



American Rescue Plan & COVID-19 Response Summary

FACTS

\$600,000,000

**ARP Research Recovery
Funds Mobilized**

1,659 Awards Funded

OVERVIEW



As part of the national effort to recover from the COVID-19 pandemic, the National Science Foundation (NSF) continues to fund important research as well as recovery efforts to help the United States science, engineering and STEM education communities rebound. From equipment delays and reagent shortages to lost training time and missed field research, the pandemic has strained research projects in unique ways. With the continued support from Congress and the Administration, including the \$600 million provided in the American Rescue Plan, NSF is able to support groups of individuals and institutions most strongly affected by the pandemic as well as those at vulnerable transition points in their research careers.

The funds are being invested consistent with the below guiding principles:



MOST STRONGLY AFFECTED GROUPS. The pandemic has exacerbated existing disparities and has had disproportionate impacts on specific groups of individuals. These strongly affected groups include:

- Women researchers, who have disproportionately taken on the duties associated with increased child-care and other family-related responsibilities.
- Underrepresented groups. Programs that support these students and researchers have been subject to disruption due to the pandemic.
- Early-career faculty. The early part of a research career represents a critical time for research productivity, building and funding a research program, and preparing for potential tenure and promotion.



INDIVIDUALS AT VULNERABLE CAREER TRANSITION POINTS. It is well established that attrition from STEM or higher education altogether frequently occurs at certain educational and career transition points, and the pandemic has intensified this threat. These individuals/transition points include:

- Undergraduates preparing to finish their degrees and attend graduate school.
- Graduate students, particularly those nearing the end of their research careers.
- Postdoctoral fellows, research trainees, and graduate fellows.
- Early career faculty.
- Mid-career faculty, who are often called upon to do greater service in light of pandemic impacts.

