

CSF - Annual Grant Final Application

The BioDiversity Project

Grant Type

Annual Grant

Application Type

Final Application

Primary Project Manager

The Primary Project Manager is responsible for completing this application, answering questions posed by the Campus Sustainability Fund Committee, and completing all required reporting on project progress and outcomes. If the Primary Project Manager is a student who graduates in May 2023, the Secondary Project Manager must be a staff or faculty member OR a student who graduates after May 2023.

Primary Project Manager Name:

Stephanie Murphy

Primary Project Manager Status:

Staff

Primary Project Manager Email:

sumurphy@arizona.edu

Primary Project Manager Department

Southwest Institute for Research on Women / Women in Science and Engineering Program

Secondary Project Manager

The Secondary Project Manager is the back-up for the Primary Project Manager if they are unable to complete any of the requirements of the Campus Sustainability Fund, particularly completing required reporting on project outcomes. Alternatively, the Secondary Project Manager could be co-facilitating the project with the Primary Project Manager should the proposal require or desire to have two Project Managers.

Secondary Project Manager Name:

Elena Greenberg

Secondary Project Manager Email:

elenagreenberg@arizona.edu

Secondary Project Manager Status:

Staff

Secondary Project Manager Department

Southwest Institute for Research on Women / Women in Science and Engineering Program

Project Advisor Name:

Projects where the Primary and Secondary Project Manager are both students require the involvement of a staff or faculty member within project's Fiscal Officer's department. The Project Advisor contact must be a staff or faculty member within your department who is responsible for monitoring the project's budget, communicating with the Fiscal Officer, and reporting if both project managers are unavailable. Please ensure you have received consent from this individual to be the Project Advisor for your proposal and have informed them of your proposal's intent and budgetary needs. If this does not apply to you, type N/A for these responses.

{Empty}

Project Advisor Email:

{Empty}

Project Advisor Department:

{Empty}

Fiscal Officer:

The Fiscal Officer is a staff member within your department who is responsible for financial transactions and who will support reporting by pulling requested expenses against awarded funding and ensuring that funding is spent within awarded categories. Please coordinate with your department to properly identify an individual who is a designated Fiscal Officer. If awarded, this will be the individual who will help you access your project's funding. Please ensure you have received consent from this individual to be the Fiscal Officer for your proposal and have informed them of your proposal's intent and budgetary needs.

Terry Mullin

Fiscal Officer Email:

mullin@arizona.edu

Fiscal Officer Department Name:

Southwest Institute for Research on Women

Request Funding Amount:

\$52,400 (FY24), \$52,700 (FY25)

Official Project Name:

Please be specific but concise as this name will appear on reports and our website. Creativity is encouraged!

The BioDiversity Project

Primary Project Category:

Social Sustainability (including Social/Environmental Justice)

Secondary Project Category:

Natural Environment

Background and Context:

Please provide any relevant background about your organization/team including your mission and/or expertise. Please also lay out the rationale for the proposed project, focusing on the issue that your project would address. This section is meant to give us more information about you and the context for the project, while the questions below provide space to go into detail about your proposal's specifics.

Response:

The Bio/Diversity Project started in 2017 as a course credit offering internship program with the tri-part goal to:

1. increase K-12 student interest in environmental science,
2. provide environmental science workforce training for UArizona students, and
3. increase the diversity of voices involved in environmental and sustainability decision-making.

The Bio/Diversity Project, much like the field of environmental science itself, is multidisciplinary in nature. The students who participate in our internship experience can receive course credit in the field of their own choosing. Over the years, interns have been elected to receive credit from 21 different academic departments. This flexibility in credit offering is ideal in that it allows students to progress in their chosen academic plan and they do not have to delay their time-to-degree to enjoy the benefits of the internship experience. However, because we are not an academic department ourselves, we do not automatically receive any tuition-based revenue generated from student enrollment even though we coordinate all elements of the internship experience. Each year we solicit our departmental and college partners for financial contributions to cover program coordination costs. As one can imagine, making annual funding solicitations to multiple units often requires unpaid staff time and effort over and above the day-to-day activities that sustain the Bio/Diversity Project. Despite these challenges, we continue to grow our impact in the local community and on campus. This year, thanks to financial support from the Campus Sustainability Fund and the Arizona Institute for Resilient Environments and Societies, we now offer paid positions to all participants and plan to continue this going forward. Paid internships have had a demonstrable positive influence on the number, competitiveness, and most importantly, the diversity of candidates who apply to our program. Because we are committed to scaling an impactful and intensive experience for a diverse group of students, our maturation into a paid, for-credit internship program has created a larger workload on the part of the Bio/Diversity Project Program Coordinator (PC). Formerly, the PC devoted 30 hours a week (.75 FTE) and we seek to fund the position for 40 hours a week (1.0 FTE). This increase in hours will allow the PC to more successfully deliver the leadership development, workforce readiness, and equity training components that we provide to our undergraduate intern and to partner with more environmental organizations and K-12 teachers. This funding will help us increase our impact both on-campus and in the local community. We request CSF seed-funding to cover the operating costs of The Bio/Diversity Project for two years during which time the WISE Director will strategically pursue longer-term financial resources to secure the sustainability of the Bio/Diversity Project for years to come.

