

EQUITY AND INCLUSION

STEM

THOUGHT LEADERS' SUMMIT

A report from a summit sponsored by the
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As the voice of the nation's community colleges, the American Association of Community Colleges (AACC), delivers educational and economic opportunity for 12 million diverse students in search of the American Dream. Uniquely dedicated to access and success for all students, AACC's member colleges provide an on-ramp to degree attainment, skilled careers, and family-supporting wages. Located in Washington, DC, AACC advocates for these not-for-profit, public-serving institutions to ensure they have the resources and support they need to deliver on the mission of increasing economic mobility for all.

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Introduction to Equity and Inclusion STEM Thought Leaders' Summit

Recognizing the need for greater participation and success in STEM programs, the [American Association of Community Colleges](#) (AACC) convened the [Equity and Inclusion STEM Thought Leaders' Summit](#) to help faculty and administrators from minority-serving institutions and rural community colleges learn about promising strategies and develop STEM technician education action plans that promote equity and inclusion.

The Equity and Inclusion STEM Thought Leaders' Summit was a pilot project funded through an Advanced Technological Education (ATE) grant AACC received from the [National Science Foundation](#) (NSF). The summit was organized by a steering committee that included representatives of ATE projects and centers, the [National Alliance for Partnerships in Equity \(NAPE\)](#), and three of AACC's affiliated councils: the [National Community College Hispanic Council](#); the [National Council on Black American Affairs](#); and the [National Asian/Pacific Islander Council](#).

Mary E. Heiss, AACC senior vice president for academic and student affairs, noted that response to the summit announcement was extremely strong, with 48 colleges submitting formal applications to attend and several dozen others expressing interest in applying following the deadline. "We are excited that there's so much need and interest in this work, and we appreciate the opportunity to assist colleges in these efforts," she said.

Fifteen colleges were selected by AACC through a competitive application process. The colleges—all new to the ATE program—are located in 13 states and Guam. They included six rural colleges; four federally designated Predominately Black-serving institutions; eight federally designated Hispanic-serving institutions; and two federally designated Asian American and Native Pacific Islander-serving institutions.

Summit Sessions Lead to Action Plans

Summit sessions were held in October 2018, and two-person faculty and administrator teams from the 15 colleges were actively engaged in a sequence of workshop sessions. Discussion topics included: equity gaps; cultural responsiveness; strategies for recruiting and retaining populations that have historically been underrepresented in STEM fields; engaging business, industry, and other key stakeholders; student success and completion strategies; engaging faculty, administrators, and other college employees in equity initiatives; and professional development.

Summit participants heard from a panel of community college presidents and key administrators on student success and engagement; received an overview of the Advanced Technological Education (ATE) program from an NSF program director; gained insights from community college educators who have successfully used ATE grants to address equity issues in STEM technician programs; engaged in roundtable discussions; and developed action plans using an equity mapping process.

Summit Immerses 15 Colleges in ATE Community

With [National Science Foundation](#) grant support, AACC has hosted the annual [Advanced Technological Education Principal Investigators' Conference](#) in Washington, D.C., since 1994. While the ATE Conference has traditionally been open only to individuals involved in ATE-funded initiatives, summit participants attended the plenary speeches, panel discussions, and showcase sessions of the 2018 ATE Conference. In addition to learning about promising practices from ATE

principal investigators during formal presentations, the summit participants were encouraged to network and make one-on-one contacts to gain information about resources and strategies that would strengthen their colleges' STEM technician education programs.

Summit Discussions and Information Requests About the ATE Grant Process

This report summarizes the rich discussions that occurred during the summit. It contains information to guide faculty members and administrators at community colleges and leaders at other institutions who want to structure STEM programs with equity and inclusion in mind. Detailed information is also provided about how to access the plethora of free resources created by ATE projects and centers.

Summit participants were particularly interested in additional information about the ATE grant process. The detailed information contained in this report about ATE programs, proposal writing, and various ATE resources is the initial follow-up to those requests. AACC also intends to develop targeted webinars and follow-up with participants to aid them in their efforts to incorporate equity and inclusion strategies in their STEM programs.

College Leaders Talk About Equitable Practices

Four community college leaders shared their perspectives on equity and their strategies for helping students succeed in order to frame participants' work during the summit.

Heather J. Belmont pointed out that equity is not a universally understood concept. She explained that after becoming vice president of academic affairs at [Indian River State College](#) in Florida in 2018, she surveyed employees about equity. All too often the responses showed people mistakenly thought equality and equity were synonymous.

Equality ≠ Equity

"I treat everyone the same. That's not equity," Belmont said emphatically.

"We really still have a lot of work to do around what equity means and how we provide instruction to our students so everybody can succeed . . . We have to make sure that we continue to have these tough conversations so every student in our classrooms has the opportunity to succeed—no matter how they come to us—they still have the opportunity to succeed," Belmont said. She recommends professional development focused on equity and inclusion for every college employee.

Equity Is Every College Employee's Job

Michael L. Torrence, president of [Motlow State Community College](#) in Tennessee, also invoked the value of engaging the entire employee roster.

"If the president doesn't believe in equity and diversity, it doesn't trickle down," Torrence said. Equity and inclusion also rely on an "organic" process that would result in all college employees weaving equity into their work: "It's all of our jobs to equalize the playing field."

Torrence suggested that small gestures can influence students. For instance, he encourages female and minority students to consider STEM careers whenever he visits elementary and secondary schools, and he has encouraged the college's vice presidents do this too. More formal recruitment efforts include STEM camps and geocaching on campus.

Torrence also cited the work of facility and maintenance personnel as important for communicating the importance of diversity and equity. “The facilities person is the career technical education person at its finest. Often they are the front-facing folks who meet and greet the people who come to our campus.”

Equity Requires Intentionality

“Be intentional,” was the succinct advice Osaro E. Airen gave to the summit participants about the equity and inclusion plans they would develop for their college’s STEM programs at the summit. Airen is dean of the Early College Discovery Center, dean of student retention, and the administrator of the U.S. Department of Education Predominantly Black Institutions grant at [Cedar Valley College](#) in Texas.

Airen also encouraged the summit participants to ask students what they need, to focus on longevity for their programs so they become part of the institution, and to find champions for their efforts. “You need to look for champions around you, because you may need to deal with negativity,” he said.

To Rassoul Dastmozd, president of [St. Paul College](#) in Minnesota, equity and inclusion in STEM are important drivers of his actions in the community and within the college. “My approach to equity and inclusion is broad across the campus, but it is different within each division or unit depending on the needs of each audience,” Dastmozd said.

Because he wants St. Paul College students to be “viable assets” in their communities and decision makers in the companies that employ them after graduation, he endeavors to put resources behind equity and inclusion. For example, he replaced the first two levels of developmental math and one level of developmental English, which enroll many students of color and first generation college students, with free courses that he persuaded local philanthropies to underwrite.

“It’s a moral responsibility on my part to provide resources and be a connector in the community,” he said. He has worked internally to change the culture of the college to respond to the community’s changing demographics. When he does final interviews for all new employees, he looks for people who “have walked the paths of students ... and understand the experiences of our students.”

Read more about the hiring practices that have made St. Paul College’s faculty more diverse and the various student recruitment and retention strategies used at the panelists’ colleges in the *Community College Daily* article [“Weaving equity, diversity into the mission.”](#)

NAPE Process Places Equity at Center of STEM Education



To help the educators from 15 community colleges utilize the ATE program to develop STEM equity action plans, Ben Williams, PhD, chief executive officer of the [National Alliance for Partnerships in Equity \(NAPE\)](#), guided them through an action planning process.