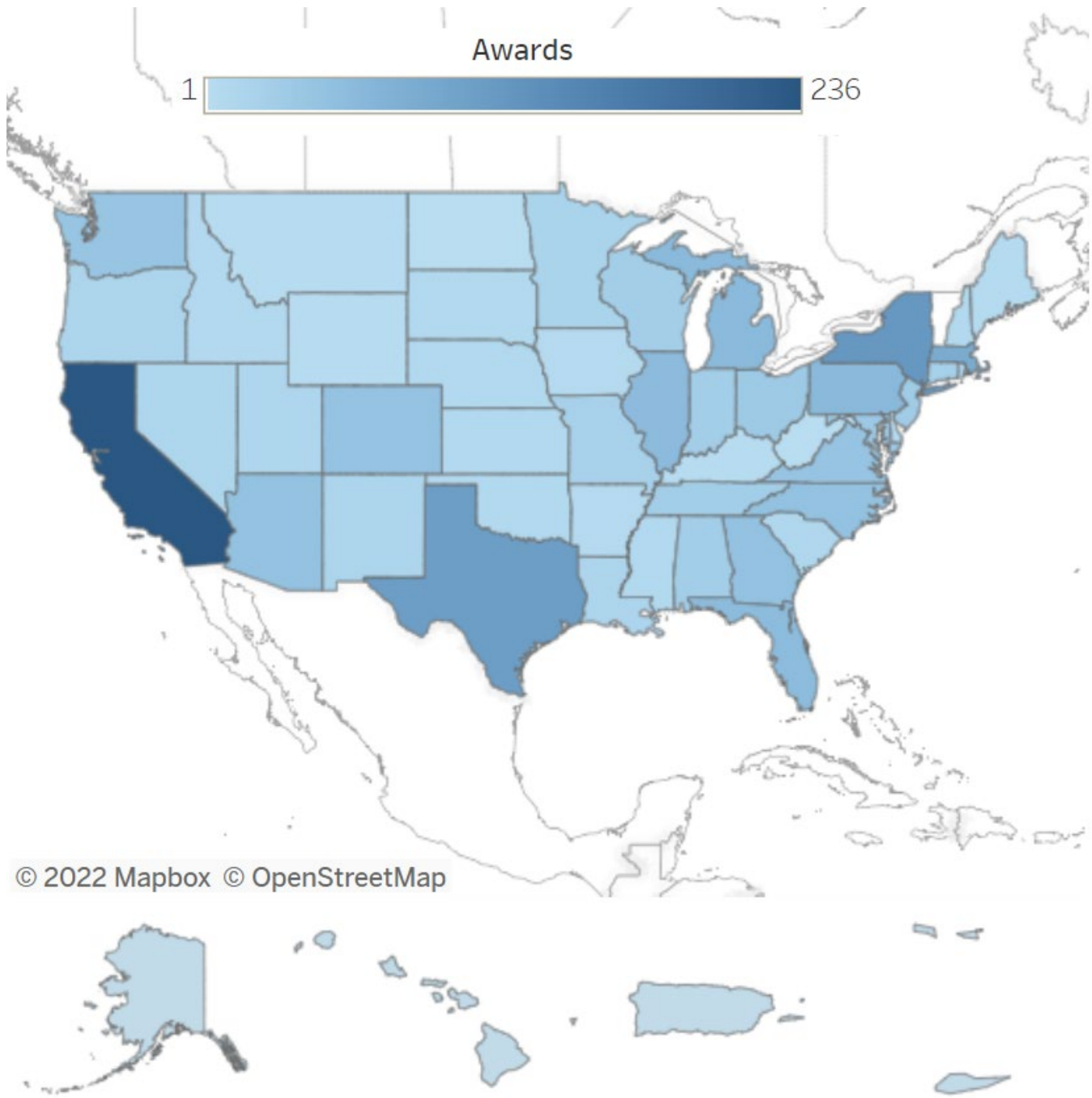


BROAD DISTRIBUTION. To ensure a broad distribution of funding and in further pursuit of the funds reaching those most impacted by the pandemic, NSF is using these funds towards an expansive research portfolio that prioritizes disproportionately affected persons at every institution as well as all persons at disproportionately affected institutions, such as:

- Minority-serving and less-affluent institutions, which may lack strong research administration infrastructure or the financial resources to support STEM students and faculty.
- Institutions in EPSCoR jurisdictions, which have not benefited from robust federal funding yet support a significant number of STEM students and faculty across the nation.

AWARDS

	American Rescue Plan funds	Research Recovery (FY21 +FY22)	COVID-19 Research (CARES Act + FY20 + FY21 + FY22)
Number of Awards	1,659	3,298	1,349
Funding Deployed	\$591,213,229	\$766,290,073	\$268,332,375



ARP awards by state

ARP Funding Summary

The \$600 million in American Rescue Plan funding appropriated to the National Science Foundation sustained the U.S. research community and contributed to the advancement of fundamental research in all fields of science and engineering during the COVID-19 pandemic. ARP investments supported research and people by providing facilities, instruments and funding to colleges, universities, and institutions across the country.

ARP Funding Breakdown

Research & Research Activities	\$471,500,000
Education & Human Resources	\$61,000,000
Major Research Equipment & Facilities	\$55,500,000
Agency Operations & Award Management	\$12,000,000
Total ARP Funding:	\$600,000,000

ARP funds provided critical support for Minority-Serving Institutions to broaden participation in STEM; Established Program to Stimulate Competitive Research (EPSCoR) jurisdictions to strengthen STEM research capacity and capability; startups and small businesses to transform scientific discoveries into products and services for societal impact; and community colleges to advance innovation and impact in undergraduate STEM education.

	Obligated Funding	Number of Institutions
Minority-Serving Institutions	\$138,332,978	112
EPSCoR Jurisdictions	\$96,579,996	84
Startups & Small Businesses	\$41,181,016	25
Community Colleges	\$8,005,197	10

NSF Support

This summary spotlights NSF-supported researchers funded by the American Rescue Plan as well as research programs stood up by NSF to support the scientific research community. It is a snapshot of the people and essential research NSF is able to invest in thanks to the support from Congress and the Administration.