Project Description:

Please provide a thorough description and explanation of your project. Describe the objective(s) and what will be accomplished. Describe how each objective will be achieved (listed as steps or goals, with anticipated timeframes for each). Explain how the project will be implemented (who does what?). Finally, please identify the core goals of your project and how you will measure the degree of its success includes the metrics you will track to measure the success or impact of your project (e.g., number of kWh saved, gallons of water saved, number of student training hours, etc.). Responses are limited to 3,000 characters including spaces.

Response:

Since 2017 the Bio/Diversity Project has worked to create more diverse and inclusive science communities by expanding access to environmental science education, training, mentorship, and work experience in southern Arizona. The Bio/Diversity Project is now, to our knowledge, the only for-credit, paid internship program on campus at the nexus of environmental education, community outreach, and DEI issues. To date, almost 200 UArizona students have participated in the program which reaches between 500-750 youth per year. The Bio/Diversity Project Program Coordinator (PC), trains interns in environmental education, translational science communication, culturally responsive pedagogy, diversity and inclusion in environmental fields and organizations, effective strategies for fostering equity, and resilience-based leadership development (see Program Calendar attachment). The PC also facilitates interns' access to professional mentorship and networking opportunities with staff from partner organizations like Saguaro National Park, the Arizona-Sonora Desert Museum, and the Sierra Club, as well as University of Arizona faculty. The PC also supervises interns as they work with K-12 partner teachers to develop and deliver hands-on and place-based environmental science lessons in local Title 1 schools that primarily serve BIPOC students and students from lower-income households (see Lesson Plan Example attachment) Our evolution toward a paid, for-credit program structure requires that the PC devote more time and effort to ensure high-quality experiences that can scale as the program becomes more popular among UArizona students seeking growth opportunities at the intersection of environmental and social justice. To that end, we seek CSF funding so the PC can expand and formalize new program elements, including:

1. creating student worker manuals focused on environmental workforce readiness and resilient leadership,
2. enhancing racial equity training modules with more attention to the locality of the Sonoran Desert region,
3. augmenting the peer and professional mentorship infrastructure, and
4. expanding our programming to more K-12 classrooms.

CSF funding will help the PC make the program more effective for undergraduate interns, more impactful upon local youth, and ultimately, expand The Bio/Diversity Project's capacity to cultivate democratic, community-oriented environmental and social sustainability for generations to come. We will measure our success in a number of ways including by

1. maintaining the +50% level of BIPOC intern participation,
2. increasing (+10% or more) First Generation intern participation,
3. increasing the percentage of interns who feel substantially more empowered to lead around issues related to environmental and social justice as a result of participating in our program,
4. adding 3-4 new environmental organization partners and
5. partnering with 3-4 more K-12 teachers to surpass ~1000 youth served per year.

Project Summary Snapshot:

Please provide a short summary of your project. This summary will be used on our new website and other Office of Sustainability materials, if approved. Think of this as a hyper-concentrated summary to capture your project's scope and impact..

Response:

The Bio/Diversity Project strives to improve environmental sustainability and to create more diverse, equitable environmental science communities within the University of Arizona and the greater Tucson community. To accomplish this, we offer paid, for-credit undergraduate internships at the nexus of environmental education, community outreach, and intersectional equity. Students participate in a semester-long internship experience focused on providing racially diverse, and low-income K-12 students with hands-on, culturally responsive, and place-based environmental science activities. Through leadership training, workforce mentorship, and classroom experience, interns become more effective promoters and more resilient leaders in environmental and social justice efforts.

