



**Towards Greater Equity for STEM Faculty:
Lessons from the COVID-19 Pandemic**

**A Workshop on Emerging Themes for Research, Policy, and Practice
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Executive Summary

Occurring in tandem with growing social activism around anti-Black racism and police brutality, the COVID-19 pandemic and the institution, state, and federal responses to it upended numerous systems, disrupted careers, and cost lives in a way that exacerbated existing social inequities, including for STEM faculty. While the Biden Administration has recently declared the pandemic over amid calls to “return to normal,” COVID-19 continues to take lives and livelihoods differentially. A “return to normal” is not only undesirable, but it upholds oppressive systems and institutions that need to change. How, then, can we learn from the COVID-19 pandemic to push for new, more equitable norms in our institutions of higher education and beyond?

The ADVANCE Resource and Coordination (ARC) Network convened scholars from multiple disciplines for a 2-day workshop to prioritize under-studied research questions and policy issues within the general theme of **Towards Greater Equity for STEM Faculty: Lessons from the COVID-19 Pandemic**. The Research Advisory Board of the ARC Network, a National Science Foundation-funded initiative at the Women in Engineering Proactive Network (WEPAN), identified this theme as a primary area in need of further exploration in academic science, technology, engineering, and mathematics (STEM) workplaces.

Members of the workshop planning committee nominated scholars working in this area who represent a diverse array of disciplines, research specialties, institution types, career stages, and social demographic backgrounds. We convened more than two dozen scholars and administrators in December 2022 to participate in a series of facilitator-led discussions. Our aim was to develop a research, intervention, and policy agenda to advance our understanding of how institutional responses to the pandemic affected equity goals and how best to meet equity challenges in the coming years.

By the end of our time together, the group identified these research and policy priorities:

- Understanding the longitudinal impacts of institutional COVID-19 responses on STEM faculty experiences
- Redefining faculty excellence through equitable metrics for change
- Exploring the multi-layered impacts of COVID-19 decision making on disabled faculty
- Challenging the ideal worker model of faculty labor
- Examining the role of professional societies during and after the pandemic for catalyzing faculty equity

These priority topics emerged from extensive discussion among workshop participants and are elaborated in the full report. We encourage researchers, policymakers, and change agents to pursue these topics and explore the questions described within this report, which will be aided by collaboration across disciplines, including social sciences, humanities, and practitioners of STEM disciplines.



Background

The ADVANCE Research Coordination (ARC) Network is funded by a cooperative agreement to the Women in Engineering ProActive Network from the National Science Foundation (HRD-1740860 and HRD-2121468). Its over-arching goal is to curate, disseminate, and support a community that shares research and promising practices for intersectional gender equity in higher education science, technology, engineering, and mathematics (STEM) departments. Through ARC's Emerging Research Workshops, it identifies emerging research themes related to intersectional gender equity in STEM and directions for new research, intervention, and policy development in those areas.

The ARC Network is supported by several advisory committees, including the Research Board. As part of its work, the Research Board is charged with identifying important topics emerging in the literature on intersectional gender equity in STEM. Subsequent goals include recruiting a diverse cohort of scholars who commit to participate in a 2-day workshop on that topic. The workshop itself is designed to identify important questions for which additional research is needed, using intersectionality as a framework. In the spring of 2022, the Research Board recommended that ARC host an Emerging Research Workshop on the general topic of how the COVID-19 pandemic affects equity in STEM.

This theme was selected not only because a body of literature on the topic has amassed, but also because it shows that the pandemic has had a sweeping impact on multiple systems that were inequitable to begin with and that deeply affect STEM faculty equity, including health, education, employment, and economic systems. In addition, the COVID-19 pandemic began alongside a rise in social justice movements calling for an end to anti-Black police brutality and, more broadly, anti-Black racism, often referred to as a pandemic itself (e.g., Stolberg, 2020).

In the two years leading up to the selection of this theme for an Emerging Research Workshop, the ARC Network hosted two annual, virtual town halls on COVID-19 and two webinars on ensuring intersectional equity in institutional COVID-19 responses, each of which also addressed the social context of multiple pandemics. The town halls provided space for the community to gather, support one another, and share concerns. The webinars occurred between the two town halls and focused on the multiple dimensions of integrating equity into institutional responses as well as advocacy strategies to hold colleges and universities accountable.

With record attendance at these events, STEM faculty, college and university staff, and higher education administrators shared their grief, anger, uncertainty, fear, and exhaustion with one another. STEM faculty worried aloud and in the chat about their ability to keep themselves and their families safe, juggle their work and personal lives, provide educational and emotional support to their students, adjust to teaching online with the added financial cost of doing so from home, address identity-based violence and harassment online, manage growing caregiving responsibilities, keep their labs running, maintain their research productivity, and manage their finances and careers amid job cuts and furloughs – often while grieving the loss of friends, family, colleagues, and community members; grappling with systemic, anti-Black racism; and/or dealing with COVID-19 illness themselves. Attendees resoundingly shared concerns that pre-



existing social inequities, particularly at the intersections of gender, race, class, and disability, would only get worse if institutions did not intentionally attend to equity in their responses to the pandemic and looked to the ARC Network webinars to provide resources and opportunities for collective action.

Early surveys of higher education leaders showed intense concern for their faculty (Taylor et al., 2021; Turk et al., 2020), worries that reflected the reality of faculty life (Anwer, 2020; Berheide et al., 2022; Wachorn & Hecendorf, 2020) and the concerns raised during the ARC Network events. Research illustrates that the pandemic had differential effects that largely reflected pre-existing societal inequities in health (e.g., Millet, et al., 2020; Rotarou, 2021; Vasquez Reyes, 2020) and professional outcomes (e.g., Andrew et al., 2020; National Academies, 2021). Early in the pandemic, data showed that productivity of women scientists, especially those with young children, was negatively affected (Andrew et al., 2020; Anwer, 2020; Collins et al., 2021; Cui et al., 2021; Derugina et al., 2021; Flaherty, 2020; Kitchener, 2020; Krukowski et al., 2021; Lerchenmuller et al., 2021; NASEM, 2021, 2022; Staniscuaski et al., 2021; Squazzoni et al., 2020) while men's productivity increased (Fazackerley, 2020). Furthermore, negative effects were further amplified for women of color, disabled women, and contingent faculty (Blell et al., 2021; Cross et al., 2022; Douglas-Gabriel, 2020; Myers et al., 2020; Njoku et al., 2022; Nolan, 2022; Staniscuaski et al., 2021; Zahneis, 2020). Institutions moved to support their faculty with myriad changes to policies, including revised metrics for productivity, shifts in the tenure clock, and modified leave policies (NSF ADVANCE Program, University of Massachusetts Amherst; Davies et al., 2021; Gonzales & Griffin, 2020; Mickey et al., 2020; Mickey et al., 2022; Oleschuk, 2020; Settles & Linderman, 2020; Weissman, 2020), but equity scholars warned that the policy environment must be addressed with equity in mind (Clark et al., 2020, 2022; Gonzalez & Griffin, 2020; Mickey et al., 2020; Mickey et al., 2022; Misra, 2020). Outcomes of these policy changes are beginning to emerge, and longer-term impacts will appear in the coming years.

