

**Final Report to the United Engineering Foundation  
December 1, 2025**

**I. Summary of original approved proposal**

On August 1, 2024, the NSF INCLUDES Engineering PLUS Alliance at Northeastern University College of Engineering submitted a proposal to the United Engineering Foundation as follows:

The NSF INCLUDES Engineering PLUS Alliance<sup>1</sup> requested \$95,311,00 in UEF funding to build the capacity and elevate the impact of the stEm PEER Academy network of change agents to national leadership in engineering education equity. The stEm PEER Academy is a critical strategy of the Engineering PLUS Alliance to increase the annual number of Black, Indigenous, People of Color (BIPOC) and women engineering students earning undergraduate/graduate degrees to 100,000/30,000 by 2026.

UEF funds were requested for the in-person engagement of 31 stEm PEER participants from Cohort 1 and 2 at the 2025 CoNECD Conference (Collaborative Network for Engineering and Computing Diversity) in San Antonio, TX, February 9-11, 2025. It was anticipated that they would join 30 Cohort 3 PEERs for pre-conference professional development and community building. CoNECD is a conference of the American Society of Engineering Education dedicated to increasing diversity in engineering and computing.

The United Engineering Foundation's support for the convening of all the stEm PEERs at the 2025 CoNECD conference was to serve as the foundation for building not only a PEER community of practice to promote knowledge sharing and generate new knowledge among its members but would encourage the establishment of a national leadership group for increasing diversity in engineering education and the engineering workforce.

The proposal was approved in Fall 2024 and work proceeded on conference planning, including development of the agenda, leader and attendee conference registrations, and travel arrangements.

**II. Actions of the new administration and the impact on the Engineering PLUS Alliance grant and the stEm PEER program.**

On January 20, 2025, the Trump administration issued an executive order directing the OMB Director, the Attorney General and OPM to terminate DEI programs, offices and positions in the federal government and "equity-related" grants and contracts. On January 21, 2025, the administration issued another executive order requiring federal grant recipients and contractors

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<sup>1</sup> The Engineering PLUS Alliance is funded by the National Science Foundation (NSF) as a part of the NSF's Eddie Bernice Johnson INCLUDES (Inclusion Across the Nation of Communities of Learners of Underrepresented Discoverers in Engineering and Science) initiative under award HRD-2119930. Any opinions, findings, and conclusions or recommendations expressed in this material are those of the author(s) and do not necessarily reflect the views of the National Science Foundation.

to certify that they do not operate DEI programs that violate anti-discrimination laws. Employees in all federal diversity, equity, inclusion and accessibility offices were placed on paid administrative leave effective immediately.

Following that, NSF issued instructions to all NSF grantees that they must comply with these executive orders, and any other relevant executive orders issued, by ceasing all non-compliant grant and award activities including conferences, trainings, workshops, considerations for staffing and participant selection, and any other grant activity that “uses or promotes the use of diversity, equity, inclusion and accessibility (DEIA) principles and frameworks or violates federal anti-discrimination laws.”

The Northeastern University College of Engineering made the decision to pause all activities of Engineering PLUS, in compliance with the Executive Orders and the NSF directive. Plans for travel to the CoNECD were cancelled for the stEm PEER leadership team and for all the PEERs, including those whose travel costs were being paid by the UEF grant. At the same time, the College of Engineering generously allowed continuing payment of project salaries for all Northeastern Engineering PLUS employees, including the leaders of the stEm PEER Academy.

Claire Duggan, Director of the stEm PEER program and Elizabeth Blume, Senior Program Manager, met with Pat Natale to propose a revised scope of work for the UEF grant. He asked that Engineering PLUS submit an addendum to the original proposal for him to review. That submission was reviewed and approved.

### **Addendum to the original proposal**

1. stEm PEERs registrations for the CoNECD conference were required to be processed well in advance of the conference.

The Executive Order that stopped stEm PEERs from attending the CoNECD conference was issued in late January, just days before the conference was scheduled to start on Feb. 9, 2025. At that point, the conference organizers (ASEE) could not issue refunds for registration fees because the organizers had contractual obligations to the headquarters' hotel. Fortunately, hotel room reservations were canceled without penalty because of “circumstances beyond the attendees’ control”, and most airline tickets were converted to credit.

We asked UEF to permit the project to utilize funding to cover registrations already processed. An invoice detailing all expenditures is provided directly from our finance office.

