Dear WISE Supporters:

This fall has been a busy time for WISE.

- Our Girls Who Code Club has taken off, expanding enrollment 300% over last year.
- The members of the STEM Pipeline Mentorship Program have completed a series of skills-building workshops and had the opportunity to learn from a diverse set of STEM professionals.
- The Bio/Diversity Project has placed 11 UA interns with 10 local schools, bringing innovative, hands-on STEM programming to over 550 K-12 students weekly, while also providing the interns with crucial training, mentorship, and work experience.
- 95 students at Sahuarita Middle School had the opportunity to participate in hands-on STEM workshops when we brought an Expanding Your Horizons conference to their campus in November.

All of this work would not be possible without the generous support of our donors and the immense amount of time donated by those who volunteer to support our programs. As another fall semester comes to a close, we thank all of you for your on-going support and all you do to make our work possible. We hope you enjoy learning more about what we’ve been up to and look forward to continue supporting the development of more diverse and inclusive STEM communities in southern Arizona in 2018!

And be sure to save the date for the 2018 Science and Engineering Excellence Banquet—April 25th. We will be announcing the keynote speaker in January and begin accepting applications for the Science and Engineering Excellence Awards in February.

Sincerely,

Dr. Jill Williams, WISE Director
The Bio/Diversity Project Impacts Nearly 1,000 K-12 Students by Placing 23 UA Students in Local Schools in Just One Year!

The Bio/Diversity Project just wrapped up its third semester, and its first full-year of placing UA students in K-12 schools around Tucson. The fall 2017 semester focused on providing UA interns with weekly trainings from WISE staff and local scientists, educators, and innovators, and facilitating intern collaboration with teachers in partner schools to integrate biodiversity-focused lessons into their curricula. Check out some of our successes from both this semester and the past year:

- Number of diverse UA students who have interned with the Bio/Diversity Project: 23
- Spring 2017 interns who received paid positions with Saguaro National Park after completing this program: 3
- Number of K-12 teachers partnered with in the Tucson area: 15 teachers across 10 local schools
- Number of K-12 students impacted by the Bio/Diversity Project: 985
- Departments partnered with on the UA campus: 8

We wrapped up this semester’s Bio/Diversity Project with an exposition of the intern work on December 6th in the new ENR2 building. Each of the interns presented a digital story that discussed their experiences with the Bio/Diversity Project over the course of the semester. Their wonderful stories will be featured on our website in upcoming weeks! We were also excited to welcome UA faculty and departmental advisors, K-12 educators, representatives from the Arizona-Sonora Desert Museum and Saguaro National Park, and friends and family of the interns to this celebration of the hard work that went into making this semester’s Bio/Diversity Project a success.

The Bio/Diversity Project is currently in the process of selecting interns for its second year of programming, which will begin with classes in the spring 2018 semester. We can’t wait to see what the next semester has in store for this program, and what interesting and innovative science lessons our interns and partner teachers will bring to the table! Special thanks to the Agnese Nelms Haury Program in Environment and Social Justice for making this wonderful program possible.

If you are interested in learning more about the Bio/Diversity Project, check out http://wise.arizona.edu/the-biodiversity-project and/or...
Where are they now?
Former Bio/Diversity Project Interns reflect on how their internship experience led to other opportunities.

The Bio/Diversity Project provides UA students with the opportunity to gain hands-on work experience, training, and networking opportunities in environmental science outreach with the goal of enabling them to enter the environmental science workforce. Check-out the updates below to see how some of our former interns have drawn on their experiences to gain other positions.

**Julia Jones, Natural Resources Intern, Saguaro National Park**

During spring 2017, I was an intern with the Bio/Diversity Project and worked with middle school students at Roberts-Naylor K-8, a school with a population of students who represented over 20 different countries. I designed and taught hands-on lessons related to biodiversity, and sought to draw a parallel between biodiversity and the importance of fostering diversity in science, technology, engineering, and mathematics (STEM) fields.

The Bio/Diversity Project works with Saguaro National Park (SNP) and the Arizona-Sonora Desert Museum. These partnerships provide students from underserved K-12 schools with opportunities to interact with and experience biodiversity in our desert. This partnership also benefits university students by providing pathways for internships with SNP. I was fortunate to be one of those students. Because of the Bio/Diversity Project, I was given the opportunity to work as a Natural Resources intern this past summer. I assisted the biotechnicians at SNP with numerous projects. My favorite project involved a field survey of Lowland Leopard Frogs in the Rincon mountains. The Lowland Leopard Frog is a native species that is threatened by declining water levels in their native riparian habitat. Through my internship I was also given the incredible honor of participating in a traditional saguaro fruit harvest which is a rare opportunity. I then traveled to Tuzigut National Monument for a weekend and worked on a survey of the Northern Mexican Gartersnake, another threatened species. We caught one and yes, I got to hold it! Over the course of my internship with SNP, my mentor, biologist Don Swann, gave me opportunities to both explore my personal interests and to work on a projects that I designed with other interns.