TESTIMONIES FROM NSF-SUPPORTED RESEARCHERS



**Paulette Blanchard, Co-Principal Investigator
Haskell Foundation; Lawrence, KS**

ARP Support: [NSF Award 2103843 - Large-scale CoPe Hub: Rising Voices, Changing Coasts: The National Indigenous and Earth Sciences Convergence Hub](#)

“I am a member of the Absentee Shawnee Indian Tribe and was struggling through finishing research for my doctorate at the University of Kansas when the pandemic hit. It was in this place of chaos globally that we doctoral students, scientists, and tribal members from UCAR’s Rising Voices Center for Indigenous and Earth Sciences came together to apply for an NSF CoPe grant, partially or fully supported by the American Rescue Plan Act. This was an opportunity to create the changes in science I wanted to see based on my own experiences as a Native woman who is at the end of her doctoral program, transitioning into early career.

The first way the ARP funds supported me was before the grant was even awarded, with the hope it gave me for effecting change and contributing to the advancement of myself into a postdoc employment opportunity. I designed my dream job of service to other Native and Indigenous communities through building capacity and preparing the next generations of Indigenous scientists and faculty. It was also an opportunity to work with Haskell Indian Nations University, my alma matter for my undergraduate work, and work directly with Tribal Colleges and Universities faculty and students on climate change, variability, and adaptations.

There are few jobs for Indigenous geographers working on climate and Indigenous communities, and I was afraid I would have to leave my home community where my tribe has been relocated to and have lived for well over a hundred years. When we did receive the award letter, I was overjoyed. I have my dream job opportunity to make a reality. I have the success of doing the work that I have been preparing for in school, professionally, and through relations with research institutions such as Haskell Indian Nations University, the National Center for Atmospheric Research and University Corporation for Atmospheric Research (NCAR | UCAR).”



**Somesh Prasad Roy, Assistant Professor
Marquette University; Houston, TX**

ARP Support: [NSF Award 2144290 - CAREER: A scalable multiscale modeling framework to explore soot formation in reacting flows](#)

“My research involves computational modeling of combustion processes, with a particular focus on the formation and emission of soot, which adversely affects public health and welfare and is one of the most significant contributors to climate change. My research aims to unravel the hitherto unexplored fundamental physics of soot-related processes with the help of high-performance computing. Like many cutting-edge research, my project requires continuous discussion and regular brainstorming meetings with my students and collaborators. Restrictions related to the COVID-19 pandemic had a strong negative impact on these activities and overall progress of my research. Additionally, the sudden and momentous shift in the teaching modality brought on by the pandemic along with staff shortages and budget reductions in my university meant that I had less time for my research and fewer resources to support students to work with me.

ARP funding from NSF has served as a lifeline. First, this funding helped me support and recruit graduate and undergraduate students essential for my research and continued collaborations. Second, the funds provided these students the opportunity to go to conferences to present their work, which is essential for their growth. Third, the grant allowed me to acquire resources for the technical parts of my research, and for outreach activities. This support was critical for the continuity of not only my career as a researcher but also the continuity of my research, which has the potential to be transformative in tackling issues of the future.”



**Gozde Tutuncuoglu, Assistant Professor
Wayne State University; Detroit, MI**

ARP Support: [NSF Award 2153177 - CRII: FET: 3D Printed Application-Specific Neuromorphic Circuits: Design, Fabrication, and Implementation](#)

“My research focuses on novel computing paradigms and devices that go beyond the conventional computer architectures, and concurrently overcome its inherent limitations regarding the processing speed and energy consumption. I develop materials, devices and fabrication techniques to enable a new generation of computing paradigms such as neuromorphic (i.e. mimicking neural activities of brain) and quantum computing. This research stream will be indispensable for developing strategies to enhance US dominance, resilience and sustainability goals for the semiconductor industry.

The ARP funding I received from NSF offered a highly-critical support for an early career scientist, and benefited my research and career trajectory in numerous ways, such as the

collaboration opportunities and additional research capabilities that are unlocked by this recognition. The funding also allowed me to recruit a highly qualified Ph.D. student to work on this project and provide training and educational opportunities for the next generation of semiconductor engineers. I am grateful to have received this generous support in the first year of my career, despite the institutional budgetary limitations related to the COVID-19 pandemic.”



