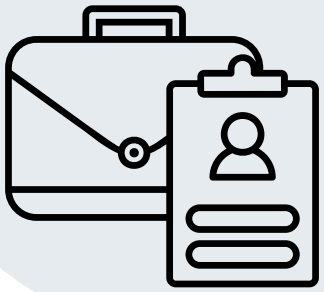
STEM OPS



Creating Inclusive Internship Programs for Justice-Impacted Scholars

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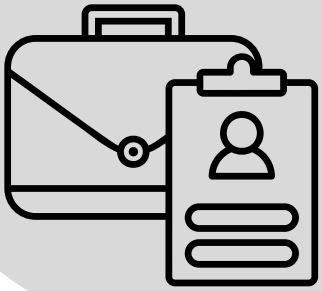

STEM-OPS is an NSF Eddie Bernice Johnson INCLUDES Alliance working to improve science, technology, engineering, and mathematics (STEM) learning opportunities in prisons and supporting access to STEM (broadly defined) for those who are directly impacted by the carceral system.

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MORE RESOURCES

https://stem-ops.org/stem-ops-resources/

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FROM PRISON CELLS TO PHD
INVESTING IN POTENTIAL
PRISON-TO-PROFESSIONALS

Operation RESTORATION
BREAKING DOWN BARRIERS. EMPOWERING WOMEN.

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VANDERBILT. Peabody College
Race Research and Justice

EDC Education Development Center

Creating Inclusive Internship Programs for Justice-Impacted Scholars

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STEM-OPS Program Intersection

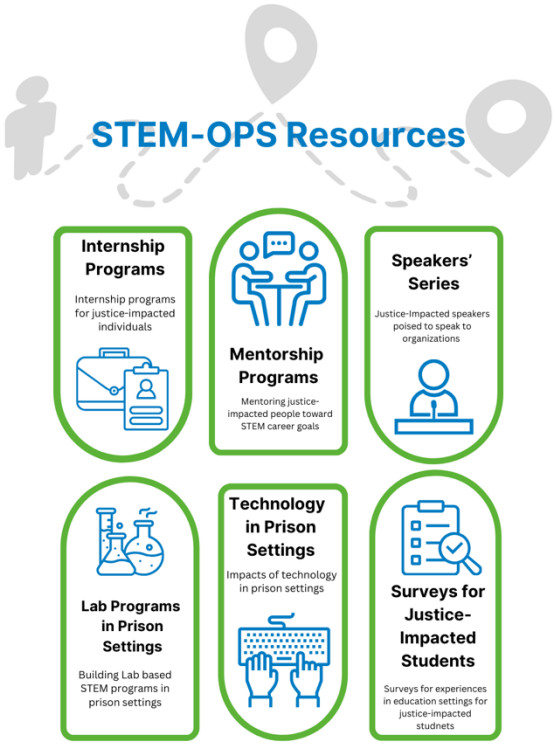
Progression of STEM-OPS Programming

STEM Opportunities in Prison Settings (STEM-OPS) is a National Science Foundation (NSF) Eddie Bernice Johnson INCLUDES Alliance working to improve science, technology, engineering, and mathematics (STEM) learning opportunities in prisons and supporting access to STEM (broadly defined) for those who are directly impacted by the carceral system.

The goal of STEM-OPS is that all persons impacted by the carceral system are able, and encouraged, to pursue a culturally responsive and equitable high-quality STEM education and career.

The programs highlighted in STEM-OPS resources work together to ensure support at all levels and stages for a person impacted by the carceral system.

The *Creating Inclusive Internship Programs for Justice-Impacted Scholars* toolkit focuses on internship programs specifically for justice-impacted individuals, allowing them the opportunity to participate in a paid internship in a STEM field. Other resources developed by STEM-OPS, including other toolkits, focus on the importance of mentorship programs, accessing speakers to speak at your organization, and using feedback surveys as well as on how technology intersects each of these domains. A justice-impacted person can benefit from all of these resources. For some, it might be best to follow a particular path, for instance, starting with an internship, moving to becoming a mentor, and eventually speaking about their experiences. Alternatively, each program can stand alone, supporting someone at any stage of their journey. To learn more, visit https://stem-ops.org/stem-ops-toolkits.



Introduction

Forty percent of incarcerated adults have not completed high school, which is more than double the national average of 18%.[1] The lack of adequate education limits the ability of the justice-impacted population to obtain employment and secure a livable wage. By introducing skillsets based on STEM research through summer internship programs, formerly incarcerated undergraduates can obtain the transferable skills needed to excel in their academic and professional careers whether or not they choose a STEM major. Research-based summer internships are important opportunities for undergraduates to obtain the skills, networks, and experiences necessary to succeed not only in STEM fields but in many careers that apply technical knowledge rooted in STEM. For justice-impacted students, who often begin their undergraduate careers with fewer math, science, and technology classes than their peers, STEM research internships can be vital for entry and persistence in any of these pathways. Remaining on these STEM pathways offers justice-impacted students access to high-paying careers and tools needed to improve the quality of life in their communities.

This toolkit is aimed to support the growth of paid research-based STEM internships that allow justice-impacted undergraduate students to experience the real-life applications of the sciences under the guidance of a faculty mentor. Engaging with an expert team of researchers and professionals helps students familiarize themselves with concepts and strategies that will give them an advantage in their college courses or careers. Our aim is to transform the opportunities available to directly impacted persons by first designing and disseminating resources, and then advising organizations in scaling and sustaining these programs.

NOTE: *While parts of this toolkit reference NSF Research Experiences for Undergraduates (REU), it is aimed to support a wider variety of internships with different funding sources. This toolkit is inspired by and built on the experiences of justice-impacted interns. The contents of this document are meant to be a guide for universities looking to begin their own internship program for justice-impacted students—inclusive of, but not limited to, NSF-funded REUs.*

[1] Harlow, C. W. (2003). *Education and correctional populations.* Bureau of Justice Statistics Special Report. https://bjs.ojp.gov/content/pub/pdf/ecp.pdf

Program History

This toolkit is modeled on programs at Princeton University that offer paid summer research internships to formerly incarcerated undergraduate students. The concept originated within a grant from the National Science Foundation (NSF) as a Training Site of the long-running NSF program Research Experiences for Undergraduates (REU) to Professor Jannette Carey. That NSF REU Training Site in molecular biophysics brings undergraduates majoring in physical, mathematical, or engineering sciences to Princeton for summer research with individual faculty mentors. Although formerly incarcerated students who continue their undergraduate education upon release are encouraged to apply to the biophysics REU, most have not had the opportunity to participate in the required coursework.