Building on the ARC Network events and the growing body of scholarship and policy recommendations, we designed a workshop centered on STEM faculty equity issues during the COVID pandemic. The Research Board recruited a Planning Committee (see page 3) to further define the theme, outline potential topics for discussion, identify scholars and change leaders working in the area, and plan the workshop itself. The Committee started its work in spring 2022. Throughout its deliberations, the Planning Committee focused on recruiting workshop participants by considering a broad range of variables, including discipline, institution type, career stage, career track, the aspects of identity they study (gender, race, ethnicity, sexuality, citizenship, socio-economic status, disability, etc.), and their own social identities and experiences. The resulting group (see page 2) included scholars working in numerous STEM disciplines, as well as administrators and practitioners invested in equity work; participants included faculty of all ranks, graduate students, postdocs, and private sector advocates from a wide range of social positionings.

In 2023, we developed a draft of this report and circulated it widely across the ARC Network community of researchers, practitioners, and change agents. Comments and suggestions received from that audience are included in the text below.

Workshop Description

The Planning Committee designed the workshop to proceed from a general overview of the pandemic's effects towards prioritizing specific research questions and areas for intervention. We began the workshop by establishing group norms and a shared understanding to create a space where authentic conversations could take place over the course of two days. See Appendix I for the full agenda.

-----Day 1-----

The overall goal for the first day was **Developing a Shared Understanding for a Research and Intervention Roadmap**. Participants engaged in conversations designed to elicit varying perspectives, come to a consensus about workshop goals, and identify priority topics for further research.

Task 1

Our first task was to gain an appreciation for the expertise among participants, and to understand the personal and professional impacts of COVID-19 for each participant. We invited participants to form small groups of 5-7 individuals to learn about each other. Participants first shared their individual thoughts on a virtual Mural board via digital sticky notes and then began a group discussion at their table about the following questions.

1. *What is the work that you do and what are the impacts of the COVID-19 pandemic in your personal and professional experience?*

Areas of expertise of our participants included:

- Anthropology
- Biochemistry
- Bioengineering
- Biomedical engineering
- Biophysics
- Chemistry
- Communication studies
- Computer science
- Disability studies
- Environmental science and policy
- Ethnic studies
- Gender studies
- Health studies
- Higher education
- Higher education administration
- Industrial organizational psychology
- Information science
- Law
- Materials science and engineering
- Mathematics
- Mechanical engineering
- Molecular biology
- Organizational leadership
- Psychology
- Public health
- Sociology
- Urban Education Policy



Impacts of COVID-19 for our participants included:

- Loss of many kinds including
 - The lives of friends, family, and community members.
 - Financial loss and increased financial responsibilities.
 - Connection to family, friends, colleagues, and community through enforced isolation or stressful interactions as COVID-19 policies became increasingly politicized.
 - Uneven access to internet, lab, and library resources for themselves and their students.
 - Learning loss for children and students.
- Health consequences such as
 - Increased need for mental health care.
 - Illness from the COVID-19 virus, including experiences with long COVID.
 - Delaying treatment for other conditions because medical facilities and health care offices were overrun or closed.
 - Those that come from being the target of anti-Black or anti-Asian racism.
 - Facing additional layers of identity-based harassment and violence as classrooms, conferences, and gathering spaces moved to online platforms.
- Increased caregiving and educational responsibilities such as
 - Supporting schoolwork for children who were attending school from home.
 - Elder care.
 - Caring for disabled adults and children.
 - Caring for themselves and family members who contracted COVID-19.
 - Providing emotional support to students.
 - Supporting children in safely navigating the world, particularly children of color who face risk of both COVID-19 and race-based violence.
- Career impacts such as
 - Decreased productivity, including during sabbaticals.
 - Inability to secure academic positions because institutions were not hiring.
 - Inability to travel for conferences, fieldwork, etc.
 - Burnout and leaving academia altogether.
- Postponing significant personal, religious, spiritual, and cultural events such as
 - Weddings and commitment ceremonies.
 - Wakes, memorial services, and funerals.
 - Religious and spiritual gatherings.

The pandemic had a profound effect on our participants. “The pandemic was transformational,” said one participant. “[it had] a significant impact on my ability to work and focus and made me forever thoughtful about the ways that work and life collide, and how the need to care for self and others is often not considered in academic work.” Another participant shared that they moved across the country to start their tenure-track faculty position during the pandemic, which isolated them from their family, communities, and their new colleagues. They said, “Now, in my 3rd year, I am just starting to learn about the culture at my university, college, department, and program.”

Participants often echoed the sentiment that one attendee shared, “the pandemic made visible a set of social inequities that were always there and added another layer.” Another explained, “In addition to witnessing the ways that COVID ravaged racially minoritized people's lives and experiences on the job market, it also made it difficult to build and sustain community.” Yet another participant shared, “Power structures especially in the form of racial and gender injustice meant that women of color, and often women with caretaking responsibilities, experienced the brunt end of the pandemic in every way possible.” Others added to the discussion the role that ableism played in framing and treating disabled people as dispensable, saying that “disabled people are not prioritized in the same way as other marginalized groups” particularly if they are also part of those marginalized groups.

For some, the pandemic also came with some positive changes that improved their lives. These included:

- Flexible work from home policies
- Improved accessibility to meetings, events, and some forms of telemedicine as many turned to virtual options.
- Masking practices to protect vulnerable populations from contracting certain illnesses.
- Remembering their values and centering those in their work

Several participants spoke about the value of flexible work from home policies as well as measures to improve accessibility and protect one another from illness. Some also shared that the pandemic was a stark reminder of “how values are modeled in action” and used that reminder to recenter their social justice values in their work. One participant left a faculty role to take on a new role that they felt better centered these values. Another explained, “The pandemic has left me unapologetic in amplifying the realities and commonalities of racialized experiences. Inclusion is not antiracism and that remains a misconception I work every day to disrupt in my academic environments.”

2. *What power structures and systems shape the differential impacts of the COVID-19 pandemic on faculty, particularly in STEM?*

Workshop participants shared a variety of power structures, contextual factors, and inequitable systems that shaped the impacts of the coronavirus pandemic on faculty. These included:

- National, state, and local politics, social movements, and culture. For example,
 - The United States is rooted in white-supremacist, capitalist, ableist, cisheteropatriarchy, which shaped and was reinforced by the pandemic.
 - The Black Lives Matter movement to highlight and put an end to anti-Black racism, discrimination, and inequity, particularly around police violence against Black people. While the movement began in 2013, it regained global visibility in 2020 following the murders of Ahmaud Arbery, Breonna Taylor, and George Floyd.
 - As part of the Missing and Murdered Indigenous Women, Girls, and Two-Spirit movement, in 2021, U.S. Secretary of the Interior, Deb Haaland marked the

official creation of the Missing and Murdered Unit to address the epidemic of violence against Native peoples. In 2022, the U.S. Department of the Interior released a report on federal Indigenous boarding schools that documented over 500 deaths of Native children.