“When we are intentional about creating space for equity in STEM to be at the center of how we do STEM education, that’s where it happens,” Williams said, explaining that aiming for high-quality programs is not enough. “Because what often happens is people hang their hat on quality, they hang their hat on great programs, but they don’t make the necessary criterion of quality for equitable outcomes or equitable access.

“And so when we push back as a community of practice and say, ‘Hold on folks. We can do quality and equity, and in fact have better outcomes.’ That’s where I think real transformation can happen. That’s why we’re so excited about being a part of this conversation.”

Williams provided an overview of the research-based [Program Improvement Process for Equity](#) that NAPE designed and tested over several years to help institutions increase the participation and success of underrepresented students in STEM. The five steps of the process are organize, explore, discover, select, and act.

More Girls Enroll in Welding After High School Unpacks Biases

To help summit participants understand how seemingly innocuous past practices and cultural biases can conspire to influence who pursues STEM careers, Ben Williams cited an example from [NAPE’s](#) implementation of its Program Improvement Process for Equity (PIPE) program in Oregon.

Before launching an intervention to increase female enrollment in its welding program, educators at Roseburg High School in Oregon conducted an equity audit of the program that had four female students in 2015. The audit found that all of the welding equipment in the lab was large, which made it difficult for students with small or very large hands to master welding techniques.

To address the bias that potential welders come in one size, the school added small, medium, and extra-large welding equipment.

To make more students and adults aware of its career and technical education (CTE) programs, it also implemented a Freshman Cruise for all incoming students to visit every CTE class, and an open house for adults in the community to learn about CTE opportunities. For both recruiting events, the four girls demonstrated welding lessons.

The next semester, 38 girls enrolled in welding courses; 40 girls were enrolled in welding courses in 2018.

For more info on Oregon schools’ use of NAPE’s PIPE process read the [Promising Practice](#) report.

“This work is not a one-time shot. This is a lifelong process, and it makes such a difference when a community is supporting it,” Williams said, encouraging the dynamic the participants experienced at the summit.

Williams was asked how NAPE quantifies the impact of the Program Improvement Process for Equity (PIPE). When the process is implemented with the specific objective of increasing the access and success of underrepresented groups in STEM, NAPE refers to the program as [PIPE-STEM](#).

“Equality is everybody gets the same thing. Equity is everybody gets what they need to succeed.”

Ben Williams, PhD, CEO
[National Alliance for Partnerships in Equity](#)

“A successful outcome is moving the needle. It’s often starting with moving teacher perceptions, teacher attitudes, or educator knowledge. . . . It’s moving from unawareness, to awareness, to knowledge, to an understanding, to being able to take action,” Williams said.

NAPE has used ATE grant support ([#1104163](#)) to implement [Micromessaging to Reach and Teach Every Student™](#) curriculum to help STEM technician educators at two-year colleges and high schools create “equitable and inclusive” educational experiences for their students.

NAPE reports that “micromessaging has demonstrated significant success in improving faculty attitudes, intentions, and behaviors that have transformed their teaching practices and had a demonstrated impact on student outcomes in multiple class settings.”

NAPE’s current ATE project—[Educators’ Equity in STEM II \(#1601548\)](#)—is offering a professional development program that includes a four-day summer institute, a facilitated professional learning community (PLC), online resources, and a virtual capstone presentation.

“Where, ultimately, we want to have impact is on students and being able to access those pathways that lead to those opportunities that students often don’t have access to because of effects of cultural stereotypes on their experiences, classroom experiences, understanding of careers, and whether they are even able to see themselves in those careers,” Williams said.

Factors that Contribute to Equity Gaps

Summit participants were asked to think about the equity gaps on their campuses. Challenges identified as contributing to equity gaps at community colleges include the following:

- Faculty and staff who do not understand the difference between equality and equity.
- Incomplete data about equity gaps on campuses.
- Cultural expectations that influence students’ decisions about the courses they take and careers they pursue.
- Students’ insufficient academic preparation to succeed in entry-level STEM courses.
- Low enrollment of women and minorities in STEM programs, which then discourages others from underrepresented minority populations from enrolling.

Strategies for Outreach and Recruitment

The summit steering committee recognized that creating a more equitable learning environment to develop a more diverse workforce requires broad community involvement, and discussions focused first on engaging business, industry, and other key stakeholders.

Stakeholders

Most of the participants chose employers—either business or industry—as a stakeholder group to focus on outreach and recruitment.

Challenges

The groups reported the following as top challenges for engaging the selected stakeholder groups:

- Helping people understand the value of equity approaches
- Selecting a leader to foster engagement in equity and inclusion
- Keeping in mind what is best for students
- Finding partners among small and large companies
- Organizing and maintaining an effective advisory committee
- Getting industry to spend time and focus attention on the college's programs
- Aligning industry expectations with the realities of academia
- Addressing industry's reluctance to "up-skill" employees who may leave
- Building trust in apprenticeship competencies
- Identifying career opportunities for students
- Assisting with transportation to college and job locations
- Inculcating students with soft skills
- Overcoming political or geographic barriers
- Maintaining solid finances
- Decreasing the outflow of human capital that occurs when community college graduates leave rural areas

Promising Strategies

During discussions participants shared anecdotes about promising strategies such as utilizing a single advisory committee for multiple STEM programs; connecting with innovative entrepreneurs; teaching in mobile immersive learning environments; organizing robotic rodeos; asking industry leaders to speak at commencement and other campus events; and having industry partners "adopt" or "sponsor" a particular student by paying for his or her uniform or tools.

Cultural Responsiveness

Mel Cossette, principal investigator of the [National Resource Center for Materials Technology Education](#) at [Edmonds Community College](#) in Washington and a summit steering committee member, introduced the cultural responsiveness discussion by talking about the importance of raising awareness about this issue. The steering committee for the summit agreed that this discussion was particularly important because there are so many perceptions about what cultural responsiveness is.

Cossette explained that it is often in conversations and other interactions with faculty and staff that students encounter the college's culture. She emphasized that students hear the nuances in what professors say to them, and encouraged the educators to choose their words carefully. For instance, Cossette suggested acknowledging program expectations for participation to students as being "very attainable" rather than specifying a particular GPA "because people will lower the bar for themselves."

Summit participants were asked to consider two questions:

- How is "cultural responsiveness" defined at your institution?
- What is your campus doing to be "culturally responsible" to meet the needs of your student population?

Cossette asked participants to come up with a one-sentence definition of "cultural responsiveness."

The discussions that followed were animated and focused as summit participants crafted their definitions. While some participants said cultural responsiveness was integral to their colleges' operations, other people said cultural responsiveness was not discussed on their campuses.

Here are the definitions of cultural responsiveness crafted through the discussions:

Our institution intentionally creates an environment in which the individual student's right to learn parallels with the recognition that each person has unique cultural identities that contribute to rich learning opportunities in our multicultural society.

A culturally responsive institution meets and supports students and the community by respecting cultural context.

Cultural responsiveness is a continuous work in progress toward achieving mutual understanding, flexibility, humility, and respect.

The campus community speaks, acts, and interacts respectfully in view of the differences that others have and bring.

A culturally responsive institution provides an educational space that listens, respects, and adapts to students' needs.