It was requested that the remaining grant funding that was originally awarded be utilized to support a virtual convening of stEm PEERS utilizing the original agenda proposed for the in-person meeting. Additional funding would be utilized for a new cohort of stEm PEERs to attend the 2025 stEm PEER Academy. The balance of funding supported the attendance of a cohort of stEm PEERS at the 2025 ASEE conference in Montreal. Stipends were issued directly to support academy participants and those individuals attending the ASEE conference.

- **March convening of stEm PEERS**

At this virtual Convening, March 18 & 19, 2025 our cohort of 70+ stEm PEERS were presented results of our mid-year evaluation report on the stEm PEER Academy (Appendix). Our stEm PEER leaders led breakout discussions on the future of the stEm PEER Community. Participants responded to questions outlined and originally planned for our CoNECD session. Input provided was utilized to inform the content of the 2025 stEm PEER Academy.

**1. Given the significant changes underway at federal and state levels, has your role or position or title been directly impacted? How have recent events impacted your teaching, research, policies, and programs? Has your institution been directly impacted? If so, how?**

- *Guidance on modifications in language on proposals*
- *Loss of existing funding sources which has limited ability to implement proposal projects, creation of dedicated focus groups of impacted individuals at institution to minimize impact*
  - *loss of funding at the institutional level (NIH), have had some proactive pivots for impacted programs based upon climate surveys. Additional potential impacts based upon follow-up state level initiatives (restrictions on academic freedom, DEI, etc.).*

**2. Given the current landscape, how might stEm PEER Academy support you in your current role?**

- *This community is needed! Especially now.*
- *Keep doing the monthly meetings (stEm PEER is doing a great thing) – it's important!*
- *Having a platform where you can say what you want freely is invaluable!*
- *Writing grant proposals on how to approach how we write grants, share successful grant proposals in this landscape.*
- *Inspiration (what could work at my institution and how).*

**3. What topics/issues do you feel are essential for us to address in the 2025 Academy and through our continued monthly meetings in the upcoming 2025-2026 academic year?**

- Funding opportunities, Research publications, Data to support current and future BPE and success for all students.

- *Information on Seminars or talks being organized*
- *Topics to both continue to educate us and to help us educate our communities at our institutions.*
- *IPED data and resources.*
- *Data demonstrating the effect of current legislative actions on various metrics of interest (enrollment, demographic factors in engineering, etc.*

#### **4. Should industry's role be elevated? If yes, how? What could industry do?**

- *Opportunities for engagement are important (e.g., shadowing opportunities, mentorship) – continue to provide those opportunities*
- *Industry's role should be elevated. They should provide direct funding for efforts. As importantly, they provide their voice and support (and courage).*

Between the March convening and the offering of the 2025 stEm PEER Academy, the NSF Engineering PLUS Alliance grant was terminated. A decision was made given the level of interest from applicants, the evaluation feedback we had received, and the input from current stEm PEERs to continue to offer the 2025 Academy.

- **2025 stEm PEER Academy.**

We proposed utilizing funding to recruit 25 additional participants to join our stEm PEER community at the 2025 stEm PEER Academy (20+ hours) in May/June 2025 with sessions co-facilitated by our 6 stEm PEER leaders.



Sessions specific to the changing educational landscape were open to all stEm PEERs. Participants were required to develop a pilot action plan to support the design and delivery of their evidence-based engineering education project.

We accepted 32 participants to the Academy. Those eligible to receive stipends (26) were provided with a stipend (\$925) to participate. The 2025 convening was the first offering that actively solicited the direct input of a cohort of (6) six stEm PEER leaders, selected from public and private institutions across the country. Each had been actively engaged in the stEm PEER community. They received stipends to support their leadership role in the offering and the continued direct support of the new cohort.

Angela Birkes, PhD – University of Georgia  
Henry Griffith, PhD – San Antonio College  
Gisella Lamas, PhD – University of Kentucky Paducah  
Johnne Parker, PhD – University of Kentucky  
Martene Stanberry, PhD – Tennessee State University  
Karina Velma, PhD – University of Texas San Antonio

### **2025 stEm PEER Academy Objectives**

stEm PEER Academy provided participants with the opportunity to:

1. Understand the engineering education pathway landscape with an emphasis on student success.
2. Utilize data (IPEDS, etc.) to inform program efforts.
3. Engage in models, interventions and evidence-based practices that have been proven to support engineering and engineering technology degree attainment for all students.
4. Build partnerships to engage stakeholders at their institutions, regions, and nationwide.
5. Develop an Action Plan to implement at their institution (or with other institutions) during the 2025-2027 academic years.