- The Stop AAPI Hate coalition was formed to end racism and discrimination against Asian Americans and Pacific Islanders and to document the rise of COVID-19-related anti-Asian racism and high-profile attacks in the early stages of the global pandemic.
- Faculty of color responding to white supremacy, anti-Black racism, anti-Indigenous racism, and/or anti-Asian racism had their concerns ignored or sidelined.
- Broader gender role expectations made it more likely for caregiving labor to become women’s responsibility both at home and at work.
- While the increased dependence on technology came with some benefits for disabled faculty, broader disability support and access to accommodations became more difficult, especially for those with long COVID-19 and invisible disabilities.
- Societal distrust of pandemic-related science (e.g., vaccine safety) provoked general distrust of all STEM research.
- Political power structures for many state institutions had a major effect early on in the pandemic. As some institutions forced faculty to teach in person, particularly those teaching lab courses, prior to vaccines being developed due to state regulations, political pressure, and/or cash flow reasons.
- Existing gendered, racialized, and capitalistic hierarchies in higher education that widened during the pandemic, such as
 - Social stratification between tenure track faculty and non-tenure track faculty, particularly teaching and contingent faculty.
 - Rankism among faculty and staff.
 - Institutional prioritization of research over teaching over service work for faculty.
 - Greater institutional investment in STEM versus non-STEM disciplines.
 - Beliefs about and reward structures for productivity and merit.
 - Inequitable processes for hiring, promotion and tenure (P&T), resource allocation, salary, and more.
 - Disabilities, both invisible and visible, are not regularly included within diversity, equity, and inclusion (DEI) work in higher education.
 - Academic institutions treated staff and teaching faculty, who are more likely to be women, people of color, or both, as expendable. Similarly, disabled faculty regularly found themselves having to choose between their health needs and the requirements of their institutions.
- Policy changes without changing the policy environment. For example
 - P&T policies and procedures had to be altered, but many continued to be opt-in, which allowed stigmas to constrain the use of revised policies and procedures, particularly by marginalized faculty.

- The tension between one-size-fits-all policies meant to cover everyone and the need for individualized and equitable responses to unique situations.
- Disciplinary differences and needs, which impacted productivity. For example,
 - Field or laboratory work required on-site work that was shut down or converted into shift work during the pandemic, slowing research activity.
 - Inability to do community-based work, especially for marginalized populations, severely hampered the efforts of many social scientists and humanities scholars.
 - Disciplinary norms around publishing were affected, especially for those in fields that rely heavily on conference publications, which halted during the pandemic.
 - Disciplinary societies that credential departments and programs have power over curriculum, standards of excellence, etc. Their stances on equity, especially tenure standards, largely responded to pandemic concerns inadequately.

Many participants spoke about existing racism, particularly anti-Black racism as well as sexism, ableism, and heterosexism as part of the fabric of U.S. society and U.S. institutions of higher education influencing how the pandemic unfolded for faculty, staff, and students. For example, one participant said, “Academic STEM, like academia overall, is organized according to several hierarchies and those hierarchies are racialized and gendered in every way possible.” Another explained, “Labs remain inaccessible physically and ableism intersects with racial and gender issues within STEM” such that most labor is left to marginalized people to try to gain access to the basic resources needed to do their faculty work, with little initiative taken by the institution. A third shared that “the pandemic exacerbated the divide that already existed between [cis, white, straight, able-bodied men among the faculty] and faculty from marginalized backgrounds.”

Task 2

Our second task utilized a technique known as the World Café: for each conversation, participants engaged in discussion with a small group of colleagues. Within each small group, a host was charged with maintaining focus and ensuring that all voices were heard, and a scribe took notes of the discussion. Individual participants were also able to put sticky notes with their ideas on the digital Mural we used for the meeting. Once the discussion had concluded, the facilitator asked each group to report out; in that way, everyone had a sense of communal responses. Thereafter, individuals moved to assort into new groups, which maximized opportunities for creative interaction.

Questions posed and summary responses were:

1. *Using an intersectional lens, how has and how is the COVID-19 pandemic introducing new inequities and biases, or exacerbating existing inequities and biases for marginalized faculty groups (including institutional responses)?*

During the initial crisis, many inequities showed up quickly, while others became more apparent as institutions responded to the pandemic. Workshop attendees discussed several ways

that inequities at the intersections of gender, race, and disability were exacerbated during the early period of the pandemic shut down. They discussed:

- Workload and pay/funding inequities at the intersection of gender, race, disability, and more. Such as,
 - Hiring, evaluation, and resource granting systems are biased in favor of white, hetero, able-bodied, cis men and completely leave out non-tenure track faculty, who are frequently women of color. During the early pandemic, emphasis was placed on supporting tenure-track faculty to the detriment of contingent faculty.
 - Service loads were gendered and racialized and equity work itself was expected of women, people of color, and people with disabilities, particularly for faculty who exist at the intersections of these identities.
 - Teaching lab-based courses became extremely difficult; further marginalizing women (especially women of color contingent faculty) and graduate assistants.
 - While institutions paid more attention to the mental health and well-being of their students, they did not invest parallel energy in their faculty and staff, primarily women of color, largely responsible for providing that invisible labor.
 - Pay disparities and grant funding inequities for Black faculty coupled with the increase of caregiving responsibilities placed on women during the pandemic meant that Black women in particular lacked financial resources necessary to support their research, their families, and their communities.

One participant described the caregiving labor that institutions of higher education and students expect from Black women faculty as “institutionalizing mammy,” pointing out the roots in anti-Black racism and sexism of this expectation of free, subservient care of mostly white students. Another participant explained that this kind of work came accompanied by heightened visibility and vulnerability to institutional harm as faculty were, “performing institutional labor that is simultaneously essential and devalued.” Participants also raised issues around

- Institutions de-valuing marginalized experiences and voices. For example,
 - Institutional responses tended toward a one-size-fits all approach that did not adequately account for marginalized experiences.
 - Faculty who raised concerns about safety and security to protect themselves and their students were often silenced.
 - The move to online courses did not address the needs of under-resourced faculty and students who did not have access to the necessary technology or broadband at home.
 - Rapid accommodations for the pandemic introduced bias in which crises were worth prioritizing as no accommodations were offered to offset the impacts of systemic racism.
 - Institutions went into reactive mode, abandoning long-term planning and often cut social justice-oriented programs first.
- Lack of institutional transparency fueled mistrust and concerns about inequity. This included opacity in the rationale for decisions about
 - COVID-policies,
 - Budget reallocation,

- Furloughs,
- Promotion and tenure, and
- Returning to campus.