Project Feasibility and Logistics:

Please provide a description of the work that has been completed so far to make this project feasible. Have all relevant partners been contacted/coordinated with? Have you received consent or authorization from relevant departments or offices to complete your project (Housing and Residence Life, Facilities Management, Parking and Transportation, etc.)? Please identify them in your response. For example, have you received reasonable quotes for supplies? What research has been completed to lay the foundation for this project?

Response:

The Bio/Diversity Project has been in existence for 6 years and has enjoyed consistency under our PC, Elena Greenberg. In this time, she has established effective protocols and to conduct robust program evaluation biannually, ensuring the experience continues to be meaningful and beneficial for participants even as it expands in scope. Her long-standing relationships with partner teachers and collaborating organizations (see Partner List attachment) are built on trust, shared principles, and regular communication and this has helped the Bio/Diversity Project operate at a high level as it continues to grow. We are requesting CSF funds to cover 0.7 FTE for the PC's salary in FY24 and FY25. In FY24, the PC will devote more effort to further incorporate student feedback from this first year of the newly enhanced paid internship program, develop the 4 new elements described above, and conduct ongoing evaluation of these efforts. In FY25, the PC will focus more on continued formalization of new elements into the regular structure of the Bio/Diversity Project experience. We recently secured a National Science Foundation grant to cover the remaining 0.3 FTE (approx. \$15,500 per year) of the PC's full salary (1.0 FTE) in FY24 and FY25. Our ability to secure a competitive national grant is also a strong indication of our program's longer-term fundability. In addition, our FY24 request to the Resilience Internships and Student Experiences Program (RISE) of the Arizona Institute for Resilient Environments and Societies (AIREs) to fund approximately 13-15 paid intern positions per semester (\$62,500) was recently approved and we are excited to confirm paid internships for next year. We are in longer term conversations with additional UArizona stakeholders with demonstrated commitments to experiential learning (ie: RII, Office of Undergraduate Research, Honors College, Environmental Science) to explore the possibility of securing paid internships in FY25 and beyond. Almost \$2500 will be raised in FY24 and FY25 through contributions via individual donors to cover other operational costs (e.g. outreach materials, speaker stipends). We are confident we will raise these funds based on success achieving this goal in FY22 and FY23. CSF support for the PC salary is critical to our ability to provide this paid, for-credit experience to students. During this period of bridge funding from CSF in FY24 and FY25, the WISE director will conduct a two-year strategic campaign to triple contributions from UArizona departments who claim our course credits and other units devoted to student engagement as well as seek out support from private foundations focused on environmental education efforts. This should ensure a more stable long-term funding model for the Bio/Diversity Project as we scaffold upon previous successes.

Environmental Sustainability Outcomes:

Please provide a description of how you expect your project to advance environmental sustainability on campus. A definition of environmental sustainability is provided on our Resources webpage.

Response:

Climate change is driving the decline of global biodiversity resulting in less resilient and balanced ecosystems and compounding negative environmental effects. A lack of social diversity among environmental scientists, advocates, and policy makers contributes to our failure to meet environmental degradation with the full potential of creative, dynamic, and democratic solutions that ensure the sustainability of life on this planet. The Bio/Diversity Project addresses both of these challenges and advances UArizona sustainability goals by:

- increasing knowledge of the relationship between Bio/Diversity and climate change at the K-12 and university levels;
- fostering the development of environmental leaders and educators committed to diversity, equity, and inclusion;
- and furthering engagement and partnership around issues of sustainability between our public university and the local community.

In addition to providing classroom lesson plans, interns work with partner teachers and K-12 students to conceptualize and carry out Action Projects that advance biodiversity conservation and resilience in the face of climate change (see Monarch Waystation Action Project Lesson Plan attachment). Our interns oversee the projects but youth take the lead in constructing them. By leading Action Projects, interns gain direct experience with project management while contributing material interventions at partner schools that increase environmental sustainability. Past Action Projects have included the construction of pollinator gardens, bird feeders, bat boxes, and seed balls. Action Projects have directly aided in protecting biodiversity at school sites as well as in the neighborhoods where our participating youth live. Action Projects often remain at the school site or youth take them home to share with their families. Youth gain greater awareness about their surrounding environment and become more empowered to see themselves as environmental stewards. Though they are small in scale, Action Projects serve as structural mechanisms to promote the conservation of Sonoran Desert natural resources for the benefit of current and future generations.