**Bitty Fennie, Environmental Education Intern, Saguaro National Park**

I was an intern for the Bio/Diversity Project during its first semester (Spring 2017) and really enjoyed spending time with K-12 students both inside and outside of the classroom. We were given a lot of freedom in the classroom to create science lesson plans that were best suited to our students. Throughout the semester I learned classroom management techniques, how to make learning more hands on, and how to inspire kids to care about nature that they might otherwise overlook. At the end of the semester, much to my surprise, some of my most challenging students were the most invested in the bioblitz that we completed (a biodiversity inventory of their schoolyard). After completing the internship, I was given the opportunity to apply for an internship with Saguaro National Park. I was chosen to work as an Environmental Education intern, which was very much an extension of the activities that I was doing with the Bio/Diversity Project. I worked during the summer of 2017 creating environmental education programs, leading hikes, and doing activities with kids at recreation centers. I also had the opportunity to mentor a high school student intern. I am currently continuing my work with Saguaro National Park during the school season, and will assist with field trips throughout the year. I hope to get a chance to work for the Park Service in the future!
Girls Who Code Celebrates the End of Fall Semester!

The WISE Girls Who Code Club aims to close the gender gap in tech by providing free weekly coding classes to middle and high school girls based on the national Girls Who Code model. After piloting the program in spring 2017, we were excited to launch a full year-long program this fall. Over the course of the year, participants will learn core coding concepts and skills and put their knowledge to work developing a collaborative project that addresses a real-world problem or local need. This year, we have over 25 girls enrolled in the program and weekly meetings are facilitated by UA undergraduate students with coding experience across disciplines, coming from diverse majors and colleges, including optical engineering, social and behavioral sciences, and computer science.

In addition to learning coding skills, GWC provides an opportunity for girls to get to experience and explore the UA campus. GWC participants and facilitators closed out an amazing first semester with a visit to the iSpace, a makerspace in the University of Arizona Science Library. Participants had the opportunity to explore the space, participate in hands-on activities, and visit the Virtual Reality lab. GWC extends our deepest thanks to Vicki Lazaro, a Library Science graduate student and iSpace lead staff member for her warm introduction to the iSpace.

If you’re interested in more information or enrolling in 2018-2019 (beginning in fall 2018), please sign up for more information on our website (wise.arizona.edu/girlswhocode) or email Program Supervisor Allison Dumka at ajdumka@email.arizona.edu.

Special thanks to the Rebecca Fund at the Women’s Foundation of Southern Arizona and the UA College of Engineering whose generous financial support makes this program possible.

SAVE THE DATE

2018 Science and Engineering Excellence Banquet

April 25, 2018

Nominations for the Science and Engineering Excellence Awards will be accepted in February 2018.
WISE STEM Pipeline Mentorship Program Incorporates Diverse Voices

The STEM Pipeline Mentorship Program was launched in 2015 as a way to support young women pursuing STEM fields and careers through a peer and near-peer group mentoring structure. Building more diverse STEM communities relies on training young women in professional and academic success skills (e.g., goal setting, empowerment strategies) and helping them develop strong networks committed to supporting the advancement of women. Once a month, Mentorship Program participants have the opportunity to hear from a panel of successful women in STEM who share their experience and advice in relation to a particular topic. Program participants and panelists then participate in networking activities over dinner. This year, the STEM Pipeline Mentorship Program welcomed 45 participants from the University of Arizona, local high schools, and Pima Community College.

Pipeline Mentorship Program panelists have spanned a wide range of STEM disciplines, and even given us a taste of how to apply STEM principles to non-STEM disciplines.

