

## **P031C210006, Dominican University**

*Improve STEM Services, Strengthen Teaching and Learning, Fill Program Gaps*

### **1. Applicant: Dominican University, River Forest, IL (D.U.)**

#### **2. Title: “Improve STEM Services, Strengthen Teaching and Learning, Fill Program Gaps”**

**Dominican University**, located in River Forest, Illinois, ten miles west of Chicago, is a private, nonprofit Catholic university that serves both resident and commuter students from the Chicago suburban area. We have served primarily first-generation college students since 1901. The Chicago area is home to over 2 million Hispanics and ranks 6th in the nation in the Hispanic population. **About 61% of our students are Hispanic; nearly 73% of our freshmen last fall were Hispanic.**

#### **a. Target Population: Hispanic, low-income, first-generation and other marginalized students.**

#### **b. Services/Proposed Activities:**

**Part 1a:** A STEM Center centralizes services and provides study space, community building and a bilingual staff for tutoring, counseling, advising and coaching.

**Part 1b:** An Articulation Network of representatives will reduce transfer barriers; the Transfer Academy and Transfer Coach will ease the transition from 2-yr colleges to D.U.

**Part 1c:** A STEM Bilingual Family Fair will build understanding and support to STEM students.

**Part 2a:** Peer-Led Team Learning: 50 faculty train and pilot course-embedded tutors with their students in at least one course each.

**Part 2b:** Curriculum-Integrated Technology: 40 faculty train and pilot new software or web resources with their students in at least one course each.

**Part 2c:** Paid student Internships and paid Mentors from regional STEM employers: 16-18 per year.

**Part 3a:** Develop new Cybersecurity concentration in Informatics bachelor’s degree.

**Part 3b:** Develop new Health Sciences completion bachelor’s degree for AA, AAS transfers.

#### **c. Anticipated Results:**

**GPRA Objectives:** A 10% increase in Hispanic/low-income STEM majors, a 10% increase in those returning Year 2, a 15% increase in students graduating in 6 years, a 10% increase in transfers from 2-year colleges, a 10% increase in students on track to finish the degree in 3 years.

**Project Objectives:** Increase to 1500 the # of students using the STEM Center at least twice a year, increase student satisfaction with STEM Center services, four key transfer barriers are removed, at least 96% Transfer Academy students complete assignments, the # of STEM Family Fair reaches 500 overall, all gaps between Hispanics and whites in GPRA Objectives are eliminated, the # of faculty in training and pilots reaches 90, at least two references to Cultural Pedagogy are in pilot syllabi, course grades of students in pilots are 5% above those not in pilots, stronger outcomes for Twitter users than Canvas users, increased # of student Internships, increased student satisfaction with Internships to 90%, student enrollment in Cybersecurity and Health Sciences is 16 and 12 a year after Yr 3 launch.

**3. Absolute Priority Addressed: YES.** A STEM Center will develop academic and personal support services with a primarily bilingual staff offering tutoring, counseling, advising, & coaching.

Articulation Network: two-year college & Dominican representatives will reduce transfer barriers; Triton College, River Forest, IL., Dominican’s partner HSI. (See president’s letter in the Attachments.)

A Transfer Academy eases the transition from a 2- to 4-year campus; a Transfer Coach supports STEM progress through to graduation.

#### **4. Competitive Preference Priorities Addressed: YES.**

**CPP 1: Part 2c:** a) Collaborate with employers; b) Provide paid work-based Internships & Mentors.

**CPP 2: Part 1a:** STEM Center bilingual tutoring, counseling, & advising to improve academic success. **Part 2a & 2b:** Innovative Instruction: Faculty will train in Peer-Led Team Learning & in Curriculum-Integrated Technology; they will pilot these with students in a Community of Practice.

**5. Invitational Priority Addressed: YES. Part 1a:** The STEM Center includes wrap-around services such as a licensed Counselor who will address mental health issues exacerbated during the pandemic crisis. It also provides a place to study and other learning resources such as loaner laptops and reliable internet important to students who now share a computer with other family members.

**WWC-Protocol Replication Study: Effects of educational uses of Twitter for course interaction.**

**P031C210012, University Enterprises, Inc dba Sac State Sponsored Research**  
*Sacramento State STEM4Equity*

**1. California State University Sacramento (Sacramento State)**

**2. Sacramento State STEM4Equity**

**3. Abstract**

a. **Target Population:** Project STEM4Equity will serve STEM faculty and students, specifically students in: 1) gateway STEM courses, and 2) incoming transfers; both with a special focus on Hispanic, and low-income STEM students.

b. **Services and Proposed Activities:** Project STEM4Equity proposes to implement systemic curricular change and customized student support through four strategies. Strategy 1: Course and Program Redesign for Equity, will engage STEM faculty in professional learning to acquire knowledge and redesign their courses to align with what STEM employers need. It will lead to new research based, culturally responsive, and workforce aligned curricular change in Math, Physics, and Engineering gateway courses. Strategy 2: STEM Student Support, will expand the Peer Assisted Learning program to serve students in four high enrollment, high fail rate STEM courses. Strategy 3: STEM Transfer Pathway, will create a STEM Transfer Hub to support successful enrollment, seamless advising, and timely degree completion for STEM transfer students. Strategy 4: Integrated STEM Workforce Development, will extend workforce skill development into leadership activities, micro-internships, and traditional paid internships programs to develop STEM identity for Hispanic and low income students and prepare students for career STEM employment.

c. **Anticipated Results:** Anticipated results include: 1) systemic changes in the ways STEM gateway courses and pathways are designed and delivered; 2) increased sense of belonging; and 3) development of STEM identity to increase persistence and degree attainment by Hispanic and low income students. The measurable outcomes for project goals include increasing STEM enrollment of Hispanic and low-income students by 30% and 10% respectively, increasing STEM transfer student enrollment by 25%, and eliminating or reducing by 50% gateway course and graduation rate equity gaps. A long-term outcome is to increase the number of Hispanic students graduating with STEM degrees by 30% to over 350 per year.

4. **Absolute Priority Addressed:** Yes. To meet the absolute priority Sacramento State will partner with Sacramento City College, a Hispanic Serving Institution, to increase STEM transfer student degree attainment. Proposed services will align two “one-stop” transfer centers including roadmaps and articulation conferences to better communicate transfer expectations across institutions.

5. **Competitive Preference Priority Addressed:** Yes. Competitive Preference Priority 1a is addressed through the redesign of gateway STEM courses to include in demand STEM workplace skills and 1b is addressed through innovative STEM micro internship and traditional internship programs. Competitive Preference Priority 2 is addressed through student support services integral for peer assisted learning and STEM transfer student advising

6. **Invitational Priority Addressed:** No

**P031C210018 Vaughn College of Aeronautics and Technology**

*Developing Guided STEM Degree Pathways to Prepare Hispanics and Low-Income Students for the Careers of the Future.*

**Applicant:** Vaughn College of Aeronautics and Technology

**Project Title:** Developing Guided STEM Degree Pathways to Prepare Hispanics and Low-Income Students for the Careers of the Future.

**Abstract:** Vaughn College of Aeronautics and Technology has been a leader in developing successful programs in aeronautics and engineering and is the primary institution serving the needs of Hispanics in Queens, NY. With the current proposal Vaughn will develop strong degree programs where diverse students are able to: a) Build a strong foundation of computational literacy; b) Collect and analyze data for the purpose of identifying patterns and summarize numerical results; c) Develop coding and programming skills needed for the jobs of the future; and d) earn degrees and certificates in Data Science, Big Data, Artificial Intelligence, mathematics, and computer science. From a broader perspective, this project will generate evidence that builds upon learning research in STEM education. The project strategies will produce outcomes that are not only successful, but also **contribute to the body of educational research that addresses learning factors that impact STEM student success, STEM education, and approaches to learning that motivate diverse students.** The project benefits society by training the future science and technology workforce and increasing the participation of underrepresented groups. The students at Vaughn heavily represent population segments that are underrepresented in STEM, therefore the project will **serve as a model in how to effectively attract, retain, and graduate diverse students in STEM fields.**

**Target Population:** Underserved Hispanic students in the borough of Queens, NY and surrounding areas.

**Services/Proposed Activities:** 1) Develop a new Mathematical and Computer Sciences pathway; 2) Strengthen outreach to high schools to improve STEM awareness; 3) Comprehensive wrap-around student services; 4) Project-based and Collaborative Learning (NSF “signature” pedagogies); 5) Model transfer articulation towards a STEM Degree; 6) High Impact Practices (Undergraduate Research, Summer STEM academy; Work-based experiences; targeted advising); 7) Transfer Support/Activities; 8) Faculty Professional Development.

**Anticipated Results: The project’s objectives include: O1:** Enroll at least 30 Hispanic and low-income fulltime freshmen who seek a degree in one of the newly developed MCS STEM pathway. **O2:** Increase by 10 points the percentage of Hispanic and low-income first-time, full-time MCS field degree-seeking undergraduate students who were in their first year of postsecondary enrollment in the previous year and are enrolled in the current year who remain in a STEM MCS degree/ credential program. **O3:** Increase by 10 points the percentage of Hispanic and low-income first-time, full-time degree-seeking undergraduate students graduating within six years of enrollment with a STEM MCS degree. **O4:** Enroll at least 30 Hispanic and low income community college associate degree graduates transferring to Vaughn in the new MCS degree. **O5:** Graduate at least 80% of Hispanic and low-income STEM major transfer students from community colleges on track to complete a STEM MCS degree within three years from their transfer date. **O6:** Increase by 10 points the percentage of Hispanic and low-income students who participated in grant-supported services or programs and completed a degree or credential.

**Absolute Priority Addressed: Yes;** Every feature of the proposed guided STEM pathway was selected based on the need to increase Hispanic STEM participation, transfer, and degree completion. The project includes development of a model transfer and articulation agreement with local community colleges (Bergen CC, Suffolk County CC, LaGuardia CC) that addresses gaps in the current articulation model.

**Competitive Preference Priority Addressed: Yes; CPP#1:** Vaughn’s project will engage multiple industrial and other community partners in the high needs fields of Mathematical and Computer Sciences that intersect with Computer Science programs. Vaughn’s project intends to provide meaningful work-based training opportunities including internships, apprenticeships, and fellowships that are expected to lead to high paying

permanent jobs for Hispanics in the area of Queens, NY, that is suffering from high unemployment rates and limited STEM opportunities. The project's overall strategy is to align the educational experience with STEM related careers.

**CPP #2:** The project planning team gathered extensive evidence on successful interventions relevant to what works to improve degree completion of Hispanic STEM students. Vaughn's STEM project will adopt best practices from CUNY's ASAP study (a WWC approved study) that incorporates a dedicated student success team (counselors, coaches, tutors, mentors), Summer Bridge courses, a dedicated STEM Center equipped with the latest technology laboratory equipment, and additional high impact practices proven to increase retention, success and completion.

**Invitational Priority Addressed: Yes;** Vaughn's project will develop an integrated STEM Center that will integrate support services for STEM students, including mental health support, financial assistance for class expenses, a book lending library and transportation costs. It will also develop innovative research-based active learning pedagogies and curriculum to increase access and success during the COVID-19 pandemic that will lead to STEM degree completion.

**P031C210019 Lake Tahoe Community College District**  
*STEM Pathways to Completion*

**Applicant Institution:** Lake Tahoe Community College

**Project Title:** STEM Pathways to Completion

**Target Population:** The target population for this project is Latinx and low-income STEM students in South Lake Tahoe, California, and the surrounding areas of California and Nevada; K-12 students in Tahoe Basin schools.

**Services and Proposed Activities:** STEM Pathways to Completion will include three components:

- **Component 1: STEM Student Success Team:** this component will provide students with evidence-based and integrated academic and support services, including peer mentoring and tutoring, career counseling and work-based learning, access to STEM educational equipment, basic needs and mental health services.
- **Component 2: LTCC STEM MathPath:** this component will enable the redesign of the math sequence to implement co-requisites/supplemental instruction models combined with curricular enhancements that promote students' interest in learning core mathematics concepts.
- **Component 3: LTCC Pre-Collegiate STEM Academy:** this component will establish early STEM learning opportunities for elementary and middle school students and create work-based learning, peer mentoring and dual enrollment programs for high school students.

**Anticipated Results:** This project will result in:

- An increase in Latinx and low-income students attaining associate/transfer degrees and successfully transferring to four-year institutions in computer and information sciences, environmental science and technology, geography, geology, and mathematics.
- An increase in the number of Latinx and low-income students succeeding in gateway mathematics courses that are required for accessing STEM degree programs; improving mathematics course content to align to STEM programs.
- An increase in the number of Latinx and low-income students enrolling in STEM programs; an increase the number of qualified professionals in STEM fields through early outreach, exposure and education approaches to Latinx communities and students.

**Absolute Priority Addressed:** Yes; Partners are University of California, Davis, and California State University (CSU) system office.

**Competitive Preference Priorities Addressed:** Yes, both CPP 1 and CPP 2

**Invitational Priority Addressed:** Yes

**P031C210021 California State University, Dominguez Hills Foundation**

*Guided Pathways for STEM (GPS)*

**1. Applicant.** California State University, Dominguez Hills (CSUDH). **Partner Institutions.** Compton College, Los Angeles Harbor College, Los Angeles Southwest College and West Los Angeles College

**2. Project Title.** Guided Pathways for STEM (GPS)

**3. Abstract. a. Target Population.** 310 Hispanic and low-income, first-time STEM students who enroll in CSUDH or one of the four community college partners in fall 2022. Community college students will transfer to join their GPS peers at CSUDH and complete their STEM degrees. Many students at all five institutions work part-time or even full-time, endure long commutes to campus, parent children or care for family members.

**b. Services.** GPS's innovative approach will make nearly every service available to scholars at the partner colleges, as well as CSUDH. GPS will leverage the technological capacity developed during the pandemic to expand availability of academic and nonacademic services beyond traditional weekdays hours. Services will be student-centered and holistic. Each GPS scholar will complete a needs assessment and, with staff, develop a plan of academic and nonacademic activities that lead to a STEM degree and personal well-being. Students will receive ample advising and academic support using evidence-based strategies that have increased retention and graduation, e.g., proactive advising, pre-enrollment advising, tutoring, college success skills and content knowledge for difficult STEM courses. GPS will meet students' basic needs so they can focus on academic success. CSUDH and its partners will improve articulation by developing consistent articulation processes and developing more STEM associate degrees for transfer to simplify the transfer process.

**c. Anticipated Results.** By giving equal weight to academic and nonacademic needs, GPS will enable students to flourish, earn STEM degrees in less time, gain career experience and secure meaningful work in in-demand fields after graduation. i) Increase the number of Hispanic and low-income students who enroll in and graduate from CSUDH with STEM degrees. ii) Students gain skills through workplace experiences that prepare them for in-demand fields. iii) Students increase their well-being. iv) CSUDH and partner colleges improve transfer and articulation agreements.

**4. Absolute Priority.** Yes. GPS will implement academic support activities that are effective, per the What Works Clearinghouse, as well as research-based nonacademic supports to meet basic needs and improve well-being so that Hispanic and low-income students earn STEM degrees. Also, GPS will improve articulation agreements with partner community colleges that will simplify and accelerate transfers in STEM.

**5. Competitive Preference Priority 1.** Yes. Key employers will collaborate with CSUDH faculty to incorporate skills required in in-demand industries in upper-division courses. GPS will emphasize internships and career coaching so scholars gain the experience and skills to secure jobs in in-demand industries. **Competitive Preference Priority 2.** Yes. To increase academic achievement and retention, GPS will provide academic support services that have a strong basis in research, such as pre-enrollment advising, proactive advising, tutoring, building college success skills and content knowledge, and providing peer coaches to encourage persistence.

**6. Invitational Priority Addressed:** Yes. Through wraparound services, GPS will ensure that students' nonacademic needs—particularly needs created or worsened by the COVID-19 pandemic—are met along with their academic needs. GPS will provide academic support and partner with on-campus departments to connect scholars to resources.

**P031C210022 San Diego Mesa College**

*STEM E3: Equity, Excellence and Éxito*

1. San Diego Mesa College

2. **STEM E3: Equity, Excellence and Éxito**

3. Abstract: San Diego Mesa College's project STEM E3: Equity, Excellence and (*Success*) *Éxito* is a multipronged, evidence-based design to reduce equity gaps and increase the academic success, retention, graduation, and transfer rates of Hispanic and low-income students in STEM. By implementing systemic reforms that are equity-informed and tailored to Mesa College's specific needs, the activities in this proposal, aligned with best practices and evidence-based literature, will lay the foundation for long-term changes in how Mesa College approaches serving its Hispanic and low-income students. A \$4.99 million program of integrated interventions and capacity building activities, **STEM E3** will increase the number of Hispanic and low-income students attaining postsecondary degrees in STEM and participating in the growing regional STEM economy, through the following strategies:

Strategy 1: Improving Hispanic and low-income student academic achievement through student supports focused on STEM gateway courses.

Strategy 2: Foster student integration and a sense of community through improved STEM orientation and wraparound STEM student supports // Expanding integrated student support services

Strategy 3: Improving the quality of academic instruction to better prepare Hispanic, low-income and other diverse students for success in high-demand STEM careers.

Project STEM E3's Objectives include:

- **1. STEM Enrollment:** By 2026, there will be a 10% increase in the number of Hispanic and low-income full-time STEM field degree-seeking undergraduate students enrolled
- **2. STEM Course Completion:** By 2026, there will be a 13% increase in number of Hispanic students who receive peer mentoring and complete gateway STEM courses
- **3. Transfer:** By 2026, there will be a 10% increase in the annual percentage of Hispanic students transferring successfully into a STEM field at a four-year institution.
- **4. Student Support Utilization:** By 2026, there will be a 50% increase in the number of Hispanic and low-income students participating in peer mentoring, from 186 to 280.
- **5. Unit Accumulation:** By 2026, there will be an 8% decrease in average number of units accumulated by Hispanic associate STEM degree earners, from 79.1 units to 72.8.
- **6. Associate's Completion:** By 2026, there will be a 15% increase in the annual number of STEM Associate's Degree in Arts (AA) graduates who are Hispanic, from 101 to 116.
- **7. Professional Development:** By 2026, 50 additional faculty and staff will be trained in academic, financial, and culturally inclusive approaches to inquiry, teaching and learning.

These strategies and their sub-activities satisfy the **Absolute Priority**, both **Competitive Preference Priorities** – through work-based learning experiences in Engineering and BioTech, and integrated student support services for Hispanic, low-income, and other diverse students – as well as the **Invitational Priority** for this competition.

**P031C210025 Texas State University**

**Generación STEM - Promoting Hispanic and Low-Income Student Success through Individualized Support, Transfer Navigation, and STEM Career Preparation**

1. Applicant Institution: Texas State University
2. Project Title: **Generación STEM** - Promoting Hispanic and Low-Income Student Success through Individualized Support, Transfer Navigation, and STEM Career Preparation
3. Abstract: Recognizing the importance of STEM education in preparing the increasingly diverse generations that will make up the American workforce, this project strives to “generate” STEM student success at Texas State University (TXST) for Hispanic and Low-Income (HLI) students who will become our next scientific and technical professionals.
  - a) Target Population: Hispanic and Low-Income (HLI) first year and transfer students, HLI STEM students, and STEM faculty.
  - b) Services and Proposed Activities: There are four primary activities designed to address persistent challenges in STEM education and career attainment for HLI students. Activity 1 will create a Peer Education Program with Success Coaches that will serve all incoming HLI freshman and transfer students in their first year at TXST who are identified through a predictive analytics factor-specific model as needing high-support during their transition to college. Activity 2 will improve the transfer navigation process and increase transfer matriculation to TXST through creation of a Transfer Articulation and Navigation Center. Center staff will initiate new transfer articulation agreements with 2-year HSIs, produce an online repository of course equivalency guides and other information pertinent for transfer students, and provide direct student transfer advising to facilitate the transfer process. Activity 3 will create a STEM Workforce Advisory Council to build collaborations with STEM employers leading to expanded Co-Op and work-based experiences for HLI STEM students; additionally, a new Work-based Experience Preparatory program will be implemented to provide targeted students with professional development improving their competitiveness for employment upon graduation. Activity 4 will provide professional development in culturally responsive teaching methods for STEM faculty teaching core courses that will enable faculty to make lasting changes to their instructional methods to improve HLI students’ success.
  - c) Anticipated Results: This project will use promising evidence to identify and institutionalize new, effective pathways to academic success for HLI students, beginning with the transition to TXST for first year and transfer students through graduation and STEM career attainment. Project results anticipate that the combination of academic, social, and career readiness engagement, with the support of professional staff advocating for student success, will improve HLI student matriculation, completion of STEM degrees at TXST, and successful employment in STEM fields (1).
4. Absolute Priority Addressed: **Yes**. All four proposed activities constitute a proactive, wraparound approach to the HLI student experience at TXST for both first year and transfer students to increase baccalaureate STEM degree completion. Further, the project will create new and expand upon existing transfer articulation agreements between TXST and 2-year HSIs, including Austin Community College, resulting in practical and structural changes in the transfer process (2).
5. Competitive Preference Priorities (CPP) Addressed: **Yes**. CPP1: The Work-based Experience Preparatory program will create flexible, paid work-based opportunities for HLI STEM majors and provide professional development for career success. CPP2: The project’s wraparound support services at critical transition points offer HLI students a path to academic achievement and recovery, resulting in greater retention and degree completion.
6. Invitational Priority Addressed: **No**

**P031C210028 Miami Dade College**

*STEM Strategies for Maximizing Achievement Retention and Transfer STEM (SMART)*

1. *Applicant institution and partner institutions:* Miami Dade College's School of Science, along with its partners: Florida International University, the University of Miami, and the University of Florida, Applied Biotech, Inc.

2. *Project title:* STEM Strategies for Maximizing Achievement Retention and Transfer STEM (SMART)

3. *Abstract (a.) Target Population:* 500 students and 50 faculty members; *(b.) Services and Proposed Activities:* STEM SMART proposes to increase the number of Hispanic and other low income students attaining degrees in STEM fields by providing undergraduate research internships and field-based experiences at MDC and at four-year institutions; research skills training through a Promoting Research, Innovation and Mentoring Experiences Academy; STEM completion and transfer assistance in the form of a STEM Success Coach and Pre-Transfer Advisor; a peer support system and online supplemental instruction through Peer Navigators; an enhanced virtual STEM Community of Interest; college tours; and professional development for faculty undergraduate research mentors; *(c.) Anticipated Results:* STEM SMART will meet the following measurable objectives by September 30, 2026: (1) increase fall-to-fall retention rates from 64% to 75% among STEM SMART students over the project period; (2) increase number of full-time degree-seeking Hispanic and low-income students participating in STEM SMART support services by 10% each year; (3) by Year 5, 50% of STEM SMART students will participate in field-based experiences; (4) by Year 5, 75% of STEM SMART participants will report an improvement in STEM Literacy through a STEM Literacy survey; (5) by Year 5, 50% of STEM SMART participants will complete associate level programs of study and transfer into STEM baccalaureate-level programs of study; and (6) by Year 5, 75% of STEM SMART participants will express satisfaction with completion and transfer-related services/resources, as evidenced through formal surveys and focus groups.

4. *Absolute Priority Addressed:* Yes. MDC proposes to partner with Florida International University, the University of Miami, and the University of Florida for the purpose of meeting the articulation and transfer model to address the absolute priority.

5. *Competitive Preference Priority Addressed:* Yes. STEM SMART will address Competitive Preference 1 by collaborating with industry partners to ensure the college's student learning objectives are aligned with skills necessary to succeed in STEM fields and providing research internships and field-based experiences. STEM SMART will address Competitive Preference 2 by providing high-engagement activities that address STEM students' needs and improve their retention rates, such as intrusive academic, career, and transfer advisement; online supplemental instruction; a peer support system; and an enhanced virtual STEM Community of Interest.

6. *Invitational Priority Addressed:* Yes. STEM SMART staff will aid students by using appreciative advisement and providing workshops on adaptive coping mechanisms to positively impact their mental health. The STEM Success Coach, Pre-Transfer Advisor and virtual STEM Communities of Interest Manager will assist students seeking help by referring them to the appropriate services at MDC, e.g., counselors, the MDC Helping Everyone Learn to Prevent Suicide (H.E.L.P.S.) program, and the free Crisis Text Line. STEM SMART staff will receive mental health first aid training.