**Grace Brannigan, Associate Professor
Rutgers University – Camden; Camden, NJ**

ARP Support: [NSF Award 2152059 Codes For Life - Artificial Intelligence and Sustainable Software for Biomolecular Interactions](#)

“This grant has already been transformative for both me personally and the center I work in. My lab studies the mechanisms of brain function and focuses on the interface between genomic information and protein structure. I have also spent the past six years building an interdisciplinary STEM graduate program at the young, newly research-active Camden campus of Rutgers University. Just this year, our graduate program was recognized by the University President's Cabinet as one of the most successful programs across all of Rutgers University, while my lab published the very first Rutgers-Camden-led paper in the Proceedings of the National Academies of the Sciences on prediction of genetic markers for disease. Unfortunately, my federal research funding had dropped by an unsustainable 80% since I started building the program, and in 2021 it seemed I would have to choose: my own research opportunities vs service to the larger pool of STEM graduate students.

Fortunately, the National Research Traineeship (funded by the American Rescue Plan Act of 2021) saved me from this choice! This grant will allow me to continue serving a large and diverse group of MS and doctoral students who overwhelmingly continue onto STEM careers (including many doctorates who are first-generation college students), without sacrificing my own research. Furthermore, the Camden campus has been so encouraged and excited by the award that it is investing more in its STEM departments and graduate programs despite tight fiscal times. This grant is uplifting my own lab, our graduate program, our campus, and, by extension, the city of Camden.”

**Josh Labrie, Program Director of NOVA SySTEMic
Northern Virginia Community College; Manassas, VA**



ARP Support: [NSF Award 2134583 - Building a Supervisor Professional Learning Model to Improve Internships in Information and Communication Technology](#)

“As a result of this award, we were able to provide funding for 22 NOVA students to serve as Information Technology (IT) interns in Prince William County Public Schools (PWCS). The interns worked with the PWCS Information Technology team to clean, repair

and reimaged many of the 90,000 laptops distributed to students and staff during the pandemic. This work was impactful considering the pandemic for two reasons. First, it provided support to one of our major K-12 school partners. PWCS responded to the pandemic with an investment in 1-1 technology without the staff to maintain it and the interns funded through this award were able to support staff in maintaining this technology. Second, IT internship opportunities have been limited since the beginning of the pandemic and this award provided targeted opportunities for our students to have an internship in their discipline while establishing a pathway to IT careers between NOVA and PWCS.”



**Kayla Maxey, Postdoctoral Research Fellow
Drexel University; Philadelphia, PA**

ARP Support: [NSF Award 2222482 - Engineering Societies and the Lived Experiences of Marginalized Aspirants: \(Re\)imaging Inclusion](#)

“As I began collecting data for my doctoral dissertation, a global pandemic emerged. My family faced a great deal of uncertainty around employment because of the pandemic, so I returned to work as a lecturer while completing my degree to help support our family. Even though the lecturer position significantly enhanced my teaching experience, my passion for impactful research had to take a back seat and my career goal of becoming a tenure-track STEM faculty member derailed. By receiving a STEM Education Postdoctoral Research Fellowship from the National Science Foundation, I can transition fully into a research role that promotes racial and ethnic diversity in STEM education. In addition, I believe that with the professional development opportunities provided by my mentors, I will realize my previously uncertain goal of becoming a tenure-track STEM faculty member.”



**Michelle Wilber, Research Engineer
University of Alaska, Fairbanks; Fairbanks, AK**

ARP Support: [NSF Award 2127172 - NNA Planning: Collaborative Research: Electric Vehicles in the Arctic \(EVITA\) - Interactions with Cold Weather, Microgrids, People, and Policy](#)

“We are very thankful for ARP funds that have helped us successfully reach out and work with communities safely to explore attitudes toward, possible barriers to, and potential for electric vehicles in rural Alaska, and to disseminate our very preliminary findings to a wider audience of Alaskans at the Western Alaskan Interdisciplinary Science Conference. It also allowed us to strengthen our relationships with community partners and start to build new relationships. We have held online meetings with community partners, participated in online energy showcases in our communities, and were able to visit the three communities we are working with to talk to local stakeholders and hold community meetings. We were able to work with our community contacts to choose methods of communication and times of visits to minimize COVID impacts. Stakeholder interviews and

community meetings show that local maintenance capacity and high vehicle and electricity prices are the most important perceived barriers, but that there is interest in trying electric vehicles for many use cases. We believe this research in collaboration with our community partners will help underserved populations in Alaska to participate in the accelerating clean energy transition and to potentially mitigate harmful impacts from high fuel prices that can be exacerbated by the remoteness of these communities.”