A few of our incredible panelists have been:

♦ Anna Spitz, Director of the Agnese Nelms Haury Program in Environment and Social Justice and former Education and Public Outreach Lead for the OSIRIS – REx Asteroid Sample Return Mission

♦ Jillian Thomas, a former chemistry major and math minor, now applies her skill set as the Communications & Digital Media Manager at the YWCA Southern Arizona to help advance their advocacy work to empower women and eliminate racism

♦ Cherell Ward-Rucker, Vice President of the National Society of Black Engineers University of Arizona chapter

♦ Andrea Salazar, co-owner of Design Action Collective and web developer for grassroots social and environmental justice organizations

♦ DaNel Hogan, Director of the STEMAZing Project for the Office of the Pima County School Superintendent

♦ Nine members of the Raytheon Women’s Network from systems, software, and mechanical engineering and program management

Future topics include finding research opportunities, negotiating challenging situations, and how to get a job. Many thanks to the Women In Engineering Programming Board and to Leslie Grignon Engineering Recruitment & Student Engagement Coordinator for collaborating to make this program and these events successful. For more information, email Program Supervisor Allison Dumka at ajdumka@email.arizona.edu.

This program would not be possible without the generous support of the UA College of Engineering and UA Commission on the Status of Women.
Expanding Your Horizons Brings Hands-On STEM Programming to 95 Middle School Students in Sahuarita!

On Wednesday, November 15, WISE and partner organizations headed down to Sahuarita Middle School to host an Expanding Your Horizons conference for 95 middle school students. Students had the opportunity to choose from 8 different workshops that provided opportunities to learn about different STEM topics by participating in interactive activities. From environmental science to engineering to zoology to chemistry to optics, presenters from across the UA and the community provided engaging activities to pique student interest. At the same time, workshop presenters served as positive female STEM role models, expanding students’ understanding of who can be a scientist and what you can do with a STEM degree.

We finished up the event with pizza and a raffle for cool STEM prizes. We were very luck to have passes to both Flandrau Planetarium and Science Center and Biosphere 2 donated for raffle prizes.

Special Thanks to Our Workshop Presenters:

- Lunar and Planetary Lab
- Program for the Advancement of Women in Chemistry and Biochemistry
- Supporting Environmental Education and Community
- Reid Park Zoo
- Women in Optics
- Brian: Explorations in Neuroscience
- Graduate students from the Department of Soil, Water, and Environmental Science
- Project WET

This important event would not have been possible without the generous support of Freeport McMoRan’s Sierrita Operations.
Learning About Science Identity, Motivation, and Self-Efficacy through Drawing-Based Activities and Interviews

WISE programming is evidence-based and our program evaluation activities aim to contribute to research on science identity, motivation, and self-efficacy, factors that have been shown to be crucial in fostering the entry and persistence of women and other underrepresented groups in STEM fields. Over the last year, we’ve been engaging in a number of evaluation activities that will help us better understand the effect our programs have and how we can improve them.

One activity we’ve been doing is a modified version of the Draw-A-Scientist-Test (DAST). The DAST has been used since the 1980s to assess the stereotypes young people have of scientists. Since we’re particular interested in how students understand and view scientists in relation to their understandings of themselves, we’ve also been asking students to draw pictures of themselves and to explain their drawings. This allows us to look at how student perceptions of scientists and their relationship to their own identities relate and change as they participate in WISE programs.

We’ve also been conducting in-depth interviews with University-level program participants to gain a better understanding of how program participation affects career goals, persistence in STEM fields, and science self-efficacy and motivation.

Over the coming months we will be coding and analyzing the data we’ve gathered and look forward to reporting back what we’ve learned.
Support Us

The Women in Science and Engineering Program relies on the dedication and support of community members in order to do the work that we do in increasing interest and diversity in STEM fields. If you are interested in making a financial contribution to support our work, we are able to accept donations through the University of Arizona Foundation. Gifts can be made on a one-time or recurring basis, anonymously, publicly, or on behalf of a third party. To make a donation electronically, please visit www.uafoundation.org/give/sbs/sirow-wise. Donations can also be mailed directly to the address below. Please make checks out to UA Foundation-WISE and mail them to the following address.

Women in Science and Engineering Program
University of Arizona
925 N. Tyndall Ave.
Tucson, AZ 85721

### WISE Wish List

Here are some ideas of what gifts of various sizes would do for WISE:

- **$50** Funds printing of one color poster that highlights the important work done by our interns
- **$100** Supplies pizza for a professional development workshop for students
- **$250** Allows us to host a fieldtrip for WISE interns to learn more about STEM careers and local opportunities
- **$500** Funds a travel grant to support student participation at academic and professional conferences
- **$1000** Buys lunch for 150 Expanding Your Horizons Conference participants
- **$1500** Funds dinner for a year of our Mentorship Program events
- **$5000** Funds a year of our Girls Who Code Club, providing free weekly coding classes for girls in 6-12 grade