**P031C210035 Miami Dade College**

***STEM Pathways for Acceleration, Completion, and Transfer Success (STEM PACTS)***

1. *Applicant institution and partner institutions:* Miami Dade College (MDC), North Campus
2. *Project Title:* **STEM Pathways for Acceleration, Completion, and Transfer Success (STEM PACTS)**
3. *Abstract (a.) Target Population:* 500 students and a number of faculty; *(b) Services and Proposed Activities:* In an effort to increase the number of Hispanic and low-income students attaining STEM degrees, STEM PACTS will develop model transfer and articulation agreements between a 2-year Hispanic-serving institution and 4-year institutions by establishing, STEM PACTS will also develop a streamlined transfer pathway model with personalized advisement for MDC STEM students to promote transfer to 4-year institutions; a mentorship program with STEM professionals, including authentic undergraduate research experiences, internships in STEM industries, and scheduled interactions with STEM trailblazers; a STEM Reinventing Educational Equity for Students (REEFS) Center for the implementation of student intervention strategies including high-impact practices to foster student completion of STEM courses; and a STEM focused early immersion program for incoming first-time-in-college students designed for direct advancement from high school to college. *(c) Anticipated Results:* STEM PACTS will meet the following measurable objectives by September 30, 2026: (1) by year 5, enrollment in STEM related programs of study at MDC North Campus will increase by 5%; (2) by year 5, *STEM PACTS* participants will reflect a fall-to-fall retention rate of 70%; (3) by year 5, 80% of STEM students and faculty will express satisfaction with the newly established STEM REEFS Center, as evidenced through formal surveys and focus groups; (4) at least 70% of *STEM PACTS* participants will graduate from their STEM program with an associate degree within 3 years or a bachelor's degree within 6 years; and (5) At least 80% of program participants who complete a STEM program will continue their STEM education by transferring to a 4-year institution/program
4. *Absolute Priority addressed:* Yes. MDC proposes to leverage existing articulation agreements with four-year institutions, such as Florida International University, University of Florida, Nova Southeastern University, University of Miami, Florida Atlantic University, and Florida A&M University for the purpose of meeting the articulation and transfer model to address the absolute priority.
5. *Competitive Preference Priority Addressed:* Yes. STEM PACTS will address Competitive Preference Priority 1 by developing collaborative relationships between MDC-North Campus STEM faculty and STEM industry employers to promote ongoing exchanges that will inform the emphasis in teaching of the curriculum. STEM PACTS will address Competitive Preference Priority 2 through the proposed STEM REEFS Center, which will deliver multiple student success services, e.g., (a) supplemental instruction and tutoring; (b) peer mentorship; (c) counseling – academic, career, and transfer advisement; and (d) Summer Bridge and Virtual STEM Community of Interest
6. *Invitational Priority Addressed:* Yes. STEM PACTS will aid students by using appreciative advising and leveraging existing services to support students who have been impacted by the COVID-19 pandemic and are facing additional academic challenges and mental health issues. These services include, financial aid, counseling services, and advisement; student life; learning resources (tutoring, subscription databases); services to students with disabilities; and Single Stop (food assistance, mental health counseling, public benefits assistance, student emergency aid).

**P031C210037 Inter American University of Puerto Rico-Metropolitan Campus**

*Preparing the Next Generation of STEM Leaders in Puerto Rico: A Guided Pathways Approach*

**Applicant:** Inter-American University of Puerto Rico-Metropolitan Campus (MC)

**Project Title:** Preparing the Next Generation of STEM Leaders in Puerto Rico: A Guided Pathways Approach

**Abstract:** MC's STEM guided pathway program (STEM GPP) will catalyze MC toward becoming a guided pathway university that produces equitable outcomes for Hispanic and low income students. The proposed research-based project is designed to be an exceptional approach to increasing degree completion in STEM. It will build upon Columbia University's Center of Community College Research Center, a nationally recognized Pathways Program. MC's STEM GPP will work with community college, high school, and industry partners to increase participation, persistence, and degree completion, through student experience from the first touch to goal attainment. Collaborative activities focus on smoothing and enriching the pathway for Hispanic students through culturally sensitive outreach, equity-minded curricular and instructional improvements, and support for transition activities to reduce non-academic, but equally problematic, barriers to participation and transfer.

a. **Target Population:** Hispanic, underserved, and low-income first-time, full-time degree-seeking students in Puerto Rico with limited options in pursuing and completing STEM degrees.

b. **Services/Proposed Activities:** 1) MC's STEM Center. Develop a central STEM Center to serve as a hub for student services and instruction; 2) High-Tech physical and virtual STEM Laboratories; 3) STEM Success Team; 4) Project-based and Collaborative Learning (NSF "signature" pedagogies); 5) Model transfer articulation towards a STEM Degree; 6) High Impact Practices (Undergraduate Research, Summer STEM academy; Work-based experiences; Targeted advising); 7) Transfer Support/Activities; 8) Faculty Professional Development.

c. **Anticipated Results:** *Enrollment:* Increase by 10% in each of the STEM pathways (Chemistry, Math, Physics, Computer Science). *Participation:* at least 1,500 Hispanic students will participate in grant-funded student support activities. *Gateway Success:* Increase the percentage of Hispanic students in STEM Pathways who complete gateway courses in Chem, Physics, Math, Comp Science by 10 points. *Persistence:* Increase persistence in the STEM Pathway by 10 points.

5. *Transfer:* Attract annually 20 Colegio Universitario San Juan (CUSJ) students with an intent to enroll in an MC STEM degree Pathway. *Degree Completion:* increase the percent of Hispanic STEM students graduating by 10 points.

**Absolute Priority Addressed:** Yes: MC's guided STEM pathway was selected based on the need to increase Hispanic participation, transfer, and degree completion. The project includes developing a transfer and articulation agreement with CUSJ that addresses gaps in the current articulation model.

**Competitive Preference Priority Addressed:** Yes; CPP#1: MC's project will engage multiple industrial partners of biotechnology and computer science to provide meaningful work-based STEM training opportunities for Puerto Rico youth who suffer limited opportunities in STEM-related careers. CPP #2: MCs STEM project will adopt best practices from CUNY's ASAP study (a WWC approved study) that incorporates a dedicated student success team (counselors, coaches, tutors, mentors), Summer Bridge courses, a STEM Center equipped with the latest technology, laboratory equipment proven to increase retention, success, and completion.

**Invitational Priority Addressed:** Yes, MC's project will develop an integrated STEM Center that integrates support services for STEM students, including mental health support, student financial assistance. In addition, the project develops innovative research-based online pedagogies and curriculum to increase access and success during the COVID-19 pandemic, leading to STEM degree completion.

**P031C210038 Heritage University**

*Adelante STEM*

**Applicant:** Heritage University (HU) **Project Title:** Adelante STEM

**Target Population:** Adelante STEM will serve a large Hispanic and low-income student population in surrounding High Schools and at Heritage University' STEM Programs. This includes a specific focus on increasing females into STEM fields/degrees. STEM faculty will digitize STEM courses for distance learning and online delivery.

**Services & Activities:** Adelante STEM will include four major services with subactivities. These include: **1)** Outreach activities to the 8 surrounding high schools with large percentage of Hispanic students. A full-time Outreach Specialist will work with students to provide STEM awareness, inspiration and enrollment into Heritage's STEM programs. **2)** On campus, HU will implement a Case Management Model with two Case Managers to work with a case load of students enrolled in STEM programs. Their purpose will be to monitor students academic progress, credit accumulation and alleviate any social, housing, childcare, transportation or financial hardship preventing students' success. **3)** Adelante STEM will work with the four in-state two-year HSI community colleges to develop model Articulation Agreements. HU will also develop agreements with surrounding 8 high schools for offering dual enrollment courses and a seamless transition to HU STEM programs. HU will also develop an Articulation Agreement with the University of Washington for HU students to pursue graduate STEM degrees. **4)** Adelante STEM will build a new STEM Learning Center to increase our capacity to serve more STEM students and to increase our STEM programs. The STEM Center will be equipped with the latest STEM laboratories and STEM learning equipment.

**Anticipated Primary Outcomes**

- Increase High School student STEM interest by **25%** each year.
- Increase % of students enrolling into STEM Dual Enrollment Courses by **20%** each year.
- Increase % of HS students entering HU STEM Programs by **25%** each year.
- Increase enrollment in STEM Programs to **65** students each year.
- Increase STEM full-time student retention by **5%** each year.
- Increase % of students transferring from 2-year HSIs to Heritage by **25%** each year.
- Increase number of students graduating in six years with a STEM degree by **20** each year.
- Build STEM learning center to increase STEM learning space by 4,700 sq. ft. by year four.

**Absolute Priority:** Yes – will serve Hispanic and low-income students entering HU STEM programs. HU also proposes to work with the four in-state HSI 2-year community colleges to develop Articulation Agreements.

**Competitive Preference 1:** Yes – project staff will work with faculty, local business advisory council members to identify and place students in STEM internships, apprenticeships and fellowships. We have partnerships with Microsoft, Amazon, Boeing, Costco and others.

**Competitive Preference 2:** Yes – Case Managers will work with an assigned case load of STEM students to provide retention supports. HU tutors will provide STEM academic tutoring to increase STEM students' academic achievement.

**Invitational Priority:** Yes- Case Managers will work with STEM students to identify and access mental health services for students needing these essential services to succeed.

**P031C210066 Adams State University**

*El Centro Sierra Blanca: Growing and Inspiring Hispanic Talent in STEM*

**1. Applicant:** Adams State University; **Partner Institutions:** Colorado State University (CSU)-Fort Collins and University of New Mexico (UNM)-Taos

**2. Title:** El Centro Sierra Blanca: Growing and Inspiring Hispanic Talent in STEM

**3. Abstract: a. Target Population:** With 37% of its undergraduate population of Hispanic ethnicity, Adams State University (ASU) is Colorado's premier 4-year Hispanic-Serving Institution. ASU's target populations are pre-college and postsecondary Hispanic and low-income students and STEM faculty. ASU is located in the remote San Luis Valley, where the population is 46% Hispanic and many residents struggle with multi-generational poverty.

**b. Services and Proposed Activities:** ASU proposes a holistic system of academic and social supports to increase the number of Hispanic and low-income students attaining STEM degrees. The project includes an innovative model partnership with CSU-Fort Collins to bring access to a mechanical engineering degree and CSU resources to ASU's campus. Within ASU's dual 2-year and 4-year statutory mission, ASU will be the first HSI in Colorado where students enrolled at an HSI will be able to complete an A.S. in mechanical engineering (ASU) and subsequently transfer seamlessly into the B.S. program (CSU) on the same campus. The project's 3 strategic goals are:

1) Develop and Deliver A Mechanical Engineering Degree and STEM Outreach Programs. A new pathway in mechanical engineering will open access for rural students to a professional degree with excellent employment and earning potentials, vital for our low-income and under-resourced region. Innovative hands-on activities and ASU student role models will inspire middle and high school students to explore STEM topics and careers.

2) Implement an Equity Approach to Student Engagement and Success. Based in El Centro Sierra Blanca (a new STEM Center) an engineering orientation, required STEM First-Year Seminars (FYS), peer-mentoring, and corequisite instruction across STEM gateway courses will cultivate a supportive and inclusive climate for 1st- and 2nd-year students. ASU's study measures the effectiveness of STEM FYS (WWC, 2016) in promoting student transitions and success.

3) Advance Faculty Development in Cultural Responsiveness. Faculty and project staff gain insights into inequities in education, bias in the classroom, and tools to better engage underrepresented students. They develop assessment and self-reflection skills to support students via student performance data analysis disaggregated through a race/ethnicity conscious lens.

**c. Anticipated Results:** With the addition of the desirable engineering program, by 2026 the number of full-time Hispanic and low-income STEM majors enrolled at ASU increases by 75% to 175. By 2026 corequisite instruction increases Hispanic student pass rates in 1st semester STEM gateway courses by at least 30%. By 2025 90% of freshmen STEM majors complete a STEM FYS each fall. By 2026 the fall-to-fall freshmen to sophomore persistence rate of Hispanic and low-income STEM majors increases by 3.5% per year to 49%. In 2024-26 the number of bachelor's degrees awarded in STEM to full-time Hispanic and low-income students will increase by at least 20% annually, to 16 (Hispanic students) and 26 (low-income students).

**4. Absolute Priority Addressed:** YES. **Partners:** CSU-Fort Collins and UNM-Taos.

**5. Competitive Priorities Addressed:** YES. **CPP 1:** ASU will implement structured internships with student/employer determined learning outcomes as a high-impact practice (Finley & McNair, 2013). CSU's vast industry internship network will open access for ASU students in in demand industry sectors such as engineering (CTPR, 2020), promote diversity in STEM careers.

**CPP 2:** Wrap-around support services and intentional engagement (see Goal 2 above), including faculty development in cultural responsiveness, validate underrepresented students as highly capable learners and fuel institutional change towards a culture of "servingness" (Garcia, 2019).

**6. Invitational Priority Addressed:** Yes. Student mental health check-ins in FYS courses.

**P031C210068 Cal Poly Pomona Foundation, Inc.**

*STARS: Student Success and Transfer Articulation through Research and Support Services –An HSI STEM Transformation Project*

1. Applicant institution and partner institutions: California State Polytechnic University, Pomona (applicant); Mt. San Antonio Community College, Citrus Community College, California State University (CSU) Chancellor’s Office (partner institutions)

2. Project title: STARS: Student Success and Transfer Articulation through Research and Support Services –An HSI STEM Transformation Project

3. Abstract

- a. Target Population (e.g., faculty, staff, students): Students; current and future faculty members
- b. Services and Proposed Activities: Faculty mentored research experience for students; Wrap-around student services including advising, workshops, cohort building activities, participating in background based reflection, and dissemination of research results; Creating a library of academic and student development workshops; Training faculty members to provide an inclusive and welcoming environment for diverse populations; Training and developing future faculty members from diverse backgrounds; Develop Transfer Pathways in STEM disciplines; Develop articulated courses and learning modules to fill in content gaps between 2-year and 4-year institutions; Establish Industrial Advisory Board to provide internship opportunities for students and to ensure that course content meets STEM industry needs
- c. Anticipated Results (e.g., learning outcomes): Increase the number of Hispanic and low-income students who transfer from a 2-year to a 4-year institution in STEM disciplines; Increase the retention of Hispanic and low-income students in STEM; Decrease the time to graduation for Hispanic and low-income students in STEM; Increase the pool of qualified and trained STEM faculty from Hispanic and low-income backgrounds; Increase the number of articulated courses in STEM disciplines; Reduce content gaps between 2-year and 4-year STEM courses; Increase faculty understanding of industry needs

4. Absolute Priority Addressed: Yes, Cal Poly Pomona (CPP) will partner with two 2-year HSI institutions, Citrus College and Mount San Antonio College

5. Competitive Preference Priority Addressed: (1) Yes, The Industry Advisory Board (IAB) will improve collaboration between CPP, Mt. SAC, and Citrus and STEM employers. The Jet Propulsion Laboratory, Fluor Corporation, and Fruth Custom Packaging have committed to serving on the IAB. (2) Yes, through the development of learning modules that support transfer students to move directly into upper-division core courses and through program completion. Also through enhanced wrap-around student services that are designed to improve student success.

6. Invitational Priority Addressed: Yes, through providing intensive advising and mentoring, leveraging student reflections to improve student success, and providing “accelerated learning” in undergraduate research.

## **P031C210070 San Diego City College**

### *Growing and Sustaining STEM Identity and Success*

**1. Applicant Institution:** San Diego City College (City College or City)

**2. Project Title:** *Growing and Sustaining STEM Identity and Success*

**3. A. Target Population:**

Students: In Fall 2020, City served 15,135 students: 81% students of color, 47% Chicana/Latina, 53% low-income (58% for Chicana/Latina students), and more than a third (34%) report as first generation in college (nearly half—46%—for Chicana/Latina students). A little more than a third (5,297 all; 2,436 Chicana/Latina) are STEM majors. Faculty and Staff: City College STEM faculty and student services staff will complete professional development to improve institutional practices as part of the project

**B. Services and Proposed Activities:**

City proposes an HSI STEM project with two components. Through Component 1, City will revise eight high-risk foundational STEM courses to infuse culturally responsive and active learning strategies to support Chicana/Latina student success. Through Component 2, City will develop and pilot a system for integrated, intentional STEM support and engagement. City will establish a STEM Student Center with makerspace and study spaces to serve as academic “lounges” where peer mentors and tutors are available to assist students as they gather and interact. STEM internships and summer research opportunities will be established, and a new STEM summer bridge program will be developed and piloted to provide customized support for incoming STEM students and second-year STEM students.

**C. Anticipated Results:**

City anticipates an increase in course success rates in foundational STEM courses for Chicana/Latina students, increased three-year graduation rates for Chicana/Latina STEM students, increased three-year transfer rates for Chicana/Latina STEM students, and an increased annual number of STEM degrees and certificates awarded to Chicana/Latina students. City will track outcomes for all students and for Chicana/Latina students.

**4. Absolute Priority:** Yes. The University of California San Diego (UCSD) is City College’s articulation partner. City will strengthen its articulation agreement with UCSD by connecting City STEM students with UCSD STEM faculty through summer research at UCSD. UCSD STEM faculty will also present at City’s proposed STEM summer bridge program regarding transfer opportunities and requirements at UCSD. City’s project will support STEM degree attainment among Chicana/Latina students by creating culturally responsive pedagogy supported by active learning instruction and by developing integrated supports to address students’ academic and non-academic barriers to degree attainment. Initiatives are supported by “promising evidence” What Works Clearinghouse (WWC) Practice Guide “Designing and Delivering Career Pathways at Community Colleges” (2021) and WWC Intervention Report “Summer Bridge Programs” (2016)

**5. Competitive Preference Priority (CPP):** Yes. City’s proposed project addresses both CPP1 (development of internships) and CPP 2 (development of an integrated system of support with peer mentoring and tutoring and a STEM summer bridge program)

**6. Invitational Priority:** Yes. City College will connect STEM students with wraparound services to support their academic, personal, and mental health needs through its proposed peer mentoring system and through activities during the STEM summer bridge program to teach STEM students strategies to support their mental health to bolster their academic success.

## **P031C210085 San Jacinto Community College District**

*El Camino al Éxito*

### **1. Applicant institution and partner institutions:**

- a. Applicant - San Jacinto College (SJC), Pasadena, Texas
- b. Partners-University of Houston/Clear Lake, Univ of Texas at Tyler, Lamar University.

### **2. Project Title:** El Camino al Éxito

### **3. Abstract**

a. Target Population: Located within the Houston metropolitan area, San Jacinto College serves 31,000 students, 62% of which are Hispanic. Two hundred credential programs are offered with more than 2/3 of its student seeking associate degrees and twenty-nine percent attend full-time. There is a high number of low-income students and Hispanic students in the school districts the college serves, of the combined student population, 76.4% are Hispanic and 75.6% are economically disadvantaged. Academic attainment in the area is low, 11% of the SJC population hold a bachelor's degree or higher.

b. Services and Proposed Activities:

- c. Outreach to K12 student for dual-credit STEM courses and career exploration.
  - i. Outreach to adult community for career exploration and overall college prep.
  - ii. Collaborations with employers for incumbent and future workforce needs.
  - iii. Comprehensive support/wrap-around services for current and future students.
  - iv. Provide cutting edge learning experiences through teaching, learning and space enhancements.
  - v. Faculty development including data analytics.
  - vi. Develop model STEM articulation agreements with targeted 4-year partners.
- d. Anticipated 5-year Results for Hispanic and Low-income STEM students:
  - i. Enrollments will increase by 5%.
  - ii. Persistence will increase from 57.9% to 66%.
  - iii. 3-year graduation rate will increase from 17.9% to 25%.
  - iv. STEM student transfer rate to a 4-year institution increase from 10 to 20%.
  - v. 2,200 STEM students participate in programs and services.
  - vi. The number of STEM students in good academic standing participating in project programs and services is 1,000.
  - vii. The number of STEM field major transfer students on track to complete a STEM field degree within 3-years of their transfer date is 100.

**4. Absolute Priority addressed:** Yes. **Project Goal:** to increase STEM enrollment, retention, graduation, and transfer for Hispanic and Low-Income students at San Jacinto College through student centered programs and strategic partnerships

**5. Competitive Preference Priorities addressed:** Yes.

a. CPP 1: San Jacinto College will improve collaborations between education and employer partners through a new STEM Sector Industry Advisory Council and through enhanced resources for work-based learning/internship experiences.

b. CPP 2: The project will address academic achievement and retention strategies providing seamless supports to Hispanic and Low-Income STEM students using guided pathways intervention strategies, Resources and Inclusion Specialists, Educational Planners, mentoring, and supplemental instruction among other innovative interventions.

**6. Invitational Priority addressed:** The El Camino al Éxito project will provide comprehensive wrap-around services and supports individualized for the target population to address the impacts of the COVID-19 pandemic.

**P031C210090 Caldwell University**

*STEM Advance*

**1. APPLICANT INSTITUTION:** Caldwell University

**2. PROJECT TITLE:** *STEM Advance*

**3.a. TARGET POPULATION:** Hispanic and low-income undergraduate students in STEM majors; STEM faculty

**3.b. SERVICES AND PROPOSED ACTIVITIES:** Caldwell University, of Caldwell, New Jersey, will establish *STEM Advance*, a multi-faceted initiative to expand recruitment and to offer support for academic and non-academic concerns (such as basic needs, mental health and wellness, financial assistance) to increase enrollment, retention, and graduation among Hispanic and low-income undergraduates in biology, chemistry, health sciences, mathematics, and computer science majors. Major activities will include: (1) increasing recruitment through articulation agreements with one HSI community college and outreach to other nearby two-year HSIs, hiring a bilingual recruiter to conduct outreach to Hispanic and low-income students in Caldwell's region, and providing STEM exposure activities for enrolled undergraduates with undecided majors; (2) supporting the transition to college through new freshman-level chemistry, computer science, and STEM career survey courses, providing one-day computer science and mathematics boot camps, and increasing exposure to high-impact experiential learning for scientific skills in core STEM courses; (3) strengthening retention services by providing a bilingual academic coach for STEM subjects, additional tutoring and supplemental instruction, a bilingual resource coordinator who will connect students to wraparound services and support, and paid STEM positions for low-income students as supplemental instruction (SI) leaders, lab assistants, and STEM ambassadors;

(4) increasing the number of students who participate in for-credit work-based internships and research by cultivating relationships with in-demand STEM employers, providing stipends for low-income students to complete internships and research, and establishing a \$500,000 Student and Faculty Research Endowed Scholarship to sustain undergraduate research in STEM after the funding period; and (5) addressing the capacity needs of Caldwell's STEM departments to attract and retain Hispanic and low-income students, including by hiring four full-time STEM faculty; offering faculty development in inclusive pedagogy and metacognition; providing facilities improvements; integrating equipment, instruments, and technology across the curriculum; and ensuring external project evaluation.

**3.c. ANTICIPATED RESULTS:** As a result of *STEM Advance*, Caldwell expects to maintain articulation agreements with three community colleges; increase enrollment of Hispanic enrollment in STEM majors from 27% to 32%; provide high-impact learning experiences that boost "science identity" for more than 375 STEM students each year through hands-on coursework, internships, and research; retain at least 55% of Hispanic and low-income STEM students; and graduate at least 45% of Hispanic and low-income STEM majors within six years.

**4. ABSOLUTE PRIORITY:** Caldwell will establish an articulation agreement with STEM programs at Passaic County Community College, an HSI.

**5. COMPETITIVE PREFERENCE PRIORITY:** Caldwell will address CPP1 through articulation agreements with community colleges, and by increasing the number of students who participate in STEM internships and will address CPP2 by providing a bilingual academic coach, tutoring, SI, and a resource coordinator.

**6. INVITATIONAL PRIORITY:** Caldwell will address the invitational priority by hiring a bilingual resource coordinator to link students and their families to wraparound supports for nonacademic concerns, including to address housing, food security, transportation, mental health, wellness and other issues.