Cultural responsiveness understands where students come from and provides paths for them to get the necessary skills and resources to be prepared for life while valuing their experiences and cultural lenses, and giving them the social capital to navigate the process.

Two ATE On-Ramps

The summit was designed to provide participants with information about various [Advanced Technological Education \(ATE\)](#) initiatives, including mentoring programs. [Union County College](#) Professor Elizabeth K. Hawthorne explained two distinct mentoring pathways: [Mentor-Connect](#) and [MentorLinks](#).

Mentor-Connect is a leadership and outreach initiative led by the [South Carolina Advanced Technological Education Center of Excellence \(SCATE\): National Resource Center](#) at [Florence-Darlington Technical College](#) focused on helping colleges prepare a competitive NSF ATE proposal in the Small Grants for Institutions New to ATE track.

AACC is a Mentor-Connect partner, and has received ATE grant support to run the [MentorLinks](#) program since 1999. MentorLinks provides mentoring and technical resources to help colleges improve existing STEM technician education programs or to start new ones.

As a Mentor-Connect mentee in 2015 and a current MentorLinks mentor, Hawthorne has deep knowledge of these programs that utilize the expertise of STEM educators involved in the ATE program to mentor faculty who have not received ATE grants.

“In both programs, the mentor provides trusted advice, guidance, and encouragement for the mentee,” said Hawthorne, a computer science and cybersecurity professor at the New Jersey college. Whether to apply to Mentor-Connect or MentorLinks depends on what a faculty member aims to accomplish.

“If a faculty member is interested in learning how to write a successful small ATE grant proposal to the [National Science Foundation \(NSF\)](#), then Mentor-Connect is a good choice.”

“If a faculty member wants to strengthen a technician training program in a STEM field and does not have the resources to write an NSF grant proposal, then MentorLinks provides that opportunity,” she explained.

Mentor-Connect mentoring spans the nine months that a college team is preparing a proposal for the Small Grants for Institutions New to the ATE Program track; MentorLinks mentoring lasts for two years.

ATE Mentoring Opportunities

As part of its effort to develop a diverse STEM technical workforce, the [National Science Foundation](#) has funded [MentorLinks](#) and [Mentor-Connect](#) to help faculty from two-year colleges that have not had [Advanced Technological Education \(ATE\)](#) grants in the past seven years gain entrée to the ATE program.

[MentorLinks](#) pairs two-person (faculty and administrator) college teams with experienced community college mentors for two years to build new or strengthen and sustain existing STEM technician education programs. MentorLinks mentors have extensive experience in planning and implementing advanced technology programs.

Selected colleges receive \$20,000 in seed money plus additional travel support to attend national meetings and events relevant to their STEM program improvement plans.

The [American Association of Community College \(AACC\)](#) has structured MentorLinks to provide rich networking opportunities, valuable professional development, and attentive technical assistance. After meeting face-to-face with their mentors each autumn the MentorLinks mentees attend the [Advanced Technological Education Principal Investigators' Conference](#).

A Request for Applications for the 2019-2021 MentorLinks cohort will be available in late April 2019.

[Mentor-Connect](#) provides one-on-one mentoring and no-cost technical assistance to help college teams prepare competitive proposals for the Small Grants for Institutions New to ATE track. Mentor-Connect offers travel support for two-person college teams to attend two workshops during the nine months they work on grant proposals with their mentors, who are successful ATE principal investigators.

The Mentor-Connect leadership development and outreach initiative is led by the [South Carolina Advanced Technological Education Center of Excellence \(SCATE\): National Resource Center](#) at [Florence-Darlington Technical College](#). AACC is a Mentor-Connect partner.

The application for the next Mentor-Connect cohort will be available in early July 2019.

MentorLinks mentors visit the mentee's college and offer advice during periodic phone calls on curriculum development, professional development, and partnerships. Participating colleges also have the opportunity to visit the mentor's college or a college with a successful STEM program.

Hawthorne pointed out that sometimes a college will go through MentorLinks to revamp or start a STEM program and then apply to Mentor-Connect for help preparing an ATE proposal for a grant to advance its work.

"Both mentoring programs are excellent with proven track records of success," Hawthorne said.

"Mentor-Connect provided a mentor subject field expert [Casey W. O'Brien] who matched our evaluation needs to an experienced external evaluator," she explained. O'Brien is the executive director and principal investigator of the [National CyberWatch Center](#).

Hawthorne cited Mentor-Connect's assistance as critical for Union County College. "If it wasn't for Mentor-Connect, Union County College wouldn't have its new degree in [cyberforensics](#)," she said, adding that two grant proposals that she and colleagues had prepared on their own "failed miserably."

The ATE grant proposal that Union County College's faculty team submitted in October 2015 with O'Brien's guidance was awarded NSF funding and began in August 2016 as [Cyber Service! Interdisciplinary & Experiential Education for Cyber Forensics Technicians project \(#1601060\)](#).

As the project's principal investigator, Hawthorne has continued to use Mentor-Connect's digital resources. She demonstrated how she used the keyword search function within [Mentor-Connect's online library](#) to learn how to draw down funds from Union County College's \$199,987 NSF award and how to tabulate her time and effort on the grant.

As a MentorLinks mentor, Hawthorne has advised the team from [McHenry County College](#) in Illinois about the redesign of the college's network security program. In addition to receiving mentoring over a two-year period, each MentorLinks college receives \$20,000, which the [American Association of Community Colleges](#) provides from its ATE grant, for professional development and curriculum development. Mentees also receive travel support.

Stephen Mujeye, networking instructor at McHenry, and Diana Sharp, dean of career and technical education at McHenry until mid-2018, achieved significant goals in their first year in MentorLinks. Since October 2017, they have developed [CISCO](#) courses, set up a server room and CISCO lab, and established an industry advisory board. The college offered Cisco I and II courses in fall 2018 and Cisco III and IV in spring 2019. In fall 2019, a new network security course will be offered.

Grant-Writing Workshop Provides Help for Proposals to ATE and S-STEM Programs

If you are a two-year college educator who has a solid idea for improving STEM education but lacks grant-writing know-how to obtain funding for your idea, the [NSF-Sponsored, Grant-Writing Workshop for Two-Year College STEM Faculty](#) may be just what you need.

The intensive workshop from June 9 to 12, 2019, at [Ashland University](#) in Ohio will help teams of faculty, administrators, and staff from 25 colleges prepare proposals for [NSF's Advanced Technological Education \(ATE\)](#) and [Scholarships for Science, Technology, Engineering, and Mathematics \(S-STEM\)](#) programs, Kathleen A. Alfano, co-principal investigator of the [Center for Renewable Energy Advanced Technological Education \(CREATE\)](#), explained at the summit.

In addition to receiving instruction in effective grant writing from community college STEM experts, workshop participants receive travel support of up to \$500, and have the potential to earn stipends when they complete the workshop and submit a proposal.

A one-page, pre-proposal (that follows [NSF guidelines](#)) must be submitted by a full-time STEM discipline faculty member, administrator, or college staff member by April 19, 2019. A letter of commitment from an academic administrator at the level of dean or above must accompany the one-page proposal. Each college team (up to two persons) must have at least one STEM faculty member.

For questions about the workshop contact Ruth Gonzalez-Rios at rgonzal2@ashland.edu or 419-289-5922.

ATE Central Resources Available to All

Whether you are an administrator looking for new STEM curriculum, an instructor searching for professional development or a member of a team preparing an ATE grant proposal, ATE Central is an excellent starting point.