Moreover, the lack of transparency, participants explained, was coupled with a need to examine existing and new policies from an intersectional perspective to better understand their differential impacts and how the policies would play out in practice. As one participant explained, “health issues were seen as acceptable and necessary areas to address, but racial issues, even if they lead to health disparities, were not also addressed. Accommodations were given but not in an equitable way.” Participants also discussed the following

- Hierarchies between institutions meant that under-resourced institutions, which tend to have more faculty of color, were far more constrained in how they responded to the pandemic.
- The virtual environment, while it had some benefits for faculty with disabilities, led to new opportunities for bullying and identity-based violence.
- Peer evaluation of teaching virtually disappeared, leaving only student evaluations for assessing teaching effectiveness, which are known in the research for their bias against women and faculty of color, particularly women of color.

Many participants shared that, taken together, all of these factors plus the context of ongoing death of and violence against BIPOC folks have contributed to a profound sense of burnout and exhaustion. One participant said that faculty saw the intersection of the pandemic with social movements that are important to them as a call to reflect on and reprioritize their values and what they wanted out of their careers (Rodgers & Liera, 2023).

As work and learning **returned to campus settings**, many campuses tried to push the message of “getting back to normal,” however, a “return to normal” meant a return to inequity. It also ignored that a return to normal was undesirable or carried additional risk for many, including those who were grieving, dealing with long COVID-19, vulnerable to COVID-19 infection, had to merge households, have disabilities, feel pressured to code-switch, and more. Workshop attendees discussed:

- Institutional policies and procedures
 - Disability became better recognized, yet policy lagged and the intersection of disability with gender, race, ethnicity, and more was not explicitly addressed in policy or procedurally.
 - Individuals experiencing long COVID-19 continue to be severely disadvantaged due to inflexible policies concerning long- and short-term disability accommodations.
 - Stop the clock/ extensions became common yet most institutions continued to use an opt-in model, which can reinforce stigma for marginalized faculty.
 - Some institutions require statements of COVID-19 impact, which must be phrased carefully to protect privacy (especially concerning mental health) and avoid backlash (especially for P&T decisions)

- Scrutiny of requests for accommodations increased as the crisis was deemed over; worse, institutional policies relegated such matters to offices that are ill-equipped to handle those requests (e.g., Human Resources)
 - The pandemic, national social anti-racist social movements, and the 2020 election cycle provided the backdrop for social and political debates that directly affected academic institutions. For example,
 - Public discussions surrounding mask mandates, vaccines, Black Lives Matter, claims of election fraud, and more all entangle to influence how institutions are making decisions.
 - Local and state laws affecting pandemic responses mean that faculty have very different experiences of the background environment in which they work.
2. *How do we make sense of the desire to return to inequitable pre-pandemic structures (policies, practices, and procedures) and cultures (norms)?*
- a) *What roles do identity, status, institutions, disciplines, etc., play in mapping out new structures and cultures?*
 - b) *How do we move to more equitable processes, including evaluation and decision-making?*

During this conversation, participants discussed how the desire to “return to normal” stems in part from crisis fatigue, including the loss of empathy for those still experiencing negative effects from the pandemic, particularly those who are grieving and/or who need accommodations. As one participant said, “The pandemic was seen as a crisis to respond to, not necessarily an opportunity or a reflection of a need to engage in systemic change.” Another shared that the early stages of the pandemic saw an increase in “allies for people with disabilities that would not have happened so quickly without the pandemic” but that this allyship seems to be dwindling. Others expressed that a return to normal also amounts to a return to refusal to recognize the humanity in one another. As one participant said, “we lost so many people that we can’t talk about the impacts of COVID without talking about the people we lost along the way.” Another participant noted, COVID-19 brings closer the “existential threat that we all have to die one day, which leads people to avoid situations and conversations that make them face that fear. Instead, they reinvest in things that give them a sense of control” even if that sense of control is over one another. Another participant explained that “even the existential threat of death is differentiated” as some groups are more vulnerable to premature death than others.

Participants also discussed how this desire to go back to pre-pandemic living is about prioritizing and maintaining the privilege, comfort, and beneficial experiences of dominant groups while asking marginalized groups to assimilate. This desire, one participant explained, “reflect[s] entrenched systemic inequities (racialized, gendered, classed, abled, etc.) that benefit groups in power.” Another said, “Normal is also a system and structure that allows inequities to persist and stay invisible.” Participants also discussed the ways in which institutional decision-makers were primarily guided by financial concerns, such as the potential loss of tuition dollars. One expressed that “the return to normal is often rooted in the idea of academic capitalism, which has never been inclusive in the first place.” Another said, “A return to normal cannot mean a return to ableism.”

Where academic institutions are concerned, participants discussed the need for intentional cultural change. One participant asked, “How do we shift institutional values with respect to merit and productivity? Can we reimagine academic culture such that equitable policies follow suit?” Another inquired, “can we transform metrics of faculty evaluation?” Another cautioned, “we are retrofitting a system for equity. It was never its goal and without reimagining the broader structures of the academy and the inequality that is endemic to it, we will skirt issues and return to the invisible and visible inequities that were just part of doing business in the academy.” Participants advised being aware of the tendency for institutions to mimic their actual and aspirational peers, with one participant remarking, “For better or worse - institutional isomorphism matters - institutions will follow the lead of the most well-known and prestigious.”

The pandemic demonstrated that institutions can change quickly when they need to. Participants discussed a desire to see a parallel sense of urgency around equity work. To move to more equitable cultures, structures, and processes, participants had several recommendations for bottom-up and top-down approaches to change:

- ***Include marginalized communities in paid change leadership.*** As one participant described, “When we are mapping out new structures and cultures, we must ensure that leadership doesn’t center their identities without consideration or uplifting the voices of those in marginalized communities. Efforts should be made to promote if at all possible and to ensure burdens are not placed through exploitation of free labor.”
- ***Conduct inclusive data collection to inform culture change and decision-making processes.*** As one participant explained, “We need to be collecting and using data to document what is happening, for whom, and the forces that contribute to experiences and outcomes to understand how to get to where we want to be.” Another said, “It is important to decide who the system and structures are serving.” Yet another explained that particular efforts will need to be made to include the perspectives of marginalized faculty, staff, and administrators, who are most likely to be experiencing disproportionate workloads at work and home along side the effects of multiple pandemics.
- ***Embed equity into all that we do.*** Rather than a check-the-box approach, participants discussed the importance of equity as an essential aspect of what it means to be a higher education institution. As one participant explained, we need “institutional commitment to equity [that is] reflected in our systems and structures.”
- ***Practice transparent decision-making and leadership accountability.*** Sharing how and why decisions are made and by whom allows for decision-maker accountability. One participant shared, “people teaching in underfunded, two-year institutions overwhelmingly say decision making that seemed to be about the bottom line as opposed to what is good for the community. That’s part of the importance of transparency. It lets people know how decisions are made.” While the participants shared strategies for bottom-up and top-down change, they resoundingly agreed that institutional leaders need to be held accountable for the outcomes, especially when “the folks who are more often than not deemed responsible for making those decisions do not share the identities of the people they are making the decisions for.”
- ***Redesign the promotion and tenure process.*** While tenure serves as an important protection for academic freedom, norms for obtaining promotion and tenure largely

remain unchanged even with shifts in productivity as a result of the COVID-19 pandemic. Short-term solutions like tenure clock extensions and COVID-19 impact statements do not address long-term systemic issues. Nor will systemic issues be resolved by programs that aim to “fix” marginalized faculty. “Minoritized faculty do not necessarily need special supports,” one participant explained. “We need institutions and colleagues to see us as intellectuals/scholars/researchers in our own right and not as diversity labor or as ‘representational capital.’ I am not saying that we do not deserve to be supported, but I am suggesting that the research that minoritized faculty do deserves to be treated as an intellectual contribution rather than a service contribution -- and that will require that [promotion and tenure] and hiring policies and practices are revised to honor epistemic diversity.” In seeking such revisions, participants asked, how can we be more transparent about the promotion and tenure processes and timelines? What are our academic values and how do our processes either enhance or detract from those values? How can our promotion and tenure processes better reflect our academic values? What is the impact we want to see, and how can we best measure it?