## **P031C210093 CSUB Auxilliary for Sponsored Programs Administration**

### *An Equitable Pathway to In-Demand STEM Careers*

1. **Applicant:** California State University, Bakersfield (CSUB)

2. **Project Title:** An Equitable Pathway to In-Demand STEM Careers

**Abstract:** CSUB enrolls over 9,500 undergraduates, **63% of whom are Hispanic**. CSUB is the only four-year institution of higher education within a 100-mile radius, serving a vast region encompassing Kern, Tulare, and Inyo counties, and parts of Los Angeles and Kings counties. CSUB has made significant strides toward becoming the HSI our students and community need. The proposed project will accelerate our trajectory toward a new research-based HSI model of student success – one that emphasizes “servingness” and builds on the cultural assets of Hispanic students. CSUB is underserving Hispanic students by not providing them with the access and success they need to succeed, complete, and enter well-paying jobs in STEM.

a. **Target Population:** Hispanic and low-income students in the service area who show interest or potential to pursue a STEM degree.

b. **Services/Proposed Activities:** Develop equitable on-ramps to STEM pathways and careers: STEM Outreach and Community College Liaison; K-12 Outreach; Bilingual family workshops; Transfer Acceptance Guarantees; BC-CSUB Dual Admissions. Use a holistic approach to serving and foster a sense of belonging: Peer Learning Coaches; Engagement Model; STEM First Year Seminar; STEM Speaker Series and Networking Events. Strengthen educational and industry partnerships to scale evidence-based Work-Integrated Learning model: Undergraduate research; STEM Internships; Embedded Career Exploration; STEM Careers Liaison Council; STEM Success Conference.

c. **Anticipated Results:** The overarching goal of CSUB’s HSI-STEM project is to increase access and close opportunity gaps for Hispanic students in STEM fields to increase degree completion and career outcomes.

**Goal #1:** Develop sustainable and equitable on-ramps to high-wage and in-demand STEM degree and career pathways that broaden participation among underrepresented students; **Goal #2:** Improve servingness to Hispanic and low-income students in STEM pathways through improved advising, early career experience, and co-curricular supports which honor cultural wealth and foster a sense of belonging in and out of the classroom; **Goal #3:** Leverage strong institutional and industry partnerships to sustain and scale accessibility of work-based and experiential learning opportunities in STEM academic and career pathways.

3. **Absolute Priority Addressed:** Yes; The project is designed to increase the number of Hispanic and other low-income students attaining degrees in STEM fields and collaborate with faculty and staff from Bakersfield College (BC) and other feeder community colleges to develop model articulation agreements in order to remove transfer barriers and establish Transfer Acceptance Guarantees (TAGs).

4. **Competitive Preference Priority Addressed:** Yes; **CPP 1:** Fostering flexible & affordable paths to obtaining knowledge and skills by addressing gaps in the community college to university pipeline, offering high-quality experiential and work-based learning experiences, and improving feedback collection from regional partners to inform program and support design. **CPP 2:** Enhance tutoring, counseling, and student service programs designed to improve academic success through strengthened peer coaching and development of a STEM-specific first year seminar course to retain students and accelerate program completion and transfer.

5. **Invitational Priority Addressed:** Yes; Leverage a peer coaching and engagement model to strengthen referrals to student mental health services: STEM Outreach Coordinator and Community College Liaison will leverage transfer feeder BC’s rural campus sites (Delano, Arvin) to strengthen CSUB’s presence in rural communities hardest hit by COVID-19; STEM Academic and Career Advisor will be cross-trained to make timely referrals to campus services while Peer Learning Coaches will be mobilized to ensure students’ knowledge of and utilization of wrap-around supports, with a specific focus on campus health services; Peer Learning Coaches will utilize a defined engagement model that includes online, just-in-time support to communicate with and connect students to campus and community-based resources, including the student health center, financial aid, food pantry, advising, and programs like EOP which provide augmented resources for transportation, supplies, and food vouchers.

**P031C210095 Inter American University of Puerto Rico- Arecibo**

*Inspiring Achievement in Science and Technology*

**1. Applicant Institution** – Inter American University of Puerto Rico-Arecibo Campus

**2. Proposed Project Title** – *Inspiring Achievement in Science and Technology*

**3-a. Target Population** – Inter American University of Puerto Rico-Arecibo Campus (IAUPRA) is a private, nonprofit, four-year HSI located on the north central coast of Puerto Rico. Total undergraduate enrollment in Fall 2020 was 2,863 (99% Hispanic and 87% Pell grant recipients). IAUPRA serves residents from Arecibo and 11 nearby municipalities, an economically deprived area of the Island. The median household income is less than one third that of the U.S. mainland, and residents of the region are more than four times as likely to live in poverty than U.S. residents.

**3-b. Project Services & Activities** – IAUPRA proposes these services and activities:

(1) *Develop a Robust Student Support System* – Complementary student-centered services will infuse support strategies associated with persistence and success (targeted peer tutoring, peer mentoring, faculty mentoring, and counseling).

(2) *Develop New Academic Programs* – Two new STEM bachelor's degree options (Software Architecture and Molecular Medicine & Bioprocesses) will create new STEM pathways.

(3) *Provide Modern Instructional Facilities* – State-of-the-art laboratory facilities will support students in the new programs and engage them in dynamic and effective learning.

(4) *Enhance STEM Online Curricula* – IAUPRA will improve the quality and effectiveness of existing remote learning options (online courses and “virtual classroom” courses).

(6) *Develop Transfer Partnerships* – Developing partnerships with two-year HSIs (**Rowan College of South Jersey and Lehigh Carbon Community College**) will result in a replicable model of a transfer and articulation agreement.

**3-c. Anticipated Results** – The project's five-year outcomes include increased enrollment of STEM students (+195); increased enrollment of STEM transfer students (+60); increased overall retention rate (+6 percentage pts.); and increased STEM degrees awarded (+50).

**4. Absolute Priority: Yes** – Taken as a whole, the proposed services/activities are intended to increase the number of Hispanic, low-income students attaining STEM degrees and develop a model transfer articulation agreement with one or more two-year institutions.

**5. Competitive Preference Priority 1: Yes** – a) The Project Director & development specialists for the new programs will engage industry representatives as part of the initial development process, to ensure course content and learning objectives respond to the needs of the workplace.

b) Established relationships with industry will facilitate placement of students in internship positions to provide Hispanic, low-income students valuable work-based learning experiences.

**Competitive Preference Priority 2: Yes** - IAUPRA's proposed student support services will address both academic and personal needs of our Hispanic, low-income student population to help them progress through and complete a STEM degree program.

**6. Invitational Priority (Yes)** – The Student Success Specialist (whose qualifications include counseling skills and experience) will conduct student needs assessments, provide individual counseling as needed, and develop/deliver workshops on topics such as stress management, relaxation techniques, anxiety, self-esteem, and motivation.

## **P031C210096 Gavilan College**

*“Enacting Servingness: A guided pathway to engineering careers designed around Hispanic student strengths and needs”*

1. **Applicant:** Gavilan College, Gilroy, CA

2. **Project Title:** *“Enacting Servingness: A guided pathway to engineering careers designed around Hispanic student strengths and needs”*

3. **Abstract:** Gavilan College, a large public HSI established in 1919, is part of the largest system of higher education in the nation—the California Community Colleges (CCC), which serves over 2.1 million students, nearly 1 million of whom are Hispanic. Gavilan serves southern Santa Clara County, parts of Monterey County, and most of San Benito County. The 2,700 square mile service area in a largely agricultural belt has a Hispanic population of 57%. The proposed Title III, Part F project is designed to address the significant obstacles facing Gavilan’s Hispanic and low-income students, who need access and success in engineering careers more than ever in Gavilan’s long history as an HSI. We believe Gavilan’s effectiveness as an HSI is measured not only by student academic outcomes, but also by the way in which the college takes into account the broader context shaping the experiences and limiting the opportunities of Hispanic students. As such, Gavilan embraces the responsibility to close equity gaps in student outcomes *and* enact a culture that enhances the educational and racial/ethnic experiences of our Hispanic students in order to truly become the Hispanic-*Serving* Institution our students deserve, and our community must have. Our commitment to servingness, as defined by Dr. Gina Garcia, gave impetus to the project planning.

a. **Target Population:** Hispanic and low-income STEM students in the service area.

b. **Services/Proposed Activities:** **Expand Access:** Integrated & bilingual community engagement; 2 engineering tracks; New Intro to STEM Careers course; Equipment/technology loans; Expanded DE offerings in STEM.

**Embrace Identity:** Intrusive, dedicated, decentralized, caseload advising; New Engineering Academy; Embedded counseling; Embedded Learning Assistants/Peer Coaches; Financial supports; Inclusive teaching community of practice; Expanded undergraduate research; Expanded internships. **Enhance Partnerships:** Robust articulation to fully align program outcomes and services; Establish engineering academic and industry liaison council.

c. **Anticipated Results:** The overarching goal of the project is to embody an effective, evidence-based model of Hispanic-servingness to increase student success in all STEM fields and provide access to in-demand, high-value engineering careers that have the most potential for breaking cycles of socioeconomic inequity. Project goals, objectives, and outcomes (as detailed in the Project Design Section) will work in concert with each other to chart and measure progress towards the overarching anticipated results. The proposed project has exceptional potential to contribute significantly to knowledge about what works to close the gaps in the degree completion and representation of Hispanics in STEM, and engineering in particular.

4. **Absolute Priority Addressed: Yes;** The project is designed to increase the number of Hispanic and low-income students attaining degrees in STEM fields and develop model transfer and articulation agreements between Gavilan and San Jose State University.

5. **Competitive Preference Priority Addressed: Yes; CPP 1:** Fostering flexible & affordable paths to obtaining knowledge and skills by addressing gaps in the community college to university pipeline, offering high-quality experiential and work-based learning experiences, and improving feedback collection from regional partners to inform program and support design: Expand experiential and work-based learning opportunities (internship, research project, community project, etc.); Strengthen connections for work-based/experiential learning opportunities, and include experiential learning; Establish the Engineering Academic & Industry Liaison Council.

**CPP 2:** Enhance tutoring, counseling, and student service programs designed to improve academic success, including innovative and customized instruction courses in gateway math and English courses to retain students and accelerate program completion and transfer: All new engineering students will be part of an Academy based on their placement into math with mandatory meetings with STEM counselor and faculty mentor; Introductory engineering courses will have embedded Learning Assistants/Peer Coaches; Create dual-language onboarding materials, including pathways, career exploration, financial aid.

6. **Invitational Priority Addressed: Yes;** Taking lessons learned from the COVID-19 pandemic we will adapt student services to be more flexible to working with students in a remote environment and integrated into either the classroom environment or traditional academic support.

**P031C210099 Texas A&M University-Kingsville**  
*Hispanic Education Advising Remediation Teaching: HEART*

**HSI STEM and Articulation Grant**  
**Texas A&M University—Kingsville**

**Hispanic Education Advising Remediation Teaching: HEART**

Texas A&M University-Kingsville (TAMUK) is an HSI located in South Texas, with 74% Hispanic students. In 2018-2019, 60% of undergraduates were Pell-eligible. Texas A&M University System (TAMUS) data indicates that for the 2012-2014 first-time-in-college (FTIC) cohorts, the 6-year graduation rate of Hispanic students at TAMUK lagged behind those of white students by 7.94%. The overall 6-year graduation rate for those cohorts was low, at 37.3% (2012), 39.3% (2013), and 44.7% (2014). These numbers indicate the need for targeted enhancements aimed at faculty and wrap-around services for students to help eliminate equity gaps to increase the numbers of successful Hispanic and low-income students in STEM.

The premise of the **HEART** project design is that the success of Hispanic and low-income STEM students will be achieved by providing wrap-around support services and pedagogical training for faculty members aimed at leveraging the strengths of our students to improve retention, persistence, and graduation rates. This project is composed of three main goals:

**Goal 1** will enhance intrusive advising, tutoring, and mentoring for Hispanic and low-income STEM students, with the aim of improving retention, persistence, and graduation rates. The project will include students in 12 majors in which the retention rates fall below the national average, providing students with success coaching, peer support, enhanced tutoring, and career counseling in one location. **Goal 2** will focus on enhancing, developing, and revising STEM articulation agreements with community colleges will focus on enhancing, developing, and revising STEM articulation agreements with community colleges. The project will create cooperative advising with junior colleges, identify learning challenges of transfer students to create targeted tutoring, provide tutoring virtually to junior college students, and place transfers in a specialized peer support group. **Goal 3** will provide High Impact Practice faculty professional learning opportunities that will enable them to embed pedagogical strategies in their STEM courses. The STEM Faculty Fellow Institute will provide enhanced services in the faculty innovation lab. The goals and proposed activities directly align with the university mission and strategic plan and the **absolute priority** for the HSI STEM and Articulation Project competition. Study to be used: [https://ies.ed.gov/ncee/edlabs/regions/southwest/pdf/REL\\_2018279.pdf](https://ies.ed.gov/ncee/edlabs/regions/southwest/pdf/REL_2018279.pdf)

**Competitive Preference Priority 1 will be addressed by:**

- Career exploration services enable students to create a flexible and affordable career path, including internships and experiential learning opportunities.
- Faculty utilizing HIPS to enhance experiential learning, undergraduate research

**Competitive Preference Priority 2 will be addressed by:**

- Targeted and enhanced academic success coaching to guide students to resources and help them identify their strengths.
- Enhanced tutoring, strengthened by communication between tutors and faculty members.
- General study skill tutoring offered by peer mentors.
- Peer support groups to increase a sense of belonging.
- Targeted tutoring aimed at specific needs of community college students.
- Create STEM HIP innovative and customized quality courses.

**P031C210105 Pueblo Community College**

*STEM EDGE (Excellence in Development, student Growth, and Equity)*

**Applicant Institution:** Pueblo Community College, Pueblo, Colorado

**Partner Institution:** Colorado State University – Pueblo

**Project Title:** STEM EDGE (Excellence in Development, student Growth, and Equity)

**Target Population:** K-12 students in schools districts throughout PCC’s large rural population in southern Colorado as well as PCC STEM-declared students

**Services and Proposed Activities:** The proposed project will provide outreach to area K-12 students (Development); help PCC students grow their identities as scientists (Growth); and provide faculty with opportunities to redesign curriculum and classrooms (Equity). Specific activities will include:

- K-12 outreach including on-campus events, activities at schools, and community events that involve parents and guardians.
- The production of a video library featuring Hispanic, other minority, and female STEM professionals from the region telling how they discovered STEM.
- In-depth student support by Academic and Career Experts (ACEs) who will provide intensive services and work alongside mentors and tutors.
- Undergraduate research opportunities for PCC students who will partner with faculty.
- Career development activities in partnership with local businesses.
- Improvements to on-campus facilities including STEM Centers, laboratories, and research/outreach space.
- Faculty training, curriculum redesign, and the purchase of new equipment for classrooms.
- Articulation and transfer activities with CSU-Pueblo.

**Anticipated Results:**

**Objective 1:** By Sept. 30, 2026, increase the percentage of students annually seeking STEM degrees at PCC by 100%. At least 60% of STEM students will be Hispanic and/or low-income.

**Objective 2a:** By Sept. 30, 2026, increase the STEM student fall-to-fall retention rate by 19 percentage points.

**Objective 2b:** By Sept. 30, 2026, increase the Hispanic STEM student fall-to-fall retention rate by 17 percentage points.

**Objective 3a:** By Sept. 30, 2021, increase the three-year completion/graduation rate of all STEM students by 14 percentage points.

**Objective 3b:** By Sept. 30, 2026, increase the three-year completion/graduation rate of Hispanic and/or low-income STEM students by 18 percentage points.

**Objective 4a:** By Sept. 30, 2026, increase the transfer rate of all STEM students by 5 percentage points.

**Objective 4b:** By Sept. 30, 2026, increase the transfer rate of female Hispanic STEM students by 6 percentage points (to equal the transfer rate of male Hispanic STEM students).

**Absolute Priority Addressed:** Yes; PCC will provide ongoing support to increase the number of students studying STEM and will partner with CSU-Pueblo to review and update articulation agreements and improve transfer practices.

**Competitive Preference Priorities Addressed:** Yes, both CPP 1 and CPP 2 are addressed

**Invitational Priority Addressed:** Yes

**P031C210106 Passaic County Community College**  
*PCCC STEM TRACS (Transfer Readiness and Career Success)*

**1. Applicant and Partner Institutions:** Passaic County Community College (PCCC)

*Postsecondary Education Partners:* Ramapo College of New Jersey, New Jersey Institute of Technology (NJIT); *Employer Partners:* BAE Systems, BASF Corporation, Getinge, Stryker, Triangle Manufacturing Company, and Verizon; *School District Partners:* Paterson Board of Education, Passaic Public School District, Passaic County Technical Institute (PCTI); *Other Partners:* Society of Hispanic Professional Engineers (SHPE) – New York City Chapter; INROADS, HISPA, New Jersey Governor’s Hispanic Fellows Program, Kean University McNair Scholars Program, and the Jed Foundation (JED).

**2. Project Title:** PCCC STEM TRACS (Transfer Readiness and Career Success)

**3. Abstract:**

**a. Target Population:** The project will serve 500 newly-enrolled STEM majors, 3,060 new and continuing STEM majors, 640 English Language Learners (ELLs), and 600 high school students. 65 STEM faculty will engage in Communities of Practice (CoP).

**b. Services and Proposed Activities:** The project will implement services and activities associated with four major project components: 1) Hispanic and low-income students will develop and apply transferrable and career-ready skills that prepare them for further education and career success; 2) Hispanic and low-income students will receive holistic support services needed to be retained in STEM degree programs; 3) Hispanic and low-income students will transfer into STEM baccalaureate degree programs, based on model transfer programs; and 4) Hispanic and low-income high school students will be better prepared for STEM postsecondary education through dual enrollment.

**c. Anticipated Results:** Three major program goals and 10 corresponding objectives/outcomes will guide program implementation. The program goals include: 1) Hispanic and low-income students will complete their STEM degree program on time (within 3 years of enrollment); 2) STEM graduates will transfer into STEM baccalaureate degree programs and remain on track to earn STEM degrees; and 3) Hispanic and low-income students will enter college prepared to succeed in postsecondary STEM programs.

**4. Absolute Priority Addressed:** Yes. To address the articulation and transfer model absolute priority, PCCC will partner with Ramapo College of New Jersey and NJIT.

**5. Competitive Preference Priorities 1 & 2 Addressed:** Yes. PCCC has established partnerships with regional employers to improve collaboration and to involve students in work-based learning. PCCC will expand support services designed to retain students.

**6. Invitational Priority Addressed:** Yes. Through partnerships with the PCCC Office of Student Advocacy (OSA) and the Jed Foundation (JED), the project will address the mental health and emotional well-being of Hispanic and low-income STEM majors.

**P031C210109 Trustees of Indiana University**

TRIUNFOS: TRansforming Indiana University Northwest For Opportunities in STEM

1. **Applicant and Partner Institutions:** Indiana University Northwest and Ivy Tech Community College, Lake County

2. **Project Title:** TRIUNFOS: TRansforming Indiana University Northwest For Opportunities in STEM

3. **Abstract:** This project focuses on transforming STEM services at Indiana University Northwest (IUN) and our partner, Ivy Tech Community College (Ivy Tech), to improve our institutional practices for recruiting, retaining, transferring, and graduating Hispanic and low income students in STEM majors. The target populations are full- and part-time faculty at IUN and Ivy Tech, Hispanic and low income STEM students, students from Hispanic-serving high schools, and STEM success staff (advisors, internship, and career counselors).

Proposed services and activities include curricular innovations and faculty development, wrap-around STEM support services, clearly defined matriculation and transfer pathways into STEM programs through partnerships with Ivy Tech and area high schools, and infrastructure enhancements that support these activities. A new “one-stop” STEM Center that serves both IUN and Ivy Tech will feature services shown to improve retention and graduation rates among Hispanic students, such as STEM-specific transfer coaching and academic advising, tutoring services and peer mentoring opportunities, and help locating and applying for STEM internships, jobs, and graduate schools. Students will be connected to wrap-around services like mental health and wellness programs, emergency grants, the campus food pantry, and a laptop loaner program. Core activities of the project revolve around faculty training in asset-based and culturally relevant pedagogies, curricular innovations in early career STEM courses, and expanding opportunities for undergraduate research and STEM field internships.

TRIUNFOS has several significant outcomes related to the impact of services provided and implementation of high impact teaching practices by IUN and Ivy Tech full- and parttime faculty. The project will include adjuncts in faculty development to produce sustained pedagogical changes that facilitate Hispanic student success in introductory STEM courses. Annual program evaluations will determine if project services are being used by the target students and if the services are helping to retain and graduate these students.

4. **Absolute Priority Addressed:** Yes; Ivy Tech Community College, Lake County

5. **Competitive Preference Priority Addressed:** Yes. For CPP1, TRIUNFOS will improve collaboration between faculty and students by offering extended research opportunities beginning in the freshman year and campus-based internships in collaboration with local partners in STEM fields. A robust peer-mentor program will be a source of on-campus student employment year round. A career specialist will be hired to connect students to local job opportunities in their field. For CPP2, the STEM Center will consolidate and enhance advising, tutoring, and student service programs designed to improve academic success. Faculty development initiatives will produce innovative course redesign.

6. **Invitational Priority Addressed:** IUN will provide support for students’ mental health and academic success in the face of challenges posed by COVID-19 by increasing access to new and existing wrap-around services. An information hub housed in the one-stop STEM Center will include bilingual information about accessing services and staff members to connect students to these services.

## **P031C210125 NMSU-Carlsbad**

### *Centro STEM*

To address the identified national need for increased Hispanic and other low-income student success in STEM, New Mexico State University, Carlsbad proposes the **Centro STEM** project. As a geographically isolated 2-year STEM certificate and degree granting Hispanic-Serving Institution, the project's proposed services will increase **academic and transfer success in STEM for Hispanic and other low-income students** who comprise the majority (54%) of our enrolled population and are the project's **target population**. Project results will increase enrollment (10%), persistence (10%), completion (300%) and transfer (25%) for Hispanic and other low-income STEM degree-seeking students over the FFY2022-FFY2026 implementation.

**Invitational Priority:** The proposed **Integrated Student Support System** will address the impacts of COVID-19 through a comprehensive system of holistic supports, including mental, emotional, physical, and basic needs support referrals. Our approach is based on the published findings of *Scrivener, S., Weiss, M. J., Ratledge, A., Rudd, T., Sommo, C., & Fresques, H. (2015). Doubling graduation rates: Three-year effects of CUNY's Accelerated Study in Associate Programs (ASAP) for developmental education students. New York: MDRC. Retrieved from: <http://files.eric.ed.gov/fulltext/ED558511.pdf>. This citation meets What Works Clearinghouse standard of evidence of promise without reservations.*

**Competitive Preference Priority 1:** As described in letters of support attached to this proposal, our collaboration with **Carlsbad K-12 Schools** and Carlsbad Academies initiative will move students more effectively to and through NMSU Carlsbad's certificate and degree programs into STEM career pathways. In addition, the project will create and develop a new Computer Science curriculum addressing the need for **Digital Technology** to support the region's employment needs. The project also supports **STEM career exploration and internships**.

**Competitive Preference Priority 2: The Integrated Student Support System will feature** customized academic instruction and support via an Accelerated Summer Bridge Math Camp, **Peer Led Team Learning (PLTL) and Coaching**. Summer Bridge has been shown to increase persistence (Dika, S. L., & D'Amico, M. M., 2016). PLTL results in persistence and success (Bridges et al, 2007) and Coaching has been shown to increase postsecondary credit accumulation and persistence in underrepresented populations (Bettinger and Baker, 2011).

**Absolute Priorities & Transfer Activities:** The project's 4-year STEM degree offering partners are Texas Tech, University of Texas Permian Basin and Eastern New Mexico University. The project will advance degree articulation activities and transfer exploration leading to increased transfer success for Hispanic and other low income students.

Key strategies and activities: 1) **Integrated, Student Support System** featuring wraparound academic and non-cognitive supports 2) **STEM Transfer and Career Advising, Exploration and Internships**; 3) **Accelerated Math Summer Bridge**; 4) **Peer Led Team Learning and Coaching**; 4) **Model transfer and articulation** pathway development with STEM degree offering institutions **Texas Tech, University of Texas Permian Basin and Eastern New Mexico University**; 5) **Equity-centered faculty professional learning**; and, 6) **Evaluation and intervention research and assessment to investigate Summer Bridge intervention outcomes for members of the target population**.