After a successful trial under an NSF INCLUDES pilot grant, Carey developed a proposal for a new NSF REU Training Site specifically for non-STEM students with carceral history. This NSF REU Training Site, Computational Biology: Gateway to STEM, has been funded by NSF as a pilot since 2019 and is now led by Carey and Prof. Bridgett vonHoldt. It is the first NSF REU program in the nation exclusively for formerly incarcerated undergraduate students and the only NSF-REU Training Site designed for non-STEM majors. Its only academic requirement is demonstrated interest and ability in any mathematics courses; no prior experience with computer science is required. A total of seven REUS have participated thus far, and our experiences have led to development of the program features described in this toolkit.

The mission of this Computational Biology internship program is to expose formerly incarcerated undergraduate students who are not STEM majors to principles of scientific thinking, the basics of research scholarship, and the tools and approaches of computational biology. The program collaborates with Princeton's Prison Teaching Initiative (PTI) and with the New Jersey Scholarship and Transformative Education in Prison consortium (NJ-STEP) to recruit formerly incarcerated undergraduate students from across the United States. PTI additionally provides a variety of support services to participating interns during the summer and their following academic years. This toolkit summarizes program elements and general strategies that support justice-impacted scholars in internship programs.

About NSF REU Training Sites

Any college or university can offer an internship program similar to the one modeled here, funded either locally, privately, or by an NSF REU grant. There are two kinds of NSF support for REU programs; both are described in NSF funding solicitation NSF 23-601. REU Training Sites support multiple students in an intellectually focused research program as described in this toolkit through the example of Computational Biology. In addition, any NSF-funded investigator can request an REU supplement to an existing NSF grant to support research by an undergraduate student for a defined period.

NSF REU TRAINING SITE PROGRAM FEATURES

Training Sites are expected to offer students a shared experience as a unified cohort even if their individual research projects differ. This expectation implies a minimum number of students to form a cohort, typically around 10 students per research period in established sites. New site programs may be proposed on a pilot basis with fewer participants; in our experience, four students per period is large enough to promote the cohort experience and small enough that the additional support services required by this cohort are manageable initially. Common cohort activities include weekly working meetings and/or seminars featuring relevant discussion of scientific topics including public science, scientific ethics, discussion and training in soft skills, and opportunities for the program staff to check on project progress and general well-being. All program activities are mandatory for all participants. Many programs require students to accept all program terms in writing.

Training Site programs represent a full-time, full-immersion cohort research experience; students are not permitted to hold outside jobs or take classes, exam preps, etc., during their internships. The internship is a 9- or 10-week in-person period, generally in the summer, during which interns who are able to do so live in campus dormitories paid for by the program, which may include a meal plan. Communal campus life is an important part of the cohort experience; those who cannot reside on campus due to conditions of their parole may be eligible for comparable support for their expenses. Interns additionally earn a stipend at a level set by NSF that is paid no less than twice per month. Participants must be enrolled in a continuing undergraduate degree program for the following fall term (i.e. graduates are not eligible).

Training Site internships typically feature individual, faculty-mentored original research projects. Each faculty mentor assigns a project and oversees a member of their research group to act as a day-to-

day mentor who provides the background knowledge and research guidance each intern needs to carry out the work. The day-to-day mentor can be any more-experienced member of the research group who understands what the REU is doing and is available on a daily basis. Program completion requires oral and written reports on the research findings. NSF expects REU participants to be fully integrated into the respective research teams, with responsibility for a defined part of a larger project that allows them to develop their intellectual and practical skills to the best of their abilities. Interns are expected to meet regularly with their faculty mentors and other members of the research group to discuss their results in the broader context of the research.

Formerly incarcerated interns should be supported additional by instructional and administrative staff to address practical and educational needs to enable their performance. Special features of the Computational Biology program include orientation training aimed at developing personal computing and computer science skills, weekly co-curricular seminars and working lunches on general-interest topics, near-peer mentorship by program alumni, and mental health support with a licensed clinical social worker. The overall aim is to create a supportive living and learning community where interns can experience campus life and network with peers and professionals.

The program features described above meet the requirements for NSF-funded REU Training Site internships. The requirements for NSF supplements are not lower, only different in that they are not cohort experiences. NSF REU requirements are a high aspirational standard for any new program. Internships with different funding mechanisms might differ, particularly those with private sources. Privately funded programs can serve as pilots that demonstrate proposers' success to support a future NSF REU application. Programs that do not provide full-time opportunities or adequate compensation are not likely to serve as good models for a future NSF-REU application.

CREATING SYSTEMS OF STUDENT SUPPORT

This toolkit aims to promote the growth of internships like the one described above that support formerly incarcerated individuals in gaining experience in STEM research. STEM research internships are gateways to STEM majors and careers. They offer important, general intellectual and practical tools that can help interns whether or not they choose a STEM major or career. By cultivating thoughtful and informed approaches to student support from the recruitment process through the final research presentation, programs can ensure that interns are set up for success in the summer research experience and beyond.

Programs should offer opportunities for community-building and information-sharing between program administrators and students, and among students themselves. Programs should hold regular cohort meetings, such as working lunches where interns gather to discuss general topics of interest including research ethics, oral and written presentations, career aspirations and graduate study, and contemporary social issues related to science.

Programs should also ensure that interns are supported by robust communication and support systems within their research groups. Weekly meetings with the faculty mentor and/or other

group members are expected for each intern that can include discussion of methods, experimental design, and research progress. At these meetings, each student should have the opportunity to give informal oral reports on their work. Informal daily meetings with the day-to-day mentor should provide opportunities for ongoing guidance and troubleshooting. The day-to-day mentor and faculty mentor provide scientific guidance for the final reports, and the program provides general guidance for writing and PowerPoint.

Sample Daily Agenda

Weeks 1 and 2

9 am–12 n:	Computer literacy and/or computer programming training
12 n–1 pm:	Community lunch with a dedicated mental health counselor or faculty mentor
1–5 pm:	Workshop on the scientific method, data collection, STEM-identity building, or other pertinent topic

Weeks 3–9

9–10 am:	Lab meeting
10 am–12 n:	Research
12–1 pm:	Working lunch with PI to discuss scientific papers
1–2 pm:	Drop-in hours for computer skills support
2–3 pm:	Check-in with day-to-day mentor
3–5 pm:	Research

Recruitment

Faculty mentor recruitment

The program must reach out to prospective faculty to explain the program's goals and expectations. The most important requirement for faculty is to understand the aims of the program and the needs and preparation of the participants. In our experience, it is necessary to meet prospective faculty mentors in person to ensure their understanding and let them ask questions one-on-one. As an internship program grows, faculty may be aware of the program through informal networks, but a personal visit with each first-time faculty mentor is essential for mutual understanding.

Why an internship?

Participation in a research-based STEM internship provides research experience and a place for interns to potentially begin a path to STEM careers. Internship programs include:

- A paid opportunity to complete independent research
- Building STEM identity in justice-impacted students
- Acquaintance with STEM approaches
- Experience in being part of a team
- One-on-one mentoring

Many tenure-track faculty positions require participation in university activities outside of teaching and research. Although this may incentivize faculty involvement, it is important that pre-tenure faculty understand the commitment required for mentoring in this program while their research groups are building their capacity.