- ***Engage in collective activism to have a greater impact.*** One participant advised, “Collective labor action, advocacy to change laws/policy (especially around the lack of paid parental and sick leave in the U.S....), and more inclusion of worker voices” to guide the change process. Other participants spoke of the role that disciplinary and professional societies could play in creating new norms and expectations.

Task 3

Our final session on Day 1 was designed to build on the research and policy roadmap by envisioning future work on alleviating inequities introduced and/or reinforced by the COVID-19 pandemic. We again used the World Café technique to address the following:

How can we envision a better future?

- How can we reimagine institutions so that they better support marginalized STEM faculty?*
- What are examples of institutional changes or policies implemented in response to the COVID-19 pandemic that – if they are continued – have the potential to reduce systemic barriers to participation and the advancement of marginalized STEM faculty (with an intersectional lens)?*
- How do we retain the lessons learned?*

Reimagining institutions

In this discussion, participants shared a lot about what we already know is needed to form more equitable academic institutions:

- **Redefine merit, productivity, and excellence collectively and with an equitable distribution of power.** Participants discussed how current institutional views of merit, productivity, and excellence need to be redefined from a collective perspective with an equitable distribution of power. Currently, they are framed around cis, white, able-

bodied, straight men and exclude the perspectives of women, faculty of color, LGBTQ+ faculty, and disabled faculty. As one participant said, institutions need to “dismantle the white male archetype of what a faculty looks like, does, and achieves.” Another explained, “Power needs to shift. [We need] a collective reimagining of standards of merit and excellence that are designed by and for people of color with a vision toward a just university and college future.” A third participant asked, “How do we stop equating productivity with worthiness in our workplaces?” With intersectional justice in mind, participants also advocated for reestablishing or strengthening faculty governance.

- **Provide access, *without stigma*, to paid leave, accommodations, and flexible work arrangements for all faculty and staff.** Participants shared that addressing caregiving labor for themselves and others is a high priority. The pandemic exposed wide inequities in access to child and elder care, sick and mental health leave, and accommodations, as well as bereavement policies for loss of loved ones. Participants noted that it is critical to create equitable policies around health, disability, loss, and caregiving *and* to implement those policies in a stigma-free environment. This means creating norms around how the policies should be used and interpreted. For example, one participant advised, “disability shouldn't be a burden of proof,” and offered a reminder that disability is an integral component of individual identity that must be supported at all levels, not just at the undergraduate level. Another noted, “family is defined in many ways but policies often follow a heteronormative model for family leave.”
- **Address salary, resource, and recognition disparities.** Systemic inequities produced vastly different outcomes for marginalized communities. Virtually every stressor produced during the pandemic was more harmful to women, faculty of color, LGBTQ+ faculty, disabled faculty, and those with underlying health challenges. Removing structural inequities so that faculty are paid equitably, provided with the resources they need to be successful, and recognized for all forms of their labor is essential to future success. As one participant explained, “[Federal funding agencies] and [academic] institutions have historically underfunded researchers of color--which fundamentally affects tenure trajectories and graduate training opportunities. This must be repaired not just through funded projects focused on students of color--but material shifts in the long term of who gets resourced to do their work.” Another said that academic institutions need to “rethink appointment, tenure and promotion expectations to better recognize the multiple contributions of a diverse and excellent faculty.” A third participant explained that institutions need to improve their “recognition of and rewards for the additional demands on faculty of color.”
- **Value teaching and service work as well as community-centered research.** Participants described the heavier teaching and service loads carried by marginalized faculty, who also make up a larger proportion of contingent faculty and are over-tapped for diversity, equity, and inclusion work. One participant exclaimed that institutions need to “reframe service as leadership and REWARD it!” Another said that institutions need to make diversity, equity, and inclusion work the responsibility of all faculty and administration, saying that institutions should “provide incentives and expectations around contributions to equity, diversity and inclusion for faculty and administrators at institutional levels.” To hold institutions accountable for equitable workload

distributions, one participant recommended that colleges and universities begin “tracking the invisible labor of diverse faculty for better data on real workloads.”

Participants discussed the importance of reaching out to faculty to learn about “what barriers they are encountering in their careers” to inform institutional reform. More simply put, “Ask people what they need. Then provide it!” Lastly, they revisited accountability, noting the need for institutional accountability structures to mitigate harm.

Examples from the pandemic

In discussing institutional changes or policies implemented in response to the COVID-19 pandemic that – if they are continued – have the potential to reduce systemic barriers to participation and the advancement of marginalized STEM faculty, workshop participants shared several examples:

- **Offering multiple engagement formats, including virtual and hybrid options, for meetings, events, and courses.** The pervasive introduction of online courses and hybrid meetings came with heavy initial costs to instructors and meeting hosts as well as to students and attendees without the technological infrastructure needed to participate online. Ensuring equity in who bears the burden and who has access to the needed technology for these options to continue is critical as online and hybrid options still allow for safe participation and for better use of assistive technologies by students, faculty, and attendees with disabilities and health concerns. As new variants of COVID-19 continue to spread, virtual and hybrid options remain important avenues to access and require institutional investment in faculty teaching and technology resources. As one participant shared, “I find hope in the recent efforts and increased attention around supporting the development of faculty teaching, especially in online modalities.”
- **Collecting meaningful data on pandemic impacts.** Participants discussed the importance of collecting and analyzing data on pandemic impacts for informing not just the research, but for shaping policy and practice. One participant said, “faculty from institutions who had data on pandemic impacts were better able to advocate for policy change.” Participants particularly emphasized the importance of intersectional data collection and analysis.
- **Providing opportunities for faculty to connect with leadership.** During the pandemic, many institutions gathered feedback from faculty through open forums, surveys, town halls, and more. Participants would like to see “opportunities for faculty to provide anonymous feedback/have a voice to leadership,” including deans, provosts, and presidents, continue. When feedback is taken seriously and power is viewed as “power with” rather than “power over,” this helps build trust.
- **Recognizing that systems outside of the university influence performance within it.** During COVID-19, institutions acknowledged that the pandemic shaped faculty and student outcomes and adjusted policies and practices to reflect this. Participants would like to see this apply beyond the pandemic, “normalizing recognizing that broader, systemic challenges impact individual performance.” For example, one participant shared a desire for institutions to “formalize workload accommodations made during the

pandemic for faculty with caregiving needs, disabilities, and more with transparency in how accommodations can be sought.” Others discussed the use of “pandemic impact statements – mechanisms for recognizing the contributions of individual faculty within their individual contexts.” A participant described “course releases and funding for those who have mitigating circumstances that limit research progress.” Another participant shared, “on my campus, we repurposed travel funding during COVID so that faculty could access and use resources according to their needs...such flexibility in using funding opened up doors for faculty.” Many expressed the need for this flexibility to extend beyond COVID-19 to other pandemics, such as anti-Black racism.