The free online [archive](#) serves as an information hub that encompasses the depth and breadth of the ATE program, Rachael Bower, ATE Central principal investigator, explained. For the past decade, ATE Central has provided a word-searchable database for everything from modules to entire courses, and from webinars to workshops as well as thousands of other deliverables created by ATE centers and projects.

“All those materials are usable by people in the community or outside the community,” Bower said.

ATE Central also created tools to help projects and centers promote the use of their innovative materials and to help develop collaborations. These free, open resources include the following:

- [ATE Central Outreach Kit](#)
- [ATE Central Connection Newsletter](#)
- [ATE Centers and Projects Map](#)
- [ATE Events Calendar](#)
- [ATE Impacts Book and Blog](#)
- [ATE Social Media Directory](#)
- [Student Success Videos](#)
- [Sustainability Services](#)
- [Webinars](#)

NSF Encourages S-STEM Proposals from Two-Year Colleges

The National Science Foundation’s [Scholarships for Science, Technology, Engineering, and Mathematics \(S-STEM\)](#) program provides institutional awards to fund scholarships and activities that help low-income, academically talented students who are pursuing associate, baccalaureate, or graduate degrees in STEM fields.

To increase retention and graduation of these students, the [S-STEM solicitation](#) explains, the program funds partnerships “that advance the adaptation, implementation, and study of effective evidence-based curricular and co-curricular activities that support recruitment, retention, transfer (if appropriate), student success, academic and career pathways, and graduation in STEM.”

In particular, NSF encourages proposals from two-year institutions, minority-serving institutions (MSIs), historically Black colleges and universities (HBCUs), Hispanic-serving institutions (HSIs), tribal colleges, and urban public and rural institutions. The federal science agency’s mission includes the development of “a diverse, high-performing workforce that draws from all segments of society and values fairness, diversity, and inclusion to promote the progress of science.”

S-STEM proposals are due March 27, 2019, and in future years will be due on the last Wednesday in March.

ATE Leader Provides Program Overview

As the lead program director for the [Advanced Technological Education](#) program at the [National Science Foundation](#), V. Celeste Carter champions community colleges' roles in developing the nation's skilled technical workforce.

"Lately there is a tremendous interest in students who complete associate degrees and/or certificates at two-year institutions in the United States being the skilled technical workforce for reinvigorating the American economy," Carter said. She pointed out that the newly created [Council for the American Worker](#) and the [National Science Board's Task Force on the Skilled Technical Workforce](#) are both spotlighting two-year colleges' work in STEM technician education in addition to other federal agencies that focus on technician education. She mentioned that NSF teams are working on the agency's five-year strategic plan for STEM education.

She encouraged summit participants to use the [2018 ATE Principal Investigators' Conference](#) as an opportunity to learn from community college STEM education leaders involved in ATE center and project grants.

"One of the great things about our community is that we share. We do not hold things close to the chest. You want somebody's curriculum, you want some help figuring out how to adapt something, you want to know how in the world they contacted their industry and formed a really great partnership—there's somebody in this community that can help you, and they will. You just have to get out there and really make those connections."

Carter provided an overview of the ATE Conference's tracks and encouraged summit participants to read the [ATE program solicitation](#) and prepare proposals. The next submission deadlines are October 3, 2019, and October 1, 2020.

She also urged the audience, most of whom had previously not received ATE grants, not to become discouraged if their first proposals are not funded. Her first ATE proposal as a [Foothill College](#) faculty member was not funded. Taking reviewers' comments into consideration contributed to the success of her second and subsequent proposals. "You can learn from failure," she said.

ATE Program Overview

ATE projects focus on an array of local and regional initiatives to test innovative approaches to particular technician education challenges.

ATE projects that focus on *Program Development and Improvement*, *Curriculum and Educational Materials Development*, *Professional*

Tips for Successful Submission of ATE Grant Proposals

V. Celeste Carter, lead program director of the [Advanced Technological Education \(ATE\)](#) program, shared the following tips for successful ATE grant submission:

- Read the ATE program [solicitation](#).
- Use the guidelines within the ATE solicitation as a proposal checklist.
- Read and follow NSF's [Proposal & Award Policies and Procedures Guide](#), which is updated every year.
- Use [ATE Central](#)'s key-word-searchable [database of ATE projects and centers](#) to find out what has already been funded in a particular geographic region and discipline.
- Call an [NSF program officer](#) or email a one- or two-page proposal synopsis to a program officer with a request for comments.
- Use NSF's [FastLane](#) portal to submit ATE grant proposals, rather than grants.gov
- Upload grant proposals a week or more before the deadline. Upcoming ATE proposal deadlines are October 3, 2019, and October 1, 2020.
- As a final check to make sure nothing became garbled in transmission, download each component of the proposal as submitted from FastLane and check for errors. Correct errors by uploading revised documents any time before the deadline.

Development for Educators, Leadership Capacity Building for Faculty, Teacher Preparation, Business and Entrepreneurial Skills Development for Students, or ATE Coordination Networks may receive funding up to \$600,000 for up to three years.

ATE projects for *Instrumentation Acquisition* that support instruction in emerging technologies may receive up to \$500,000 for two to three years. ATE projects for *Adaptation and Implementation* may receive up to \$400,000 for two to three years.

Small Grants for Institutions New to ATE may receive up to \$300,000 for three years.

Targeted Research in Technician Education projects may receive up to \$150,000 for up to two years, and up to \$800,000 for up to three years.

ATE National Centers that lead nationwide initiatives to improve technician education in a particular field or technology may receive up to \$7.5 million for five years, with the potential for one renewal.

ATE Resource Centers that continue important work started by ATE centers may receive up to \$1.6 million for three years, with the potential for one renewal.

Rural Educators Offer Advice for Obtaining Grants

Two rural college educators—Jay Olsen and H. Scott Halliday—told summit participants how they have used [National Science Foundation](#) grants to build new STEM programs that address the particular needs of their communities and also serve as models for other institutions.

They also offered practical advice for newcomers to NSF's grant application process.

“Don’t get discouraged or think that, ‘Oh, the direction I want to go is not going to work—It’s not flashy enough. It’s not big enough.’ If it fits your area, then go for it,” said Jay Olsen, director of agribusiness and agriculture at [Snow College](#) in Utah. “First, surface the idea, talk about it, [and] collaborate with others both on campus as well as outside campus.”

Learn from the ATE Community

Olsen encouraged the summit participants to utilize the showcase sessions at the ATE Principal Investigators’ Conference to expand their professional networks. “Find others doing similar things and glean from them their experience. We’re here to share and learn together,” he said.

To illustrate this point, Olsen said that by responding to questions posed by their [Mentor-Connect](#) mentor about the most pressing issues facing family farmers in Central Utah, he and Michael P. Medley, the dean of business and applied technologies, figured out what the college could do to help family farmers. They wrote a successful proposal for the [Strengthening Farms and the Rural Economy through Agricultural Mechanics project \(#1601397\)](#) that addresses the economic impact of increased competition for water between agriculture, industry, and residential development.

The curriculum for the agricultural technology and mechanics degree program that Snow College developed with its first ATE grant blends instruction in drone and geographic positioning system technologies with small engine repair and farm management. The versatile skill set that students learn in order to run efficient family farms also prepares them to be technicians for agriculture equipment companies.

Leverage One Grant to Obtain Another

“Leverage, leverage, leverage,” said H. Scott Halliday, coordinator of the Digital Technology Center at [Navajo Technical University \(NTU\)](#) in New Mexico.