SAMPLE FACULTY RECRUITMENT EMAIL

Dear [faculty name]:

I am writing to see if you might be interested in hosting a research intern in your lab this summer. [PROGRAM LEAD NAME HERE] directs a unique summer internship program in [SPECIFIED FIELD HERE ex. computational biology], intended exclusively for students who are formerly incarcerated. The program recruits students who are interested in expanding their written and research skills. Candidates are recruited and evaluated, and students are then offered wraparound support from the university and its associated services during a 9-week campus stay. Selected students benefit from a hands-on, mentored research experience, coupled with intensive training in data analysis, principles of scientific thinking, and scholarship. The overall aim of the program is to acquaint students with the principles, practice, and interdisciplinarity of various fields, including their relevance to society.

The program is now soliciting faculty mentors who support the mission of this program and who appreciate the determination that these students will bring to their research projects. If you are interested in being included as a potential mentor, please contact [INSERT NAME HERE]. Mentors will have the opportunity to review an applicant's file before deciding whether to commit to a specific student. Mentors who commit for the summer will have a brief orientation session with the directors of this program.

Internship programs should include a multi-tiered mentorship program to support student success:

Faculty Mentor	Faculty member who chooses the intern's research project, provides the laboratory or other training site and materials, and assigns a day-to-day mentor from their group.
Day-to-Day Mentor or Lab Mentor	Advanced trainee in the research group who guides the intern's research activities and is available on a daily basis, and who knows what the intern is doing, and why, and how.
Near-Peer Mentor	Alumnus of the program who meets with the assigned intern to share insights and experience, and identifies other support as needed. Justice-impacted near-peer mentors should be paid for their meeting times, typically 1 hour weekly.

FACULTY TRAINING

Programs should offer training that informs faculty about people-first language, policies around disclosure, and student-centered mentorship approaches, among other relevant topics. The REU program often prepares faculty one-on-one because assembling everyone at one place and time is difficult.

Below are some resources on humanizing language:

- *An Open Letter to Our Friends on the Question of Language*, Center for Leadership on Urban Solutions
- *Underground Scholars Language Guide: A Guide for Communicating about People Involved in the Carceral System*, Berkeley Underground Scholars
- *Words Matter*, Fortune Society
- *Our Pledge*, Formerly Incarcerated College Graduate Network
- *What Words We Use — and Avoid — When Covering People and Incarceration | The Marshall Project*, The Marshall Project's Language Project

Student recruitment

Program staff should build relationships with local higher-education-in-prison (HEP) and post-release educational programs. Such organizations play an instrumental role in student recruitment. For example, PTI collaborates with NJ-STEP and its educational reentry program Mountainview at Rutgers University. Mountainview holds regular student meetings and other gatherings that can serve as informal recruitment venues, and staff typically know each student well enough to offer a written or oral recommendation for the student's internship application. Program administrators can also consider information sessions in halfway houses.

At recruitment sessions, program administrators should share key information, including the internship program's aims, timeline, support systems, expectations, requirements, and benefits. Recruitment sessions should be informal, providing ample opportunities for student questions. In-person recruiting by program staff is highly desirable, and the occasions can be used to inform HEP staff and others who may facilitate local training. Programs might consider providing refreshments and opportunities to network with peer and faculty mentors. When in-person sessions are not possible, programs may also consider a virtual recruitment session.

Recruiting incarcerated students can spread the word among those anticipating early release. Programs should ensure that HEP administrators and academic advisers are aware of the program and will promote it among their advisees. Internship program staff who also teach in the prisons can make their students aware of opportunities. In our experience, word-of-mouth among students is a very effective recruitment avenue. Additionally, academic counselors working with incarcerated students can speak to a student's readiness and ability to participate in an internship during the application review process. A sample brochure is included with this toolkit.

STEM INFO SESSIONS

Internship program administrators might consider offering general information sessions about STEM literacy, majors, and careers for students who are currently incarcerated. Most of the students attending college in prison are in the process of earning their associate degree, so they may not have settled on a field of study. Princeton PTI instructors offer early information sessions for students in the NJ-STEP program to inform them of the social impact, broader applications, and opportunities opened up through STEM literacy. These sessions also draw links between STEM and social justice to show students how STEM pathways can let them give back to local communities in various ways. Listen to *The sySTEM Impacted* podcast, which addresses this issue directly.

APPLICATION SUPPORT SESSIONS

Internship programs are strongly encouraged to offer workshops to support prospective students in navigating the application process. A virtual support session will benefit students in halfway houses and others who are unable to attend in person. A program administrator should be available to answer

questions and advise interns on strategies for completing application elements. Such sessions should be optional rather than required. Advice on filling out the application can also take place on an individual basis as needed. A sample application is included with this toolkit.

APPLICANT EVALUATION AND SELECTION

Rather than relying solely on traditional markers of academic success, like GPA, you can take a holistic approach and consider additional qualifications such as adaptability, interest level, life experiences, educational trajectory, etc., to evaluate each applicant's likelihood of success in the program. Using additional metrics to assess student qualifications helps ensure that your program is inclusive of more students with various backgrounds and educational levels. You may phone the applicants' references to discuss their evaluation and to solicit more information if needed to predict success in the program.

RESOURCES

- SAMPLE BROCHURE *(Also attached)*
- SAMPLE APPLICATION *(Also attached)*
- SAMLE LETTER TO PAROLE OFFICER *(Also attached)*

Preliminary matching of each candidate with a faculty mentor is done by program staff. Each mentor is sent one application to review at a time. If they do not accept the applicant, then they are sent another until a match is made. Once all student–mentor matches are made, students and faculty are emailed to communicate their acceptance to the program and introduce them to each other. Faculty should then follow up with an email to the assigned day-to-day mentor and possibly recommended background reading.

Coordinating with a Correctional Agency

Some justice-impacted students may continue to be under the supervision of the local department of corrections (DOC); this includes halfway houses, parole, and probation. To remain in compliance with DOC restrictions, students may be required to follow certain protocols that may limit their ability to participate in certain aspects of the program and require accommodation.

Parole

- **Permission to Participate.** Students on parole may require permission from their parole office to participate in an internship program. A sample letter to a parole officer is included with this toolkit.
- **Parole Office Check-ins:** Check-ins require the person on parole to visit their parole officer's office and update them on their personal or professional life. These visits are often scheduled a month in advance and can be rescheduled with advance notice. Check-ins are an important part of reentry and should be considered a top priority if they cannot be rescheduled. If a student is required to make this visit during their working hours, faculty

and day-to-day mentors must be made aware and must agree, and students should be offered an opportunity to make up the work.