## **P031C210138 California State University San Marcos Corporation**

### *Building an Effective Ecosystem for Equity in STEM Careers*

1. **Applicant:** California State University San Marcos (CSUSM)
2. **Project Title:** *Building an Effective Ecosystem for Equity in STEM Careers*
3. **Abstract:** Established in 1989, CSUSM has cultivated a strong reputation for innovation, academic excellence, and responsiveness to area needs across a wide range of degree programs. CSUSM currently enrolls over 14,000 undergraduates and offers 43 undergraduate degree programs, 22 master's degree programs, and one joint-doctoral program. We serve a diverse student population, approximately 47% Hispanic, 27% White, 9% Asian, and 3% African American. CSUSM's proposal reflects a lengthy planning process which included an intensive review of HSI- and STEM-specific research, examples of HSI excellence, and an in-depth study of the work of Dr. Gina Garcia on "servingness." Dr. Garcia's work challenged project planners to use this opportunity to catalyze an institutional transformation from a Hispanic-enrolling institution to one that *serves* students through culturally informed and culturally enhancing experiences.
  - a. **Target Population:** Hispanic and low-income STEM students from our service area
  - b. **Services/Proposed Activities: STEM Pathway Development:** Develop and scale regionally high-demand, high-wage pathways in STEM, specifically in the field of engineering, and support Hispanic and other disproportionately impacted students with a commitment to equitable degree completion. **Work-Based Learning and UREs:** Expand STEM work-based learning opportunities and course-based Undergraduate Research Experiences (UREs) to ensure equitable access for Hispanic and other underrepresented students. **Institutional & Industry Partnerships:** Leverage strong institutional and industry partnerships to sustain and scale accessibility of academic and career pathways.
  - c. **Anticipated Results:** Increase Hispanic students enrolled in engineering; Increase retention and gateway course completion; Increase participation in Engineering Ecosystem Advising and Coaching; Share resources and practices with CSUSM Alliance; Establish advisory boards; Participate in CSU STEM-Net; Increase graduation rates for Hispanic students in STEM; Achieve equitable representation, transfer rates, and graduation for Hispanic students in STEM; Increase industry connections to align education and workforce; Develop course based UREs embedded in the STEM curriculum.
4. **Absolute Priority Addressed: Yes;** Expanding the CSUSM STEM program to include a **Computer Engineering Pathway** will increase the major options and career paths for Hispanic students and increase enrollment. The Computer Engineering Pathway will be designed in partnership with the local community colleges to ensure seamless **Articulation** and Transfer. **Program Maps** will be developed for incoming freshmen on a four-year degree path as well as transfer students.
5. **Competitive Preference Priority Addressed: Yes; CPP 1: Advisory Boards** for the newly formed engineering degrees will be convened that consist of CSUSM faculty and staff, partnership community college faculty and staff, K-12 representatives, and local employers. These boards will provide input for academic curriculum and extracurricular activities so that the programs reflect current knowledge, skills and practices for the industry. CSUSM will expand their relationships and partnerships with employers to provide students with work-based learning opportunities such as **internships, co-ops, workshops, lectures and presentations, and career fairs.** **CPP 2:** The CSUSM Ecosystem will expand our holistic model of support for enrollment, persistence, retention, and completion. **Summer Bridge** will provide an opportunity for students to gain experience on campus before beginning their formal program, learning about the campus, the services available, and college readiness skills. An increased sense of belonging and a peer support network will result from students being engaged in **Learning Communities.** Coaching will be integrated across many levels, from **Peer Coaches** who mentor lower division students to **Faculty Coaches** invested in each student's academic success to **Pathway Advisors** monitoring a student's progress through their degree to **Career Coaches** helping students match to internships, co-ops, and job opportunities.
6. **Invitational Priority Addressed: Yes;** As stated above, enhanced and improved programs such as **Summer Bridge, Learning Communities, and Coaches** will provide students with opportunities to connect with peers, faculty, and counselors, find support through their academic courses, and cultivate a sense of belonging in their program of choice to help address the impact of COVID-19 on students' mental health and academic outcomes.

**P031C210140 St. Francis College**

*SFC STEM Success Collaborative*

**1. Applicant Institution:** St. Francis College

**2. Project Title:** SFC STEM Success Collaborative

**3. Abstract:** St. Francis College (SFC), located in Brooklyn, New York, is a 160-year old private, not-for-profit, four-year institute of higher education rooted in Franciscan tradition. Our student population of over 2,700 is racially, ethnically and economically diverse. Sixty two percent of students are BIPOC (Black, Indigenous, People of Color) and many are from low-income families. Central to SFC's ethos is providing an accessible, affordable education to students supplemented by holistic services that allow them to persist in their education, graduate and enter careers that promote economic mobility.

**a. Target Population:** Hispanic and low-income students from in and around New York City who are interested in pursuing STEM fields and SFC faculty in STEM fields.

**b. Services/Proposed Activities:** The project proposed activities are organized into four program areas: (1) STEM Resource Center: Coordinates academic and other support and experiential learning opportunities; (2) Faculty Development & Curriculum Redesign: Resources for faculty research, faculty training and a redesign of gateway STEM courses to promote student success; (3) Transfer Articulation: Develops a model articulation program between SFC and a two-year HSIs; and (4) Technology Enhancements: Supports additional technologies in labs located on a brand new campus.

**c. Anticipated Results:** By year five of the grant period, SFC anticipates:

- i. A 20% increase in the number of Hispanic and low-income students seeking a degree in a STEM field
- ii. 83% of Hispanic and low-income students in their first year of postsecondary enrollment will enroll in the next year and remain in a STEM field
- iii. 58% of Hispanic and low-income students will have graduated within six years
- iv. An increase in the number of Hispanic and low-income transfer students from two year institutions, and a 75% one-year retention rate and for these STEM transfer students and 72% three-year graduation rate

**4. Absolute Priority:** Yes. SFC's proposed project is designed to increase the number of Hispanic and low-income students attaining degrees in STEM fields through targeted student supports and institutional enhancements. SFC will explore formalizing model articulation agreements with: LaGuardia CC, Borough of Manhattan CC, Hostos CC, Queensborough CC, and Nassau CC.

**5. Competitive Preference Priorities:** Yes. SFC *will foster flexible and affordable paths to obtaining knowledge and skills* through the development of employer relationships, internship pipelines, and research opportunities. SFC *will implement academic achievement and retention strategies* such as tutoring, success coaching, summer institutes and community building.

**6. Invitational Priority:** Yes. SFC *will provide student supports for addressing the impact of Covid-19 on mental health and academic outcomes* through coordination of wrap-around and mental health services, 1:1 coaching and access to technology for academic success in a remote environment.

## **P031C210142 NMSU - Dona Ana Community College**

### *Éxito*

New Mexico State University (NMSU)–Doña Ana Community College (DACC) is a two- year, public community college located in Las Cruces, New Mexico. The county resides on the border of Mexico and has a Hispanic student population of 86%.

DACC’s Title III Part F grant project, the Spanish word for “success,” or *Éxito* will overcome weaknesses identified through ongoing assessment and analysis and will put into place innovative advising and support structures that are “high impact practices” designed to create enriching academic opportunities the foster success for our highly diverse student population.

These high impact practices will be informed by the Guided Pathways research and include: 1) the development of an online STEM orientation, 2) proactive and intrusive academic advising, 3) co-curricular and co-requisite supports for developmental, gateway, and high DFW STEM courses, 4) Supplemental Academic Instruction, 5) peer mentoring, 6) work-based learning experiences and career placement for students with a job placement component, 7) alignment of student learning outcomes and curriculum with in-demand industry needs, 8) expansion of online STEM courses, and 8) enhancement of articulation agreements with local educational partners.

The purpose of the *Éxito* Project is to build institutional capacity to increase the number of Hispanic and low-income students attaining postsecondary degrees and facilitate access, persistence, retention, and completion. Project Goals include (1) Increase access, retention, transfer, and graduation rates by removing obstacles, supporting students in developmental, gateway, and high DFW STEM courses, (2) Improving advising infrastructure and articulation agreements as well as providing advising and intervention strategies that support success, (3) Expand co-requisite and co-curricular support structures including supplemental academic instruction, co-requisite courses for developmental and gateway courses, and summer math camp, and (4) Expand career-aligned pathways through the alignment of curriculum with in-demand industry needs, and (5) Develop a system building upon career-aligned pathways to provide greater access to internships and apprenticeships in high-demand industries that help students transition from postsecondary education into careers that support sustainable living and feed regional economic growth.

The Project meets the Absolute Priority, Competitive Preference Priorities 1 and 2, as well as the Invitational Priority. The Project will have measurable and significant outcomes: (1) increase the number Hispanic and low-income students accessing STEM pathways; (2) increase number of Hispanic and low-income students persisting through developmental, gateway, and high DFW courses; (3) increase the number Hispanic and low-income students completing college-level math, (4) increase the graduation and transfer rates of Hispanic and low-income students; and (5) increase the placement rate of graduates into high demand industries.

DACC is requesting **\$4,889,531** over five years to support the *Éxito* initiatives and activities.

## **P031C210145 New Jersey City University**

### *Setting the Stage for STEM Students in the CoViD-19 Era at an Urban Public Hispanic-Serving Institution*

New Jersey City University will undertake a \$5.0 million program of interventions to increase the number of Hispanic and low-income students attaining degrees in six STEM fields. This goal will be achieved by improving the 6-year graduation rate for first-time, full-time students and the 3-year graduation rate for community college transfer students. 66% of NJCU's undergraduate students belong to underrepresented minority groups, and 43% of NJCU's undergraduates are transfer students, mostly from six nearby minority-serving community colleges. Like many peer institutions, NJCU must take action to increase the number of new transfer students and retain and graduate more of its undergraduates. The project has four strategies:

***Strategy 1: Wrap-around supports for STEM majors.*** A variety of student support services will help to overcome academic and non-academic challenges experienced by Hispanic and high need students: Transfer “kits” for low-income transfer students to assist with purchase of books, meals, transportation, etc.; mental health support; a one-stop support center for STEM advising, coaching and postgraduate preparation; mentorship-matching to pair students with working professionals; loaner technology to assist with remote work and connectivity; peer mentoring; and Supplemental Instruction for math-intensive courses. **(Absolute & Invitational Priorities)**

***Strategy 2: Improved transfer systems.*** To reverse a trend of declining undergraduate transfer student, technology and a full-time coordinator will be dedicated to the development of dual-admit agreements with community colleges and dual-enrollment agreements with STEM-focused high schools that enroll sizeable numbers of underrepresented minority students. **(CPP 2)**

***Strategy 3: Expansion of STEM internship, Co-Operative education, and course-based research opportunities.*** Position-matching technology and a full-time coordinator will be dedicated to expanding the range of external partners and work-based learning experiences available to STEM undergraduates and support will be provided to faculty who mentor undergraduates in original research offered in courses. **(CPP 1)**

***Strategy 4: Support for effective STEM teaching.*** Faculty professional development support will be provided to inform their pedagogy, curricular design, and student support skills and classroom teaching technology will be upgraded to better support hybrid teaching modality.

Five-year Project Objectives include:

- Increased 6-year graduation rate from 44% to 55% for first-time, full-time STEM majors
- Increased 3-year graduation rate from 50% to 65% for STEM transfer students
- Increased 2nd-year retention rate from 80–82% to 90% all STEM majors
- Increased STEM majors population from 21% to 25% of undergraduates
- 5% annual increase in community college transfers to NJCU STEM programs
- Supplemental Instruction/Peer mentoring for 500 students in 25 STEM sections annually
- 100% increase in Co-Operative education placements by STEM students
- Model transfer articulation agreements and dual-enrollment agreements
- 100% faculty utilization of hybrid teaching technology

Evaluation of the Transfer kits will be conducted as a Quasi-Experimental Design according to the “evidence of promise” standards of the What Works Clearinghouse.

**P031C210149 The University of Texas at El Paso**  
**STEMFUERTE**

STEMFUERTE is a strong (hence “FUERTE”) multi-year STEM pathway program responsive to the needs of i) Hispanic and low income First Time In College (FTIC) students at UTEP and EPCC; and ii) STEM industry/occupations; and facilitates a seamless articulated transfer (***Absolute Priority***) of EPCC graduates in STEM to UTEP’s STEM degree programs. The program aims to increase and improve: a) Hispanic and low income student enrollment in STEM degree programs at UTEP and EPCC; b) academic and retention rates of participating students (***Competitive Priority 2***); graduation rates of participating students; c) the number and participation levels in program activities; d) collaborations with in-demand industry/occupations to develop flexible and well-aligned academic and work-based STEM degree programs (***Competitive Priority 1***); e) students’ achievement, by providing academic supports and innovative STEM pedagogy (***Competitive Priority 2***); and f) students’ mental health and resilience (***Invitational Priority***).

UTEP and EPCC seek to build a strong programming capacity through STEMFUERTE, with the following eight strategic components: Innovative/Interdisciplinary Applied STEM Instruction; STEM Mentoring and Mental Health Supports; STEM Undergraduate Tutoring; Summer STEM Skill-Building and Acculturation Programs; STEM Undergraduate Enrichment Activities; STEM Career Advising, Guidance, and Counseling; STEM 2-to-4 Year Articulation Activities/Services; and UTEP-EPCC and Industry/Employer Taskforce/Alumni Advisory Board Activities. With the effective implementation of these major activity components, the following short-term outcomes will be achieved through increased: teaching skills of faculty; effectiveness of STEM instruction; enrollment of Hispanic and low income FTIC STEM students and EPCC STEM transfer students at UTEP; students’ knowledge about STEM careers; students’ confidence and motivation related to STEM; student-connectedness with faculty and alumni; students’ levels of Grit/Self-efficacy; fall-to-fall freshman year retention rates; and number of students earning 24+ credit hours and a 2.5 GPA each year to be in good standing and on track to graduate in 3 years at EPCC or after transfer to UTEP, or in 6 years at UTEP. STEMFUERTE will subsequently achieve the long-term goals of increasing numbers of: Hispanic and low income students graduating in 3 years at EPCC or 6 years at UTEP with STEM credentials; UTEP’s Hispanic and low income EPCC transfer students graduating in 3 years with STEM credentials; and UTEP’s STEM graduates working in in-demand industry occupations. STEMFUERTE’s programming design therefore fully addresses the competition’s Absolute, Competitive, and Invitational priorities.

The STEMFUERTE program addresses the ***Absolute Priority*** through all eight major activity components, collaboratively develops model STEM transfer and articulation agreements, as well as the ***Competitive Priority-1 and -2*** by working with STEM industries to align student learning objectives with industry skills and knowledge needs, and the provision of work-based learning experience, and addresses the ***Invitational Priority*** through the mentoring program responsive to COVID-19’s mental health and beyond-academic needs of participating students. The STEMFUERTE program uses the conceptual, operational, and longitudinal pathway framework or major elements of the CUNY’s Accelerated Study in Associate Programs (ASAP), evaluated by MDRC, and assessed by WWC as meeting “*WWC group design standards without reservations*” (May 2015).

**P031C210156 The University of Texas Permian Basin**  
*STRENGTHENING THE STEM PIPELINE: UT PERMIAN BASIN*

Permian Basin region is situated in western Texas and is serving the nation to meet our oil and gas needs with its huge oil reserves. Ector County ISD is an Independent School District which serves the Permian Basin region with 77 % Hispanic student population. The *University of Texas Permian Basin* (UTPB) is the premier higher education institution in the region that serves this Hispanic student population and contributes towards workforce development for the local industry. Present enrollment of the *target student population* (Hispanic and other low-income students) in STEM disciplines at UTPB is about 67 % and first-year retention rate is 62.9 %. COVID-19 has also severely impacted the economic situation of the target population. Considering the percentage of Hispanic students' population in Ector County ISD compared with that of UTPB's STEM disciplines, there is a large gap that UTPB must address. In addition, the retention and graduation rate also need to be increased for such students by improving their mathematics skills.

**Major Activities of the Pipeline Project:** 1. UTPB will review and revise the existing articulation agreements with local community colleges, i.e., Odessa College and Midland College and work towards signing more articulation agreements with the other 2-year colleges. Under the proposed *Pipeline Project*, the target population in those 2-year community colleges will be encouraged through financial support to enroll in STEM-based courses and transfer credits for 4-year STEM degrees at UTPB. 2. Outreach activities are planned (such as summer camps) for K-12 students to develop interest in STEM subjects, 3. Supplemental Instruction will increase the retention rate, 4. Academic assistance will be provided in form of extra tutoring, 5. Life coaches will be provided through Student Success Center, 6. Students will be able to utilize the academic advising for their success, and 7. Student skills will be developed through undergraduate research and internships.

**Project Goals, Impacts, and Expenses:** There are four goals of this project to help the target student population, i.e., increase the enrollment rate, increase retention rate, increase the graduation rate, and develop skillset for those students. This project will be a major step towards developing a trained workforce in STEM disciplines for the local industry and the region. The project is designed to obtain those goals for the target population through supporting summer camps, supplemental instructions, tutors, life coaches, student research fellowships, student internships, and expenses for the project personnel and the external evaluators.

**Project Priorities:** The *Absolute Priority* will be met by increasing the number of Hispanic and other low-income students in STEM fields. The existing articulation agreements with 2-year HSIs will also be extensively utilized and new agreements will be signed to meet the priority. *Competitive Preference Priority 1* will be addressed through work-based learning experiences to include internships and fellowships that meet the demands of the local industry. *Competitive Preference Priority 2* entails academic achievement and retention strategies. The Pipeline Project will provide weekly tutoring activities for eligible students and enhance the counseling and advising services to improve the academic success of the target student population. The *Invitational Priority* will be met by identifying the students impacted with COVID-19 and provide support through academic tutoring and financial assistance for eligible students.

**P031C210159 California State University, Stanislaus**

Accelerated STEM Pathways through Internships, Research and Engagement (ASPIRE)

1. **Applicant Institution:** California State University, Stanislaus (Stanislaus State)

2. **Project Title:** Accelerated STEM Pathways through Internships, Research and Engagement (ASPIRE)

3. **Abstract:**

a. **Target Population:** Hispanic and low-income students

b. **Services and Proposed Activities:**

1. *Science and Math Articulation and Research for Transfers (SMART)* will identify and reduce articulation gaps at three community college partners through pre-matriculation advising, personnel training, and outreach targeting first-year community college transfer students.

2. *STEM Career Ready U (STEM CRU)* will provide on- and off-campus internship experiences in collaboration with industry partners to support seamless transition into employment after graduation.

3. *STEM Peer Assisted Learning for Students (STEM PALS)* will provide student-centered programming to engage incoming freshmen in STEM experiences designed to facilitate discipline immersion, enhance self-efficacy, and improve academic success during the critical first year on campus.

c. **Anticipated Results:** ASPIRE project design will use evidence-based practices to increase degree completion rates, decrease time to degree, and increase the percentage of Hispanic and low-income students who are employed within 12 months of graduation.

4. **Absolute Priority Addressed:** Yes, the project will implement high-impact practices to increase enrollment and degree attainment in STEM. ASPIRE will collaborate with our 3 largest community college partners, Modesto Junior College, Merced College and San Joaquin Delta College to improve articulation and create model transfer agreements.

5. **Competitive Preference Priority Addressed:** Yes, ASPIRE will address Competitive Priority #1 through facilitation of on-and off-campus internships by directly working with employers to ensure that students are gaining in-demand industry experience, knowledge and skills. (Citation: Hernandez, P.R., Bloodhart, B., Barnes, R.T., Adams, A.S., Clinton, S.M., Pollack, I., Godfrey, E., Burt, M., & Fischer, E.V. (2017). Promoting Professional Identity, Motivation, and Persistence: Benefits of an Informal Mentoring Program for Female *Undergraduates*. *PLoS ONE*. 12(11), 1-16. <https://doi.org/10.1371/journal.pone.0187531>)

ASPIRE will address Competitive Priority #2 by implementing a first-year immersion program that includes faculty and peer mentoring, peer assisted tutoring and academic resources to help retain students and improve degree completion. (Citation: Harackiewicz, J.M., Canning, E.A., Tibbetts, Y., Giffen, C.J., Blair, S.S., Rouse, D.I., & Hyde, J.S. (2014). Closing the Social Class Achievement Gap for First-Generation Students in Undergraduate Biology. *American Psychological Association*, 106(2), 375-389 DOI: 10.1037/a0034679)

6. **Invitation Priority Addressed:** Yes, ASPIRE will integrate mindfulness tools, financial literacy, outdoor fieldtrips with peers, and social activities in its programming to support student mental health and reduce the impact of COVI-19 on academic success.

**P031C210167 Temple College**

*Creating a Culture of STEM*

1. Applicant Institution and partner institutions: Temple College and partner Texas A&M-Central Texas

2. Project Title: Creating a Culture of STEM

3. Abstract:

a. Target Population: The target population is dual credit students in grades 9-12 eligible for college-level courses, community college STEM students, university STEM students, STEM faculty—all focused on Hispanic and other low-income students.

b. Services and proposed activities: Increase STEM degree and transfer rates by hiring dedicated staff to focus on STEM enrollment and degree completion and by developing STEM articulation agreements between Temple College and TAMUCT. Also, support college/dual credit math course success as a gateway to STEM success in most STEM fields. Engage in hands-on STEM activities through summer experiences and transfer STEM bridge programs. Provide professional development for STEM faculty at community college and university related to improving alternate delivery systems, educating adult learners, earning additional industry certifications to remain up-to-date in field. Increase collaboration with STEM employers and working professionals through a STEM Employers Council that meets quarterly to consider overall positive improvements in STEM offerings at the two institutions.

c. Anticipated Results: (1) Increased STEM degree completion and/or STEM transfer for Hispanic and other low-income students. (2) Increased number of faculty completed professional development in area related to STEM learning. (3) Increased college-level math completion and success (4) Increased satisfaction of STEM employers with STEM degree completers.

4. Absolute Priority Addressed: Yes. Temple College is partnering with Texas A&M – Central Texas to meet the articulation and transfer model absolute priority.

5. Competitive Priority Addressed: Yes to both. The first is addressed by many outreach activities to the STEM employer community by the project's PI. The second is addressed by the hiring of 5 additional staff members to provide a variety of academic support and retention activities throughout the grant period.

6. Invitational Priority Addressed: Yes. The invitational priority is addressed through the development of an inventory of services, training staff in recognizing mental health issues that might need to be referred and tracking and reporting on the access to those services, disaggregated by Hispanic and other low-income students. The Project Director will lead this initiative.

**P031C210170 Chabot-Las Positas Community College District-Chabot College**  
*Éxito STEM Scholars*

**Applicant Institution:** Chabot College, 25555 Hesperian Blvd., Hayward, CA 94545

**Project Title:** Éxito STEM Scholars

**Target Population:** 850 Latinx and other low-income STEM majors annually, or 1450 unduplicated students over five years.

**Context:** Chabot College is a comprehensive, public, two-year community college in Hayward, California, located in an exceptionally multicultural region in the San Francisco Bay Area serving the most diverse county in the United States: Alameda County (Niche, 2020 Most Diverse Counties in America). Designated as a Hispanic-Serving Institution, Chabot has a student body of 12,945 enrolled students who speak fifty-eight languages and are eighty-five percent (85%) non-white. The college is situated in the heart of a diversified economy that includes traditional manufacturing, service, and high technology industries. Chabot College has more than a fifty-year history in the community and offers a wide array of instructional programs, including basic skills instruction, general education, technical and career education, and transfer education.

**Proposed Services and Activities:** To address dissatisfactory levels of Latinx and low-income STEM students' readiness for college-level STEM coursework, persistence in STEM degree programs, and degree and transfer attainment, the Éxito STEM Scholars program will address multiple barriers to success that are not only academic, but meet the needs of the whole individual. Éxito STEM Scholars will provide a safety net for low-income and first-generation target students and help make the goal of a postsecondary STEM degree a reality. The Éxito STEM Scholars program will achieve three objectives: (1) students prepare for and explore STEM pathways through a STEM Summer Bridge, orientation, and counseling; (2) students learn and progress on Chabot's STEM guided pathways, supported by embedded tutoring, work-based learning, and comprehensive student services; and (3) students complete and transfer on STEM pathways, through the College's deep collaboration with industry and 4-year university partners.