Social Sustainability Outcomes:

Please provide a description of how you expect your project to advance environmental sustainability on campus. A definition of social sustainability is provided on our Resources webpage.

Response:

The Bio/Diversity Project makes UArizona a more socially sustainable institution by

1. training UArizona students to promote environmental awareness and stewardship in our local community, with special attention to the needs of BIPOC and lower-income youth;
2. increasing awareness about the lack of diversity in environmental fields and strategies for fostering more diverse and inclusive environmental organizations and institutions; and
3. developing pathways for multidisciplinary groups of undergraduate students to gain the training and skills to become resilient leaders across environmental fields.

Paid internships have made program participation more accessible. In Fall 2022, 82% of our interns identified as BIPOC and 33% identified as first-generation college students. Participation in our program also increased student motivation related to increasing social sustainability. 93% of Fall 2022 interns reported that participation in the program made them more motivated to participate in diversity, equity, and inclusion efforts and more connected to the UArizona and greater Tucson community (see Digital Story attachment). To better serve our diverse intern cohorts, the PC has incorporated culturally-responsive and equity-based pedagogy modules within the Bio/Diversity Project intern training curriculum. Post participation surveying indicates these trainings have been effective at identifying inequity and promoting student empowerment around fostering intersectional equity in environmental spaces. With CSF funding, the PC will have more time to expand these training modules to include issues related to Indigenous land stewardship, feminist approaches to environmental sustainability, and ethical supply chain management. These modules will help to set our interns become more culturally-competent scientists and educators and set them apart from others in the job market. Bio/Diversity Project interns foster strong science identity, sense of belonging in STEM, and self-efficacy among their K-12 students. Partner teachers consistently report that the K-12 students engaged through the program demonstrate increased motivation to go into the environmental fields after high school graduation as well as increased motivation to pursue a college education. With CSF funding support, the PC will have more time to solicit new partnerships with 2-3 more Title I K-12 schools and as a result, expose 50-100 more local youth to our programming each year.

Student Leadership & Involvement:

Please provide a description of how you expect your project to benefit students on campus regarding the creation of leadership opportunities or student engagement. What leadership opportunities exist within your proposal? If you plan to hire/ or involve students, please describe in what capacity. For example, if you plan to hire students, create an internship, or seek student involvement, please describe relevant details thoroughly (wages, responsibilities, duration of job, extent of involvement, how you will solicit/ market these opportunities etc.).

Response:

Our student interns form the backbone of the Bio/Diversity Project. In small groups they develop their own lesson plans, manage action projects, and directly interface with youth in our community each week. Successful first-time interns later have the opportunity to transition into leadership positions within the program as Lead Interns who take on additional responsibilities and act as peer mentors. We receive 70-100 applications per semester and will continue to engage our longstanding networks (departmental advisors, student clubs, student service units) to recruit broadly on campus. We have budgeted to hire 15-18 interns per semester. As we add more K-12 partners in the next two years, we will be able to accommodate larger intern cohorts. Our internship experience is highly beneficial to participants. Most recently on the Fall 2022 post-survey, the majority of interns reported feeling fairly or completely confident in their ability to work as part of a team (100%) and in their leadership ability (93%), and in their scientific knowledge and abilities (87%). In addition, 93% reported it was likely they would pursue a career in environmental education or outreach and 67% reported it was likely they would pursue a career in environmental science. We will seek to improve these already positive trends during the CSF grant period. Beyond our own efforts to provide leadership and workforce training, the PC has intentionally cultivated an internship-workforce pipeline with our community partners. The PC regularly facilitates a number of guest speaker visits with diverse members of Tucson's environmental educator community such as Cam Juarez (Community Engagement & Outreach Coordinator, Saguaro National Park), Sergio Avila (Local Outings Program Coordinator, Sierra Club), and MÃ³nica RamÃ³n-Andreotta (Assoc. Professor in Environmental Science, and Director of Project Harvest and Gardenroots). Many interns have secured other internships and jobs through the professional networking connections made during these visits. Notably, over half of recently hired Next Generation Rangers at Saguaro National Park were alumni of The Bio/Diversity

Project. This workforce pipeline allows interns access to further gain leadership and work experience in community-based environmental outreach and education. With CSF funding, the PC will devote more time to augmenting the professional development experiences provided by collaborating community organizations, including consulting with partners to formalize of a student worker/intern manual, adding field trip opportunities so interns can gain greater familiarity with prominent local environmental education workplaces, and recruiting 2-3 guest speakers from new community collaborators such as the Center for Biological Diversity, Sky Island Alliance, and the Watershed Management Group.