- **Parole Officer Visits:** If students live on campus, their parole officer may make surprise visits to their dorms. Parole officers are required to be armed while they are on duty; if they visit, they will carry a concealed firearm. If university policy prohibits weapons on campus, encourage the parole officer to meet the student at an off-campus location. If the parole officer declines to do this, you will need to arrange for university housing and public safety to clear parole officers for entry into student dorms.

Halfway houses

Halfway houses are temporary housing facilities provided to incarcerated individuals who are nearing the end of their sentences. These spaces allow the imprisoned population to reintegrate into society and take advantage of employment and educational opportunities. Individuals currently in halfway houses are still considered wards of the court and will be sent back to a correctional facility if they do not follow the rules and policies of the halfway house.

Individuals residing in halfway houses are allotted a specific amount of time to participate in education and employment. Residents must organize a schedule with specific arrival and departure times. Halfway house caseworkers typically require their clients to call the facility three times a day on an approved landline telephone as follows:

- **Arrival Check-ins**: Students inform their caseworkers that they have arrived safely at their designated locations.
- **Midday Check-in:** Students inform their caseworkers that they are still at their designated locations.
- **Departure Check-in:** Students inform their caseworkers that they will be leaving their locations and returning back to the halfway house; students will need to identify the modes of transportation they will be using and their expected arrival times.

If students fail to make their check-ins, they risk being removed from the internship program and even being sent back to prison for being noncompliant. Be as flexible as possible to ensure your intern has access to resources (especially a landline phone) that allow compliance with check-in policies.

Student Onboarding and Orientation

Onboarding

Onboarding should begin well in advance of an intern's arrival on campus. Procedures may vary based on institution guidelines. Sample onboarding processes may include:

- Getting students internet IDs/passwords for emails, access to learning management systems and other campus tools
- Setting up library workshops to introduce students to library staff and library tools

- Ordering student IDs for campus access
- Enrolling students in the University's payment system
- Orienting students to the campus via a tour
- Organizing lunch with faculty and peer mentors
- Facilitating technology support, e.g., acquiring laptops, access to software
- Introducing interns by email to support system staff members (e.g., mental health counselor, program managers, etc.)

Orientation

Prior to the internship start date, programs should orient students to campus and provide opportunities to meet support staff. An orientation might include one or more of the following activities:

- A shared meal or outing
- A campus tour or activity that orients interns to key university offices
- A technology boot camp to ensure students are comfortable navigating college-appropriate technology, including personal computing basics
- Soft-skills training, such as conversations on email etiquette, calendar tools, budgeting time, and best methods of communication.

Wraparound Services

We strongly encourage you to offer these resources and considerations for your program.

Mental health resources

The Princeton internship provides weekly cohort lunches between students and a mental health counselor. Topics covered include imposter's syndrome, the hidden curriculum and STEM gatekeeping, conviction disclosure, and navigating predominantly white institutions of higher education. This counselor provides one-on-one sessions with interns at their request and is available to interns experiencing a mental health crisis. Justice-impacted students are more comfortable sharing their experiences and concerns with a counselor who is also justice impacted. We strongly encourage securing funds for and offering this resource to your interns, if possible.

Tech workshops

Incarcerated students are often restricted from using any form of technology, and formerly incarcerated students may find common tasks challenging. To ensure that all students are adequately prepared, programs may provide tech workshops where interns can polish soft skills and learn any additional skills needed to engage in the program and the world around them. Technical skills required by internships include everything from familiarity with the Microsoft Office Suite to Google products to coding. Students in the Princeton internship attend an orientation week bootcamp and have ongoing peer support.

Housing

On-campus housing is a critical part of the cohort experience as it affords the opportunity for living-learning communities, which are academic, residential spaces where students can engage and offer each other social and emotional support. Unfortunately, many colleges and universities—even those that have officially "banned the box"—bar students with certain convictions from campus housing. Program directors should seek out housing options to ensure your internship program is inclusive and accommodating, and offers something akin to a cohort experience. Building relationships with off-campus housing entities and reaching out to organizations that provide transitional housing are great places to start.

Emergency funds

Nontraditional students often have responsibilities unlike those of the assumed “average” college student. Emergencies such as financial insecurity, access to childcare, and transportation may arise during their internships. Program staff should have mechanisms, including mutual trust, to become aware of such needs and be ready to offer guidance and, if possible, assistance.

Social service resources

It is imperative to build alliances with local community organizations that specialize in meeting social needs, including mental and physical health and housing resources. We strongly encourage programs to build a database of local organizations equipped with resources needed to meet these interns' needs.

Final Program Activities

Near the end of the internship, hosting résumé workshops and providing mock interviews can be beneficial. Students can be coached about how to hunt for a job or another research opportunity in their home campus. Helping interns find professional attire can also go a long way in getting them ready for the job hunt.

It is important to celebrate the successes at the end of the program. Princeton interns present their research in an oral slide show. Mentors (faculty or day-to-day) can be asked to introduce each intern and address the importance of the work and the relationships the interns developed. Interns can invite family, friends, and other supporters to attend alongside members of the interns’ research groups. A written report is also a requirement for NSF internships.

Program survey

NSF-funded internship programs use the Undergraduate Research Student Self-Assessment (URSSA) survey to report participant data. In addition, programs should gather more locally specific feedback from students and faculty to see what worked well as well as what could be improved. Programs can also use the data to understand what alumni are gaining from the experience and whether they are interested in coming back as near-peer mentors.

However feedback is collected, it is essential to offer anonymity and to ensure everyone participates. We typically conduct the survey activity during a closing event where all participants are present.

RESOURCES

- SAMPLE INTERNSHIP SURVEY *(Also attached)*
- HIGHER EDUCATION IN PRISON PROGRAMS SURVEY

When developing a program-specific survey from a template or sample, tailor the survey content and answer categories to include activities offered through your program. Additionally, include the specific program name or staff member names to help participants understand what the questions are referencing. Speak with program partners and staff about what they would like to learn on the survey to ensure that the questions reflect a wide variety of interests. For example, partners might be interested in understanding how the participant plans to use the experience in their career. A sample internship survey is included with this toolkit.

Alumni network support system

Internships introduce students to a network of faculty, peers, and program staff who can offer guidance and support on their educational journey. To maximize the impact of these networks and ensure their longevity, programs should consider various ways of supporting their continuation.

Programs can host academic year events and/or maintain an electronic mailing list for internship alumni. Alumni of research internships for justice-impacted undergraduates can be invaluable resources to the next generation of interns. Alumni networks can offer guidance to current interns and offer support as they traverse a variety of majors and career trajectories. This can play an essential role in future outcomes by:

- Creating a network of established professionals with shared world experiences
- Building a sense of community and camaraderie with one another
- Using their lived experiences to offer support, extend resources to new cohort members, create space where they can streamline information and opportunity, and build community

Programs might also consider supporting students in building their professional networks by introducing them to one or more mentors who work in their field of interest. PTI pairs intern alumni with Princeton alumni mentors through a partnership with the Princeton Class of 1994. These mentorship pairs meet monthly throughout the academic year following their internship. For example, a student participating in a summer internship in computational biology might have career aspirations in computer engineering; PTI would seek a Princeton alumnus in that field and establish a mentorship pairing. Such mentorship programs help students to understand the *hidden curriculum* (the jargon, values, and social norms in specific professional and academic spaces) associated with their field of interest.