**Anticipated Results and Learning Outcomes:** Increase the number of HSI STEM students who participate in comprehensive student support programs by 50%, with 95% of participants maintaining good academic standing. For HSI STEM students, 3% increase in enrollments, 7.5% increase in persistence; 5% increase in 3-year graduation rates, and 7% increase in transfer rate.

**Absolute Priority Addressed:** Yes. Partner institutions are the California State University, East Bay and the University of California, Berkeley

**Competitive Preference Priorities Addressed:** Yes, both CPP 1 and 2. See: WWC Practice Guide *Designing and delivering career pathways at community colleges: A practice guide for educators* (WWC 2021007); Ableman & Molina (2001); Castleman & Page (2014); Hayward & Willett (2014); and Scrivener, S. et al. (2015).

**Invitational Priority Addressed:** Yes. In-reach services will connect students with existing wraparound support from the Chabot College CARES Mental Health Team and SparkPoint Center (financial/economic supports).

**P031C210181 Sul Ross State University**

*LoboTrack to Success in STEM*

1. **Applicant Institution:** Sul Ross State University (SRSU)

2. **Project Title:** LoboTrack to Success in STEM

3. **Abstract**

a. **Target Population:** Students and Faculty

b. **Services and Proposed Activities:** SRSU proposes the following services and activities as part of LoboTrack:

i. Developmental Education Summer Bridge Program;

ii. Summer Experience Programs focused on increasing engagement and retention;

iii. Shift select STEM programs from the pipeline model to the pathways model, including interdisciplinary and co-curricular career tracks;

iv. Increasing the number and quality of articulation agreements in partnering community and junior colleges; and

v. In-semester supports including a Peer Supplemental Instructor Program and Peer Mentoring Program, as well as additional supports for student mental health.

c. **Anticipated Results:** Increased enrollment, retention, and graduation rates for Hispanic and low-income students in STEM programs; increased success for transfer students

4. **Absolute Priority Addressed:** Yes. SRSU will begin by partnering with Midland College, Odessa College, Southwest Texas Junior College, and El Paso Community College and seek to expand to include additional two-year HSIs throughout the project period.

5. **Competitive Preference Priority Addressed:** Yes. SRSU will address both Competitive Preference Priorities. For CPP1, this includes career exploration activities, expanded implementation of the marketable skills initiative, seeking to expand internships and other work-based learning opportunities. For CPP2, LoboTrack will assign Peer Mentors to all first-time at SRSU students (including incoming freshman, transfer students, and nontraditional students) in STEM and assign Supplemental Instructors to identified gatekeeping courses with high failure rates in STEM programs.

6. **Invitational Priority Addressed:** Yes. LoboTrack will implement virtual counseling services to assist with institutional on-campus supports.

**P031C210186 Riverside Community College District/Moreno Valley College**

*Experiential Learning: Closing the STEM Talent Gap project.*

**Applicant Institution, Partner Institutions, and Project Title:** Moreno Valley College will partner with the University of California, Riverside, California State University, San Bernardino, and University of California, Berkeley, to promote the articulation and transfer of Hispanic and low-income STEM students through the Experiential Learning: Closing the STEM Talent Gap project.

**Abstract:** Building on MVC's previous HSI STEM grant, Experiential Learning: Closing the STEM Talent Gap will increase the number of Hispanic and low-income students who successfully attain degrees in STEM by utilizing the versatility of experiential learning to develop an array of applied learning options that foster student interest and enrollment, improve student success, and facilitate degree completion and transfer.

**a. Target Population (e.g., faculty, staff, students).** The target population are Hispanic and low-income students who attend MVC and are interested in pursuing STEM degrees or certificates.

**b. Services and Proposed Activities:** The Experiential Learning: Closing the STEM Talent Gap project will promote degree attainment, transfer and articulation in STEM through an integrated, four-pronged approach that integrates experiential learning across the STEM curriculum to provide students with the skills, resources, motivation, and enthusiasm necessary to successfully attain degrees and careers in STEM. This approach includes four complementary and integrated components: 1) Greater use of MakerSpace applications and resources to include outdoor learning opportunities; 2) Innovative use of virtual and augmented reality in historically challenging classes, including math, to better engage students in the learning process, building upon their interests in gaming, simulation, and other virtual environments; 3) Expanded availability of internships, apprenticeships, and other work-based learning opportunities that are articulated to and offered in conjunction with baccalaureate programs throughout California, targeting Computer Science, Math, and Biology pathways; and 4) Integration of Place-Based Education and Project Based Learning to connect theory and practice and personalize the classroom experience for first generation and other non-traditional students who may not understand the real-life or career applications of STEM fields. To ensure project sustainability and institutionalization, faculty will receive the support they need through comprehensive professional development and multi-disciplinary faculty-based communities of practice focused on the use of experiential learning to reform introductory and foundational STEM courses.

**c. Anticipated Results:** Outcomes include: 1) 10% increase in enrollment in STEM courses by students traditionally underrepresented in STEM; 2) 60% of students pursuing degrees and careers in data science will represent students groups traditionally underrepresented in STEM, including Hispanic and low-income students; 3) 75% of students who complete degrees in STEM will participate in work-based and/or undergraduate research experiences, both paid and unpaid, prior to degree completion and/or transfer; and 4) 10% increase in course retention and course success rates for students enrolled in math classes utilizing experiential learning. In achieving these outcomes, this project will increase the number of Hispanic and low income students who complete STEM degrees and transfer to university.

**Absolute Priority Addressed: Yes** MVC will partner with the University of California, Riverside, California State University, San Bernardino, and University of California, Berkeley, to promote the articulation and transfer of Hispanic and low-income STEM students

**Competitive Preference Priority Addressed: Yes.** Competitive Priorities 1 and 2 are both addressed. The project will improve collaboration between education providers and students through the use of Communities of Practice, mentoring, and other practices, and provide work-based learning experiences through student work-study, research, and internship opportunities.

**Invitational Priority Addressed: Yes.** MVC provides students with a comprehensive array of free or low-cost mental health services designed to improve student retention and success in college. The Outdoor Learning Lab will also provide students with significant time spent in an outdoor environment, which is proven to have positive effects on socio emotional wellness and mental health.

**P031C210026 Amarillo College**

*Innovating and Advancing in STEM Education*

1. Applicant Institution: **Amarillo College (AC)**, in Amarillo, Texas, is a public, open-door, comprehensive community college located in the center of the Texas Panhandle.

2. Project Title: **Innovating and Advancing in STEM Education**

3a. Target Population: **AC students**: of Fall 2020 students, 44% Hispanic; 70% first-generation college students (82% of Hispanic students); 59% part-time; 51% Low-income (Pell eligible) (57% for Hispanic students).

3b. Services and Proposed Activities:

***Initiative 1: Develop a new Work-based Learning System***

- ✓ Develop/pilot work-based learning in 15 STEM courses across eight STEM disciplines
- ✓ Update career services and advising to support the work-based learning system
- ✓ *Promising Evidence* = U.S. Department of Ed. What Works Clearinghouse Practice Guide (2021) “Designing and Delivering Career Pathways at Community Colleges...”

***Initiative 2: Update Technology Skills Instruction in STEM Programs***

- ✓ Collaborate with industry leaders to identify and address gaps in technology skills instruction in AC’s STEM programs
- ✓ *Promising Evidence* = U.S. Department of Ed. What Works Clearinghouse Practice Guide (2021) “Designing and Delivering Career Pathways at Community Colleges...”

***Initiative 3: Develop a STEM Scholars Program***

- ✓ Create a STEM Scholars Program with summer bridge for 1st yr. students (first yr. seminar + math/science bootcamp), a summer bridge for 2nd yr. students (summer research with West Texas A&M University or Texas Tech University), and coaching services
- ✓ *Promising Evidence*= U.S. Department of Ed. What Works Clearinghouse (WWC) Intervention Report (2016) “Summer Bridge Programs” and What Works Clearinghouse U.S. Dept. of Ed. Intervention Report (2019) “InsideTrack Coaching”

***Initiative 4: Strengthen Articulation Between AC and West Texas A&M University (WT)***

- ✓ Collaborate with WT STEM faculty to align AC STEM courses with requirements at WT to prepare students for transfer from AC STEM programs to WT STEM programs

3c. Anticipated Results: By project-end, AC expects a seven percentage point increase in fall-to-fall retention among STEM majors and a five percentage point increase in three-year graduation rates and three-year transfer rates among STEM majors.

4. Absolute Priority: Yes. AC’s proposed project will support STEM degree completion among Hispanic and low-income students through the development of a **work-based learning system** (targeted advising and career services + STEM courses revised for work-based learning) and a **STEM Scholars Program** (summer bridges + coaching services). AC’s project will support development of a model articulation agreement between 2-year HSIs and 4-year institutions through proposed work between AC and **West Texas A&M University (WT) to align transfer STEM courses** at AC with requirements at WT to strengthen the articulation agreement between the institutions and support STEM student transfer.

5. Competitive Preference Priority: Yes. AC’s proposed project includes development of a work-based learning system (**CPP1b**), collaboration between area employers and AC to update technology skills instruction in STEM programs (**CPP1a**), and development of a STEM Scholars Program that is designed to improve STEM student success (**CPP2**).

6. Invitational Priority: Yes. The STEM Scholars Program will include **coaching services**, whereby STEM students will be connected with appropriate wraparound services to address academic and non-academic barriers to college success.

**P031C210076 Saint Peter's University**  
*STEM-PODER*

**APPLICANT:** Saint Peter's University (SPU), Jersey City, New Jersey

**ABSOLUTE PRIORITY:** Yes. Partner institutions are Bergen Community College, Hudson County Community College and Union County College (all HSIs).

**PROJECT TITLE:** *STEM-PODER*

**OVERVIEW:** SPU, an HSI for more than 20 years with a student body 50% Hispanic, 62% low-income, and a higher percentage of STEM enrollment than the national average, proposes the *STEM-PODER (to empower)* project. **Anticipated Result:** increase in the number and percent of Hispanic low-income students earning STEM degrees by targeting first-year, transfer, and upper-level students in a series of interconnected, evidence-based strategies.

**SERVICES PROVIDED AND ACTIVITIES CONDUCTED:** *S-PODER* is a student-centered, faculty-driven, holistic STEM student success initiative guided by research and best practices, students' needs, programmatic strengths and weaknesses, performance gaps, and institutional mission and goals. Activities are grouped into five strategies and address all of the grant priorities.

**Strategy 1: *Augmenting the STEM Engagement and Empowerment Center with Wraparound***

**Services**—four activities: 1) expanded academic support, 2) holistic wellness services, 3) first-year STEM Success Lab, and 4) social belonging interventions.

**Strategy 2: *Smoothering the 2-Year, 4-Year STEM Pathway***—three activities: 1) joint curriculum development with community colleges, 2) Transfer STEM Academy, and 3) community college and high school outreach by university and 2-year college faculty and SPU STEM students.

**Strategy 3: *Creating the Institute for STEM Experiential Learning***—five activities: 1) new Institute with corporate outreach director, 2) STEM advisory board, 3) STEM digital badging program, 4) innovation hubs to build STEM career skills, and 5) enhanced student research.

**Strategy 4: *Making Professional Setting Facility and Technology Improvements*** targets updating science classrooms and teaching/research labs with professional grade technology and equipment. It assists low-income students through loaner laptops, hot spots, scientific calculators, textbooks, and related academic tools for success.

**Strategy 5: *Developing Faculty Leadership and Ownership for STEM Success*** promotes improved faculty understanding of, and engagement with, wraparound services, transfer barriers, experiential learning, and professional setting technology through workshops.

**COMPETITIVE PREFERENCE 1 (CPP1):** All five activities of Strategy 3 address CPP1 (a) and (b) to “foster flexible and affordable paths to obtaining knowledge and skills.” Four activities feature WWC “promising” interventions: forming an Institute for Experiential Learning with a corporate outreach director, STEM advisory board, STEM badging/certificate program, and innovation hubs that create unique opportunities to build STEM career skills (IES, 2016). This strategy will equip students for in-demand STEM occupations through new and expanded industry partnerships and innovative work-based learning experiences.

**COMPETITIVE PREFERENCE PRIORITY 2 (CCP2):** All Strategy 1 activities address CPP2 for academic achievement and retention, and all feature WWC “promising” interventions: integrated wraparound services, holistic wellness outreach, first-year STEM Success Lab, and a quasi-experimental social belonging intervention (IES, 2016; IES 2020; Stephens, et.al., 2014; Walton & Cohen, 2011). They will equip students with STEM identity and academic success skills.

**INVITATIONAL PRIORITY:** Strategy 1 expands the Stem Engagement and Empowerment Center with wraparound services by a full-time care and outreach coordinator and features a WWC “promising” intervention for “one-stop” connections to federal benefits and private resources (IES, 2020). This strategy will equip students with tools for economic recovery and mobility and address immediate and long-lasting fallouts of the COVID-19 pandemic.

**P031C210092 Schreiner University**

*HOPE: Hispanic Opportunities for Professional Education in Fields of Engineering, Computer Science and Agriculture*

This project, proposed by Schreiner University, will increase the number of Hispanic and low-income STEM students who are enrolled, retained, who have transferred to Schreiner from two-year HSIs and other colleges, and who graduate with a degree in a STEM field from Schreiner University. Articulation and Student Services including personalized mentoring, outreach, transfer services, career and personal development, and faculty development will increase retention and graduation rates of Hispanic and low-income students. Schreiner's new division of Engineering and Applied Sciences (EAS) will increase the numbers of Hispanic and low-income SU engineering, computer science and agriculture science enrollees, transfers, majors and graduates. The development of relevant, intentional, and resourced programs will serve Hispanic and low-income students, the Hill Country of Texas, and students across the state.

In addition, this project incorporates an evaluation of the Entering Transfer Experience (ETE) which meets the What Works Clearinghouse Evidence standards. This study measures the impact of additional mentoring opportunities targeted at transfer students from technical and community colleges to a four-year, non-profit post-secondary institution. The intention is to determine if the additional and intentional mentorship opportunities influence a transfer student's ability to be more successful by attained higher GPAs, earning more course credit hours, and are retained after their first year on campus at a higher rate (intervention group) than those not part of ETE (control group). The hypothesis assumes higher values at the  $\alpha = 0.05$  significance level for all measures.

## **P031C210100 Universidad del Sagrado Corazón**

*A Culture of Research Achievement at Sagrado (CoRA-Sagrado)*

**1. Applicant institution and partner institutions:** Universidad del Sagrado de Corazón, San Juan, Puerto Rico (**applicant**) and Hostos Community College, Bronx, New York and Huertas Colleg, Caguas, Puerto Rico (**partner institutions**)

**2. Project Title: A Culture of Research Achievement at Sagrado (CoRA-Sagrado)**

### **3. ABSTRACT**

#### **a. Target Population**

The Universidad del Sagrado Corazón (Sagrado) is a Hispanic-Serving Institution (HSI), with 100% of students identifying as Hispanic/Latinx with 66% of students receiving Pell grants. The target population is STEM students at Sagrado and transfer students from our two 2-year partner HSIs, Hostos Community College in New York, and Huertas College in Puerto Rico (PR).

#### **b. Services and Proposed Activities**

1) Creation of a structured STEM research unit (the *Center for Academic Research - CAR*) to empower a renewed research culture for the benefit of STEM students at Sagrado; 2) Recruiting students from local high schools and 2-year institutions in PR and New York; and 3) Engaging and retaining students through research-based hands-on opportunities in academic and industry settings. A unique feature of the CAR will be the development and implementation of a Bilingual Scientific Communication program to increase STEM success for primarily Spanish-speaking students. We will develop communication skills workshop series. Sagrado faculty will participate in mentoring development workshops.

#### **c. Anticipated Results**

We expect the following outcomes: 1) quadruple the number of transfer students from 2-year colleges prepared to enroll in STEM programs at Sagrado; 2) increase the year-to-year retention rate for STEM students by 10%; and 3) double the number of students completing STEM degrees at Sagrado. Students participating in the structured research program and the bilingual program will develop critical skills such as public speaking, editing, and language selection for specific audiences and bilingual scientific communication skills. With faculty mentoring, students will complete research projects with posters and papers for presentation at regional and national conferences.

#### **4. Absolute Priority Addressed - Yes.**

Yes. Sagrado is proposing to partner with Hostos Community College, Bronx, New York, and Huertas College, Puerto Rico, for the purpose of meeting the **articulation and transfer model absolute priority**.

#### **5. Competitive Preference Priorities Addressed – Yes.**

##### **Priority 1—Fostering Flexible and Affordable Paths to Obtaining Knowledge and**

**Skills:** The development of the CAR will allow us to formalize and support early undergraduate research opportunities; collaborate with research-centered academic and industry-based local entities on providing experiential learning paths; design and execute formalized mentoring programs that foster close student-faculty relationships; and provide professional faculty development to ensure impactful and meaningful mentoring.

**Priority 2— Academic Achievement and Retention Strategies:** The positive effect of early participation and mentoring in well-structured, formal research programs on retention is supported by evidence from cited research, including at least two peer matching correlational studies (Wilson, et al. 2017; Vincent-Ruz, et al., 2018). The need for bilingual scientific communications program in Puerto Rico is also documented.

#### **6. Invitational Priority Addressed - No.**

## **P031C210157 San Diego State University Foundation**

### *SDSU HSI STEM Pathways*

1. Applicant institution: San Diego State University (SDSU)  
Partner institutions: Southwestern College (SWC), and San Diego City College (SDCC)
2. Title: SDSU HSI STEM Pathways

### **3. Abstract**

The overall plan of SDSU's HSI STEM Pathways (STEM Pathways) project is to implement a mentored, undergraduate research-centered pathway for STEM majors from Community Colleges (CC) through San Diego State University (SDSU) and on to STEM careers. The overall goal is to increase the number of Latinx and low-income students transferring and attaining degrees in STEM, and to promote high retention, timely graduation, and successful pathways to workforce or graduate study. This program will remove roadblocks for transfer and entry into the STEM pipeline, through graduate school and/or a STEM career, by adapting and implementing high quality evidence-based practices and professional and workforce development activities that include undergraduate research experiences (UREs), enrichment activities, and multi-dimensional mentoring approaches. Additional enrichment opportunities and student academic support services will be provided at both the CC and university level to support and supplement clear transfer pathways with negotiated *guaranteed* admissions to SDSU's undergraduate STEM programs. All of the project activities and services are grounded in research and best practices for improving student engagement, persistence, retention, and graduation in STEM fields and meet the absolute, competitive and invitational priorities as detailed below.

We are partnering with both Southwestern College and San Diego City College to develop the STEM Pathways program that will focus on providing mentored and applied STEM experiences that will prepare low-income and Latinx students to successfully transfer to SDSU. (**Absolute Priority**). Through STEM Pathways students will participate in an Entering Research course at the CC, several enrichment workshops, mentoring and applied STEM experiences (Summer Research Experience, Internships, MINDSET) that will help students obtain the knowledge and skills necessary to be successful in a career in STEM (**Competitive Priority 2**). In addition, our direct connection with existing infrastructure (College of Science Student Success Center, CASA, MESA, Career Services) will allow us to enhance tutoring, counseling, and student service programs designed to improve academic success and retention of our students (**Competitive Priority 1**). Finally, our collaboration with campus wellness support programs and the wellness and resilience initiatives will provide explicit and dedicated support in students mental health (**Invitational Priority**).

The logic model (Figure 1) and Table 3 below provides a more detailed summary of SDSU's project proposed services and activities at each partner institution, which component addresses absolute, competitive and invitational priorities and the anticipated results and outcomes that will be measured, evaluated and overall program goal objectives. Outcomes of the proposed program center on specific programmatic outputs that are formative such as ensuring that all participants complete a summer research experience, complete an individualized development plan, and collect an applied STEM experience that contribute to the larger program objectives. Examples of those outcomes of the proposed program that center on larger program goals are the increasing the Latinx STEM transfer pipeline to SDSU, increasing participation in applied STEM experiences among Latinx students, and increasing Latinx student success in STEM courses, persistence, completion, and career placement.

**P031C210163 Research Foundation of CUNY obo Laguardia Community College**  
*Queens STEM Academy (Q-STEM)*

1. LaGuardia Community College (CUNY) & Queens College (CUNY)
2. Queens STEM Academy: Leveraging the Power of Community to Support STEM Success
3. Bolstering STEM education at 2-year colleges and streamlining transfer pathways is crucial to engage the talents of Hispanic and low-income students to meet America's STEM needs.
  - a. A national leader in community college innovation, LaGuardia serves a population that is significantly Hispanic and overwhelming minority, low-income, and first generation. Through *Queens STEM Academy (Q-STEM)*, these CUNY partners will build inclusive learning communities resulting in more STEM degrees by improving STEM learning and supporting Hispanic and low-income students from admission to transfer.
  - b. Q-STEM will strengthen and unify LaGuardia's STEM guided pathways in three areas:  
**STEM Ladder.** LaGuardia will improve the STEM pipeline by engaging thousands of Hispanic and low-income students between admission and matriculation, and add targeted advisement of dual enrollment participants.  
**STEM Learning.** Launch a learning community cohort model, Summer STEM Academy, accessible course materials, research symposia, and Virtual Interest Groups.  
**STEM Link.** LaGuardia and Queens College will forge 5 STEM articulation agreements, implement joint degree programs, and facilitate faculty exchange and shared transfer advisement. Creating transfer partnerships and scaffolding transfer support, LaGuardia will connect students with faculty and peer mentors at Queens College while building bridges to successful STEM careers.
  - c. LaGuardia will add to recent STEM expansion and double the flow of graduates to Queens College. This comprehensive design builds crucial STEM skills and knowledge to support STEM success for 10,000 students by increasing STEM enrollment by 5%, increasing graduation in a STEM degree by 15%, and helping 20% more Hispanic and low-income students earn a B.S. in STEM at Queens College within six years of starting at LaGuardia.
4. Absolute Priority Addressed: Yes. LaGuardia Community College will serve as lead partner in this collaboration with Queens College to build dual admission programs and support seamless transfer to four-year degrees in STEM for Hispanic and low-income students.
5. Competitive Preference Priorities #1 & #2: Yes. LaGuardia will build work-placed learning opportunities with local businesses to support paid community-based summer research programs and on-campus STEM tutoring jobs, addressing CPP #1. Virtual tutoring also addresses CPP#2 by providing accessible academic supports for Hispanic and low-income STEM students who work and cannot attend campus-based tutoring programs.
6. Invitational Priority: Yes. LaGuardia will provide mental health services for STEM students. *Q-STEM* directly addresses the requirement that meet *What Works Clearinghouse* research standards. MDRC research demonstrates how effective learning communities advance student degree progress will guide our work at LaGuardia, and we will apply "productive persistence" strategies of the college transition realm at both entry to LaGuardia and transfer to Queens College, building on research demonstrating improved enrollment effectiveness.<sup>1</sup> A rigorous QED study of 8 learning communities will inform the field and guide continuous improvement.

<sup>1</sup> Weiss, M. J., Mayer, A., Cullinan, D., Ratledge, A., Sommo, C., & Diamond, J. (2014). *A Random Assignment Evaluation of Learning Communities at Kingsborough Community College*. Report. MDRC.; Castleman, B. L., & Page, L. C. (2014). *Summer Nudging: Can Personalized Text Messages and Peer Mentor Outreach Increase College Going Among Low-Income High School Graduates?* University of Virginia.

**P031C210164 Santiago Canyon College**  
*Systemic Design for STEM Success*

**Applicant Institution:** Santiago Canyon College

**Project Title:** Systemic Design for STEM Success

**Target Population:** 1st-time freshman STEM majors, with a focus on Hispanic, low-income, and first-generation students.

**Services and Proposed Activities:** The STEM Success Team will oversee a comprehensive set of programs that provide services along the entire STEM pathway, from entry (STEM Summer Bridge, career and STEM major exploration), throughout the pathway (dedicated tutors for calculus and gateway STEM courses, intrusive intervention, STEM & Career counseling, work-based learning, financial planning and financial aid workshops) to transfer (extend the pathway model through Transfer Model Curricula and partnerships to connect STEM transfer students to university service and support programs).

**Anticipated Results:**

Students enter STEM majors with accurate expectations about what it takes to be successful and select majors that align with their interests/aptitudes/goals, and will adopt a Growth Mindset to take ownership of their learning, resulting in increased persistence, retention and course success.