During the past decade he has leveraged the positive student outcomes of a small NASA grant to obtain 10 other federal grants to improve the infrastructure and curricula at the tribal college, which attained ABET accreditation for two engineering programs.

In fall 2018, Halliday became the principal investigator on a new NSF grant for the [NTU Center for Advanced Manufacturing \(#1840138\)](#) that aims to develop four additive manufacturing degrees and certificates and bring research and economic development to the Navajo Nation.

“My first grant proposal was horrid,” Halliday said, calling himself “just a technical guy.” But he learned how to convey his ideas for technological education programs in compelling ways and “to connect the dots” with industry partners and university researchers who add “gravitas” to his plans.

Tell Project’s “Story” in Proposal Narrative

“It’s how you frame your idea. Make them want to fund what you’re doing,” Halliday said, referring to reviewers.

Both Olsen and Halliday talked about the importance of faculty clearly telling the story of why they need the grant funds and what the funded project will accomplish in the narrative of the proposal.

“Develop your story and tell your story, that’s really all a grant is . . . You just have to learn how to tell it well,” Olsen said.

Halliday cautioned against overdoing the technical details in grant proposals.

“I don’t think I have one equation in any of my grants. I don’t think I’ve ever [written] . . . ‘Here’s the math I’m going to do.’ It’s all been storytelling. So, we have PhDs at my school who have submitted grants and they don’t get their grants funded because they don’t tell a good story. It’s all filled with technical jargon that doesn’t say why they need the grant,” Halliday said, adding that a successful grant proposal is “absolutely telling your story.”

Five Components of Effective NSF Grant Proposals

While serving as the co-lead program director of the ATE program from 1993 to 2012, Gerhard Salinger developed a five-component list of what should be in every NSF grant proposal narrative. He recently updated it:

1. Summarize briefly what has been done in the area of interest and provide a clear rationale for the proposed project that includes details about the project’s inputs.
2. Describe the activities needed to achieve success, the personnel who will do them, how industry will be involved, and how the needs of underrepresented populations will be addressed. (Note: ATE principal investigators must have relevant STEM and STEM education expertise; they do not need to be PhDs.)
3. Describe the outputs and outcomes, and explain how the outcomes will be evaluated.
4. Describe how others in your geographic region or discipline will learn about the project.
5. Describe mechanisms for sustaining the project beyond the grant period.

Salinger suggests faculty use a logic model when preparing proposals. Inserting a logic model after the rationale in the narrative provides an outline for the proposer, guides the reviewer, and points out what should be evaluated.

He also encourages ATE applicants to involve industry people as leaders in their projects, not just as advisors. He is a fan of the [Business and Industry Leadership Team \(BILT\)](#) model developed by the [National Convergence Technology Center](#) and used by the institutions in its Convergence College Network.

Helpful Hints & Fatal Flaws

For more proposal-writing guidance see *Helpful Hints & Fatal Flaws* in [Mentor-Connect’s digital library](#). It was written by Elizabeth J. Teles, an NSF program director who was co-lead program director of ATE from 1993 to 2009.

Summit Participants Receive Orientation Prior to ATE Principal Investigators' Conference

To help the summit participants make the most of the ATE Conference, Ellen Hause, AACC program director for academic and student affairs, provided an overview of the plenary speakers and the dozens of sessions on emerging technologies and innovative STEM education practices.

The summit participants and MentorLinks mentees then gathered for discipline-specific roundtable discussions led by MentorLinks mentors. The mentors also offered strategies for navigating the ATE Conference showcase sessions to help the teams find booths where personnel from the projects and centers of interest would be available to answer questions.

“I enjoyed the showcase sessions, and really appreciated being able to talk to other teams who were doing similar projects to what we plan to do.”

—STEM Summit Participant

In their responses to survey questions after the ATE Conference, summit participants indicated that their conference participation had a strong positive impact and shared the reasons for their excellent event ratings as contributing to their knowledge base, learning of resources, and valuable networking opportunities.

To view ATE conference presentations, materials, and videos of plenary sessions, please see the [conference website](#).

“The networking opportunities and sharing of ideas and best practices used at institutions in similar climates were absolutely wonderful. The showcases are fantastic because you speak directly to teams that have received ATE funding and learn how their projects are progressing as well as discuss any issues they may have come across.”

—STEM Summit Participant

Summit Sparks Action Plans for Equity and Inclusion in STEM

Kevin Christian, senior program associate for diversity, inclusion & equity at AACC, asked summit participants' to complete the sentence, "I am here to. . ."

"Learn successful strategies to address equity gaps and increase non-traditional populations' involvement in STEM" was one statement that summarized many other participants' goals of gaining insights into promising practices that improve equity and access to STEM programs. "Equatize access and success in STEM" is how one person put it, coining a new verb.

Raising awareness, finding resources, and exploring partnerships were among the broad aspirations that others listed. Several people mentioned the more immediate and concrete goal of obtaining information to help them prepare successful NSF grant proposals.

Each college team worked through the steps of the action planning for equity process using the "Action Planning for Equity through ATE Worksheet" (see appendix). The steps were designed to help summit participants identify equity gaps on their campuses and make plans to address them. The equity mapping and action planning process was developed over several years with the support of NSF and other funders by the [National Alliance for Partnerships in Equity \(NAPE\)](#), a summit partner. The colleges' action plans, which were shared for other participants to comment on, varied in specificity. Several colleges identified barriers and implicit biases while others listed details for launching new initiatives to boost enrollment of particular populations.

One team made plans for the college to host a car show to showcase career and technical education programs. The steps listed for this new campus activity included figuring out how to help prospective students with their FAFSA forms at the event.

Another college team planned to create a general education course to broaden the career exploration of young men of color. This team listed other curriculum modifications to improve students' scaffolding of knowledge and hoped to win approval to embed tutoring in courses, which was mentioned as an effective practice during the summit.

Reflection and Next Steps

When reconvened for a closing session, summit participants were first asked to rate their networking experiences at the summit and [ATE Principal Investigators' Conference](#). Then, they were asked to identify a best practice or promising strategy that they planned to use on their campus. Finally, they were asked what they had learned about NSF and its funding opportunities that would be useful for their STEM program or college.

Several participants shared some of their reflections with the entire group. One person said it was most helpful to learn that NSF program directors are willing to provide feedback on one-page summaries of grant proposal ideas. Another participant said discussing a nascent idea for program improvement with people throughout the week had helped his team "branch out and create more opportunities."

Participants reported that it was also helpful to learn about NSF's terminology and [FastLane](#) system, [ATE Central's](#) resources, and [Mentor-Connect's](#) webinars on grant-writing topics such as preparing project budgets and developing evaluation plans.

Participants then engaged in small group discussions about what would be most valuable to them to improve STEM programs at their colleges. Each group identified three priorities for technical assistance from AACC, and the following emerged as the top priorities:

- Equity analysis for STEM programs
- Rules for grant preparation and practical advice for proposals
- Assistance for writing grant proposals
- Help developing project evaluation plans
- Assistance connecting STEM improvements with other funding opportunities

Participants talked about what they planned to do as a result of their experiences at the summit and conference. As they spoke, it seemed that the enthusiasm of participants, who were energetic following the summit sessions, had been further boosted by the ATE Conference. Everyone reported that they had plans to generate buy-in for building structures for equity within STEM programs.