Programs should also consider connecting intern alumni with networks that provide mentorship by and for justice-impacted undergraduates such as From Prison Cells to PhDs (P2P) and the Formerly Incarcerated College Graduates Network (FICGN).

Research Behind the Toolkit

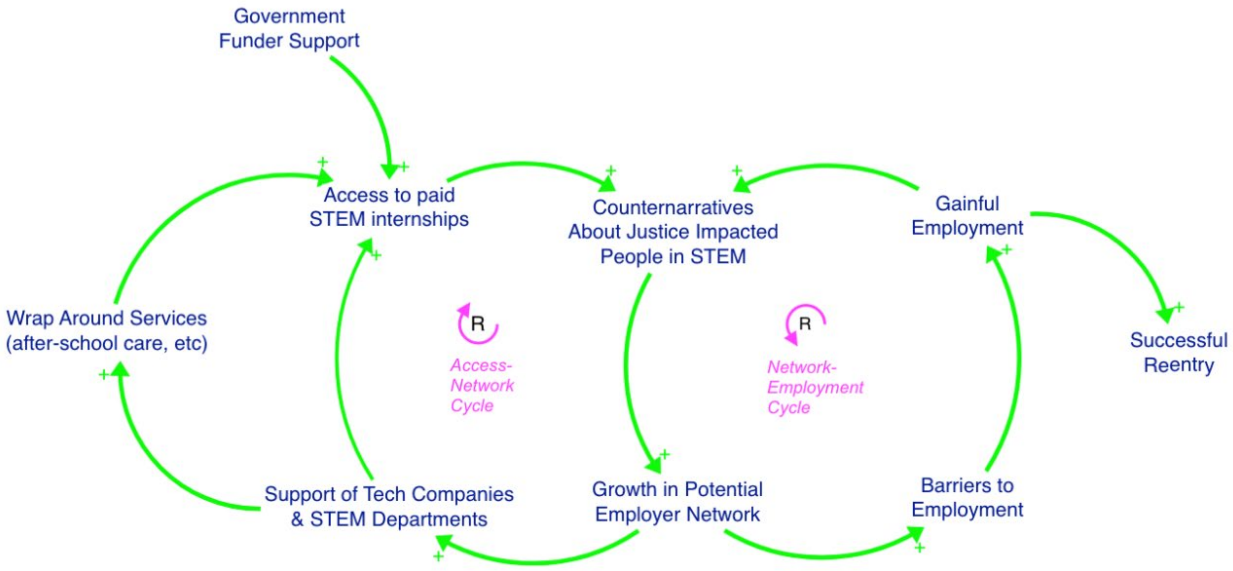
Community-based system dynamics

A systems map is a visual representation of a system, in this case a visual representation of the carceral system with a focus on gaining STEM education and careers within that system. A systems map is a tool that helps us uncover how complex a system really is and helps us identify where intervention can be most impactful. By highlighting how different variables in a system are causally interrelated, we identify the system behaviors that cause it to be self-sustaining. When we understand how system variables are interrelated and how their relationships reinforce or interfere with each other, we can begin to develop proactive strategies for changing systems, such as how to break or work around bad cycles or how to accelerate a positive one.

Our first systems map was built through the work of two diverse groups of 25 people each from the wider STEM-OPS community and other organizations, in addition to the core modeling team. We used a process called "community-based system dynamics" (CBSD), which is a shared way for communities to take part in building shared understanding of their systems prior to working to change them. In CBSD, the people who are most involved in the system offer the most useful insights about relationships and variables within the system, which leads to the best opportunities to change it; for STEM-OPS, this meant that roughly half the participants were justice-impacted individuals, whereas the remaining individuals represented other stakeholder groups, including DOCs, HEP programs, reentry service providers, family members, and community members. To learn more about CBSD, visit https://stem-ops.org/about-us-community-participation.

THE INTERNSHIP WORKING GROUP IN THE STEM-OPS SYSTEMS MAP

Internships feature in several of the systems maps because internships impact many variables such as Counternarratives about Justice-Impacted People, Support of Tech Companies and STEM Departments, and ultimately Gainful Employment. This section of a simplified internship systems map illustrates two reinforcing virtuous/vicious cycles that share some common variables. Because these two loops share variables, when one is working in a virtuous cycle it drives the other to do the same, or vice versa. We will describe these from the virtuous perspective.



1. As a virtuous cycle, the Access Network loop should be read as follows (starting point is random):

    - An increase in Access to Paid STEM Internships leads to an increase in Counternarratives About Justice-Impacted People.
    - An increase in Counternarratives leads to a Growth in the Potential Employer Network.
    - An increase is the Potential Employer Network leads to an increase in Support of Tech Companies and STEM Departments.
    - An increase in Support of Tech Companies and STEM Departments leads back to a further increase in Access to Paid STEM Internships.
    - Backing up to the Growth in Potential Employer Network variable, the Access Network Cycle branches to the right and leads into the Network Employment Cycle.

2. As a virtuous cycle, the Network Employment Cycle would read as follows:

    - An increase in Access to Paid STEM Internships leads to an increase in Counternarratives about Justice-Impacted People.
    - An increase in Counternarratives leads to a Growth in the Potential Employer Network.
    - An increase in the Potential Employer Network leads to reducing Barriers to Employment.
    - As Barriers to Employment are reduced there is an increase in Gainful Employment and Successful Reentry.

For more on systems maps, see the Systems Maps section of the STEM-OPS website.

This resource is a living document. As we learn more, we will continue to shape the product with the help of those who use it and review it. Please email your feedback to info@stem-ops.org.

Please take 1 minute to fill out this survey about how this toolkit may have influenced you or helped you learn new information. Your response will help STEM-OPS learn about our shared impact on messages about people impacted by incarceration and help us improve our approach to changing societal narratives.

JOIN US! Stay connected with all programmatic details of STEM-OPS by signing up to be part of our free online community on Glue Up: https://app.glueup.com/org/stemops/memberships/

Interested in learning more? Visit stem-ops.org or contact info@stem-ops.org.