Our program consisted of the following. A full agenda is available in Appendix 2.

April 29 <sup>th</sup>	Virtual Orientation led by Claire Duggan, Jennifer Love and Elizabeth Blume and stEm PEER Leaders
May 6 <sup>th</sup>	Leveraging Your Institutional Data Workshop led by Alan Peterfreund, PhD and Joyce Wang, SageFox Group
May 20 <sup>th</sup>	Day 1 Topics Evidence-Based practices (case studies) Systems Change
May 21 <sup>st</sup>	Day 2 Topics Action Plans Current Funding Landscape
May 27 <sup>th</sup>	Day 3 Topics Breakout discussions Transfer Pathways

## Weaving In Not Weeding Out: Evidence-Based Strategies that Work

May 28 <sup>th</sup>	Day 4	Workforce Development Panel Our Current National Landscape Goal 2040: A Stronger Nation a Brighter Future
June 3 <sup>rd</sup>	Day 5	Evaluation and Assessment 101 Breakout Rooms – Action Plan support
June 4 <sup>th</sup>	Day 6	Presentations of Action Plans

### 2025 stEm PEER Participants/Program efforts

2025   Nadia Al-Aubaidy      Norwich University      Associate Professor  
*The undergraduate research experiences program at Norwich University focuses on project-based learning (PBL) to equip military and civilian engineering undergraduate students with real-world, hands-on research opportunities that bridge theory and practice. The program includes faculty mentorship, integration of cutting-edge technologies (VDC/BIM, AI, 3D printing), student-to-student mentoring, and opportunities to present research at conferences, with particular emphasis on helping underrepresented groups in STEM develop problem-solving, teamwork, and communication skills essential for academic success and future careers.*

2025   Oladayo Bello      New Mexico State University      Assistant Professor  
*The proposed strategy for undergraduate engineering and engineering technology students focuses on creating diverse pathways for enrollment and degree completion by offering students autonomy to choose their preferred learning methods and assessment options within the program structure. This approach aims to address the fact that "all students are not created equal" by moving away from the traditional one-size-fits-all model and instead meeting students where they are, accommodating different learning styles, availability, and skill levels to improve recruitment, retention, and graduation rates.*

2025   Wyatt Bischoff      Miami University - Ohio      Senior Academic Advisor  
*The proposed Facilitated Study Groups program at Miami University's College of Engineering and Computing aims to increase retention of undergraduate engineering students by creating a sense of community and providing academic support through a combination of mandatory and opt-in study sessions. Drawing from personal experience of leaving engineering due to lack of community, the author plans to implement a student's-helping-students mentorship model that addresses both academic performance and social connection for engineering students who might otherwise leave the program, as evidenced by the 19 students who recently departed from the Mechanical and Manufacturing Engineering department.*

2025 Terrance Bishop Southern Illinois University - Carbondale Director of Success in Engineering  
*The proposed math foundation strengthening program at Southern Illinois University targets undergraduate engineering students, particularly underrepresented students and those struggling with math anxiety, through online instructional support and specialized summer courses tailored for students who received D/F/W or C grades in previous math classes. Drawing from personal experience overcoming math difficulties and research showing students have stronger connections to math anxiety than math confidence, the author aims to address the "greatest roadblock" to engineering degree completion by strengthening fundamental math skills early in students' college careers, making engineering more accessible to a wider pool of potential students.*

2025 Lisa Coronado San Antonio College Department Chair  
*The proposed communication skills program at San Antonio College targets undergraduate engineering students with targeted modular content focused on developing technical and interpersonal communication skills that industry consistently identifies as lacking in engineering graduates. The initiative aims to bridge the gap between academic preparation and industry needs by implementing modules like "Technical Communication Essentials" and "Interpersonal Communication in Technical Settings," alongside summer bridge programs, to enhance employability for the diverse student population, as studies show that 90% of engineering students self-identify communication and professional skills deficiencies.*