**Tammy Hsu, Chief Scientific Officer and Co-founder
Huue, Inc.; Oakland, CA**

ARP Support: [NSF Award 2127092 - SBIR Phase II: Development of a novel indigo dye process using biosynthesized molecules](#)

“NSF funds have helped Huue continue company operations and push forward R&D efforts during an uncertain time. With the funding, we were able to fast-track some critical research on indigo fermentation, metabolic engineering, and microbial physiology, to be able to develop our technology towards a scalable, drop-in indigo replacement for the denim industry.”



**Erwin Suazo, Associate Professor
University of the Rio Grande Valley; Ediburg, TX**

ARP Support: [NSF Award 2150478 - REU Site: The University of Texas Rio Grande Valley REU Program on Applied Mathematics and Computational and Data Science](#)

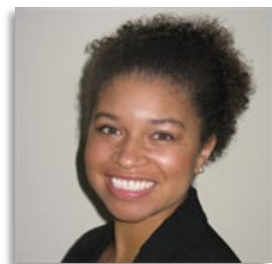
“The University of Texas Rio Grande Valley (UTRGV) is in Hidalgo County, where to date 3,937 residents out of a population 861,137 have died due to COVID. Our community was in the news due to the disproportionately high rates of COVID hospitalizations and deaths that we experienced. All of us had students telling us their grandparents, uncles, parents, siblings, and other family members had passed because of the disease, sometimes leaving the surviving college-age students to become full-time caregivers for their families. In short, our students and our community were hit hard. That is one of the reasons why this REU has been a boon to our university; it has allowed us to take major steps to lift expectations and possibilities both for our local students in the RGV and for those in other institutions who hadn't previously considered us as a research destination. Additionally, the funding provided a timely release from the pandemic-related isolation by allowing us to bring together the brightest undergraduate mathematicians and revive collaborative research efforts. As we selected the best-suited candidates for our research program, we prioritized candidates historically underrepresented in mathematics. Six out of our eight excellent undergraduate researchers are either Black or Hispanic, communities which were disproportionately affected by COVID.”



Michael West, Associate Professor
South Dakota School of Mines and Technology; Rapid City, SD

ARP Support: [NSF Award 2150356 - REU Site: Back to the Future](#)

“Project funds were critical to provide research opportunities for a diverse group of undergraduate students during a challenging time in their academic careers. Many students during this time were adjusting to classes being moved online and had internships or other opportunities cancelled. The impact of the program on our students in this time cannot be overstated. Students in the program worked on projects that improved the sustainability of critical resources and developed advanced materials for aerospace and biomedical applications. They also interacted directly with K-12 students through outreach programs. A highlight in this area included Native American research students leading hands-on workshops for middle-school students participating in the American Indian Services Pre-Freshman Engineering Program (AIS Prep). Finally, funds from this program directly benefited two junior faculty members, enabling them to work with research students in the summer.”



Michelle Gaines, Assistant Professor
Spelman College; Atlanta, GA

ARP Support: [NSF Award # 2137578 - LEAPS-MPS: Surface Morphological Effect on Biomolecular Attachment to Responsive Microgels for Tunable Biomimetic 3D-Cell Culture Scaffolds](#)

“The ARP funds are supporting my research on developing new polymer biomaterials, which will allow for better control and assessment of cell behavior from 3-dimensions. These funds are the catalyst for launching mine and my students’ academic research careers. They are also providing the means to expose, support, and educate undergraduate students in polymer materials research, which is not currently a part of the Chemistry & Biochemistry Curriculum at Spelman College. Since the project began in May 2022, two undergraduate students were paid and trained to experiment, analyze data, and verify conclusions on the material properties of surface-functionalized microgel particles. These microgel particles are the foundational materials for the new biomaterials that are being developed for 3D cell culture. Upon the conclusion of the summer, my students received financial support and scientific training, which will promote their further success during the next phase of their academic careers. The new data acquired from student participation this summer will allow me to write and publish my first peer-reviewed manuscript, which will profoundly impact my ability to become a tenured Associate Professor. It will also support the preliminary data section of my next scientific proposal. Finally, the funds are supporting my professional career by supporting my travel to scientific conferences.”