Attachments

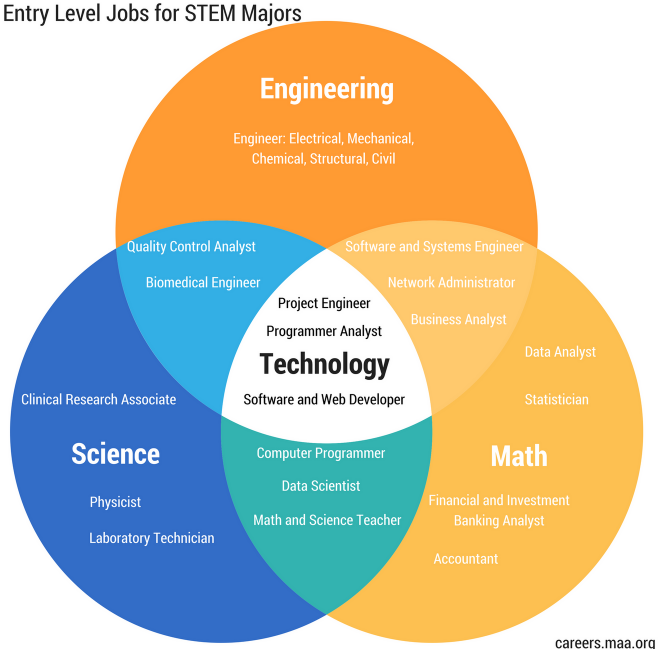
Program Purpose:

The STEM-OPS Research Experience for Undergraduates (REU) program was created to increase access to STEM research opportunities for formerly incarcerated undergraduate students. Students do not have to be STEM majors to apply, but must demonstrate interest in a STEM field and successful completion of mathematics courses at any level, either before or after their release.

Why STEM?

- STEM is the fastest-growing job market: Over the past ten years, growth in STEM jobs was 3X greater than that of non-STEM jobs.
- Half of all STEM jobs don't require a four-year degree and pay an average of $53,000 – 10% higher than non-STEM jobs with similar education requirements.
- People in STEM fields can expect to earn 26% more on average and be less likely to experience job loss.

Entry Level Jobs for STEM Majors



A basic understanding of STEM is becoming a necessity in our modern workplace. Currently, 75% of the fastest growing jobs in the U.S require significant mathematics or science skills.

> "He who opens a school door closes a prison."
>
> Victor Hugo

Program Perks:

The program offers a generous stipend and paid housing, and reimburses travel costs. These are on-campus, in-residence internships, though accommodations can be made for students in halfway houses or those who are otherwise unable to leave existing housing arrangements, STEM-OPS can seek parole permission for on-campus residence when necessary. The stipend amount is set by the National Science Foundation; in summer 2024, interns will earn $600/week. Through this experience, we hope to create a living-learning community where REUs can experience campus life and network with peers and professionals in a range of fields.

HISTORY:

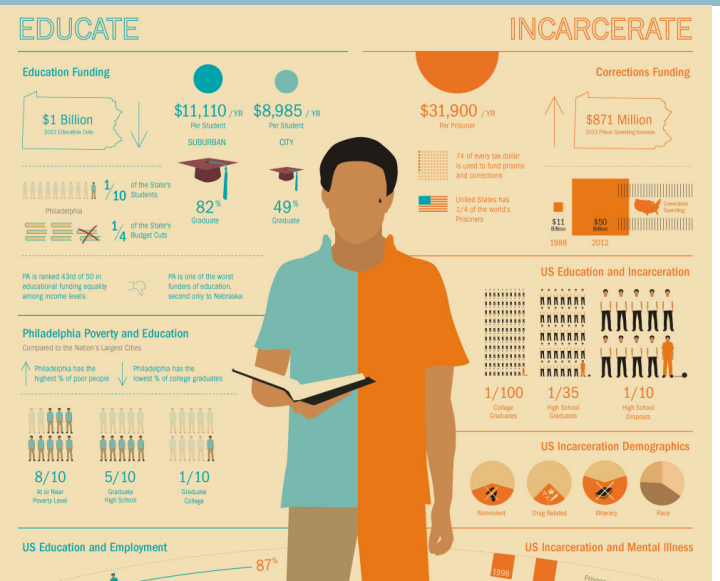
STEM-OPS expands upon an NSF-funded REU program at Princeton University that has recruited previously incarcerated students since 2016 in collaboration with New Jersey Scholarship and Transformative Education in Prison and the Mountain View re-entry program at Rutgers University. STEM-OPS now aims to extend these opportunities to formerly incarcerated students at colleges nationwide.

Student Support:

Interns have access to mentors and faculty support needed to complete their internships. Each candidate will be closely advised by a team of mentors, led by a faculty mentor.

Application Process:

- Students do not have to be STEM majors to apply.
- Applicants must be enrolled in a full-time 2-year or 4-year college program in the semester before and after the summer research period.
- Applicants must be formerly incarcerated.
- Applications are prepared and submitted online here and include short essays about students' interests in STEM areas and their reasons for pursuing this opportunity.



Vision:

The vision of STEM-OPS is “Ensuring that all persons impacted by the carceral system are able, and encouraged, to pursue a culturally responsive and equitable high-quality STEM education and career.” The mission of the STEM-OPS REU program is to introduce STEM skills to formerly incarcerated students whose exposure to STEM study has been limited. The program invites students to consider STEM education or career paths, and gives them some of the tools to do that. We believe all students can excel in STEM studies and careers, given the opportunity and resources.

[Insert university name]

Paid Research Internships for Justice-Impacted STEM Majors and STEM-Curious Undergraduates Summer 2024

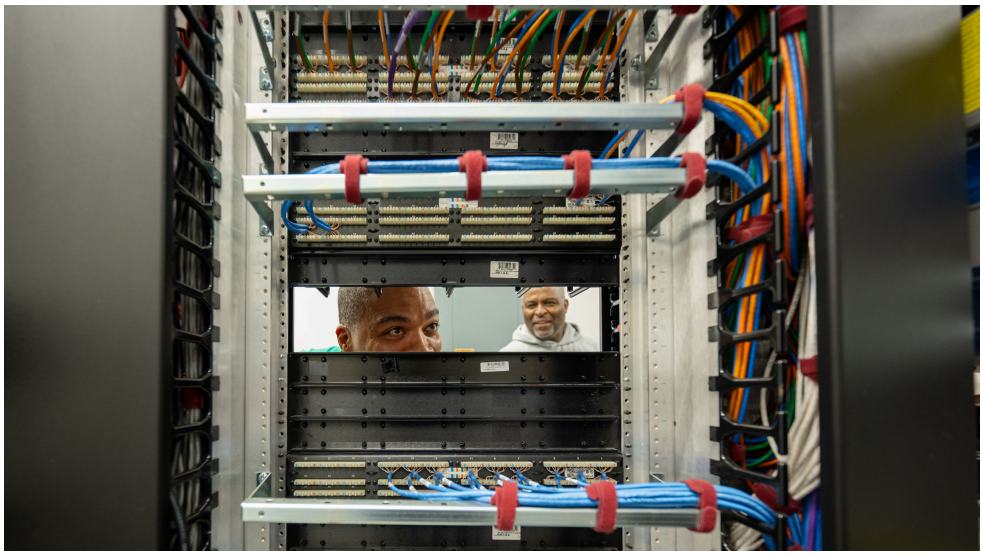
Curtis Hillegas (left), associate CIO of Research Computing, gave a tour of Princeton's High-Performance Computing Research Center to formerly incarcerated students as part of a summer internship program in STEM research. Bridgett vonHoldt (center), an associate professor of ecology and evolutionary biology, directs the program; Claude McDougal (right) was one of this year's four interns. Photos by Sameer A. Khan/Fotobuddy

Summer internships can be great places to explore new topics, learn new skills, and build your academic network. No particular previous experience is required and, whether not you have previously considered a major or career in a STEM (Science Technology, Engineering Mathematics) field, we welcome your application for summer 2024!