2025 Reza Ebadi Worcester Polytechnic Institute Assistant Professor of Teaching  
*The stress-reduction program targets undergraduate engineering students through innovative pedagogical approaches including Weekly Collaborative Quizzes and Teach-to-Learn Post-Exam Improvement modules that have already shown promising results with 77% of students reporting enhanced understanding and 40.8% average performance improvements on previously weak topics. The four-phase implementation plan aims to scale these evidence-based strategies across engineering programs at the institution to create a more supportive learning environment that addresses academic stress—a primary factor in engineering student attrition—ultimately improving retention and degree completion rates.*

2025 Rebecca Essig Purdue University Fort Wayne Associate Professor of First-Year Engineering  
*The Future Leaders of TEC Saturday Workshop Program aims to encourage participation of elementary school girls in engineering fields through a series of four Saturday morning workshops each focused on different engineering disciplines, with hands-on activities led by female engineers and faculty from Purdue University Fort Wayne and local industry partners. Building on the success of their previous Future Girls of STEM summer camp, this more sustainable program format will continue their partnership with the Girl Scouts of Northern Indiana-Michiana to help young girls develop interest in and understanding of engineering while connecting them with female engineering mentors, which research shows can greatly increase success rates of girls in engineering.*

2025 Marcella Gomez University of California Santa Cruz Ass. Prof. / Associate Dean for DEI  
*Marcella and Abigail joint essay: The proposed initiative at UCSC aims to advance graduate student success in engineering through a dual approach that addresses faculty mindset and student preparedness. The program targets graduate engineering students (especially those from underrepresented backgrounds) by developing a course that makes the "hidden curriculum" of PhD attainment explicit, while simultaneously working with faculty through workshops to dismantle the "false meritocracy" that has become institutionalized in STEM education and acts as a barrier to change.*

2025 Ailyn Gomez Ray University of Arizona Engineering Pathways Specialist  
*The proposed holistic major admission process at the University of Arizona aims to promote positive self-efficacy development among undergraduate engineering students by modifying how they declare their engineering major beyond the current GPA-only criteria. The initiative would allow students to showcase their strengths through personal statements, e-portfolios, and admissions committee meetings, thereby addressing barriers that disproportionately disadvantage students with potential to succeed in engineering despite academic challenges, ultimately increasing retention and degree completion rates.*

2025 Lamya Karim University of Massachusetts Dartmouth Associate Professor  
*The proposed "getting connected" program at the University of Massachusetts Dartmouth targets incoming freshman undergraduate engineering students, particularly first-generation college students and students of color, by connecting them with both faculty and peer mentors and engaging them in year-long research projects with hands-on learning opportunities. The initiative aims to address the current gap where research opportunities are primarily accessed by upperclassmen and Honors College students, instead providing early engagement for freshmen to increase retention and degree completion rates through regular project meetings, skill development, and culminating presentations on both technical and soft skills learned.*

2025 Said Kas-Danouche Andrews University Professor of Mathematics and Statistics  
*The multifaceted approach at Andrews University aims to increase recruitment, retention, and degree completion for undergraduate engineering and engineering technology students through project-based learning, interdisciplinary collaboration, and STEM celebration events. The program integrates these strategies into mathematical modeling and differential equations courses taken by engineering students, while also pursuing S-STEM NSF Scholarships and helping students apply for MAA Math Fest Student Scholars Travel Grants to present their research at scientific meetings.*

2025 Lina Kloub University of Connecticut Assistant Professor In Residence  
*The career readiness integration program at the University of Connecticut targets undergraduate engineering students, particularly first-generation and underrepresented students, by embedding professional development skills into foundational engineering courses like the Algorithms and Complexity course (CSE 3500). The initiative combines university-wide career resources with course-level activities such as group projects, mock technical interviews, and peer evaluations, with plans to expand this approach across engineering departments to help students connect theoretical content with real-world applications and increase retention and degree completion.*

2025 Harsh Kumar University of Indianapolis Assistant Professor  
*The DesignSpine Program at the University of Indianapolis targets undergraduate engineering students throughout all four years of their education, not just during senior capstone projects, to address high attrition rates especially among freshmen. The curriculum integrates year-long, authentic engineering design experiences with real-world clients into interdisciplinary team projects each academic year, aiming to develop students' engineering identity, technical knowledge, project management skills, and communication abilities while providing realistic design experiences that address genuine human needs.*