NSF PROGRAM FEATURES



Faculty Early Career Development Program (CAREER)

NSF-wide

The early part of a research career represents a critical time for research productivity, building and funding a research program, and preparing for potential tenure and promotion. Early career faculty were acutely impacted by the COVID-19 pandemic as opportunities for research, and thus, building a case for tenure became difficult to find. The Faculty Early Career Development (CAREER) Program is a Foundation-wide activity that offers the NSF's most prestigious awards in support of early-career faculty who have the potential to serve as academic role models in research and education and to lead advances in the mission of their department or organization.

ARP funding has increased the number of high-quality projects funded in the CAREER program and geographical diversity of institutions with CAREER recipients. In addition, by supporting students, the funding has strengthened research in underrepresented communities.

ARP Funding: \$99,103,062
362 awards

Postdoctoral Research Fellowships in Biology (PRFB)

Directorate for Biological Sciences



The instability in the job market, particularly in academia, caused by the COVID-19 pandemic resulted in many postdoctoral researchers being unable to continue in their careers. This was compounded by the research time and experience lost when these individuals could not access labs or field sites. The loss of these individuals from the pipeline would have follow-on effects throughout the workforce. Therefore, the Directorate for Biological Sciences offered supplemental funding to its postdoctoral fellowships to support an extra year of research, allowing the fellows to finish their work and have funding as the job market stabilized. This funding provided critical stability for postdoctoral fellows whose careers were negatively impacted by the COVID-19 pandemic.

ARP Funding: \$9,178,750
135 awards

Computer and Information Science and Engineering Minority-Serving Institutions Research Expansion Program (CISE-MSI Program)

Directorate for Computer and Information Science and Engineering



The Computer and Information Science and Engineering Minority-Serving Institutions

Research Expansion Program (CISE-MSI Program) supports research expansion for MSIs. The goals of the CISE-MSI program are to broaden participation by increasing the number of CISE-funded research projects from MSIs and to develop MSIs' research capacity for successful submissions to core CISE programs. MSIs are central to inclusive excellence: they foster innovation, cultivate ongoing undergraduate and graduate computer, information science, and engineering talent, and bolster long-term U.S. competitiveness.

ARP Funding: \$16,953,821

64 awards

[Advancing Innovation and Impact in Undergraduate STEM Education at Two-year Institutions of Higher Education](#)

Directorate for STEM Education



This program is a targeted approach for advancing innovative and evidence-based practices in undergraduate STEM education at two-year colleges. It also seeks to support systemic approaches to advance inclusive and equitable STEM education practices.

A deepening interest in community colleges and funding from ARP served as a catalyst for the establishment of the program. ARP funding supported meritorious submissions to this program in FY21 and FY22. As a result, we have been able to support the implementation of inclusive practices that address barriers to STEM degree completion, development of undergraduate research experiences unique to two-year colleges, creation of faculty professional development programs, and enabled community college faculty to conduct applied STEM education research. ARP funds were used to support two-year colleges in order to study the impact of changes in their instructional practices, student support services, and co-curricular supports on student achievement and retention. Thus, ARP funding has had a significant impact on both faculty and students at several two-year colleges around the nation. Without ARP funding these awards would not have been possible.

ARP Funding: \$14,555,209

20 awards

[NSF Research Traineeship Program \(NRT\)](#)

Directorate for STEM Education



The NSF Research Traineeship (NRT) program funds awards that explore ways for graduate students in research-based master's and doctoral degree programs to develop the skills, knowledge, and competencies needed to pursue a range of STEM careers. The program is dedicated to effective training of STEM graduate students in high-priority interdisciplinary or convergent research areas, through a comprehensive traineeship model that is innovative, evidence-based, and aligned with changing workforce and research needs.

ARP funds enabled the NRT to support the research community during pandemic in multiple ways including: building capacity at non-R1 and Minority Serving (HBCU and MSI) institutions disproportionately impacted by the pandemic to provide continuity of funding for cutting-edge research while enhancing training experiences, research opportunities, and novel professional development of PhD and master's students; strengthening efforts of these institutions to broaden participation and STEM workforce development in high priority research areas; and providing support for early career researchers.

