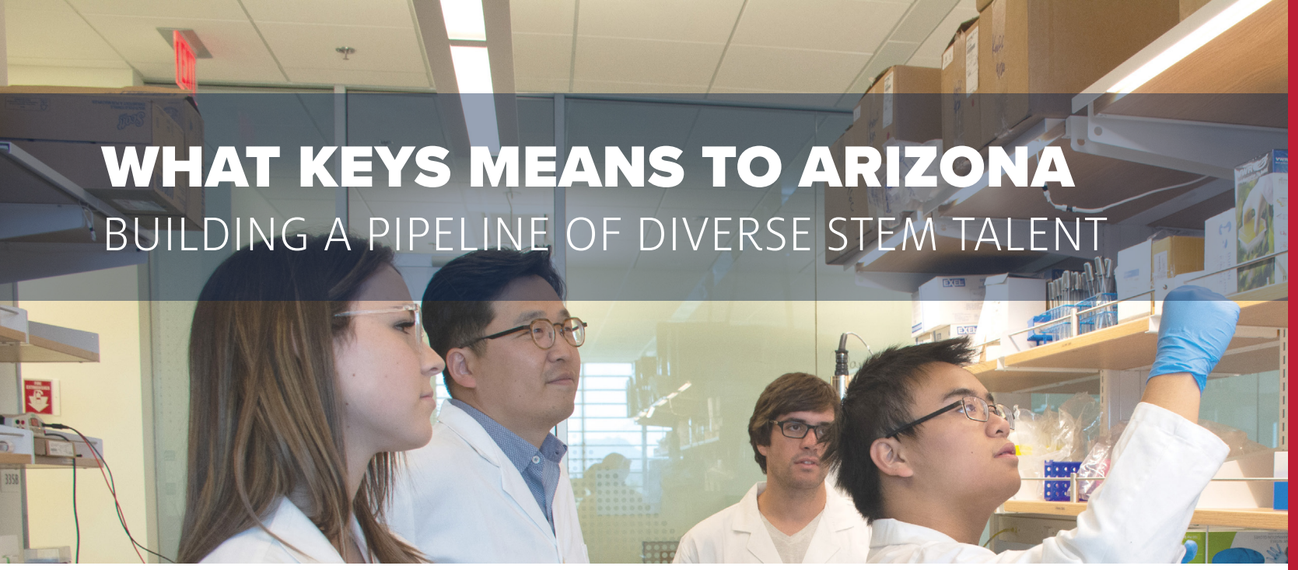
KEYS interns help tackle big scientific challenges and work on real research projects that advance health outcomes or improve the environment.

RESEARCH AREAS INCLUDE:

- Cancer Biology
- Neuroscience/Brain Diseases
- Biomedical Engineering
- Environmental Impact
- Toxicology
- Infectious Diseases
- Asthma and Airway Diseases
- Immunology/Infectious Diseases
- Genetics/Genomics
- Drug Discovery
- Physics

"I have been personally and professionally inspired by our KEYS intern. They conducted research professionally, with care, and with excitement. I was very impressed with their drive to acquire new knowledge and go above and beyond to read literature and online resources and come up with hypotheses and contextual information. Their ability to present both to our group (presentations and posters) was very impressive. I am inspired because of the talent and passion I see in students even in these early years of their scientific career. Observing students grow and thrive is one of the most rewarding parts of my role now."

LAURA MEREDITH
KEYS MENTOR



WHAT KEYS MEANS TO ARIZONA

BUILDING A PIPELINE OF DIVERSE STEM TALENT

KEYS recruits and attracts the best and the brightest from the state's many diverse communities to UArizona for the experience of a lifetime. Through KEYS, interns will learn and grow, and gain the experience, skills, and conviction that will allow them to thrive in a rapidly changing world. KEYS provides many incentives for these promising students to stay in Arizona for college, and beyond.

"KEYS was the single most important thing that prepared me for college. Through KEYS I was submerged into the unique, collaborative science community that is at the UA. I was able to learn about the groundbreaking research that is going on right now at the UA, and network with the incredible researchers who are making it happen. By the end of the program, there was absolutely no doubt in my mind that I wanted to stay and be a part of this community."