2025   Brian Lejeune   Northeastern University   Assistant Teaching Professor  
*The proposed AI Adventure program at Northeastern University targets undergraduate Chemical Engineering students by integrating computational tools and AI into the core curriculum through a course-specific AI interface that creates customizable, personalized learning experiences tailored to each student's interests and learning style. The initiative aims to enhance student engagement, self-efficacy, and engineering identity—particularly for underrepresented demographics—by developing a platform that allows students to receive real-time feedback on problems, request additional examples, and gain exposure to Python and generative AI tools that mirror current industry practices while providing instructors with data on student learning patterns.*

2025   Jiehong Liao   Florida Gulf Coast University   Assistant Professor  
*The combined Learning Assistant (LA) Model and Mastery-Based Learning (MBL) approach at Florida Gulf Coast University targets undergraduate engineering students in gateway courses like Engineering Mechanics (EGM 3420C), which has historically high attrition rates (30-40%). Implementation of this evidence-based strategy has significantly reduced the failure/withdrawal rate to just 15% (compared to 44% in parallel sections) by using undergraduate peer educators to support active learning, while the MBL approach with specifications grading allows students multiple opportunities to demonstrate skill mastery through sequential skills tests without partial credit, providing clear targets and reducing stress.*

2025   Alisa Michel   University of Massachusetts Lowell   OMA Coordinator  
*The STEM Training and Excellence Program (STEP) at UMass Lowell targets undergraduate STEM students, including those studying engineering and engineering technology, through a cohort-based model that operates within the Office of Multicultural Affairs' Rising 360 program. The program uses a "STEPS to Success" framework requiring students to complete key engagement actions each semester (tutoring, group study, advisor meetings, skill-building workshops, career fairs, and one-on-one check-ins) with an incentivized ticket and raffle system, resulting in increased campus participation and academic support for over 30 participants across 15 different STEM majors in just one month of active programming.*

2025   Constantine Mukasa   Northeastern University   Associate Teaching Professor  
*The proposed self-efficacy development program targets undergraduate engineering students (first year) through a multifaceted approach addressing Bandura's four key self-efficacy factors: Mastery Experiences (using AI-supported scaffolding of complex concepts), Social Persuasions (through inclusive case studies and service-learning where students mentor elementary/middle schoolers), Vicarious Experiences (via peer collaboration on client-based projects), and Physiological/Emotional State (through hands-on activities that evoke engagement and enjoyment). The program aims to improve recruitment and retention in engineering by enhancing students' belief in their ability to successfully execute tasks, with particular attention to addressing barriers faced by underrepresented groups in engineering who lack diverse role models in traditional educational materials.*

2025   Flynn Murray   Montana State University   Assistant Teaching and Research Professor  
*The proposed Supplemental Instruction (SI) program at Montana State University targets undergraduate engineering students enrolled in historically difficult sophomore-level courses (Statics, Dynamics, and Mechanics of Materials) that have high D/F/W rates and serve as foundational knowledge for five different engineering majors. The program would expand the existing Engineering Mechanics Learning Center by implementing voluntary, out-of-class group study sessions led by trained peer instructors who would facilitate collaborative learning activities and*

*incorporate physical demonstrations, potentially impacting hundreds of engineering students each year by improving their retention, grades, and graduation rates.*

2025   Zuania Pacheco del Rio   Forsyth Technical Community College   Program Coordinator (Engineering)

*The proposed structured mentoring program at Forsyth Technical Community College targets undergraduate students in the Associate in Engineering program through three focus areas: enhanced faculty-student communication, peer mentorship pairing first-year with second-year students, and curriculum-embedded mentorship in the Introduction to Engineering course. The evidence-based initiative aims to address common barriers to retention and completion such as lack of confidence, academic struggles, imposter syndrome, and limited exposure to career pathways, particularly focusing on supporting underrepresented groups in engineering by creating a comprehensive support system that helps students build professional networks and successfully transition to bachelor's programs.*

2025   Jessica Rosewitz   Worcester Polytechnic Institute   Assistant Teaching Professor

*The proposed 4+1 BS/MS pathway program targets undergraduate students from non-traditional backgrounds (first-generation students, low-income families, and students from rural areas) by creating direct enrollment opportunities from regional vocational/technical high schools and community colleges into combined bachelor's/master's programs at a small private STEM institution. The initiative incorporates a holistic advising system with faculty mentoring, near-peer support from demographically similar upperclassmen, and streamlined admission processes, with implementation beginning by strengthening internal pathways for current BS students to extend their senior capstone projects into master's theses before expanding to external transfer students.*