This summer, [Program name] is pleased to offer a summer internship opportunity for justice-impacted STEM-majors and STEM-curious undergraduates enrolled at two- or four-year institutions:

[Internship name and description]

Questions? Contact [Name] ([email])



This internship opportunity...

-Is 9 weeks long, running from [Start date through end date]. These are full-time internships that require physical presence on campus during the normal work week.
-Pay a stipend of $600 per week. Campus housing is also paid paid for by the program. [Insert any meal plan information]. Interns unable to reside on campus may receive equivalent funds to defray housing, meals, and transportation costs.
-Begin with introductory training that includes computational workshops. No previous experience in STEM is required.
-Include ongoing technology support, weekly community groups, access to a justice-impacted social worker, and social events.
-Free access to [List university resources].

Application for Paid Research Internships for Justice-Impacted STEM Majors and STEM-Curious Undergraduates
Summer 2024

Instructions:
Please download or print this form, enter your answers in this form, and save it as a PDF file for submission. Please provide answers to all of the questions. You will also need a scanned copy of your transcript, passport or permanent resident card, and health insurance card.

Please save each document in the PDF format and email to [Name] by [Due date].

If you need help completing this application, please email [Name] ([Email address]).

All fields are required unless otherwise noted.

YOUR CONTACT INFORMATION

Full Name (First Middle Last)

Email

Mobile phone number

EDUCATION

College / University

Highest Degree Offered at Your School

Major

Please supply your overall undergraduate GPA and grading scale (4 or 5).

Expected Degree

☐ Associate ☐ Bachelor's of Arts ☐ Bachelor's of Science

GPA in Major (or intended Major)

Major 2 (if you are a double major)

GPA in Major 2

Minor

GPA in Minor

Expected Graduation Year

COMPUTER SKILLS (*previous experience is NOT required*)

	Unfamiliar	Able to use	Proficient	Expert
Saving and Accessing Files	☐	☐	☐	☐
Online file storage and sharing (e.g. Google Drive)	☐	☐	☐	☐
Email programs	☐	☐	☐	☐
Online calendars and shared events	☐	☐	☐	☐
Search engines	☐	☐	☐	☐
Zoom/video conferencing	☐	☐	☐	☐
Literature databases (e.g. PubMed, JSTOR)	☐	☐	☐	☐
Microsoft Excel/spreadsheets	☐	☐	☐	☐
Microsoft PowerPoint/slideshows	☐	☐	☐	☐
Microsoft Word/text editors	☐	☐	☐	☐

PROGRAMMING LANGUAGES (*previous experience is NOT required*)

Command line interface (e.g. linux shell)	☐	☐	☐	☐
Git/version control	☐	☐	☐	☐
Github	☐	☐	☐	☐
Matlab	☐	☐	☐	☐
R/RStudio	☐	☐	☐	☐
Python	☐	☐	☐	☐
Jupyter notebooks	☐	☐	☐	☐

APPLICANT'S PERSONAL STATEMENT

It is important to address each point fully. Please enter your content in the labeled fields below. You are limited to the space provided within each section. Please use 11 or 12 point font.

1. Interest in a Summer Program: Describe why you are interested in a STEM summer internship at Princeton this summer. What do you hope to get out of your participation in the program? What are you hoping to contribute to the program?

2. Future: Describe your present educational and career plans. How are your academic interests related to your long-range plans?

3. Optional: Please use this space to provide any other information you think the program may want to know about you. This section can be used for us to know what support you would need in order to accept an offer if one is made. We would like to know anything you think you may need to enable you to attend this program. Our goal is to support your successful summer experience.

NAMES OF PERSONS WE CAN CONTACT AS REFERENCES

List the people who can support your application. Three names are required, and you must secure their permission before listing them. Be sure to inform each of your references that we may email them to set up a phone appointment to discuss your application. Letters are not required with your applicaton but we may later ask them for a letter for our records.

☐ I waive my right to inspect the contents of the recommendations.

Recommender 1

Name and title

Affiliation

Email

Please explain how this recommender knows you.

Recommender 2

Name and title

Affiliation

Email

Please explain how this recommender knows you.

Recommender 3

Name and title

Affiliation

Email

Please explain how this recommender knows you.

ALSO INCLUDE THESE ITEMS AS ATTACHED PDF DOCUMENTS:

1. Your application
2. Scanned copy of a transcript (official is preferred). If you do not have an official transcript available at the time of application, a scanned copy of an unofficial transcript can be submitted. However, an official copy may be required before an offer is made.
3. Scanned copy of your health insurance card.*
4. For NSF Computational Biology only: scanned copy of Proof of citizenship (valid passport or permanent resident card).

You are required to maintain health insurance during the internship. Please explain if you have concerns or questions about this.

SUBMISSION OF APPLICATION MATERIALS

Please submit the below documents via email to Name] ([Email address]) by [due date].

Anonymized Parole Letter

To whom it may concern:

I am a [**program admin, professor, or faculty member**] at [**List University name here**]. I [**List roles and responsibilities along with the name of your program here**]. Each summer, our program places justice-impacted students in research opportunities at [**Institution name**].

We believe that [student name] is an excellent candidate for such a research experience, and we would like [him/her] to join our student cohort in doing summer research over ten weeks this summer. We have successfully hosted multiple formerly incarcerated students in our summer program over the past years. Our summer program has proven a valuable part of preparing students for graduate school. Most of our former students have gone on to either graduate school or a job in data science.

The program will begin on [**list program start and end date here**]. All students are expected to work full time and a minimum of 40 hours per week, with the schedule determined by the research mentor according to the needs of the research project.

[**Student's name**] hours will conform to ordinary working hours, typically 9 am to 5pm daily. The students spend the first week of the program [**Describe daily and or weekly activities students will be participating in during their summer internship experience, including lab work, workshops, boot camps, and social events**]. These activities take place at [**Location**].

The remainder of the summer period is spent on research directed by a unique faculty mentor for each individual student. [**Student's name**] will be working in the research group of Professor [**Name**], located at [**University**]. Professor [**Name**] has also assigned a senior member of the research group, [**Student name**], to serve as day-to-day supervisor of the work in the event of any brief absence of the faculty mentor. In that case [**Student's name**] will have full supervisory responsibility for the conduct of the student's work and will help the student to meet the parole requirements.