Maintaining the lessons learned

As participants engaged in conversations about how we retain and leverage what we have learned from the pandemic moving forward, many expressed a need for colleges and universities to document, collect, and analyze data, with ongoing and/or longitudinal research to best capture the lessons learned and share them with a range of constituents. This applies to both what worked, what did not work, and why. Workshop participants also discussed the following:

- On academic values:
 - Institutions must recognize that they largely sidelined the drive for racial equity to focus on pandemic concerns. They viewed systemic racism as separate from the pandemic, when, in fact, the pandemic reinforced long-standing racial inequities.
 - Community outreach and community-based research can be reimaged so that institutions form true, authentic partnerships rather than viewing communities as at a deficit. For example, Indigenous methodologies are driven by community needs, timelines, and priorities. Faculty must feel free to develop research programs that reflect their priorities and community needs.
 - Broader systemic challenges affect individual performance, and lack of transparency breeds cynicism. Leaders must respect the model of individual autonomy upon which our institutions are founded while still creating a culture with shared goals and values.
- On policies:
 - Formalize the flexibility that was forced upon institutions (e.g., work from home, shifts in promotion and tenure).
 1. For many, home was the space that felt free from the harms of daily oppression. As one participant explained, “Another dimension that was intersectional was for Black workers who said, ‘I feel safer at home. There is less racial harm from not being physically at work aside from the exposure to COVID.’” Asking for a full return to onsite work for BIPOC faculty meant sacrificing personal safety and well-being.
 2. Promotion and tenure processes and policies were quickly adapted to fit the pandemic environment, with many of these changes worthy of long-term retention.
 - Incorporate intersectional social equity into all policies; for example, policies concerning accommodation should be streamlined and allow for a variety of needs. Staff must be trained to understand individual needs and leaders must be creative to allow for new modalities of work.

-----Day 2-----

On the second day of the workshop, we reconvened to first recap the previous day's work and put it into the context of mapping out the most promising research agendas and areas for intervention. After discussion, the group identified five themes for future research.

Priority Areas for Research, Policy, and Practice:

- Understanding the longitudinal impacts of institutional COVID-19 responses on STEM faculty experiences
- Redefining faculty excellence through equitable metrics for change
- Exploring the multi-layered impacts of COVID-19 decision making on disabled faculty
- Challenging the ideal worker model of faculty labor
- Examining the role of professional societies during and after the pandemic for catalyzing faculty equity

The participants then assembled into five groups (one per area) for focused discussions centered on the following questions. Results of those discussions are given below:

1. For research-centric questions:
 - a. Given the research area/issue, what question or set of questions, if answered, will make the greatest contribution to equity in STEM?
 - b. What research methods will prove most useful for answering these questions?
2. For policy/intervention-centric areas:
 - a. Define the problem and purpose of the intervention
 - b. Identify stakeholders, audience, content and distribution of intervention activities
3. What new collaborations might foster the greatest success for these research questions/interventions?

Priority Area 1:

Understanding the longitudinal impacts of institutional COVID-19 responses on STEM faculty experiences

Institutions had unique responses to the pandemic, depending on geography, political background, student body, faculty union status, institution type, and more. Even so, many similar policies were invoked across institutions (e.g., vaccination and masking requirements for faculty, staff, and students), mostly from the top down. Faculty, largely accustomed to considerable agency in how and when they worked, were faced with directives for teaching, graduate student training, research travel, etc. The focus of research to date has been on policies put in place by administrators. This research area aims to better understand how those policies and other institutional decisions in response to the pandemic affected faculty.

For example, the transition to online learning was a tremendous strain for every teacher, with short timelines and inadequate support. The research environment drastically changed as well. Faculty in some disciplines had severe disruptions to their programs (e.g., travel to field sites, community-based research), and all had to develop new models for training student researchers. How did faculty cope? Were there demographic differences in how the needs for rapid and prolonged change were managed? What were the effects on their careers, including their research, teaching, and service activities and outcomes?

Researchers should also strive to understand the motivations of faculty who left their jobs during the pandemic. Those losses, added to those who died due to COVID-19, had strong effects locally (on individual departments). What factors contributed to faculty and staff decisions to leave, and how can institutions learn about their successes or failures from those data? How many graduate students and postdocs left their programs?

We must better understand the long-term effects of the decisions institutions made during the pandemic on the mental and physical well-being of faculty as well. Long-term studies of faculty experiences can uncover lingering effects of the pandemic, including long COVID. Longitudinal, mixed-methods research will allow for both statistical power and contextual understanding of faculty experiences as well as health and career impacts.

Priority Area 2:

Redefining faculty excellence through equitable metrics for change

The pandemic forced institutions to examine their standards, policies, and processes, and we must continue to question historical institutional norms as we move out of the crisis phase of the pandemic and campuses return to onsite operation. As gaps between the current and desired state became evident, biases brought to decision-making also became more apparent. Connecting those gaps and biases to systems of power can allow us to redefine faculty excellence and develop metrics that more closely approximate the *impact* that we actually value. This research/intervention area examines the pandemic's impact on faculty metrics for excellence over time and what related values underlie those metrics.

Metrics, both internal and external, can serve as a powerful lever for individual, departmental, college, and institutional change. They can both shape and be shaped by institutional and broader cultural values. For example, national rankings, such as those managed by *US News and World Report*, can drive college and university behavior. These rankings depend on metrics that are, at best, tangentially related to quality and impact. As institutions compete for students, faculty, grant dollars, and prestige, their behavior can become increasingly separated from the values embodied in mission statements.

Mission statements allow institutions to describe their values for teaching, research, and service and more. Yet connecting those values to metrics remains opaque. What does it mean to provide high-quality instruction, and how do we measure it? Can research quality really be measured by citation indices, grant volume, or numbers of papers published? Can service to the institution,



profession, and community be measured in numbers of hours, which may have no intrinsic relationship to institutional values or community impact?

Individual departments set their own metrics for excellence, sometimes explicitly and at others, implicitly. The departmental power structure can produce inequitable access to resources needed to achieve excellence such as teaching assignments, laboratory space, graduate students, sabbatical leave, and more. Thus, metrics that consider the allocation of resources, distribution of power, and institutional context (e.g., 2-year, 4-year, HBCU, TCU, HSI, PWI) are essential to ensure equity. Sharing metrics across institutions can be highly valuable, and professional societies can play a crucial role convening faculty and administrators from different kinds of institutions.