ROBYN PRATT | 2016 KEYS ALUM

INCLUSIVE EXCELLENCE

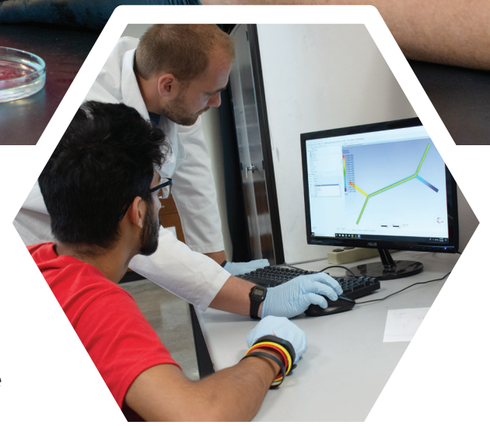
The value in diversity of thought, ideals, expertise, culture, approach, personal experience, disciplines, and background is embedded in the DNA of BIO5.

KEYS aims to expand access and equity in positively impacting the needs of the diverse communities across Arizona, and to provide students from underserved backgrounds with the resources necessary to lay the foundation for successful STEM careers.

KEYS enables interns to build on the foundational science skills taught in high school classrooms with limited resources, and to connect with professionals who they might not typically be able to network with or learn from.

In parallel, KEYS builds a diverse pipeline of high-potential STEM students to Arizona's public universities and trains our next generation scientists and engineers to be workforce-ready.

THE PROCESS



Prior to engaging in research, KEYS interns are immersed in a one-week crash-course in bioscience and data science techniques, lab safety training, and the foundations of science literacy to ensure they have the base knowledge necessary to begin their assigned projects. In weeks 2-6, leading UArizona researchers and lab staff/students mentor their assigned intern in the laboratory. At the close of the program, KEYS interns present what they've learned and experienced to friends, family, and the academic community at a research showcase.

KEYS RESEARCH MENTORS AND SUPPORT STAFF

The contribution of time, talent, and mentorship from the research faculty at the University of Arizona is essential to the success of KEYS. Interns are welcomed into their labs and provided opportunities to explore and experience the excitement of scientific research and discovery.

Additionally, our interns learn from the exceptional post docs, graduate and undergraduate students, and KEYS crew and staff who also mentor them throughout their internship and beyond, and they also learn from each other. Over 100 people work together to make KEYS a success each year.

"I would just say that the performance and attitude of KEYS students is so incredible that it motivates the rest of our research group to bring their best game too. It's a lot of fun to watch the KEYS students teach undergrads certain things, and vice versa."

KEYS MENTOR

KEYS IMPACT (2007 - 2022)

631 ALUMNI

"Nothing, and I'll say it again, nothing I had learned up to a couple of weeks ago would have prepared me to work in a lab. There is no textbook, no test, and no class that has taught me how to look at certain situations and engineer a way to take on that challenge. Because that's not something that can be taught through equations and lectures. It's a skill one can only develop through experience, something I did not have. My goal in joining KEYS was to gain more research experience, and build the tools and knowledge needed to bring my ideas to life."

ERIC OUM
2017 KEYS ALUM

96% KEYS alum graduated high school and have attended or are currently attending college with most pursuing STEM degrees.

60% KEYS alum are from backgrounds traditionally underrepresented/ underserved in STEM degrees/careers.

100% KEYS alum auto-accepted to UArizona W.A. Franke Honors College upon admission to the university.

169 UArizona faculty have served as KEYS mentors.

65% KEYS alum chose to stay in Arizona for college, with the majority of those choosing UArizona.

96 Arizona high schools represented among KEYS alum.

SUPPORT KEYS

The Technology and Research Initiative Fund (TRIF) that helped launch the BIO5 Institute 20 years ago continues to be a catalyst in enabling important, cross-disciplinary bioscience research, innovation, and impact at the University of Arizona, and also supports world-class student engagement programs like KEYS.

KEYS is funded by BIO5 and generous donors including individuals, families, companies, foundations, UArizona alumni, and various UArizona faculty, colleges, and departments.

KEYS RELIES ON PHILANTHROPY TO KEEP THE PROGRAM FREE FOR ALL STUDENTS.

"KEYS was the most influential event of my life. I am so grateful to those who donate to, run, and assist in the program. Without their help I would never have learned about my love of science education and my genuine self confidence. I'm proud to be who I am today and proud of the growth I went through because of KEYS."

JORDAN PILCH
2017 KEYS ALUM

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