[**Student's name**] will be supported by a U.S. National Science Foundation grant awarded to [**name entity and PI/PD**], which allows for student summer support. He/she will be provided with a stipend [**$XX/week**]. All students in this program are housed [list housing specifications here].

I very much appreciate the efforts the parole officers and board will need to expend to consider this opportunity for [**Student's name**]. Please let me know if there is anything I can do to further the effort to make this happen.

Sincerely,

[List program staff or faculty name here]
[List title of program staff or faculty here]
[List department of program staff or faculty here]

STEM-OPS Sample Internship Survey Items

Summer STEM Internship Experiences for Undergrads Exit Survey. We encourage all participating students to complete this survey upon completion of the program. Please take 6-8 minutes to complete this exit survey. The Internship program staff will keep your responses confidential, meaning your responses will be connected to your name but they will not be shared with others, outside of approved program staff. Your responses will help us improve the internship program for future participants.

SAMPLE SURVEY ITEMS

- *Overall, how satisfied or dissatisfied are you with your experience with the summer program?*
    - Very dissatisfied
    - Dissatisfied
    - Neither satisfied nor dissatisfied
    - Satisfied
    - Very satisfied
- *What transferable skills (skills that can be used outside of this internship) or knowledge, if any, do you feel you gained from participating in the summer program? Examples include organization, time management, and computer use.*
- *What technical skills or knowledge, if any, did you gain from participating in the summer program? Examples include knowledge related to your field of study or discipline.*

Support Services and Resources- Workload

The following few questions aim to understand your opinions on the workload, support services, and resources provided during the program.

- *When thinking about this program, how much do you agree or disagree with the following statements? (All responses from: Strongly Agree, Agree, Neither agree or disagree, disagree, strongly disagree)*
    - My Workload was manageable
    - Internship staff provided enough support to me to manage the workload
    - I knew of the supports available to help me get through workload challenges
    - I expanded my professional network during this program
- *How important were each of the following services and supports for managing your workload? (All responses: Not at all important, somewhat important, moderately important, Very important, Extremely important, I did not participate)*
    - Orientation Workshops
    - Campus Tour
    - Peer support

    - Mentor support
    - Computer Labs
    - Computer Literacy Workshops
    - Library access
    - Mental health resources (counselor,…)
    - Working lunches
- *Did you feel these services and supports were accessible during the program? How, if at all, can we improve accessibility? If you did not require or use these services, please enter Not Applicable (N/A).*
- *What other campus supports did you engage to help you with the workload? If you did not use supports or require supports, please enter Not Applicable (N/A).*
- *Please select the types of challenges you may have faced with your workload. Select all that apply.*
    - None- I did not face any workload challenges
    - Managing my time
    - Organizing my schedule
    - Accessing reliable technology
    - Navigating new technology or software
    - Understanding concepts or theories
    - Completing assignments
    - Collaborating with peers
    - Collaborating with mentors
    - Adapting to the work environment or school culture
    - Navigating through campus
- *Tell us about a specific period during this summer program that you felt the workload was particularly challenging. If you did not experience workload challenges, please skip this question.*

Support services and Resources- Non-Workload

Next, we would like to understand your experiences OUTSIDE of your workload.

- *When thinking about this program, how much do you agree or disagree with the following statements? (All responses from: Strongly Agree, Agree, Neither agree or disagree, disagree, strongly disagree)*

    - I faced challenges outside of my workload that prevented me from fully engaging in the internship.
    - I believe the internship staff provided enough supports to students to manage non-workload challenges
    - I knew of the supports available to help me get through non-workload challenges.
    - I was given a space to voice the challenges and critiques I have about this program.

Below is a list of challenges you may have faced. Please rate the extent to which each of the following were challenges during the summer program. (Reponses for each include: Not at all, somewhat, moderately)

- Mental health
- Self-confidence
- Personal or family obligations
- Finances or money management
- Housing
- Transportation
- Legal or court-related matters (parole, probation, half-way houses)
- Physical health
- Socialization

What support or resources, if any, could be offered to students to manage challenges outside of their workload?

Mental Health & Belonging
The next questions will explore your feelings of belonging and overall well-being during the summer program.

- *Considering your experiences during this program, please indicate your level of agreement with each of the following statements: (All responses from: Strongly Agree, Agree, Neither agree or disagree, disagree, strongly disagree)*
    - I felt valued at this university/ college
    - I felt like I belonged at my university/ college
    - I considered leaving my university/ college because I felt isolated or unwelcomed.
    - I was treated with respect at my university/ college
    - I felt others don't value my opinions at my university/ college
    - I found one or more communities or groups where I felt I belonged at my university/ college
- *How important were each of the following to your overall well-being during the internship? (Reponses for each include: Not at all, somewhat, moderately, very)*
    - Community discussion groups
    - Relationships with instructors
    - Relationships with peers

How would you describe your relationships with the following people? (Responses for each item may include: Very positive, positive, negative, very negative, I do not have a relationship)

- Counselors
- Faculty Mentor
- Other faculty
- Peer mentor
- Fellow students

STEM Mindset (for STEM Programs)

This program aims to equip students to better understand of STEM-related skills, principles, and concepts. The next section will explore your understanding of and interest in STEM. For these questions, please consider STEM to be inclusive of social science and interdisciplinary engineering fields.

- *How useful were each of the following activities for improving your understanding of STEM and STEM-related skills? (Reponses for each include: Not at all, somewhat, moderately, very, extremely, I did not participate)*
    - Working Lunches
    - Scientific Thought and Practice Research Methods course
    - Digital learning lab
    - Seminars with invited speakers

- *How likely are you to pursue a… (Reponses for each include: Not at all, somewhat, moderately, very, extremely, I am already in this field)*
    - ***STEM-related career***
    - ***STEM-related major***
    - ***STEM-related advanced degree***
- *Since starting the program, has your **interest in pursuing** STEM-related fields increased, decreased, or stayed the same?*
    - Significantly decreased
    - Slightly decreased
    - No change
    - Slightly increased

    - Significantly increased
- *Since starting the program, has your **confidence in your ability to pursue** STEM-related fields (if you had the interest) increased, decreased, or stayed the same?*
    - Significantly decreased
    - Slightly decreased
    - No change
    - Slightly increased
    - Significantly increased
- *Since starting the program, has your **knowledge of resources available to pursue** STEM-related fields (if you had the interest) increased, decreased, or stayed the same?*
    - Significantly decreased
    - Slightly decreased
    - No change
    - Slightly increased
    - Significantly increased

Overall Feedback

Finally, please share your feedback on what parts of the program could be improved and which parts are most valuable.

- What aspects of the summer program did you find most valuable?
- What aspects of the summer program, if any, could be improved?

This survey was developed in consultation with Research Triangle Institute International and Princeton's Prison Teaching Initiative staff.