2025   Manupriya Sharma   San Diego, Miramar College   Assistant Professor

*The proposed comprehensive strategy targets undergraduate engineering students through a three-pronged approach: community partnerships with organizations like Somali Family Service for recruitment, faculty-supervised support programs with embedded tutors and summer bridge programs for retention, and experiential learning with industry mentorships for degree completion. The approach particularly emphasizes supporting women in STEM through the author's faculty advisory role with the Society of Women Engineers club while also implementing service-learning projects where students organize science nights at elementary schools and volunteer with nonprofits to teach science to younger students, helping them develop their identities as future engineers and scientists.*

2025   Xi Song   Milwaukee School of Engineering   Assistant Professor

*The effective communication strategy at Milwaukee School of Engineering (MSOE) targets underrepresented undergraduate students, particularly BIPOC and women engineering students, who face heightened academic challenges due to feelings of inadequacy, underrepresentation, and cultural biases. The proposed implementation includes dedicated office hours providing personalized support, a peer mentoring program pairing experienced students with underrepresented students, and inclusive classroom practices that accommodate diverse communication styles through various formats like group discussions, written reflections, and digital tools to foster a sense of belonging and active participation.*

2025   Jia-An Yan   Towson University   Professor

*The engineering-focused summer camp at Towson University targets middle school students*

*through hands-on activities like designing trebuchets, creating generators, and building small motors to foster positive attitudes toward physics and engineering before they form negative impressions that persist through college. The program will also benefit undergraduate and graduate students from Towson's Physics, Astronomy, and Geosciences Department who will be hired as camp coaches, helping them deepen their understanding of physics and engineering while developing crucial communication, organization, and leadership skills essential for workforce development.*

2025 Jing Yan

Tennessee State University

Associate Professor

*The research-based curriculum initiative at Tennessee State University targets undergraduate engineering students by embedding hands-on, inquiry-driven research experiences throughout their academic journey, from introductory courses through upper-level coursework. The program involves integrating structured research projects into core engineering courses, establishing research-intensive courses and summer programs focusing on cutting-edge areas like artificial intelligence and renewable energy, developing research-infused capstone projects, and strengthening industry and graduate school pathways through internships, publications, and conference presentations to improve retention, enhance academic performance, and increase degree completion rates.*

2025 Xiaoyin Wang

Towson University

Professor

*The Accelerated Pathways to STEM Success program at Towson University targets undergraduate students who need developmental mathematics preparation, particularly those pursuing STEM and engineering degrees, by proposing a 7-week accelerated MATH 95 Developmental Mathematics course followed by a 7-week MATH 102 Intermediate Algebra course. The initiative aims to reduce students' time spent in preparatory courses while maintaining academic rigor through extended class sessions featuring active learning, collaborative problem-solving, and real-world engineering applications, with research objectives focused on evaluating how this pathway improves student success rates, reduces time-to-completion, and helps students persist in their chosen STEM majors rather than switching to non-STEM fields.*

2025 Abigail Kaun

University of California Santa Cruz

Executive Advisor to the Dean

*Marcella and Abigail joint essay: The proposed initiative aims to increase the representation and number of graduating engineers by targeting both faculty and graduate students through a dual approach of changing faculty culture and providing structured PhD support. The program focuses on challenging the "false meritocracy" in STEM through faculty workshops and training while also developing a course that makes the "hidden curriculum" of PhD attainment explicit for incoming graduate students, particularly those from historically underrepresented groups in engineering.*

2025 Godson Chukwuma

Prince George's Community College

Professor

*The STEM Core Summer Bridge Program targets incoming undergraduate engineering students, particularly those from underrepresented or underprepared backgrounds, providing intensive preparation in foundational subjects like engineering, physics, and mathematics to bridge the academic and social transition from high school to college. The program creates a comprehensive support structure with mentoring, peer collaboration, applied engineering activities, financial assistance, and access to paid internships to foster academic readiness, build community, and increase retention and degree completion rates among these students.*