ARP Funding: \$13,152,724
10 Awards

Pathways into the Geosciences - Earth, Ocean, Polar and Atmospheric Sciences (IUSE: GEOPATHs)

Directorate for Geosciences



IUSE: GEOPATHs supports projects that address the current needs and opportunities related to education, learning, training and professional development within the geosciences community through the formation of STEM Learning Ecosystems that engage students in the study of the Earth, its oceans, polar regions and atmosphere. The primary goal of GEOPATHs is to increase the number of students pursuing undergraduate and/or postgraduate degrees through the design and testing of novel approaches that engage students in authentic, career-relevant experiences in geoscience. To broaden participation in the geosciences, engaging students from historically excluded groups or from non-geoscience degree programs is a priority.

ARP funding allowed researchers to shift plans and create online learning environments and virtual field experiences that can provide alternatives to traditional in-person activities during the pandemic and beyond. The above-mentioned ARP funded activities helped students from marginalized communities and students with disabilities to continue learning and developing skills that will prepare them for careers in the geosciences.

ARP Funding: \$7,901,093
35 awards

Launching Early-Career Academic Pathways in the Mathematical and Physical Sciences (LEAPS-MPS)

Directorate for Mathematical and Physical Sciences



The intent of these LEAPS-MPS awards is to initiate the research careers of pre-tenure faculty in tenure-track positions, particularly those at MSI, PUI, and R2 institutions, while also promoting the participation of scientists from all segments of the MPS scientific community, including those from underrepresented groups (Blacks and African Americans, Hispanics, Latinos, Native Americans, Alaska Natives, Native Hawaiians, and other Native

Pacific Islanders). Support for research community during pandemic was focused on early career faculty, with an emphasis on persons from underrepresented groups and minority-serving and less affluent institutions.

ARP Funding: \$18,802,588
85 awards

Mathematical and Physical Sciences Ascending Postdoctoral Research Fellowships (MPS-Ascend)

Directorate for Mathematical and Physical Sciences

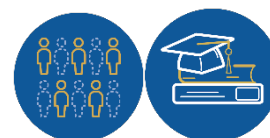


The purpose of the Mathematical and Physical Sciences Ascending Postdoctoral Research Fellowship (MPS-Ascend) program is to support postdoctoral fellows who will broaden the participation of groups that are underrepresented in MPS fields in the U.S. These groups include Blacks or African Americans, Hispanics, Latinos, Native Americans, Alaska Natives, Native Hawaiians and other Native Pacific Islanders as future leaders in MPS fields. The program is intended to recognize newer investigators of significant potential and provide them with experience in research that will broaden perspectives, facilitate interdisciplinary interactions, and help broadening participation within MPS fields. Postdoctoral researchers, with an emphasis on persons from underrepresented groups.

ARP Funding: \$9,000,000
31 awards

SBE Postdoctoral Research Fellowships

Directorate for Social, Behavioral and Economic Sciences



The U.S. National Science Foundation's Directorate for Social, Behavioral and Economic Sciences has awarded 50 early-career researchers with postdoctoral fellowships. 14 of the fellowships were supported by funds provided by the American Rescue Plan Act of 2021 to help bolster institutions and researchers who were impacted particularly hard by the COVID-19 pandemic. The fellowships will support research on a range of human-focused topics, from using brain imaging to understand the neural mechanisms that support psychological well-being to developing new computational methods that can help American families build greater financial security. Each fellowship award will support an early-career researcher for two years. In addition to conducting fundamental research, fellows are mentored by a sponsoring senior researcher to help prepare them for a career in science.

Early-career scientists pave the way for future innovations and breakthroughs. Support is critical during the postdoctoral period so they can gain the scientific expertise and training necessary to do cutting-edge research. The additional funds received through the American Rescue Plan Act allowed the program to support a greater number of promising researchers and their future scientific advancements.