Metrics for tenure and promotion are at the heart of these discussions and may not relate to department mission directly (e.g., source of grant funding, h-index). Furthermore, external evaluators bring their own biases to recommendations for promotion and tenure (P&T), biases which tend to be ignored.

Faculty agency is purportedly a valuable asset in academia, yet institutionalized oppression and pressure to assimilate heavily shape the degree to which individual faculty can express agency. In addition, connecting individual faculty goals with department and university mission is a rarity in discussions of excellence. Individual faculty members contribute in varied ways to institutional effectiveness, but rigid P&T policies allow for relatively little variation. The COVID-19 pandemic forced a re-examination of the divide between what faculty need/want and institutional goals, and we should not lose the opportunity to question and bridge that divide as the pandemic wanes.

New metrics have been introduced in some institutions (e.g., statement of COVID-19 impact), which provide a base for research in the coming years. Historical assessment of how metrics shifted during the pandemic (e.g., grant dollars, community outreach) can expose where value lies. An explicitly intersectional approach, with gender, race, ethnicity, disability, and sexual orientation as primary axes of identity can uncover whether the new metrics have enhanced equity.

Researchers wishing to explore this topic could use a variety of methodological approaches including:

- Comparative historical assessment of the shift in metrics
- In-depth interviews of presidents, deans, and department chairs
- Tribal research and archives
- Discourse analysis of P&T criteria across institution types
- Participatory action research
- Meta analysis of metrics used across institution types
- Close textual analysis of policy documents

This area of research also has the potential to serve as an intervention if revised, more equitable metrics are recommended as a result of the research.

Priority Area 3:

Exploring the multi-layered impacts of COVID-19 decision making on disabled faculty

Institutions responded to the pandemic in novel ways over a very short time scale: the scope and breadth of urgency was unprecedented in academic history. Disability concerns came to the forefront during the pandemic. Those at high risk required additional or extended accommodations and the number of disabled faculty grew. This research area seeks to better understand the impacts of state, institutional, disciplinary, and individual pandemic decisions on the experiences of faculty with disabilities, particularly at the intersections of gender, race, ethnicity, and sexual orientation.

Perhaps the most jarring immediate institutional response was the move to online instruction, and STEM's reliance on laboratory instruction made these shifts particularly disruptive. Intersectionally exploring how individual faculty, particularly disabled faculty, met that challenge early on and how they coped in the ensuing months (and sometimes years) is a crucial goal. Student behavior in the new environment must be studied to see if previous patterns of bias against women and faculty of color were altered online and whether similar biases for disabled faculty occur in virtual classrooms. Were there new sources of inequity, or did the online environment ameliorate historical patterns? How did students respond to teachers who were themselves affected by COVID-19?

Institutional support and decision-making need to be fully explored. Who made institutional decisions? How were faculty, particularly disabled faculty, supported as they transitioned to new models of instruction? How did faculty governance respond to those needs (especially for unionized faculty)? What were timelines and justifications for shifts to new models, and just as importantly, for abandoning them as the pandemic waned?

Many institutions strongly encouraged researchers to pivot their work to address COVID-related challenges, such as developing Personal Protection Equipment, equipment sterilization procedures, clinical trials for vaccine candidates, new respiratory therapies, and the like. Longitudinal studies of those pivots are needed to understand faculty flexibility and long-term intersectional effects on research programs for faculty with disabilities.

Pandemic closures of research facilities had disruptive effects on faculty productivity in many disciplines. For example, limits were placed on how many could work concurrently in lab spaces and travel to field sites and specialized facilities was forbidden, with unknown effects on time-to-degree, publication rates, and other metrics of success for affected disciplines. Given that many of these spaces are not adequately designed to meet the needs of disabled faculty and students to begin with, how did such shifts impact productivity for disabled faculty?

Conferences could not be held in person, and new modalities for interacting with colleagues had to be developed. How did researcher participation in virtual conferences compare to participation in onsite meetings pre-pandemic for disabled faculty? What was the nature of interactions in the

virtual conference environment? Do disabled scientists want to return to onsite conferences and how will they be impacted if virtual or hybrid models do not persist for future meetings?

When institutions had to prioritize pandemic-related issues, they had to abandon previous priorities. What, in fact, did individuals stop doing, and what was the specific impact of those shifts on diversity, equity and inclusion? Have institutions resumed working on those issues, or have we lost ground in the fight for equity?

To pursue these questions, researchers can collaborate with organizations that study higher education and/or associations for a variety of types of academic institutions (e.g., Association of Public & Land-Grant Universities, American Association of University Professors, American Association for Community Colleges, and more) to achieve a broad view. Furthermore, intensive study of individual institutions can uncover the complex relationships among variables listed above. Mixed-methods will surely be needed to explore the experiences of disabled faculty as well as surrounding state, institutional, disciplinary, and individual contexts in order to understand unprecedented impact of the pandemic.

Priority Area 4: **Challenging the ideal worker model of faculty labor**

Scholars have described how higher education institutions were founded and continue to operate on the assumption of the *ideal worker* (Williams, 1999). This model posits that faculty members devote themselves to work without the distractions imposed by personal and/or family needs. The ideal worker model strongly disadvantages women, who still carry responsibility for most caregiving and household labor, and faculty of color, who bear the invisible labor that comes with daily, systemic racism, and marginalizes other groups (e.g., single parents, those with disabilities, LGBTQ+ faculty, and more). As one of our participants phrased it, “We all have the same 24 hours... but we don’t all have the same options and the same power to choose” how that time is spent. This research area considers how the pandemic exposes fallacies in the ideal worker model and presents the opportunity to redefine more equitable norms for faculty productivity.

The ideal worker model focuses on output measures such as publications, grants, and lab/class size, and assumes those measures correlate with impact. That focus ignores a substantial portion of how faculty members allocate time. Involvement in committee work, academic advising, and course preparation, for example, are essential to meet the institution’s goals, and individual faculty members vary substantially in how much effort they expend on those activities. Unmeasured “service work” is undertaken far more often by women and faculty of color than their majority colleagues, to the detriment of output measures prized by the ideal worker model.

The pandemic produced an environment that challenged this model in multiple ways, calling for research to understand those challenges, as well as document long-term shifts in norms of faculty work. For example, the need for home-based childcare put a spotlight on the needs of working parents and caregivers. For many STEM faculty, particularly marginalized faculty, the ability to

work productively was constrained by other responsibilities. As the pandemic lengthened, many experienced mental health challenges from isolation, burnout, frustration, and the like.

The pandemic introduced new health and disability concerns that disrupted the capitalistic norms accompanying the ideal worker model. For many faculty with disabilities, the pandemic required even more stringent changes to daily routine. Yet institutions tend to view disability as an administrative complication, placing the burden of accommodation requests and proof of disability on the individual rather than the systems and structures that make it so that accommodations are needed in the first place. Few institutions collect data on faculty disability status let alone on disabled faculty identity and experiences. We know little about the intersection of disability with other identities (gender, ethnicity, sexual orientation, socioeconomic status, and more) that are known to affect career progress, particularly in STEM disciplines.