Increase retention and success in Math 171 – Pre-Calculus/Trigonometry and Math 180 – Calculus and gateway STEM courses, which are major milestones in STEM pathways, which will build under-represented students' confidence that they can succeed as STEM majors.

STEM majors apply for financial aid with the result that more of them reduce work hours, enroll full-time, use support resources and services, and participate in work-based learning.

Promote a Career Ladders model that integrates career training that complements STEM major disciplines to enable low-income, first-generation and underrepresented minority students to gain relevant work experience, build a professional network, and deepen understanding of STEM disciplines through application and participation in a STEM work environment.

Produce findings on the effectiveness of project strategies to improve STEM achievement for Hispanic, low-income, and first-generation students that meet WWC standards.

**Absolute Priority:** Yes. Santiago Canyon College will leverage existing partnerships with California State University, Fullerton and the University of California Irvine to build transfer pathways that connect transfer students to support services and resources at their campuses.

**Competitive Priority 1:** Yes. The Career Ladders model is a strategy to support flexible and affordable pathways to STEM degrees and careers.

**Competitive Priority 2:** Yes. All of the proposed services and activities are designed to improve academic success and retain STEM majors.

**Invitational Priority:** No.

## **P031C210165 University of La Verne**

### *Increasing Degree Completion in STEM for Hispanics through: Justice, Equity, Diversity, and Inclusion*

1. **Applicant:** University of La Verne, La Verne, California
2. **Project Title:** *Increasing Degree Completion in STEM for Hispanics through: Justice, Equity, Diversity, and Inclusion*
3. **Abstract:** The University of La Verne (ULV) is a mission-driven, private, not-for-profit, doctoral/professional, community-engaged university in southern California serving a student body that is 56.7% Hispanic, 50% low income, and 44% first generation college students. Since 1891, ULV has offered access, opportunity, and support for success to students from the inland valley region of southern California, at the border of Los Angeles and San Bernardino Counties. Increasing equitable degree completion and transfer in STEM is a top priority for both ULV and our regional stakeholders. Through this Title III Project, ULV will embrace its identity as a Hispanic-*Serving* Institution by fostering an institution-wide commitment to providing a high quality, equity-minded learning environment in three domains: 1) *Access*, 2) *Achievement*, and 3) *Institutional Infrastructure and Capacity*.
  - a. **Target Population:** Hispanic and low-income students in our service area
  - b. **Services/Proposed Activities: Strategy #1: Increased Access & Holistic Onboarding:** Partnerships with High Schools and 2-year Transfer Institutions; Bilingual Family Workshops; Orientation & Bridge to College; Faculty training. **Strategy #2: Authentic Connection & Inspired Learning:** FYE+SYE; Supplemental instruction and enhanced faculty support; Enhanced Career Services; Enhanced Experiential Learning. **Strategy #3: Culture of Serving & Increased Capacity:** Improve STEM facilities and Establish STEM Center; Faculty training for JEDI principles; Establish procedures for Technology Lending Library; Track and measure impact of Tech Lending Library on student success; Establish Course Based UR activities.
  - c. **Anticipated Results: Mid-Term/Behaviors:** Increased number of first-time Hispanic and low-income students who declare a STEM program of study; Improve persistence to institutional goal levels for students who take part in the program; Increase percentage of first-time ULV students completing at least 60 degree-applicable units in STEM programs. **Long-Term/Impacts:** Strengthened and widely held sense of belonging and connection among all students; Improved campus climate and culture (student survey measures); Increased STEM completion rates and reduced equity gaps; STEM curricula are JEDI infused.
4. **Absolute Priority Addressed: Yes;** Every feature of the proposed project was selected based on the need to increase Hispanic STEM participation, transfer, and degree completion. The project includes development of a model transfer and articulation agreement with Chaffey Community College and other community colleges to improve equitable STEM transfer rates.
5. **Competitive Preference Priority Addressed: Yes; CPP#1:** Fostering flexible & affordable paths to obtaining knowledge and skills: Expand experiential and work-based learning opportunities (internship, research project, community project, etc.); Strengthen connections for work-based/ experiential learning opportunities; Organize annual meetings of regional STEM transfer and industry partners; Establish a regional academia-industry consortium; Provide bilingual workshops that promote STEM fields; Create supportive mechanisms through which local high school students can participate in ULV undergraduate research activities. **CPP#2:** Enhance tutoring, counseling, and student service programs: Improve and expand ULV's SI and enhanced faculty support; Integrate career-focused curricula into specified STEM courses; Develop alumni engagement activities; Enable better outcomes by establishing a regular presence on regional high school and community college; Provide course-specific learning and study strategies.
6. **Invitational Priority Addressed: Yes;** Ensure student support for addressing the impact of COVID-19 on academic outcomes and career readiness: The STEM center will be the central hub to connect students to campus and community-based resources; Organize alumni and regional employer engagement activities to help students isolated by COVID-19 find and reconnect with community and career opportunities; Provide course-specific learning and study strategies, supplemental instruction, and enhanced faculty support to mitigate and fill educational gaps developed as a result of limitations imposed by COVID-19; Provide access to professional mental health counseling and success coaching as support to navigate impacts of COVID-19.

## **P031C210173 Southwest Texas Junior College**

### *Southwest Texas Junior College Full STEaM Ahead*

**Applicant** – Southwest Texas Junior College (SWTJC) is a two-year public community college located 86 miles west of San Antonio in Uvalde, Texas. SWTJC serves one of the most diverse and economically disadvantaged regions in Texas. The region’s population is 90% Hispanic, and the poverty rate is more than 50% higher than the national average. Fall 2019 enrollment was 7,038 students, of which 87% were Hispanic and/or low income.

**Significant Problems** – SWTJC is facing five identified significant problems:

- The region has an unmet demand for graduates with STEM-specific skills and credentials.
- The College lacks clear pathways to STEM degrees for students interested in STEM-related careers.
- STEM enrollment and completion is low.
- The institution does not have the resources to support robust, remote learning initiatives.
- Dual Enrollment/College Disconnect

**Project Description** – SWTJC has designed a project, entitled **Full STEaM Ahead**, which addresses the problems and responds to the Absolute Priority, Competitive Preference Priority 1 and 2 along with the Invitational Priority. The objectives of Full STEaM Ahead are:

- Increase the number of academic STEM degree programs (+2), technical degrees and certificates (+4), and micro-credentials (+15) to include online and remote delivery options
- Increase the number of new STEM model articulation agreements with Universities and Independent School Districts (+20) and STEM industry partnerships (+10)
- Improve the STEM course success rate (grade of C or better) from 58%-70%
- Improve academic and student support services for STEM students.
- Improve and upgrade Information Technology (IT) network infrastructure which will support STEM initiatives

**Project Outcomes include the following:**

#### **STEM Programs and Courses**

4 new STEM degrees, 6 new STEM certifications/micro-credentials, Summer Bridge Program, Curriculum for SWTJC STEM Degrees and Career Pathways

#### **STEM Dual Enrollment**

STEM Dual Enrollment First-Year Experience, SWTJC/High School Connection Program, Coordination among STEM-related high school Faculty

#### **Articulation Agreements**

25 STEM-related Articulation Agreements, Network of STEM Degree Faculty at 4-year Institutions, Tracking Database for SWTJC STEM Graduates and Transfer students, 1+1+2 Pathways (Dual Enrollment STEM Pathways)

#### **STEM Instructional Support Initiatives**

STEM Student Tracking and Early Warning Program, STEM Supplemental Instruction Program

#### **STEM Infrastructure**

STEM Teaching Technologies and Laboratory, Equipment & Facilities Retro-fit

#### **Professional Development of Faculty and Staff**

STEM Instruction and Student Support, Academic Coaching, Mental Health

#### **Student Support Services**

Remote Student Support Services, Holistic STEM Coaching Program, Individualized STEM Student Support Plan, STEM Career and Transfer Coaching, STEM Families program

## **P031C210179 Springfield Technical Community College**

### *STEM: Estrategias de Acceso y Retención Project*

Springfield Technical Community College (STCC) is an urban two-year Hispanic Serving Institution (HSI) in Springfield, MA, the third largest city in the state (pop. 153,606; 65.5% Hispanic or African-American). The City suffers high unemployment and poverty (77% higher/160% higher than state average) and poor education – the Class of 2020 had a four-year graduation rate of 77%, and roughly 21% of residents have less than a high school degree. STCC offers the education needed to access high-paying jobs. The College serves 4,327 students annually, 30% Hispanic; additionally, 56% of STCC students receive federal Pell grants. Only 11.4% of Hispanic students major in STEM; similarly, only 14% of low-income students do.

These two groups also enter with greater developmental math needs and lower retention and graduation. The 71.6% of Hispanic and low-income students perform worse on all three measures than students who are only Hispanic or low-income. The STEM: Estrategias de Acceso y Retención Project activity and expected outcome is to increase the percent of Hispanic and low-income students entering, progressing, completing, and transferring in STEM disciplines.

STCC will partner with UMass Amherst and Central Connecticut State University to expand transfer opportunities for students. There are five goals addressing hurdles for Hispanic and low-income students on the path to a STEM degree and transfer.

- **Goal 1:** Increase the number of Hispanic and low-income students in STEM disciplines by 15% through the creation of STEM focused First Year Experience courses, utilization of STEM Intrusive Advisors, and the implementation of additional mental health services.
- **Goal 2:** Reduce the equity gap (by 6%) in English Composition 2 and developmental math courses through the redesign of every level of developmental math and the creation of a STEM oriented contextualized English Composition 2.
- **Goal 3:** Provide student supports to encourage progression (retention increase of 5%) through STEM Intrusive Advisors who will advise STEM students and ensure early registration and connection to campus; the STEM Center that houses central tutoring, group study and presentation space; and mentoring and coaching provided through STCC ALANA and MILE programs.
- **Goal 4:** Provide high-quality professional development to faculty (increase by 50%) through College and external experts providing training on a sustainable, and pragmatic professional development for faculty and staff that supports diversity, equity and inclusion efforts at the College and in the STEM Programs specifically.
- **Goal 5:** Expand access to student wrap-around services and increase access to mental health services by securing a bilingual mental health counselor; creating student oriented workshops that help destigmatize mental health issues, and leveraging professional development to provide trauma-informed training to faculty and staff.

**CPP 1 Citation:** Cotner, H., Bragg, D., Cheng, I., Costelloe, S., Freeman, B., Goold, G., Heiser, E., Lemire, S., Miller, D.G., Porowski, A., Van Noy, M., & Yadav, E. (2021). Designing and delivering career pathways at community colleges: A practice guide for educators (WWC 2021007). Washington, DC: National Center for Education Evaluation and Regional Assistance (NCEE), Institute of Education Sciences, U.S. Department of Education. <https://whatworks.ed.gov>.

**CPP 2 Citation:** Recommendation # 2, from Bailey, T., Bashford, J., Boatman, A., Squires, J., Weiss, M., Doyle, W., Valentine, J. C., LaSota, R., Polanin, J. R., Spinney, E., Wilson, W., Yeide, M., & Young, S. H. (2016). Strategies for postsecondary students in developmental education – A practice guide for college and university administrators, advisors, and faculty. Washington, DC: Institute of Education Sciences, What Works Clearinghouse.

**P031C210196 National Louis University**

*Clarity and Connection for STEM Success (C2S2)*

1. Applicant institution and partner institutions: National Louis University (Lead Institution) Moraine Community College, and Black Hawk Community College

2. Project title: Clarity and Connection for STEM Success (C2S2)

3. Abstract

a. Target Population (e.g., faculty, staff, students)

STEM faculty at partner institutions

Hispanic and other underserved undergraduates

b. Services and Proposed Activities

1) a streamlined transfer process enacted in strong partnership and enhanced to increase diverse participation in information technology programs at the community college level;

2) building the capacity and opportunity for culturally responsive STEM mentoring by community college faculty;

3) opportunities for experiential learning in CSIS professional and community settings, and

4) enhanced, innovative post-transfer supports.

c. Anticipated Results (e.g., learning outcomes)

Goal 1: Increase by the annual number of diverse community college students transferring to NLU's CSIS program by 50%, from 50 to 75

Goal 2 Retention: CSIS transfer students meet the NLU CSIS retention goal of 75%

Goal 3: Graduation: CSIS transfer students meet the transfer graduation target of 65% within four years of entry

Goal 4: Entry into the profession: 75% of CSIS transfer graduates obtain employment in the field within six months of graduation

4. Absolute Priority Addressed: Yes

Briefly indicate the institution/s that the applicant is proposing to partner with for the purpose of meeting the articulation and transfer model absolute priority.

Moraine Community College and Black Hawk Community College

5. Competitive Preference Priority Addressed: Yes

Briefly describe how it is addressed

CPP1 is realized through providing early opportunities for experiential learning in STEM workplaces, and facilitating mentorship by STEM professionals and faculty. CPP2 is realized through the provision of intensive post-transfer supports, including an innovative 'third-year experience' approach for high student engagement.

6. Invitational Priority Addressed: Yes

Briefly describe how it is addressed

The Invitational Priority is addressed through supports for mental health and technology access as students re-enter university life following COVID.

**P031C210213 Northwest Vista College**

***Portal Leading to Undergraduate Success in Science, Technology, Engineering & Math  
PLUS+STEM Project***

The Northwest Vista College (NVC) project, *Portal Leading to Undergraduate Success in Science, Technology, Engineering & Math (PLUS+STEM Project)*, aims to narrow the prevailing disparities in the STEM higher education concerning pursuit of STEM majors, retention, persistence, success, and STEM degree completion among Hispanics, low-income, and other underrepresented populations in STEM fields. The *PLUS+STEM Project's* strategic design aims to not only narrow the STEM achievement gap among NVC's Hispanics, low-income, and other disadvantaged student groups, through the implementation of enhanced research-based activities and services, but also provide equitable academic and support services that will empower our disadvantaged and underrepresented student groups with the skills and knowledge to succeed in STEM postsecondary studies and the aptitudes to be competitive and productive in the STEM workforce.

**Goal 1:** Implement evidence-based approaches that increase the interest, participation, and success of Hispanic, low-income and other underrepresented students to pursue STEM studies.

**Goal 2:** Develop and implement models for increasing the competency, retention, persistence and completion of Hispanic, low-income and other underrepresented students in advancing to higher level STEM courses, including those transferring from a two-year to a four-year institution.

**Goal 3:** Enhance faculty capacity and student opportunities to conduct STEM research and/or engage in STEM internship opportunities or experiential experiences through partnerships with other IHEs, research centers, and STEM industry organizations.

**P031C210016 Ventura County Community College District**  
*Guided Pathways to STEM Careers (OC STEM GPS)*

The Proposed project, Guided Pathways to STEM Careers (OC STEM GPS), increases the likelihood students will readily and meaningfully connect with academic and career pathways in STEM at Oxnard College, a 2-year HSI in Southern California. The project will create an integrated academic and social support system, add dedicated STEM advising capacity, align student learning outcomes in STEM course with industry and employer needs, and continue to develop OC's portfolio of model articulation pathways. As a result of this project, OC's Hispanic and low-income students will get the accurate and timely resources they need before, during and beyond their OC experience. The STEM GPS project will measurably increase STEM enrollment, retention, persistence, completion, transfer and career success for Hispanic and low-income students.

Under previous Title V and Title III funding, Oxnard College (enrollment 7,464) improved community outreach, in turn positively impacting college enrollment. COVID-19 disproportionately impacted our community and influenced how students envision their futures, adding angst and grief to preexisting, chronic community poverty characteristics. Fully 76% of our enrolled student population are Latinx, 70% qualify for Pell, California Promise or both, and over 59% are first in their families to attend college.

The project's goals, objectives, and activities are closely aligned to the Department of Education's HSI STEM and Articulation's program priorities. Project investments are grounded in published research and modeled after programs that are known to be effective in producing intended outcomes in STEM. Project activities and strategies are also philosophically and operationally situated within California's Guided Pathways framework. Key strategies will hire and train a STEM Transfer and Career Advising Counselor, enhance STEM career and transfer exploration, furnish internships and work-based learning experiences (CPP 1). The project will develop an Integrated, Student Support System. This wrap-around system will feature Peer Led Team Learning and other customized instruction to ensure Hispanic and low-income students receive timely and effective academic and non-cognitive supports and basic needs referrals (CPP2 & Invitational Priority). Investments in sustained, incentivized, equitycentered faculty professional learning, STEM course redesign, flexible learning spaces and STEM instrumentation enhancements will result in improved academic programs, pedagogical practices and instruction leading to higher levels of student engagement and post-completion success. Our students will gain the knowledge skills and experiences in STEM to secure their futures. The research study proposed for this project will meet the What Works Clearinghouse standards of evidence with reservations and quantitatively and qualitatively assess outcomes for students who participate in selected project activities as compared to peers who don't.

This project represents the next rational phase of work for Oxnard College's strategic and long-term planning which are to intentionally implement student-centered innovations which benefit our campus and our community. Oxnard College requests reasonable and necessary costs of \$4,928,245 for FY2022-2026 to support the STEM GPS project's goals and objectives.

**P031C210077 Glendale Community College**  
*STEM Progression, Transformation and Innovation*

**Applicant Institution:** Glendale Community College, Glendale, Arizona

**Partner Institution:** Arizona State University

**Project Title:** STEM Progression, Transformation and Innovation

**Target Population:** K-12 students from throughout Glendale, Arizona; GCC students declaring a STEM major, especially those who are Hispanic and/or low-income

**Services and Proposed Activities:**

STEM PTI will improve the retention, completion and transfer of STEM students through three project components:

- **Pathway Progression.** This component will focus on filling the pipeline of future STEM professionals by emphasizing outreach to K-12 students in GCC's service area. Specific elements will include summer STEM camps for K-12 students; a summer bridge program for incoming GCC freshmen STEM majors; and a series of STEM events including a career fair and activities that focus on how STEM degrees can be used.
- **Student Transformation.** This component will focus on STEM students once they enter GCC by providing a variety of supports including career development activities; a Latinx in STEM program; peer mentoring; embedded tutoring; and concurrent programming with four-year institutions. This component will also include an expansion of the college's STEM Connect Center to allow for use by more students and offer additional services.
- **Academic Innovation.** Professional development activities will be created for current faculty, with a focus on culturally-relevant teaching; and developing an internship program with the education program at four-year institutions to recruit minority STEM faculty.

**Anticipated Results:**

- Objective 1: By Sept. 30, 2026, increase the percentage of STEM-declared students from GCC's 11 feeder school districts by 10 percentage points.
- Objective 2: By Sept. 30, 2026, increase the fall-to fall retention rate among GCC STEM students by 10 percentage points.
- Objective 3: By Sept. 30, 2026, increase the completion and/or transfer rate among GCC's Hispanic STEM students by 8 percentage points, making it equitable with the White STEM student population.
- Objective 4: By Sept. 30, 2026, a total of 245 individuals will participate in a grant-funded support.
- Objective 5: By Sept. 30, 2026, 80% of GCC Hispanic and low-income students receiving grant-funded services will be in good academic standing. program or service. At least 75% will be Hispanic and/or low-income.
- Objective 6: By Sept. 30, 2026, 60% of Hispanic and low-income students who participated in a grant-funded service will receive a degree.
- 

**Absolute Priority Addressed:** Yes; GCC will partner with Arizona State University to develop a concurrent program that will enable students to take courses at both institutions and earn a degree more quickly and at a lower cost.

**Competitive Preference Priorities Addressed:** This project addresses both CPP1 and CPP2

**Invitational Priority Addressed:** Yes

## **P031C210079 Santa Monica Community College District**

*Santa Monica College HSI STEM and Articulation Program (ESA-STEM)*

**1. Applicant Institution:** Santa Monica Community College District (SMC) is a public, community college in Santa Monica, CA. SMC is a Hispanic-Serving Institution (HSI).

**2. Project Title:** *Engage, Succeed, Advance in STEM* (ESA-STEM).

### **3. Abstract:**

**a. Target Population:** As of Fall 2020, 64.5% of SMC's total credit student population was either Hispanic or low-income or both, meaning that the majority of SMC's student population matches the target criteria for the Title III HSI STEM and Articulation Program.

**b. Services & Proposed Activities:** ESA-STEM will *engage* students in STEM via outreach events, STEM Makerspace programming and by bringing underrepresented minority (URM) speakers to campus for STEM-focused events. ESA-STEM will help students *succeed* by expanding Supplemental Instruction (SI) to critical STEM courses and by establishing an application-based STEM program, "Maximizing Achievement in STEM" (i.e., *MÁS*, or "more" in Spanish) targeting underrepresented STEM students. The *MÁS* program is based on CUNY's successful ASAP model, which meets the What Works Clearinghouse (WWC) Review Standards Without Reservations, and shows Strong Evidence of Effectiveness.<sup>1</sup> The *MÁS* Program will also include the use of a RCT Financial Aid Intervention to increase FAFSA completion rates.<sup>2</sup> SMC's ESA-STEM Project will facilitate *advanced opportunities* in STEM by increasing work-based learning experiences related to STEM and by increasing articulation agreements for STEM courses in new and emerging STEM majors at SMC.

**c. Anticipated Results (Outcome Objectives):** **Obj. 1.3** Increase the number of Hispanic and/or low-income students enrolled in STEM for a total increase of 8 pp by Yr 5 (*GPRA a*);

**Obj. 1.4** A minimum of 225 Hispanic and/or low income students per year will participate in grant-funded services (Yrs 1 - 5), for a total of 1,125 by Yr 5 (*GPRA f*); **Obj. 2.8** Increase the number of Hispanic and/or low-income students who participate in grant-supported services in good academic standing (*GPRA g*); **Obj. 2.9** Increase year-to-year STEM retention by 1 pp per year (Yrs 2 – 5) from a baseline of 44% to 48% by Yr 5 (*GPRA b*); **Obj. 2.10** Increase 3-yr graduation rate from 10% to 13% (*GPRA d*); **Obj. 2.11** Increase transfer rates (*GPRA e*); **Obj. 2.12** Increase completion from a baseline of 7% to 10% by Yr 5 (*GPRA i*).

**4. Absolute Priority Addressed:** Yes, ESA-STEM is designed to increase the number of Hispanic and other low-income students attaining degrees in STEM and to develop model transfer and articulation agreements in new and emerging STEM majors at SMC.

**5. CPP#1 Addressed:** Yes, by providing students with work-based learning experiences, such as internships, which align with in-demand industry sectors and occupations and addresses.

**CPP#2 Addressed:** Yes, via SI and the *MÁS* program.

**6. Invitational Priority Addressed:** Yes, by providing comprehensive, wraparound student services, including mental health counseling, for STEM students.

1 Scrivener, S., Weiss, M. J., Ratledge, A., Rudd, T., Sommo, C., & Fresques, H. (2015). Doubling Graduation Rates: Three-Year Effects of CUNY's Accelerated Study in Associate Programs (ASAP) for Developmental Education Students. New York: MDRC. Retrieved from <https://ies.ed.gov/ncee/wwc/Study/81588>

2 Castleman, B. L., & Page, L. C. (2014). Freshman year financial aid nudges: An experiment to increase FAFSA renewal and college persistence. *EdPolicyWorks Working Paper Series No. 29*. Charlottesville, VA: EdPolicyWorks. Retrieved from: <https://eric.ed.gov/?id=ED562791>

**P031C210115 Mount Mary University**

*Proyecto Descubrir*

**Abstract: Target Population:** Hispanic and low-income students

**Services and Activities Proposed:** *Proyecto Descubrir* (Project Discover) will address a gap in Hispanic and low income women enrolled in a STEM degree program through a multi-pronged approach to remove barriers and increase retention and completion. Specifically, the project will increase the number of Hispanic and low-income women entering STEM by engaging community college and dual-enrolled students in STEM and build skills for in-demand careers, foster students' sense of community, and connect students and their influencers to resources.

Hispanic and low-income women will shape activities that include a new Explore STEM Program; articulation agreements with emerging HSI and HSI community colleges; increased high school dual-enrollment in STEM; embedded tutors; peer supporters that share how their background matters and to frame social adversity as shared and transient; reconceived laboratory courses and employer-informed STEM curriculum; campus-wide English learner program; connecting students with STEM research opportunities, travel, scholarships, and industry experts; internship stipends and support; ELL/ESL licensure for education majors; a social worker to connect students and influencers with resources; mental health and wellness resources; financial literacy programming; and renovation of STEM office and three student lounges.