“My team is stoked,” one participant said. Others reported that they had already emailed information back to colleagues and scheduled meetings with their supervisors, or their presidents to talk about strategies for equity and how to utilize curricula, professional development, and other resources that are available for free through ATE projects and centers.

One team planned to ask its college president to make a five-year ATE plan that involves applying for grants and leveraging ATE resources to improve instructional practices on campus.

Another team leader shared her hope to work collaboratively with colleagues in other disciplines on combined and/or coordinated grant proposals to improve the college’s “intellectual capacity.”

In their closing remarks, steering committee members from AACC Affiliated Councils encouraged participants to be intentional and deliberate about equity work; to continue to network with the people they met during the week; to use the summit participants as a long-term support group; to take their passion and excitement back to their campuses; and to work strategically on their STEM program improvement plans.

Initial Summit Impacts

Santa Fe Community College Unites Its Hispanic Male Initiatives

For several years, [Santa Fe Community College](#) in New Mexico has had multiple initiatives aimed at closing the achievement gap among its Hispanic male students. These include tutoring, veterans' services, advising, career tech advising, and leadership training.

The persistence of the achievement gap, however, led Santa Fe leaders to apply for the STEM Thought Leaders' Summit.

Camilla Bustamante, dean at Santa Fe Community College, describes the summit's structure as "helpful and informative" because it challenged her and Stephen Gomez, assistant professor and chair of the department of Sustainable Trades and Technologies, to push past their initial ideas.

During the hours that they spent talking through the [National Alliance for Partnerships in Equity's Program Improvement Process for Equity](#), their thinking evolved. They came to see "the overlap" among the Hispanic male programs as the vehicle for linking them—and the people who run them—as a network that could accomplish more by working together and pursuing funding collaboratively.

"The summit helped synthesize many of these efforts," she said. When she and Gomez brought the leaders of the initiatives together when they returned to campus, the response was enthusiastic and the [Male Achievement Plan for Mastering Academic Networks \(M4M\)](#) was formed.

Between October 2018 and mid-January 2019, M4M has held an open house for Hispanic men enrolled in gateway courses to inform them about tutoring and other services available to help them succeed; has identified mentors for the students; has established a marketing plan for M4M; and has begun planning a welcome-back event in February and mid-term studying session in March.

In another summit-related development, Interim President Cecilia Y.M. Cervantes was so impressed by what Bustamante and Gomez told her about the equity planning process that she had Ben Williams, NAPE's CEO, lead a workshop for the 25 members of the President's Diversity Advisory Committee on November 30.

M4M's Next Steps

The half dozen faculty and staff members who have been leading separate Hispanic male initiatives are enthusiastic about working together on M4M. Several of them can be seen smiling together in the photo at the top of the M4M webpage.

Bustamante said all the group's work sessions are filled with energetic conversations, "Everybody gets so excited. They are so into it. All I'm doing is coordinating," she said.

One of the ideas they are considering is M4M membership cards that would give the student participants discounts at businesses in town or items such as ice cream cones, at campus events. The cards and items would be something tangible that affirms the men's academic efforts and involvement in M4M. Bustamante hopes the sense of community and

interpersonal skills that M4M aims to build will address the key issues that researchers have identified as critical for helping Hispanic men persist in college.

In January 2019, the M4M leaders' to-do list included figuring out how to offer FAFSA-preparation support at all of the group's community outreach activities and how to involve business people and others outside the campus in its efforts.

Summit Sparks New Recruitment Plan for Alternative Energy Program

"The collaborations at the meeting provided a valuable reset" for Kory Lloyd, chair of the Trade and Industry Department at the [College of Southern Idaho](#).

Lloyd said during the summit that learning about planning for access and equity in STEM programs had affected the "overall vision and scope" of his work.

He related what he had been hearing at the summit to the challenge he was facing with the college's renewable energy program.

The program started several years ago as a biodiesel program then shifted to solar and wind energy when the economics of biodiesel did not pan out. The college has received lots of prime equipment to support the newer iteration of the program but it has been difficult to attract new students and enrollments are small.

"I'm now seeing an entirely different" audience for the program, Lloyd said, explaining that he was returning to campus with a plan to recruit women.

Following the summit, college personnel initiated a plan to recruit female high school students in a release-time agreement with local school districts, with most parts of this initiative scheduled to roll out in fall 2019.

Networking Helps Halifax Community College Move Forward

"One of the great parts was the networking," Jeffery Fields, vice president of academic affairs at [Halifax Community College](#) in North Carolina, said of attending the STEM Thought Leaders' Summit and the ATE Principal Investigators' Conference.

While networking, he and James Lynch, instructor of industrial systems technology, heard repeatedly that they should look more closely at data on the college's current students and the rural North Carolina region's demographic data for insights about potential students.

Fields and Lynch came to the summit with four ideas for possible initiatives that they had discussed with colleagues. After participating in the summit sessions, they decided to focus on marketing the industrial systems technology program to women and underrepresented populations.

At the conference they sought out ATE principal investigators whose projects deliver instruction to remote areas. These discussions led to Fields and Lynch deciding that they should explore offering courses in a semi-tractor trailer outfitted as a mobile industrial lab and classroom. They think a mobile unit will address potential students' transportation challenges and boost the visibility of the program that teaches electrical, mechanical, and solar technology skills as well as robotics.

“It would be something new for the entire college,” Fields said of the mobile unit that he envisions being used for dual enrollment courses at high schools and training programs at companies.

Examining the college’s data after returning to campus has left Fields and Lynch wanting more information: their next action step is a survey of the service area.

Luna Community College Educators Gather Advice at ATE Conference

Francisco Apodaca, director of Academic STEM at [Luna Community College](#) in New Mexico, describes the [STEM Thought Leaders’ Summit](#) as a “great opportunity” that has already helped the college move forward.

The networking at the [2018 Advanced Technological Education \(ATE\) Principal Investigators’ Conference](#) was particularly helpful, he said, describing it as “an eye-opening experience” to talk with so many educators who have ATE grants.

He and Sharon Lalla, vice president of instruction at Luna Community College, sought out leaders of information technology projects to discuss the lack of growth in Luna’s computer science program. This was one of the equity challenges they identified during the summit. Luna graduates a similar number of computer science majors every year, but far fewer people than employers are seeking.

The ATE principal investigators they talked to suggested that Luna’s solid core curriculum expand to include cybersecurity, cloud management, and data analytics to attract more students and address employers’ needs.

In January 2019, Apodaca and Lalla were working with colleagues to add eight computer science courses and to plan grant proposals to enhance other STEM programs at the college.

Summit and Conference Help Clarify Plans for Energy Technician Initiative

Attending the [STEM Thought Leaders’ Summit](#) helped Bill Gilmore and Nicholas Alfonso clarify their thinking about establishing energy technology career pathways from rural high schools to [Pueblo Community College](#).

“It really helped us focus our work,” Gilmore said in a phone interview after the summit. He is the program director for STEM, art, and IT for the [Colorado Community College System](#). Alfonso is a biology professor and department chair at Pueblo Community College.

Prior to the conference, Gilmore and Alfonso had been investigating the technician needs of renewable energy companies as well as oil and gas companies. They had “pretty solid” ideas for a new program to prepare low-income, minority students from rural areas for careers in energy production and natural resource management.

During the summit, however, they were persuaded that they need to involve industry partners in their planning and should start with a smaller initiative than they initially envisioned.