During the pandemic, institutions relaxed their rigid expectations of faculty work away from the ideal worker model. Exploring exactly how that happened in different institutions, as well as whether they have reverted to that model is an important area for researchers.

Priority Area 5:

Examining the role of professional societies during and after the pandemic for catalyzing faculty equity

Professional societies are gatekeepers of culture within their respective disciplines, and STEM professional societies can influence thinking among their members concerning inclusive practices. Furthermore, the broad membership of societies (researchers, educators, students, policymakers, etc., representing numerous work sectors including academia, government, NGOs, and the private sector) gives them leverage for achieving structural change. This research area explores the individual and collective roles STEM professional societies could play in centering equity as academic institutions move through the pandemic. Some questions that this group discussed included:

- In what ways do STEM professional societies incorporate DEI into their values, actions, messaging, practices, and offerings? In what ways do they marginalize DEI work?
- In what ways do STEM professional society leaders support and/or resist DEI work and to what end?
- In what ways do STEM professional societies hold themselves accountable for DEI outcomes?
- How much organizational funding is invested into which DEI activities?
- How has this been influenced, if at all, by the pandemic?

While many STEM professional society DEI efforts have focused on student outreach and recruitment, some have focused on issues that impact faculty, including journal publication, conferences and events, awards, grants, and more (Dean & Koster, 2014; Campbell-Montalvo et al., 2022; Leibnitz et al., 2022; Lincoln et al., 2012; Metcalf, 2016; Metcalf, Russell, & Hill, 2018; Segarra et al., 2020). Many STEM societies have committees or task forces focused on DEI that can be leveraged as well. Furthermore, the Women in Engineering ProActive Network's



(WEPAN) NSF ADVANCE funded initiative, ACCESS+ engages professional societies to assess their current state and plan for interventions to advance equity and inclusion. In addition, some STEM professional societies have formed to more explicitly promote DEI in STEM, such as the National Society of Black Engineers (NSBE), American Indian Science and Engineering Society (AISES), and WEPAN, among others.

Yet some leaders and resistive members at STEM professional societies (including some that play a key credentialing role) view equity work as outside the society's core mandate. Others have financial constraints that additionally shape the deprioritization of DEI work. STEM professional societies tend to have short terms for their leaders, and officers are typically recruited from other sectors; as volunteers, they may have terms of only a year or two. Thus, leadership support for longer-term efforts, such as required for equity work, may wax and wane with turnover at the top. Frank discussions concerning succession planning and clear directives for staff are needed to ensure long-term and meaningful commitments to DEI.

STEM society conferences, workshops, and other professional development sessions were disrupted by the pandemic and most STEM professional societies are primarily comprised of higher education faculty and administrators. Researchers have an opportunity to explore the shifts that societies made in their operations and offerings during and after the pandemic, how related those shifts are to DEI (as compared to other values and concerns), and the impacts of COVID-related society decisions on academic institutions and departments.

STEM faculty tend to have career-long relationships with their professional societies, which transcend shifts in institution, geography, and work sector. They are strongly influenced by positions and policies adopted by their societies, which can echo (or dampen) efforts by academic institutions to move towards equity.

-----End of Workshop-----

Evaluation by participants

We asked participants to assess the workshop via an instrument that probed their experiences. Overall, participants gave the effort high marks for posing important questions, stimulating discussion, highlighting inter-disciplinary approaches, and converging on the most important next steps for the research community. Several indicated they had met others with whom they hope to collaborate in future.

Conclusion:

The pandemic produced seismic changes in the way academic institutions and STEM faculty operated, yet these changes overwhelmingly reinforced inequitable power dynamics, further marginalizing already marginalized faculty. Many colleges and universities largely dropped their focus on addressing systemic racism at the onset of the crisis phase of the pandemic. This happened despite the life-or-death urgency of both pandemics and the ways in which COVID-19



unfolded along racialized lines. Intersectionally speaking, faculty marginalized on the basis of gender, race, ethnicity, disability, sexual orientation, socioeconomic status, and/or more carried disproportionately large shares of invisible labor, including grief and loss. Understanding how institutions responded throughout the different phases of the pandemic and how those responses differentially affected faculty is key to intentionally creating a more equitable path forward. Workshop participants outlined critical research, intervention, and policy agendas that we encourage the community to consider as priorities.



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The ARC Network Library maintains a comprehensive set of articles, webinars, workshop transcripts, and other resources. Membership in the ARC Network is free and open to all. Library resources concerning the COVID-19 pandemic on higher education are available here:

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Appendix I. Agenda for the Workshop

Emerging Research Workshop Towards Greater Equity for STEM Faculty: Lessons from the COVID-19 Pandemic

**December 9-11, 2022
Marriott Marquis, Washington, D.C.**

PARTICIPANT AGENDA

WORKSHOP GOALS

- To gather participants' understanding about the impacts of COVID-19 for equity, diversity, and inclusion among STEM faculty.
- To identify new/emerging research themes, policy development, and adaptations related to mitigating the differential impacts of COVID-19 on STEM faculty equity.

FRIDAY, DECEMBER 9, 2022

- 4:30 PM ET **Participant arrival & registration (Tulip Room)**
- 5:00 PM **Cocktail Reception (Tulip Room)**
- 6:00 PM **Welcome Dinner (Tulip Room)**
Introductions and review of planned agenda. Additional thoughts welcomed.

SATURDAY, DECEMBER 10, 2022

- 8:00 AM ET **Breakfast available (Tulip Room)**
- 9:30 **Workshop introduction (Tulip Room)**
- 10:00 **Partner introductions**
- 10:40 **Break**
- 11:00 **Small group discussions**
- 11:40 **Large group discussion**
- 12:00 PM **Lunch (Tulip Room)**



- 1:00 **Developing shared understanding for a research roadmap (Tulip Room)**
Participants will engage in a series of conversations designed to elicit varying perspectives, develop shared understanding, and reach conclusions about emerging research areas, policies, and interventions to move the academy towards greater equity for STEM faculty.
- 2:30 **Break**
- 2:45 **Continue developing research roadmap**
- 4:00 **Summarize the day**
- 6:00 PM **Dinner (Tulip Room)**

SUNDAY, DECEMBER 11, 2022

- 8:00 AM **Breakfast (Tulip Room)**
ET
- 9:30 **Review Saturday workshop outcomes, introduce plan for the day (Tulip Room)**
- 9:45 **Identify prioritized research areas/issues and self-organize into groups to begin in-depth planning**
- 10:45 **Break**
- 11:15 **Resume in-depth planning in small groups**
- 12:00 PM **Lunch (Tulip Room)**
- 12:45 **Report-outs (Tulip Room)**
- 1:30 **Workshop review and next steps**
- 2:00 PM **Depart for airport**