**Anticipated Results:** An increase in Hispanic (22% to 42%) and low-income women (67% to 77%) in STEM, an increase in the retention of Hispanic (76% to 86%) and low-income women (82% to 92%) in STEM, and an increase in the percentage of Hispanic (48% to 58%) and low-income (42% to 52%) students who graduate in STEM in a total of six years and transfer students who graduate in three years of transfer (51% to 61%).

**Absolute Priority Addressed:** MMU meets the Absolute Priority by increasing the number of articulation agreements with community colleges and dual enrollment in STEM courses and by creating support services that encourage retention and persistence to graduation such as the creation of the Explore STEM Program with integrated influencers and peer supporters; reconceived STEM courses; embedded course tutors; integrated Social Worker, financial literacy, and mental health activities; a campus wide ELL/ESL program; faculty development in exam writing and assessment; connecting students with research experiences, travel awards, and scholarships; renovating student lounges; connecting students to on-campus and off-campus resources; and building a sense of community through transfer and first-year student lunches.

**Competitive Preference Priorities Addressed:** MMU meets CPP1 by reconceiving STEM laboratory courses, providing students with access to research experiences, travel awards and scholarships, integrating employer-informed skills for in-demand STEM occupations, integrating STEM industry professionals into the classroom, and providing STEM internship stipends and support. This project also addresses CPP2 by providing embedded tutors in STEM courses, peer supporters that share how their background matters, integrating an English Learner Specialist, a campus-wide English learner program, remodeling student lounges to serve transfer and first-year student needs, and integrating mental health exercises into STEM courses.

**Invitation Priority Addressed:** This project meets the invitational priority by providing embedded tutors in STEM courses; integrating peer supporters, a social worker, financial literacy, mental health exercises; integrating influencers into new student registration, orientation and graduation; renovating student lounges; building a sense of community through group lunches; and creating a campus wide English learner program.

**P031C210141 Sonoma County Junior College District**  
The *HSI STEM 2.0 Educational Initiative (STEM 2.0)*

1. Applicant institution and partner institutions

- Santa Rosa Junior College – Santa Rosa, California (Applicant)
- Sonoma State University – Rohnert Park, California
- Humboldt State University, Eureka, California
- Pacific Union College, Angwin, California

2. Project title

- The *HSI STEM 2.0 Educational Initiative (STEM 2.0)*

3. Abstract

a. *Target Population:* Santa Rosa Junior College is proposing the ***HSI STEM 2.0 Educational Initiative (STEM 2.0)*** to address the challenges faced by Hispanic, low-income, and first-generation students while strengthening the infrastructure of the College to serve future generations of students. When fully implemented, STEM 2.0 will address the institutional challenges which are creating roadblocks to success for SRJC’s Hispanic, low-income, and first-generation students in STEM pathways.

b. *Services and Proposed Activities:* To achieve the overarching goal of increasing STEM degree attainment for Hispanic, low-income, and first-generation SRJC students, the following Initiative interventions will be undertaken: Develop a STEM Learning Community; Build a STEM pipeline; Partner with transfer institutions; Institute STEM Student Success College Orientation; provide opportunities to shadow STEM faculty; Increase number of Associate of Science for Transfer degrees; create articulation and transfer pathways for new STEM degrees; create research courses for SRJC students; Update existing course articulations and transfer guides; and Create and support interinstitutional faculty STEM working groups.

c. *Anticipated Results:* The goals of the STEM 2.0 Initiative include: 1) Improve academic success and move Hispanic and other low-income students rapidly into core courses and through program completion; 2) Increase the number of Hispanic and other low-income students attaining degrees in the fields of science, technology, engineering, or mathematics; and 3) Develop model transfer and articulation agreements between SRJC and four-year institutions in STEM fields.

4. Absolute Priority Addressed: **Yes**; SRJC is proposing to partner with Sonoma State University and Humboldt State University to meet the articulation and transfer model absolute priority.

5. Competitive Preference Priority 1 & 2 Addressed: **Yes**; SRJC is proposing to address CPP1 by providing a flexible and affordable pathway to employment in STEM and Allied Health with an emphasis on providing the knowledge and skills needed in the industry. SRJC will address CPP2 utilizing two interventions, both of which has received *moderate evidence of promise* ratings from the What Works Clearinghouse. The planned interventions include “*College Looks like Me*” Workshop, designed using the *Closing the Social Class Achievement Gap* study (Scrivener S. W., 2015); and STEM First Year Experience (Jamelske, 2009, Clouse, 2012).

6. Invitational Priority Addressed: **Yes FREE** Mental Health and support services for students impacted by pandemic, firestorms, and academic challenges.

## **P031C210146 Glendale Community College**

### *BIEN in STEM-Belonging Increased by Effective Networking in Service To Educational Meaning*

1. **Applicant:** Glendale Community College, Glendale, CA
2. **Title:** *BIEN in STEM-Belonging Increased by Effective Networking in Service To Educational Meaning*
3. **Abstract:** Glendale Community College (GCC), located ten miles from downtown Los Angeles in California's San Gabriel Valley, enrolls over 23,800 students annually, 26.8% of whom are Hispanic. GCC is strongly committed to equitable student access and success—a commitment that is reflected in all aspects of strategic and educational master planning. GCC is a relatively new HSI, but has already worked more than two decades to improve access and success for Hispanic and other low-income students. GCC faces daunting challenges in improving overall completion rates and closing equity gaps that exist between Hispanic and non-Hispanic students. GCC's project meets all HSI-STEM program priorities and is specifically designed to accelerate our developmental trajectory toward excellence as a Hispanic Serving Institution—a top priority institutional goal.
  - a. **Target Population:** Hispanic and low-income students in the service area
  - b. **Services/Proposed Activities:** *Goal #1. Develop model STEM Learning & Professional Pathway (LPP) with emphasis on closing academic and career opportunity gaps for Hispanic students:* STEM Summer Bridge and FYE with Peer Coaches; STEM Ambassadors to K-12; Bilingual Family Workshops; Proactive advising and responsive Case Management. *Goal #2. Actualize servingness through a career-first approach to organizing GCC's STEM LPP, providing Hispanic students with a springboard to in-demand careers in STEM:* Embedded academic/career supports with authentic work-based learning and Peer Coaches; Interdisciplinary Data Science curriculum and Learning Modules; Professional Community of Practice for Equity in STEM; early interdisciplinary team internships. *Goal #3: Develop and enrich strategic institutional and industry partnerships through a new Alliance for Equity in STEM Careers focused on sustaining and scaling accessibility of academic and career pathways in STEM:* Community partnerships through Alliance for Equity in STEM Careers; Faculty Diversity Internship to broaden representation in STEM disciplines; UCLA Transfer Mentors from 4-year institutions.
  - c. **Anticipated Results:** *Obj.1a.* Strengthened outreach and onboarding to STEM programs and careers. *Obj.1b.* Increased capacity to serving the whole student by providing an integrated suite of support services. *Obj.2a.* Integrated career & transfer planning and work-based learning opportunities. *Obj.2b.* Scaled capacity for engaging faculty and teams of students where disciplines converge. *Obj.3a.* Increased collaboration with faculty at transfer-partner institutions to align program outcomes and curriculum. *Obj.3b.* Increased collaboration with industry and transfer partners to ensure alignment between academic programs and workforce needs/opportunities. **All work in concert toward increased and more equitable STEM completion and transfer rates, and increased student success on in-demand STEM career paths.**
4. **Absolute Priority Addressed: Yes;** The overall goal of the project is to increase the number of Hispanic and low-income students who obtain a degree in STEM fields. GCC will collaborate with faculty at transfer-partner institutions (including UCLA and CSULA) to align program outcomes in STEM LPP programs and produce robust articulation agreements with guaranteed admission features.
5. **Competitive Preference Priority Addressed: Yes; CPP#1: Fostering flexible & affordable paths to obtaining knowledge and skills:** Expand experiential and work-based learning opportunities; Community of Practice GCC faculty from various disciplines will collaborate on high-impact teaching practices; The Alliance for Equity in STEM Careers will increase internship and work-based learning experiences. **CPP#2: Enhance tutoring, counseling, and student service programs:** GCC will provide STEM students all the advantages of many established support services including a dedicated STEM La Comunidad counselor with specialized knowledge in STEM careers and transfer and embedded peer mentors and tutors (including UCLA STEM Transfer Mentors); STEM FYE program that focuses on the cognitive domain of learning and the affective domain through evidence-based practices shown to increase sense of belonging, academic and career aspirations, and academic mindset development among Hispanic students.
6. **Invitational Priority Addressed: Yes;** The STEM Coordinated Care Developer is a highly trained Counselor and holds a doctorate in education, a master's degree in counseling, and a bachelor's degree in psychology. He is trained to recognize and address issues related to students' mental health and basic needs and will work with faculty to elevate their capacity to identify needs and make timely referrals; With tutors also trained as peer mentors, students who seek academic help will also be advised on seeking other support services like mental health counseling; The STEM-wide professional development in inclusive teaching will not only focus on cognitive development, but also on affective development and recognition of student's basic needs barriers (which have been exacerbated by COVID-19).

**P031C210155 Monterey Peninsula College**

***E=MC2 Enhancing diversity in STEM through Magnified resources, Completion support, and Career preparation***

Hispanic students represent the fastest growing ethnic demographic at Monterey Peninsula College (MPC), yet this population is not adequately represented in Science, Technology, Engineering, and Mathematics (STEM) degrees and careers.

To address STEM education gaps and effectively serve Hispanic and other underrepresented students, MPC proposes **E=MC2**, a comprehensive project designed and modeled on successful interventions and strategies for improving STEM degree attainment and transfer.

**E=MC2** will expand institutional capacity to enhance STEM pathways from K-12 to college and career with a focus on strengthening math aptitude and supporting integral STEM transitions.

Through responsible planning sensitive to the language, cultural, and socioeconomic obstacles that underrepresented students face, **E=MC2** will improve performance and outcomes among Hispanic and low-income students and ultimately result in increased STEM completion and transfer rates.

**E=MC2** will have a transformative impact beginning at the middle school level with activities to open young minds to STEM potential; moving into high school with targeted activities to prepare students for college-level STEM courses; and providing MPC students with the tools to successfully complete STEM degrees and transfer.

**E=MC2** is organized into four integrated components each aligned with a measurable objective and associated activities that will ensure they are achieved. The four components are:

- 1. **Enhance** diversity in the STEM professions by engaging underrepresented students in STEM programs*
- 2. **Magnify** resources for coordinating and expanding academic support and eliminating barriers that impede underrepresented student success*
- 3. **Completion** support that empowers underrepresented students to attain STEM degrees and transfer*
- 4. **Career** preparation to connect underrepresented students with STEM careers*

By the conclusion of the grant period, **E=MC2** will have substantially increased the enrollment of Hispanic and low-income students in STEM programs at MPC (objective 1), the rate of successful STEM course completions among underrepresented students (objective 2), the number of UNR students earning STEM degrees (objective 3), and participation in work-based learning opportunities (objective 4). Collectively, **E=MC2** activities will result in systemic structural improvements at the college.

**P031C210172 Victoria County Junior College District (Victoria College)**

*Facilitating a Regional STEM Pipeline from K-12 to Career*

**1. Applicant:** Victoria College (VC). VC is a public, two-year, Hispanic-serving community college (HSI) in Victoria, Texas, serving an eight-county area in Texas.

**2. Project Title:** Facilitating a Regional STEM Pipeline from K-12 to Career

**3a. Target Population:** Hispanic and/or low-income community members or K-12 students (Activity I), K-12 STEM teachers (Activity I), STEM faculty at VC (Activity II), Hispanic/low-income STEM majors at VC (Activity II, III, IV, V).

**3b. Services & Proposed Activities:** VC is proposing five activities designed to meet the HSI STEM absolute priority to increase the number of Hispanic and other low-income students attaining degrees in STEM fields and to develop model transfer and articulation agreements between 2-year HSIs and 4-year institutions in such fields:

(I) STEM outreach, including (a) events targeting K-12 and community members and (b) a regional Continuing Professional Education program targeting K-12 educators;

(II) STEM curricular enhancements, including (a) facilities and equipment upgrades benefitting VC STEM majors and (b) professional development for VC STEM faculty;

(III) STEM support services, including (a) specialized subject tutoring and student success workshops for STEM majors and (b) events targeting STEM majors' families;

(IV) STEM extra-curricular work experiences, including the development of internships or job shadowing experiences in STEM fields for STEM majors at VC; and

(V) STEM transfer and articulation opportunities, including (a) exposure to four-year campuses for VC STEM majors and (b) pursuing new articulation agreements.

**3c. Anticipated Results:** Goals: 1. Improve familiarity with STEM programs and careers amongst prospective Hispanic/low-income students' throughout Victoria College's service area. 2. Improve the alignment of STEM instruction from K-12 to postsecondary (VC) to both four-year degree programs and to jobs in STEM fields. 3. Improve VC's capacity to support Hispanic/low-income students and reduce inequitable outcomes for Hispanic/low-income STEM majors. Objectives: (1) Increase the percent of Hispanic/low-income dual enrolled STEM majors from 33% to 36%. (2) Increase the percent of Hispanic/low-income first-time-in-college (FTIC) STEM majors from 68% to 75%. (3) Increase the percent of Hispanic/low-income FTIC STEM majors who successfully complete their first college-level STEM courses with an ABC from 54% to 64%. (4) Increase the percent of Hispanic/low-income FTIC STEM majors who persist to their second year at VC from 60% to 63%. Outcomes: (1) Increase the percent of Hispanic/low-income FTIC who graduate with an Associate of Science degree within three years from 5% to 7%. (2) Increase the percent of Hispanic/low-income FTIC STEM majors who transfer to a four-year IHE in STEM from 7% to 12%.

**4. Absolute Priority:** Yes. VC will target Texas A&M University – San Antonio, Texas A&M University – Corpus Christi, and Texas A&M University – Kingsville to develop model transfer/articulation agreements.

**5. Competitive Priorities:** Yes. This project addresses both HSI STEM competitive preference priorities. We will *foster flexible and affordable paths to obtaining knowledge and skills* by collaborating with area employers to give students on-the-job experiences in STEM fields through Activity IV. We will address *academic achievement and retention strategies* by offering specialized tutoring services and connecting students with recently implemented support services at VC through Activity III.

**6. Invitational Priority:** No.

**P031C210184 Roosevelt University**

*RULES2 (Roosevelt University Learning and Engagement for STEM Success)*

Roosevelt University (RU) proposes **RULES2 (Roosevelt University Learning and Engagement for STEM Success)**, which will increase STEM student engagement, retention, and graduation for transfer and non-transfer students. These increases will occur through targeted activities for both students (N=1,880) and faculty. Our partner in this project is the City Colleges of Chicago (CCC), one of the nation's largest community college districts and the largest in Illinois. With seven campuses, the 2020 enrollment was 46,523, of which 63% were Hispanic students. RU is an HSI with a fall 2020 enrollment of over 30% Hispanic students and 20% African American students. Forty-seven percent (47%) of RU's 2019-2020 full-time undergraduate students received Pell grants and 64% received federal student loans. The RULES2 approach draws heavily on existing knowledge from the literature and from a RU analysis providing substantive evidence that RU practices have promise for success. The RU approach is to create a "transfer receptive culture," where RU will "provide the support needed for students to transfer successfully" (Jain et al., 2011). The strategies proposed are primarily based on Bettinger and Baker's research and paper, *The Effects of Student Coaching in College: An Evaluation of a Randomized Experiment in Student Mentoring (2011)*, which focused on **individualized student coaching interventions**.

**Goals: Goal 1. Promote and Support Student Success in STEM through Co-Curricular Activities** by creating a STEM Center (SC) for Hispanic and other low-income STEM students. **Goal 2. Strengthen Transfer and Articulation in STEM** between RU and CCC based on existing articulation agreements. Before and after transfer, CCC students will interact with staff who will assess potential challenges for students and provide mentoring, coaching, tutoring, and a summer bridge program. **Goal 3. Build Capacity for Undergraduate STEM Education and Research through Upgrading STEM Classrooms and Research Laboratories** will be accomplished by creating the STEM Center and upgrading STEM classrooms and research laboratories to provide students access to state-of-the-art technology. **Goal 4. Provide Professional Development for Enhancing Instructional Skills and Cultural Competency** for peer mentors, staff, and faculty to meet the needs of Hispanic and other low-income students' needs. Anticipated results include **increasing the number of Hispanic and low-income full-time STEM students who transfer from CCC to RU by 6%, the number enrolled by 15%, the number who are retained by 10%, and the number who graduate by 10%.**

**Absolute Priority Addressed: Yes.** This proposal meets the **Absolute Priority** to increase the number of Hispanic and other low-income students attaining STEM degrees and develop model transfer and articulation agreements between two-year HSIs and four-year institutions in such fields through our partnership with the City Colleges of Chicago.

**Competitive Preference Priorities (CPP) Addressed: Yes. CPP 1 - Fostering Flexible and Affordable Paths** RULES2 will enhance and expand efforts to assist students in career preparation. The RULES2 initiatives include career shadowing and internships with entities to include Argonne National Laboratory and the Shedd Aquarium. **CPP 2 - Develop or Enhance...Including Innovative and Customized Instruction Courses.** Participants will have opportunities to connect with each other, faculty, and staff in two new courses - **Career and Research Connections 1 (CR1)** and **Career and Research Connections 2 (CR2)**. **CR1** allows students to focus on developing the initial skills necessary for them to transition to professional life or graduate education. Curriculum and activities for **CR2** will build on **CR1** and will include finalizing resumes/CVs and personal statements and completing internship applications. **CR2** addresses STEM workplace competencies such as teamwork, communication, and critical thinking. Courses will be listed as general education requirements and will not add additional hours to their degree plans.

**Invitational Priority Addressed: Yes. Providing Student Supports for Addressing the Impact of COVID-19 on Students' Mental Health and Academic Outcomes.** Through Goals 1, 2, and 4, meeting students' mental health and academic needs because of COVID-19 will be integrated into appropriate activities.

## **P031C210013 Malcolm X College**

*Mathematics, Engineering, Technology, Apoyo, and Science (METAS)*

1. **Malcolm X College** is the lead applicant. Malcolm X College proposes to collaborate with **University of Illinois at Chicago, National Louis University, and Roosevelt University** to develop and enhance existing transfer and articulation models.

2. **Project Title:** Mathematics, Engineering, Technology, Apoyo, and Science (METAS)

### 3. **Abstract**

A. **Target population:** Malcolm X College (MXC) will directly support 750 Hispanic and low-income students over the course of the project period, accepting 150 students on an annual basis to join a cohort of STEM students who will receive targeted and customized support.

Approximately 150 faculty and staff will also receive professional development, equipping them with new skills and techniques that will elevate classroom instruction and promote equitable learning outcomes.

B. **Services and proposed activities:** MXC has established three objectives that have been designed to 1) cultivate Hispanic and low-income students' academic and professional identities in STEM; 2) elevate instructional quality and collaboration; and 3) facilitate students' transitions to four-year institutions and economically viable careers. Under Objective 1, MXC will develop a cohort model that will allow Hispanic and low-income students to offer and receive peer support. Cohort students will enroll in a STEM success course, have shared course schedules, and participate in a summer enrichment program.

Students will enjoy expanded access to tutoring, mentorship from faculty, and other support and social services; they will also benefit from MXC's Artificial Intelligence behavioral nudging program. Under Objective 2, MXC will make enhancements to its STEM curriculum, integrate undergraduate research experiences, and facilitate rigorous professional development for faculty. Under Objective 3, MXC will expose students to diverse professional paths through a career exploration fair and internship opportunities. MXC will also provide robust support to make the transfer process more accessible and will do so in part by developing new and strengthening existing transfer and articulation agreements.

C. **Anticipated results:** The METAS program's cohort model, new and improved support services, mentorship, transdisciplinary and culturally responsive academic menu, and newly trained faculty will result in significant outcomes for Hispanic and low-income students. MXC anticipates 80% of participating students will graduate within three years, 90% will be retained and remain in a STEM field, and 75% will transfer. MXC has designed its program based on evidence-based practices (Ratledge, 2019; Weiss, 2019; Bettinger, 2014; Bown, 2014).

4. **Absolute priority:** MXC will strengthen its transfer model with University of Illinois at Chicago and develop direct transfer agreements with National Louis and Roosevelt Universities. These new and improved pathways, coupled with the METAS program's other curricular and co-curricular activities will meaningfully increase the number of Hispanic and low-income students who graduate with a STEM degree and transfer.

5. **Competitive preference priorities:** MXC addresses both competitive preference priorities. The program will leverage MXC's partnerships with industry partners and the Chicago Apprenticeship Network to offer work-based learning opportunities (CPP1) and will strengthen retention strategies through tutoring and behavioral nudging programs (CPP2).

6. **Invitational priority:** MXC's Wellness Center will provide comprehensive and holistic support, including counseling, support groups, and referrals to other social services, to students whose mental health and wellbeing have been impacted by COVID-19.

**P031C210036 Eastern New Mexico University-Roswell**

*Guided Pathways to STEM (GPS)*

Eastern New Mexico University - Roswell is a comprehensive community college in Roswell, New Mexico. An historic, intentional Hispanic Serving Institution in the Southern New Mexico region, the College matches the culture of the community by serving mostly Hispanic students (50%).

ENMU-R's Title III Part F entitled **Guided Pathways to STEM (GPS)** will overcome weaknesses identified through ongoing assessment and analysis and will put into place innovative advising and support structures that are "high impact practices" designed to create enriching academic opportunities that foster success for our highly diverse student population. These high impact practices will be informed by the Guided Pathways research and include: 1) STEM outreach to local high schools, 2) proactive and intrusive academic advising, 3) Supplemental Instruction support for developmental, gateway, and high DFW STEM courses, 4) English as a Second Language tutoring, 5) work-based learning experiences and career placement for students with a job placement component, 6) alignment of student learning outcomes and curriculum with in-demand industry needs, 7) creation of a STEM laboratory to train students for industry demands, and 8) enhancement of articulation agreements with local educational partners,

The purpose of the **GPS** Project is to build institutional capacity to increase the number of Hispanic and low-income students attaining postsecondary degrees and facilitate access, persistence, retention, and completion. Project Goals include (1) Increase access, retention, transfer, and graduation rates by removing obstacles, supporting students in developmental, gateway, and high DFW STEM courses, (2) Improving advising infrastructure and articulation agreements as well as providing advising and intervention strategies that support success, (3) Expand co-requisite and co-curricular support structures including supplemental academic instruction, co-requisite courses for developmental and gateway courses, (4) Expand career-aligned pathways through the alignment of curriculum with in-demand industry needs, and (5) Develop a system building upon career-aligned pathways to provide greater access to internships, research assistantships, and apprenticeships, and in high-demand industries that help students transition from postsecondary education into careers that support sustainable living and feed regional economic growth.

The Project meets the Absolute Priority, Competitive Preference Priorities 1 and 2, as well as the Invitational Priority. The Project will have measurable and significant outcomes: (1) increase the number Hispanic and low-income students accessing STEM pathways; (2) increase number of Hispanic and low-income students persisting through developmental, gateway, and high DFW courses; (3) increase the number Hispanic and low-income students completing college-level math, (4) increase the graduation and transfer rates of Hispanic and low-income students; and (5) increase the placement rate of graduates into high demand industries.

ENMU-R is requesting **\$4,853,312** over five years to support the **GPS** initiatives and activities.