Since returning to Colorado, they have been planning their requests to strategic partners at the college and in the community. “We’re still very much in the preliminary stages of working toward this,” Gilmore said.

Nevertheless the breadth of opportunities on display at the [2018 Advanced Technological Education \(ATE\) Principal Investigators' Conference](#) impressed Gilmore. He had not known of the ATE program prior to a colleague sharing the summit application with him. Now he sees it as a potential resource for Pueblo Community College to build on its strengths and address equity gaps.

Summit Inspires Proposal for Similar Meeting at Tarrant County College

Two [Tarrant County College](#) educators are so impressed by the results of the equity gap analysis and planning process used at the [STEM Thought Leaders' Summit](#) that they want to do something similar with the STEM faculty from all six of the district's campuses in Texas and with key stakeholders.

The [Program Improvement Process for Equity](#) used by the 15 college teams during the summit was developed by the [National Alliance for Partnerships in Equity \(NAPE\)](#), a summit partner.

Developing a STEM strategic plan that can be leveraged to help obtain additional support is the overarching goal that Archie Wilmer, mathematics professor at Tarrant's Northwest Campus, identified in a brief circulating among the district's STEM faculty in January 2019. "That will help us decide what areas to focus on," Wilmer said.

A key challenge that Wilmer and Janice Smith, divisional dean of mathematics and science at Tarrant's Northwest Campus, identified during the summit is the uncertainty within the college about which students are STEM students. The college offers more than 60 associate of applied science degrees and several associate of science STEM transfer degrees, but does not require students to declare majors. Consequently there are many unknowns about where enrolled students are on their intended career paths.

The gap was apparent before they attended the summit. "But attending the summit provided richer clarity about the need to get an understanding of where we are and where we need to go. . . . Attending the summit forced us to open the door and ask questions," Wilmer said.

The proposal for a college-wide STEM summit will go to the STEM Council for the district this winter.

Additional ATE Resources

ATE-TV

<http://atetv.org>

Advanced Technological Education Television (ATETV) is an award-winning Web-based video series and interactive network designed to connect students and professionals with careers in advanced technology.

Build Your Own (BYO) Video Tool

<https://www.scate.org>

The BYO Video Tool provides free access to a searchable collection of professionally produced STEM videos that have been micro-segmented for faculty and college staff members to use for student recruitment videos.

The Centers Collaborative for Technical Assistance (CCTA)

<https://atecenters.org/ccta/>

CCTA was created in response to a request from the U.S. Department of Labor (DOL) to NSF to have ATE Centers provide technical assistance services to DOL Trade Adjustment Assistance Community College Career Training (TAACCT) grantees. Resources include technical assistance webinars and best practice publications available for free to all.

The Evaluation Support Center for Advanced Technological Education (EvaluATE)

<http://www.evaluate.org>

EvaluATE provides free webinars, resource materials, newsletters, workshops, and opportunities to help educators use evaluations in their pursuit of excellence in technical education.

High Impact Technology Exchange Conference (HI-TEC)

<http://highimpact-tec.org>

HI-TEC is a national conference where ATE projects and centers share their innovative work with secondary and postsecondary educators, counselors, industry professionals, trade organizations, and technicians.

National Institute of Women in Trades, Technology and Science (IWITTS)

<https://www.iwitts.org/>

IWITTS helps educators close the gender gap for women in technology. Resources include professional development, webinars, a [WomenTech Gender Self-Assessment](#) to determine if your colleges' STEM/CTE programs are "female-friendly," and a [Bridging the Tech Gender Gap eBook](#).

TeachingTechnicians

<http://teachingtechnicians.org>

TeachingTechnicians provides information about on-site and online faculty development events.

Appendix 1: Summit Agenda



Equity and Inclusion STEM Thoughts Leaders' Summit

Omni Shoreham Hotel
Washington, D.C.
October 23-24, 2018

AGENDA

The summit is designed to broaden equity and access in STEM by sharing the promising practices and resources of the NSF's Advanced Technological Education (ATE) program with a focus on strengthening STEM technician education programs at minority-serving institutions (MSIs), rural colleges, and community colleges new to the NSF ATE program.

Tuesday, October 23

Hampton Ballroom

- | | |
|-------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 8:30 a.m. | Welcome and Breakfast |
| 9:00 a.m. | Introductions and Icebreaker
<i>Mary Heiss, Senior Vice President for Academic and Student Affairs,
American Association of Community Colleges, DC</i>
<i>Kevin Christian, Senior Program Associate, Diversity, Inclusion & Equity,
American Association of Community Colleges, DC</i>
<i>Brenda Albright, Consultant, BNA Consulting, TN</i> |
| 9:30 a.m. | STEM Summit Rationale and Objectives
ATE Overview and Agenda Review
<i>Kevin Christian, Senior Program Associate, Diversity, Inclusion & Equity,
American Association of Community Colleges, DC</i> |
| 9:45 a.m. | STEM Thought Leaders' Framing Panel –
Student Engagement and Success
<i>Dr. Osaro Airen, Dean of Student Retention and PBI Administrator,
Cedar Valley College, TX</i>
<i>Dr. Heather J. Belmont, Vice President of Academic
Affairs, Indian River State College, FL</i>
<i>Dr. Rassoul Dastmozd, President, St. Paul College, MN</i>
<i>Dr. Michael L. Torrence, President, Motlow State Community College, TN</i> |
| 10:45 a.m. | Break |

Tuesday, October 23 (continued)

Hampton Ballroom

11:00 a.m.	Introduction of Equity Mapping and Action Planning Tool <i>Dr. Ben Williams, CEO, National Alliance for Partnerships in Equity, PA</i>
11:15 a.m.	Setting the Stage: Addressing Equity Gaps <i>Dr. Ben Williams, CEO, National Alliance for Partnerships in Equity, PA</i>
12:15 p.m.	Networking Lunch
1:00 p.m.	Roundtable Discussion Introduction and Instructions <i>Brenda Albright, Consultant, BNA Consulting, TN</i>
1:15 p.m.	Discussion Roundtables – Topic 1 <ul style="list-style-type: none">• Strategies for Student Outreach and Recruitment of Underrepresented Students
1:45 p.m.	Report Out from Roundtables – Topic 1
2:00 p.m.	Discussion Roundtables – Topic 2 <ul style="list-style-type: none">• Engaging Business, Industry, and Other Key Stakeholders
2:30 p.m.	Report Out from Roundtables – Topic 2
2:45 p.m.	Break
3:00 p.m.	Faculty and Administrator Engagement Professional Development and Cultural Responsiveness <i>Mel Cossette, PI and Executive Director, MatEdU National Resource Center, Edmonds Community College, WA</i>
4:00 p.m.	Discussion Roundtables – Topic 3 <ul style="list-style-type: none">• Student Success and Completion Strategies
4:30 p.m.	Report Out from Roundtables – Topic 3
4:45 p.m.	Reflection and Summary Reminders and Announcements
5:00 p.m.	Adjourn

Wednesday, October 24

Blue Room & Blue Room Pre (Note: Room Change)