ARP Funding: \$1,992,000

14 awards

Build and Broaden

Directorate for Social, Behavioral and Economic Sciences



The Build and Broaden program supports transformative research, training opportunities and new research infrastructure at minority-serving institutions (MSIs) throughout the country. The program supports the growth of research capacity at MSIs with an emphasis on broadening participation in the social, behavioral and economic sciences. Build and Broaden is designed to increase proposal submissions from scientists at MSIs and advance new research collaborations between scientists at MSIs and other institutions across the U.S.

American Rescue Plan funding directly supported institutions and researchers who were impacted particularly hard by the COVID-19 pandemic. The supported institutions will collectively provide hands-on training and educational opportunities to more than 1,000 participants, including hundreds of STEM students. In addition to conducting original research, many of the MSIs will collaborate with other institutions, including larger research-intensive universities. These collaborations are intended to foster enduring partnerships that will amplify the value and impact of fundamental research and expand the nation's STEM pipeline.

ARP Funding: \$9,547,790

32 awards

Engineering Research Initiation (ERI)

Directorate for Engineering



NSF supports the development of a diverse engineering workforce versed in the forefronts of engineering research and promotes the success of new academic investigators in their careers as researchers, educators, and innovators. The Engineering Research Initiation (ERI) program supports new investigators who have yet to receive research funding from Federal Agencies. This funding opportunity aims to broaden the base of investigators involved in engineering research and specifically supports investigators who are not affiliated with “very high research activity” R1 institutions according to the Carnegie Classification. The ERI program invests in engineering research with broad societal impact from improving our understanding of public water supplies to enabling fair work systems for emergency medical service professionals and developing innovative biomaterials for novel medical therapies.

ARP Funding: \$11,310,420

69 awards

Pandemic Preparedness & Prevention

NSF supports multidisciplinary emerging infectious disease (EID) research through core programs and special solicitations across the Directorates to address the ever-present and growing threat of future pandemics. EID research has the potential to transform our capabilities, addressing what is needed to be adequately prepared for future responses as identified by the first annual report on implementation of the [American Pandemic Preparedness Plan](#). Below, we highlight newly funded research from a selection of EID-focused NSF programs. To learn more about the diversity of EID research at NSF, please visit NSF's [website](#).

Predictive Intelligence for Pandemic Prevention (PIPP)

Directorates for Biological Sciences (BIO), Engineering (ENG), Computer and Information Science and Engineering (CISE), and Social, Behavioral and Economic Sciences (SBE)

NSF's new PIPP program supports high-risk, high-payoff convergent research that aims to identify, model, predict, track and mitigate the effects of future pandemics. Newly funded PIPP Phase 1 projects span the entire timeline of pandemic response, supporting data collection and analysis, creation of new sensors and predictive capabilities, methods for understanding impact and spread, processes to increase our ability to anticipate the role of human behavior and information sharing, and development of mitigation strategies and policy recommendations. View the full list of 2022 awards at [nsf.gov](#).

Incorporating Human Behavior in Epidemiological Models (IHBEM)

Directorates for Social, Behavioral and Economic Sciences (SBE), Mathematical and Physical Sciences (MPS), and Biological Sciences (BIO)

NSF's IHBEM effort supports new research focused on empowering more reliable prediction of the spread of infectious diseases, the effects of mitigation measures and other critical aspects of national health crises. The IHBEM effort is motivated by the urgent need to provide more reliable modeling tools to inform decision making and to evaluate public health policies during pandemics and other public health crises, with the premise that important advances will be made by incorporating human behavioral and social processes into mathematical epidemiological models. View the full list of 2022 awards at [nsf.gov](#).

Ecology and Evolution of Infectious Diseases (EEID)

Directorates for Biological Sciences, Social, Behavioral and Economic Sciences (SBE), Geosciences (GEO), and Mathematical and Physical Sciences (MPS)

The interagency EEID program fosters interdisciplinary research on the ecological, evolutionary, physiological and social processes that drive infectious disease transmission. New EEID grants support research into topics such as how climate change impacts drivers of disease in marine life; how pathogen dynamics are linked across biological scales from the cellular to the ecosystem level; how human behavior and actions affect disease transmission between animals and humans, and within human populations; and how the interplay among the ecology, behavior and immunology of parasites impacts transmission. View the full list of 2022 awards at [nsf.gov](#).