Education, Outreach, and Behavior Change:

What opportunities does this project provide for members of the campus/ community to learn about sustainability? How will your project educate the campus community and/or incorporate outreach and behavior change? How are you reaching beyond the "sustainability choir?" Please provide a description of how you expect your project will communicate its impacts to the campus community. What is your plan for publicizing your project on campus? How visible and accessible will your project be to the general campus population?

Response:

The Bio/Diversity Project has built an extensive network of relationships with academic units, cultural centers, and student support programs across campus. We draw on this network to recruit program participants and to encourage individuals who do not necessarily have a lot of experience with environmental issues into the program. For example, we have had numerous public health, pre-med, and engineering students participate in the program. We will continue targeted recruitment with an explicit focus on promoting the program via first-generation and BIPOC-focused student groups. We continue to use our website and social media to provide the larger campus community access to our program resources and each semester we host a public End-of-Semester Celebration event to honor our interns' hard work and celebrate their accomplishments. Moreover, by the end of the 2-year funding period, the proposed project will directly provide education, training, and work experience to 60-70 UArizona students and environmental science education to over 1000 K-12 students, most of whom come from communities outside the "sustainability choir". Through culturally responsive educational programming, we work to foster environmental knowledge, stewardship, and advocacy within these communities and foster a sense of belonging within environmental fields. In doing so, we leverage outreach, education, and training to foster large-scale environmental stewardship that is more reflective of the Tucson area demographic.

Timeline:

Please describe the timeline of your project. The timeline may be estimations at the point of this Preliminary Application but providing this is especially important if your project is a time-sensitive event. Funds may not be used as reimbursement for projects already completed, therefore a realistic amount of lead time should be given in order for proposals to be eligible for review. Please describe when your project will take place, key dates for when certain elements must start or be completed by, or any other known dates. Timeline extensions will be granted on a case-by-case and limited basis.

Response:

The Bio/Diversity Project is a long-standing campus program and routinely uses end of the semester intern evaluations to improve our programming. We will continue to do this at regular intervals throughout the grant period. For specific grant-related activities, we propose the following timeline:

1. create student worker manuals focused on environmental workforce readiness and resilient leadership in months 1-2 of the two-year grant cycle, the PC will manualize existing protocols and policies related to student workers/interns that we have developed this current year. In months 3-4, the PC will consult with Lead Interns, K-12 teachers, and Partner Organizations about how to improve the workforce readiness and resilient leadership support aspects of the manual. In months 5-6, the PC will complete the new manual to share with the Spring 2024 intern cohort. The PC will solicit feedback from Spring 2024 interns about the manual for further refinement over the summer. The manual will be finalized by the start of year 2.
2. enhance racial equity training modules with more attention to the locality of the Sonoran Desert region In months 1-4, the PC (with the help of Lead Interns) will consult with on-campus experts and conduct literature review in the area of Indigenous land stewardship, anti-racist and anti-sexist K-12 pedagogy, eco-feminism, and community-engaged sustainability practices to explore opportunities for improving program curriculum for both interns and youth. In months 5-6, the new wave of curriculum will be introduced into program materials for delivery during the Spring 2024 semester. The pilot curriculum will be evaluated and refined over the summer of year 1 and will be further incorporated throughout year 2.

3. augment the peer and professional mentorship structure infrastructure in month 1, the PC will develop a targeted recruitment strategy to guide the solicitation of new and deeper partnerships with local environmental education community organizations. In months 2-4, the PC will reach out to organizations to invite staff as guest speakers and schedule field trips to workplaces for the Fall 2023 and Spring 2024 semester. The PC will use these initial visits as a vehicle for longer term partnership. Over the summer, the PC will solicit feedback from new and existing community partners regarding professional networking infrastructure. This feedback will be incorporated into year 2 infrastructure.
4. expand our program into more K-12 classrooms. In months 1-2, the PC (with the help of Lead Interns) will identify 5-6 new local schools to invite to participate in The Bio/Diversity Project. The PC will invite K-12 teachers to join in the regular End of the Semester Celebration in Fall 2023 and Spring 2024 and will use this event as a way to advertise our program to more local educators. The PC will continue to onboard new partner teachers between year 1 and year 2 to align with our intern cohort capacity levels.