- | | |
|-------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 7:45 a.m. | Networking Breakfast
<i>Joint breakfast with MentorLinks Program Participants</i> |
| 8:30 a.m. | Introductions: MentorLinks and STEM Summit Participants
Agenda Review and Objectives
<i>Kevin Christian, Senior Program Associate, Diversity, Inclusion & Equity
American Association of Community Colleges, DC
Ellen Hause, Program Director for Academic and Student Affairs,
American Association of Community Colleges, DC</i> |
| 8:45 a.m. | Welcome from NSF – NSF Opportunities and Resources
<i>Dr. V. Celeste Carter, Program Director, National Science Foundation, VA</i> |
| 9:30 a.m. | ATE Resources and Pathways
<i>Rachael Bower, PI, ATE Central, University of Wisconsin-Madison, WI
Elizabeth Hawthorne, PI, Union County College, NJ</i> |
| 9:45 a.m. | Navigating the ATE Conference
<i>Ellen Hause, Program Director for Academic and Student Affairs,
American Association of Community Colleges, DC</i> |
| 10:00 a.m. | STEM Disciplines and Technology Round Robin <ul style="list-style-type: none">• Group 1: Agricultural Technology• Group 2: Biotechnology• Group 3: Cybersecurity• Group 4: Energy and Environmental Technology• Group 5: Engineering Technology• Group 6: Information Technology and Data Science• Group 7: Manufacturing Technology |
| 10:45 a.m. | Break
<i>STEM summit participants return to Hampton Ballroom.</i> |
| 11:00 a.m. | Success Stories and ATE Pathways
<i>H. Scott Halliday, PI, Navajo Technical University, NM
Jay Olsen, PI, Snow College, UT</i> |
| 11:45 a.m. | Initial Summit Reflection |
| 12:00 p.m. | Group Photo |
| 12:15 p.m. | Networking Lunch |

Wednesday, October 24 (continued)

Hampton Ballroom

1:15 p.m.

Action Planning for Equity through ATE

Dr. Ben Williams, CEO, National Alliance for Partnerships in Equity

This action planning session will provide time for each institutional team to share take-aways from the roundtables and other discussions, plan for next steps at the conference and beyond, and use each other and the subject matter experts as sounding boards. This session will be framed in the context of NAPE's highly effective Program Improvement Process for Equity™ (PIPE™): **Organize** (developing a team for proposal and implementation); **Explore** (recognizing and identifying equity gaps which will be addressed through your STEM project); **Discover** (root cause analysis and identifying the “why” for those equity gaps); **Select** (which interventions will be most effective to mitigate those root causes); and **Act** (how will those interventions be implemented and evaluated). Teams will use the *Action Planning for Equity through ATE Tool* to capture insights, take-aways, and next steps that can be pursued during the ATE Conference and beyond.

4:15 p.m.

Summit Adjourns

5:45 p.m.

ATE Conference begins with Opening Plenary in Regency Ballroom

Friday, October 26

Blue Room*

11:30 a.m. – 12:30 p.m.

STEM Thought Leaders' Summit Reflection Session

*Please enter the Blue Room through Robert's Private Dining Room.

This session is part of the ATE Conference agenda and is for participants of the Equity and Inclusion STEM Thought Leaders' Summit to report out and reflect on their summit and conference experience, and to discuss community building and next steps.

Appendix 2: Equity and Action Planning Worksheet

Action Planning for Equity Through ATE Worksheet



The *Program Improvement Process for Equity™* (PIPE™) is a research-based, effective professional development program designed for institutional teams to increase the participation and success of under-represented students in STEM and other nontraditional career preparation programs. This worksheet and the Action Planning Session at the end of the *ATE Equity and Inclusion STEM Thought Leaders' Summit* is organized around this process. **Organize** (developing a team for proposal and implementation); **Explore** (recognizing and identifying equity gaps which will be addressed through your ATE project); **Discover** (root cause analysis and identifying the “why” for those equity gaps); **Select** (which interventions will be most effective to mitigate those root causes); and **Act** (how will those interventions be implemented and evaluated). Teams will use the *Action Planning for Equity through ATE Worksheet* to capture insights, take-aways, and next steps that can be pursued during the ATE Conference and beyond. Key framing questions are summarized below and contained in order in the worksheet.



ORGANIZE

1. What are the important issues at the college/institutional/regional level that need to be addressed?
2. Who are the key stakeholders, and who can speak to the dynamics most effectively?
3. Who will you be working with to address identified equity gaps in participation, retention and/or completion?

EXPLORE

4. Which equity gaps have you identified in your program, department, institution, and/or region?
5. What issues are bubbling up from the data?
6. What data are you using to support identified equity gaps and what other data need to be consulted?

DISCOVER

1. What are the key barriers to students' access to and success in CTE and STEM programs of study?
2. What root causes are contributing to the educational inequities identified in your equity gap analysis?
3. Is your educational equity focus measurable?
4. Is this something you can actually do something about (within spheres of control and influence)?
5. How could NSF ATE funding help you to address these equity gaps, and how can you frame that work in the current body of research and practice?

SELECT & ACT

1. What strategies/interventions will you be implementing to address your equity gaps?
2. How will you document what works? What doesn't work?
3. How will you integrate this continuous improvement process in your institution and region?
4. How can you maximize success by implementing multiple supporting strategies?
5. How will the ATE Conference and community help build capacity around this work?

ACTIVITY

Action Planning for Equity Worksheet

ORGANIZE

1. What are the important issues at the college/institutional/regional level that need to be addressed?
2. Who are the key stakeholders, and who can speak to the dynamics most effectively?
3. Who will you be working with to address identified equity gaps in participation, retention and/or completion of students in STEM and CTE?
4. Is there anyone else that you and your team need to engage? How will they further build your capacity to address these complex issues?
5. Are there opportunities for partnerships? With other colleges/institutions (in the room and at the conference), with other ATE projects, community partners or organizations, others?

Key members of my team (current and future)

What are my next steps?

ACTIVITY

Action Planning for Equity Worksheet

EXPLORE

1. Which equity gaps have you identified in your program, department, institution, and/or region?
2. What issues are bubbling up from the data?
3. What data are you using to support identified equity gaps and what other data need to be consulted?

What are the equity gaps that my ATE project will address? (Think about intersections of race and ethnicity, gender, socioeconomics, and disability)

What other data do my team and I need to explore (institutional and other)?

ACTIVITY

Reflection & Action Worksheet

DISCOVER

1. What are the key barriers to students' access to and success in CTE and STEM programs of study?
2. What root causes are contributing to the educational inequities identified in your equity gap analysis?
3. Is your educational equity focus measurable?
4. Is this something you can actually do something about (within spheres of control and influence)?
5. How could NSF ATE funding help you to address these equity gaps, and how can you frame that work in the current body of research and practice?

Marketing and Recruitment

Student Retention

Other factors

ACTIVITY

Action Planning for Equity Worksheet

SELECT & ACT

1. What strategies/interventions will you be implementing to address your equity gaps?
2. How will you document what works? What doesn't work?
3. How will you integrate this continuous improvement process in your institution and region?
4. How can you maximize success by implementing multiple supporting strategies?
5. How will the ATE Conference and community help build capacity around this work?

What specific interventions are you considering and why? Why do you think they will work (what is your evidence)? How will you measure effectiveness?

What resources do you want to utilize and further explore based on your learning this week?

ACTIVITY

Action Planning for Equity Worksheet

Next Steps

How can the ATE Conference and ATE community help build your capacity? What types of projects do you want to learn about and engage this week at sessions and showcases?

What are your next steps when you get back to your institution? Who will do what and by when?

What are your next steps when you get back to your institution? Who will do what and by when?		
Task	Person responsible	Timeline

Other thoughts

Developed and facilitated by:

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For more on NAPE's Program Improvement Process for Equity visit www.napequity.org/pipe

Appendix 3: Summit Participants

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