2025 Stephanie Bazarini

San Francisco State University

Assistant Director/Administrative Lead,

Student Enrichment Opportunities

*The peer and near-peer mentorship program at San Francisco State University provides a scaffolded structure of social and academic support for undergraduate engineering students, particularly targeting first-generation college students, women, and members of minority groups who often experience imposter syndrome and stereotype threat. The Genentech Freshmen Colloquium exemplifies this approach by offering regular cohort meetings, connections to resources, lab visits with upperclassmen and master's students, and the author aims to expand this model with financial support components (tuition coverage and monthly stipends) to increase retention and completion rates for underrepresented students in engineering.*

**2025 Olukemi Akintewe**      University of South Florida      Associate Professor of Instruction

*The proposed mentoring program at the University of South Florida aims to increase retention and degree completion of first-time in college (FTIC) undergraduate women in engineering by matching them with professional mentors based on shared interests and self-efficacy levels. The program addresses specific challenges faced by female STEM students through evidence-based mentoring practices designed to build positive relationships, improve academic self-efficacy, and enhance self-regulated learning.*

**2025 Carlos Aguirre**      Fullerton College      Director, Academic Support Programs (MESA)

*The MESA Community College Program at Fullerton College provides comprehensive support for diverse first-generation undergraduate students from low-income backgrounds through academic excellence workshops, embedded tutoring, early alert systems, and hands-on experiential learning opportunities in a newly established STEM Center. The program implements best practices identified by the American Society for Engineering Education to increase recruitment, retention, and degree completion of undergraduate students in engineering and engineering technology.*

#### *Final comments from participants*

- *It was a fantastic opportunity, and it was a pleasure to work with my peers on such exciting work. The organization was great, and using Bootcamp is a wonderful way to share material.*
- *The information given is valuable*
- *Great experience! I learned a lot from other peers' projects. Many thanks to Jen and Claire for the great leadership and great organization!*
- *I enjoyed the rapid talks by everyone. It's nice to see the overlap in our proposed strategies. This can morph into future grant collaborations.*
- *Thank you so much for a wonderful summer institute!*

**A full overview of the 2025 stEm PEER Academy Program can be found in the Appendix.**

PEERs have been encouraged to submit conference presentations and posters to a wide range of engineering education diversity conferences. We asked for travel stipends for PEERs with The UEF grant to support attendance of PEERs at the 2025 ASEE Conference.

## **2. Conference travel to ASEE 2025 conference in Montreal**

Twenty-three stEm PEERs attended the 2025 conference. A full summary of their engagement at the conference is in the Appendix.

## Highlights

- Dr. Reza Ebadi (Worcester Polytechnic Institute) 2025 stEm PEER presented at the Sunday Workshop: GenAI as a DEI Strategy in Engineering Education
- Emily Wonnacott-Stanley (Southern Illinois University Edwardsville) 2022 stEm PEER presented a poster #62 Leveraging Relationships with Community Organizations to Target Audiences
- Dr. Nadia Al-Aubaidy (Norwich University) 2025 stEm PEER presented a poster #156 Transforming Civil Engineering Education: Integrating the EOP Framework across Four Courses
- Dr. Stephany Santon (University of Connecticut) 2024 stEm PEER presented a poster #167 We Don't Just Want to Talk: Professional Learning Communities with Action Oriented Approaches
- Dr. Zachary Tallefer (Worcester Polytechnic Institute) 2024 stEm PEER presented in a technical session, Assessing the Impact of Evidence-based Programming in an Experimental Course using Aerospace Engineering Applications
- Dr. Hilda Cecilia Contreras Aguirre (New Mexico State University) 2024 stEm PEER presented "Fostering Career Development through Leadership: The Experiences of Peer mentors in STEM courses at a Community College.

One-one one meetings, and monthly sessions have continued to take place with stEm PEERS. Individual sessions focus on the completion of proposed Action Plans and the development of proposals to secure financial support for program efforts.

Monthly meetings have taken place in October and November. Our final meeting of the calendar year will take place on December 10<sup>th</sup>. We will be joined by Haider Ali Bhatti author of *"One million more: assessing a decade of progress in undergraduate STEM education"*.

Bhatti HA. 0. One million more: assessing a decade of progress in undergraduate STEM education. J Microbiol Biol Educ. 0:e00155-25. <https://doi.org/10.1128/jmbe.00155-25>

It is our intention to continue to engage the stEm PEER community in monthly networking meetings and to seek additional support to sustain this initiative.