**P031C210052 Kern Community College District-Bakersfield College**

*Step Up to STEM: Start Strong, Stay Strong, Finish Strong*

1. **Applicant:** Bakersfield College, Kern County Community College District, California
2. **Project Title:** *Step Up to STEM: Start Strong, Stay Strong, Finish Strong*
3. **Abstract:** Established in 1913, Bakersfield College (BC) is one of the oldest continually operating community colleges in the nation. Situated at the southern end of California's Central Valley in Kern County, BC is located 118 miles north of Los Angeles and has a service region of approximately 5,000 square miles. The college serves nearly 40,000 students annually, whom are increasingly First Generation (80%), low income (78% receive financial aid), and Hispanic (68.7%). Through this Title III Project, BC will embrace its identity as a *Hispanic-Serving* Institution by fostering an institution-wide commitment to providing a high quality, equity-minded learning environment that prepares students to ***start strong, stay strong, and finish strong*** in STEM.
  - a. **Target Population:** Current and potential Hispanic and low-income STEM students in the service area.
  - b. **Services/Proposed Activities:** ***Strategy 1: Start Strong:*** STEM Academy; STEM 101 First Year Seminar Course; 8+8 week STEM Gateway Math Sequence. ***Strategy 2: Stay Strong:*** Peer Mentoring & Tutoring; Completion Coaching\*; Professional Development; ***Strategy 3: Finish Strong:*** Applied Learning & Research Experiences; Intersegmental Alignment & Transfer Support; Equity-Minded Academic -Regional STEM Workforce Advisory.
  - c. **Anticipated Results:** Increased number of students who declare a program of study in STEM; Increased number of students on-path to take classes on the program map for their selected area of study; Improved student outcomes (e.g., attempted credits, attainment of the *STEM Gateway Momentum Point*, course success rate, completion of transfer-level math in first year, persistence rate, etc.); Increased number of faculty receiving equity-minded professional development; At least 75 students annually complete an applied learning or research experience; Increased STEM degree attainment and transfers to UC/CSUs.
4. **Absolute Priority Addressed:** Yes; The project is designed to increase the number of Hispanic and other low-income students attaining degrees in STEM fields and develop model transfer and articulation agreements between Bakersfield College (2-Yr HSI) and CSUB/CSUs/UCs (4-Yr HSIs)
5. **Competitive Preference Priority Addressed:** Yes; **CPP 1:** Fostering flexible & affordable paths to obtaining knowledge and skills by Expanding experiential and work-based learning opportunities (internship, research project, community project, etc.) in collaboration with industry and transfer partners to connect Hispanic students to real-world experiences that augment classroom learning in their career pathway (**CPP 1.a and 1.b**); Strengthening industry, worker, and community connections for work-based/experiential learning opportunities through the Regional STEM Advisory (**CPP 1.b**); Organizing annual meetings of Regional STEM Workforce Advisory; Present curriculum, student learning outcomes, and program data; solicit feedback/input on program redesign (**CPP 1.a**). **CPP 2:** Enhance tutoring, counseling, and student service programs designed to improve academic success STEM Completion Coaching Community using a caseload management approach, increasing faculty participation, and creating referrals to connect students to services; Utilizing Starfish tool for individualized communication, including proven-effective nudging; Leveraging presence in feeder high schools to deliver orientation, advising, and resource referrals early in students' educational pipeline; Offer basic needs supports, information, and assistance to address major financial hurdles including food and housing insecurity.
6. **Invitational Priority Addressed:** Yes; Leverage a completion coaching model and comprehensive professional development campus-wide to ensure student support for addressing the impact of COVID-19 on students' mental health and academic outcomes.

**P031C210054 University of Houston-Clear Lake**

*Supporting Diversity in STEM Careers*

The University of Houston-Clear Lake (UHCL) and Houston Guided Pathways to Success (GPS), a consortium of thirteen 2-year and 4-year institutions in the Gulf Coast-Houston region, along with local employers and school districts will collaborate to increase the number of Hispanic and other low-income students attaining degrees in STEM fields. This project will serve 75 Hispanic and low-income students enrolled at UHCL annually and addresses the absolute priority by aiming to: 1) Increase the number of Hispanic and other low-income students attaining degrees in the STEM fields; 2) Facilitate the seamless student transition between two-year HIS colleges and UHCL by refining current transfer and articulation agreements and student outreach.; 3) Foster collaborations between UHCL and employers to provide students with work-based learning experiences in STEM fields; and 4) Enhance student support services to improve academic success and to facilitate rapid program completion.

In response to Competitive Preference Priority 1, this project will partner with the UHCL local employers to develop new and to improve existing collaborations to ensure student learning objectives are aligned with the skills or knowledge by providing internships and research opportunities. In response to Competitive Preference Priority 2, this project seeks to foster academic achievement and increase retention by incorporating tutoring, counseling, and other student services focused on improving academic success aimed at increasing student retention and graduation. Based on high impact practices detailed in What Works Clearinghouse, this project incorporates student success coaching and learning communities. Additionally, the project employs a Retention Specialist and course-embedded tutors to intentionally guide Hispanic and low-income STEM students towards the successful completion of their degrees.

**P031C210059 Lone Star College – Tomball**

*Science First Success Center*

**Lead Applicant:** Lone Star College-Tomball, Partner IHE: University of Houston-Downtown

**HSI STEM and Articulation Project:** *Science First Success Center*

**Abstract**

**a. Target Population:** LSC-T has one main campus and two centers offering quality education to 8,683 students, serving a Hispanic student population of 33.4% and growing.

**b. Services and Proposed Activities:** LSC-T proposes the following services and activities using the overarching What Works Clearinghouse (W.W.C.) *ASAP model* to provide students comprehensive support: **1.) Provide integrated and centralized** academic, personal, and financial information support services through the Structured Pathway Model to first-generation, low-income, and underrepresented minority students in STEM education and careers including outreach to secondary students. Student case management will be reinforced using the W.W.C. *Check and Connect* model of advising/coaching. **2.) Develop, Review and Pilot Guided STEM Pathways** utilizing the W.W.C. *ADDIE research model* to streamline degree requirements and strengthen articulation pathways by improving communication, coordination, and collaboration to foster a culture of engagement between LSC-T and UHD. **3.) Bridge the gap between academic and student affairs** by utilizing the W.W.C. *ADDIE research model* to support faculty and staff through professional development programs to enact transformative changes that focus on bringing together collaborative teaching and learning opportunities.

**Primary W.W.C. Citation:**

What Works Clearinghouse, Institute of Education Sciences, U.S. Department of Education. (2019, November). *Supporting Postsecondary Success intervention report: Accelerated Study in Associate Programs*. Retrieved from <https://whatworks.ed.gov>

**c. Anticipated Results:** Create a unified community of support and increase the number of Hispanic and low-income students obtaining degrees in the fields of STEM and improve articulation and transfer between LSC-T and UHD. 5-Year Outcomes include (a) a minimum of 300 participants per year, (b) increase STEM-field degree enrollment by 10% over the 2021-2022 baseline, (c) increase fall-to-fall persistence in STEM-field degree programs by 10% over the 2021-2022 baseline, (d) increase introductory STEM course completion in STEM-degree fields by 10% over the 2021-2022 baseline, (e) increase STEM-field program graduation at 2-year HSI within three years by 5% over the 2021-2022 baseline, and, (f) increase STEM-field degree completion at 4-year IHE within six years by 10% over the 2021-2022 baseline.

**Absolute Priority Addressed: Yes;** LSC-T will partner with UHD to meet the articulation and transfer model absolute priority

**Competitive Preference Priorities Addressed: Yes; LSC-T will address CPP 1** by creating a Career Education Intervention Module in the fields of STEM to include career exploration/discovery, career planning, student internships and experiential career learning opportunities; **LSC-T will address CPP 2** by providing multiple integrated support programs including academic support in a centralized location and by creating an innovative and customized STEM-focused first and last-year experience.

**Invitational Priority Addressed: Yes;** LSC-T will leverage current College resources to provide wrap around services to participants that include basic needs, mentoring, tutoring, and peer support groups to help students connect to the campus and achieve academic milestones.

**Total Budget Request:** LSC-T requests **\$2,871,976.78** for this HSI STEM and Articulation Program.

## **P031C210064 Pima County Community College District**

### *IT Knowledge in Context*

**Organizational Information:** Pima Community College, East Campus; 8181 East Irvington Road; Tucson, AZ 857730

Pima County Community College, East Campus (PCC-EC), has developed an HSI-STEM project, *IT Knowledge in Context*, that addresses identified needs of the Hispanic students we serve. The project also addresses institutional gaps that make it challenging for Hispanic students to successfully complete degrees in our IT meta-major and transfer to four-year baccalaureate programs. Specifically, our HSI-STEM program increases student enrollment, persistence, retention, graduation and transfer through: a) a suite of student services including advising/coaching, tutoring, and peer mentoring; b) a system of deliberate outreach high school students (and other youth), as well as the community; and c) internships for students, enabling hands-on learning in a real world work environment, teaching hard and soft skills, and creating a sense of belonging in IT with professional networks. It also improves the capacity of our IT meta-major to meet the high demand of employers in our region for IT and cybersecurity professionals. Our *IT Knowledge in Context* project is layered with evidence-based and best practices that promote student success. Our project builds on existing work and results in systemic change for IT education, as demonstrated in our IT meta-major, and at PCC-EC; ultimately serving to increase the number of Hispanic and other low-income students who complete and transfer to four-year institutions. Our objectives include:

- Objective 1 & 4: Increase overall enrollment in the IT meta-major by 10% annually over a baseline of 581 enrollments; Expand the capacity of the IT meta-major to offer courses in-person at hours students need and demand and offer all courses in the IT meta-major on-line in response to student needs and demand (Absolute Priority, CPP #1)
- Objective 2: Develop, pilot, and evaluate degree specific education and career pathway advising, mentoring and tutoring programs, serving an estimated 60% of students across the five years of our project (Baseline 0)
- Objective 3: Develop, pilot and evaluate an internship program, assessing its impact on students outcomes, serving an estimated 100 students across the five years of our project (Baseline 0).
- Objective 5: Develop/update at least two new articulation/transfer agreements with four-year IHEs by the end of year 5

Articulation agreements, beyond the existing Arizona General Education Curriculum (AGEC-S) for science and math, will be developed with four-year institutions, creating specific pathways which will guide participants efficiently through course selection, graduation, and transfer to Arizona's public, four-year, institutions (Arizona State University, Northern Arizona University), and others such as Grand Canyon University, and Southern New Hampshire University.

Our HSI-STEM project was designed to address the Absolute Priority, Competitive Preference Priorities #1, and #2, and the Invitational Priority using evidence-based and best practices. One of our strategies is based on research meeting the Moderate Evidence of Effectiveness standard of the What Works Clearinghouse. Specifically, we will use an advising coaching model that, according to the study cited below, improves student success.

Citation: Bettinger, E. P. & Baker, R. B. (2014). The effects of student coaching: An evaluation of a randomized experiment in student advising. *Educational Evaluation & Policy Analysis*, 36 (1), 3-19

## **P031C210075 Calumet College of Saint Joseph**

### *Moving from Hispanic-enrolling to Hispanic-serving through equitable STEM career pathways*

1. **Applicant:** Calumet College of Saint Joseph (CCSJ), Whiting, Indiana
2. **Project Title:** Moving from Hispanic-enrolling to Hispanic-serving through equitable STEM career pathways
3. **Abstract:** CCSJ is a Catholic institution dedicated to the academic, spiritual and ethical development of undergraduate and graduate students. For 70 years since our founding, we have been dedicated to enhancing the social and economic mobility of first-generation college students. CCSJ is among the most diverse liberal arts colleges in the Midwest and is one of only two Hispanic-Serving Institutions (and the first HSI recognized) in the state of Indiana. Nearly half of CCSJ's freshman cohorts, over the past five years, are first generation college students; half of our student body each year qualifies for federal Pell grants; over 26% of our students are Hispanic. CCSJ's project design rationale is based on the culmination of extensive scholarship on Hispanic "servingness," a term popularized by Dr. Gina Garcia, who is building on the work of a long line of equity and diversity scholars to usher in a new era of effective practice for HSIs.
  - a. **Target Population:** Hispanic and low-income students in CCSJ's service area.
  - b. **Services/Proposed Activities: Strategy #1: Increased Access & Holistic Onboarding:** Partnerships with High Schools and 2-year Transfer Institutions; Bilingual Family Workshops; Orientation & Bridge to College; Faculty training. **Strategy #2: Achievement through Authentic Connection & Inspired Learning:** FYE+SYE; SI and enhanced faculty support; Enhanced Career Services; Enhanced Experiential Learning; Faculty development. **Strategy #3: Institutional Infrastructure and Capacity:** Improve data-driven decision capability by strengthening the institutional research office and collaborating with the Yes We Must Coalition on information exchange and dissemination of best practices; Establish Technology Lending Library.
  - c. **Anticipated Results: Objective 1A:** Provide consistent engagement and presence on high school and community college campuses to increase enrollment; **1B:** Foster belonging and connection to an inclusive and supportive academic environment through strong FYE/SYE programs that emphasize experiential learning, demonstrate cultural competency, provide structured advising and enrich student-faculty interaction; **2A:** Increase faculty and staff impact on Hispanic and low-income student persistence and completion outcomes via active and collaborative learning techniques, communicating high expectations coupled with critical support to students, increasing course-related student-faculty interactions, and placing an emphasis on enriching educational experiences; **2B:** Strengthen connection between learning goals and career opportunities via internships, networking opportunities for students with regional employers, and clear linkages between degrees and high-wage career opportunities; **3A:** Establish institutional infrastructure to develop and scale data-driven decision making focused on improving academic and non-academic outcomes for Hispanic and low-income students; **3B:** Leverage technology to equitably increase student access to educational content, tools, and supplemental learning.
4. **Absolute Priority Addressed: Yes;** The project is designed to increase the number of Hispanic and other low-income students attaining degrees in STEM fields and develop model transfer and articulation agreements between 2-year HSIs and 4-year institutions in STEM fields.
5. **Competitive Preference Priority Addressed: Yes; CPP 1:** Fostering flexible & affordable paths to obtaining knowledge and skills: Expand experiential and work-based learning opportunities (internship, research project, community project, etc.); Strengthen connections for work-based/experiential learning opportunities; Organize annual meetings of regional STEM transfer and industry partners; Establish the STEM Career Advisory Council; Provide bilingual workshops that promote STEM fields for families; Create supportive mechanisms through which local high school students can take actual CCSJ courses to establish an early pathway to higher education. **CPP 2:** Enhance tutoring, counseling, and student service programs designed to improve academic success: Improve and expand CCSJ's SI and enhanced faculty support in STEM classes; Integrate career-focused curricula into specified STEM courses; Develop alumni engagement activities that celebrate alumni diversity and support internships, student activities, and mentoring, contributing to increased student sense of belonging; Enable better outcomes by establishing a regular presence on regional high school campuses; Provide course-specific learning and study strategies, note taking and test taking skills.
6. **Invitational Priority Addressed: Yes;** Leverage Career-Centered Curriculum & Services and culturally competent communication to ensure student support for addressing the impact of COVID-19 on academic outcomes and career readiness; Organize alumni and regional employer engagement activities to help students isolated by COVID-19; Provide course-specific learning and study strategies, SI, and enhanced faculty support to mitigate and fill educational gaps developed as a result of limitations imposed by COVID-19; Provide access to professional mental health counseling and success coaching as support to navigate impacts of COVID-19.

**P031C210098 Research Foundation of CUNY o/b/o John Jay College**  
*PROMOTING HISPANIC SCIENTISTS*

John Jay College (JJC), a baccalaureate institution, and the Borough of Manhattan Community College (BMCC) and Queensborough Community College (QCC) are all large Hispanic-serving institutions within the City University of New York (CUNY). JJC, BMCC, and QCC have a 15+ year relationship through the CUNY Justice Academy (CJA), a model dual-enrollment, 2-to-4-year articulation program that has promoted thousands of students from the community colleges through the baccalaureate degree. In this proposal, we seek to expand the STEM portion of CJA through a series of new services that are based on promising evidence taken from the What Works Clearinghouse, the American Association of Colleges and Universities high impact educational practices, and the educational literature. These activities target clear and measurable outcomes that are the result of a multi-year planning process among the partnering institutions and are grounded in the nine performance measures in the published RFP. This project has two major components: Component A, the Academic Pipeline Expansion and Component B, Post-Graduate Success.

Component A, the Academic Pipeline Expansion, will improve the academic success of Hispanic and low-income students at BMCC and QCC, and increase the number of students obtaining STEM B.S. degrees at JJC. This component has ten activities that include expanding existing science articulations and establishing a new agreement in Applied Math to add at least 150 new students to the pipeline. We will create innovative, Zero-Cost learning materials to reduce students' financial burden and establish program to provide intrusive advising and tutoring to support their academic progress. We will create a host of clinics and workshops that will help CJA students better understand STEM career options, regain hands-on technical skills lost during the COVID remote school order, and train them in acceptance-based behavioral therapy to develop their resilience. And we will establish a bridge program for transfer students, and a transfer cohort to better prepare and engage CJA students at the baccalaureate level. The measurable outcomes for this component include a 15% increase in Hispanic-student enrollment in the community college pipeline programs, a decrease of 8% in the number of students receiving a grade of D, F, or W in a gateway STEM course, an increase of 5% in the one-year retention of STEM freshman, an increase of 8% in the number of students reaching 30 credits in the first year, and an increase of 10% in community college graduation rates and the number of students transitioning to JJC.

The goal of Component B, Post-Graduate Success, is to increase the participation of Hispanic and low-income students in post-graduate education and high-paying STEM careers. This component has four activities including a training program to develop the soft skills students need for career success. It will expand our successful undergraduate research mentoring program to community college transfers, and add a career internship activity to our program. And it will establish a STEM alumni network that pairs current students with graduates to provide mentoring and career guidance. We expect these activities to increase by 10% the number of JJC graduates pursuing professional STEM careers, and increase the median post-graduate income at 2-years out of STEM graduates by more than 10%.

This proposal is grounded in a comprehensive summative and formative evaluation that will not only assess the impact of our activities on the proposed measurable outcomes, but it will produce original research and at least two peer-reviewed publications on the impact of our activities on the target population.

**P031C210118 California State University Fullerton**

*Project RAISER (Regional Alliance in STEM Education Refined)*

**1. Applicant Institution:** California State University, Fullerton (CSUF)

**Partner Institutions:** Citrus, Cypress, Fullerton, Golden West, Irvine Valley, Orange Coast, Saddleback, Santa Ana, and Santiago Canyon Colleges

**2. Project Title:** Project RAISER (Regional Alliance in STEM Education Refined)

**3. Abstract**

**a. Target Population:** students (community college and subsequent CSUF transfer students)

**b. Services and Proposed Activities:** Undergraduate Research Experience (URE) for community college students to conduct research at CSUF; RAISER Transfer Program (RTP)—cocurricular interventions to ease the transition to the university for STEM majors and support them after transferring; and an Internship Preparation Program and Research Preparation Program to prepare participants for these high-impact, hands-on STEM experiences post-transfer. CSUF peer advisors will conduct outreach at the partner community colleges, host community college students at CSUF for lab tours, and be matched with students in the URE and RTP to advise and mentor. A Collaborative Articulation for Transfer Success (CATS) program will include community college assessments, articulation readiness rubrics and college-to-college collaborations to develop STEM articulation strengthening plans and model STEM transfer and articulation agreements with CSUF. Project RAISER will also engage with area STEM employers to 1) ensure that student learning objectives are aligned with the skills needed to meet industry needs and 2) facilitate internships for RTP participants.

**c. Anticipated Results:** Because Project RAISER services are grounded in proven strategies, they are expected to significantly increase the number of Hispanic and low-income students in STEM majors at the nine partner community colleges who are engaged in their studies, persist in STEM majors, are empowered to successfully transfer to CSUF or another four-year institution, graduate in a timely manner and enter STEM careers. The CATS program will help the partner community colleges strengthen their STEM articulation and ultimately develop model STEM transfer and articulation agreements with CSUF.

**4. Absolute Priority Addressed:** Yes. CSUF will partner with all Project RAISER partner community colleges (see list above) to address the absolute priority through a dedicated articulation effort and series of integrated student-centered services.

**5. Competitive Preference Priorities Addressed:** Yes. Activities addressing the Competitive Preference Priorities include CSUF peer advisors; Undergraduate Research Experience for community college students; Collaborative Articulation for Transfer Success program between CSUF and partner colleges; RAISER Transfer Program, Internship Preparation Program, and Research Preparation Program for CSUF students; area employer engagement.

A study from the What Works Clearinghouse supports the merits of the Project RAISER model and the value of the Undergraduate Research Experience and Research Preparation Program: Moon, S., Hershey, J., & McMahan, S. (n.d.). *A case study of evaluating undergraduate research courses as high-impact practices fostering student learning outcomes*. Unpublished presentation, California State University, Fullerton.

**6. Invitational Priority Addressed:** Yes. Project RAISER will incorporate invitational priority topics and resources into supportive aspects of the RAISER Transfer Program.

## **P031C210151 San Antonio College**

BUILD Bolstering Undergraduate Inquiry, Learning, and Determination

### **San Antonio College FY 21 Title III, Part F HSI STEM and Articulation Project Abstract**

SAC, part of the Alamo Colleges District, is among the largest, single-campus community colleges in Texas and the nation. The College has been designated as an official Hispanic Serving Institution (HSI) and also serves the largest student veteran population in Texas. Founded in 1925, SAC educates more than 18,000 degree-seeking students each year through hundreds of certificate and degree programs in the arts and sciences and professional/technical fields, including associate of science (AS) and associate of applied science (AAS) degrees in 14 STEM disciplines.

The College has great potential to diversify the STEM workforce in and outside San Antonio – more than half (51%) of all 9,302 STEM majors who were enrolled in AY 2019-20 are Hispanic and low-income, meaning they were eligible for and/or received a Pell grant to help cover the College's already affordable cost of attendance. In addition to educating a large number of underrepresented STEM majors, SAC has established 54 articulation agreements with six universities throughout South Central Texas to encourage their transfer to senior IHEs and to bring down the overall cost of obtaining a bachelor's degree in STEM. Unfortunately, academic underpreparedness and stereotype threat are thwarting many Hispanic, low-income, and otherwise underrepresented students from succeeding in these pathways.

This HSI STEM and Articulation Project – titled BUILD, or Bolstering Undergraduate Inquiry, Learning, and Determination – will significantly improve the College's capacity to provide academic support to Hispanic and otherwise underrepresented STEM majors students who are enrolled in high-challenge STEM courses – especially College Algebra and Calculus I – to increase their chances of progressing to on-time graduation and/or transfer in STEM. It will also improve the College's capacity to combat stereotype threat, and increase underrepresented student self-efficacy and persistence in STEM, by replicating promising approaches to making STEM college classrooms more inclusive and more engaging for all students. Beginning in the project's second year, at least an additional 600 STEM majors will have access to in-class and after school tutoring, and by the end of the project, at least 800 additional STEM majors will have increased interaction with each other, STEM employers, and college and university faculty via work-based learning or course-based undergraduate research experiences (CUREs).

All components of Project BUILD are informed by research and evaluation findings that suggest they are likely to improve Hispanic and low-income student success in STEM, including two recent studies – one published in *The Journal of Experimental Education* (<https://doi.org/10.1080/00220973.2021.1891010>) and one in *bioRxiv* (<https://doi.org/10.1101/2021.06.01.446616>) – that meet What Works Clearinghouse (WWC) evidence standards with reservations.

The College expects implementation of Project BUILD to increase the number of Hispanic and low-income students who are pursuing a STEM degree by at least 10%, to increase the percentage of Hispanic and low-income first-time, full-time STEM degree-seeking students who persist to a second year of study in a STEM field to at least 75% from 59%, and to increase the percentage of Hispanic and low-income first-time, full-time STEM degree-seeking students who graduate or transfer on time to at least 42% from 21%-22%.

**P031C210174 Angelo State University**

*Acceso Critico a Rutas para El Consorcio de Enseñanza de Ciencias de la Investigación (ISEC)*

**Applicant:** Angelo State University  
2601 W. Avenue N  
San Angelo, TX 76909

Angelo State University (ASU) is located in San Angelo, TX, a community of approximately 100,000 persons. The surrounding area is mainly rural and has high Hispanic and low-income populations, coupled with low educational attainment. The project region is expected to receive one of the highest population increases (85-90%) of Hispanics in Texas by 2030. ASU is a Predominately Undergraduate Institution with a fall 2020 enrollment of 10,774, comprised of 9,189 undergraduate and 1,585 graduates. ASU's undergraduate student body is a diverse community of 46.2% Hispanic, 43.0% White, 5.29% African American, and 4.85% other minority. As of fall 2020, 40% of undergraduate Hispanic students were enrolled in a STEM major.

**Overview of Project:**

ASU proposes three components designed to increase enrollment, retention, and graduation rates of Hispanic and low-income STEM students.

1. Academic – Proactively address the retention and graduation barriers within the College of Science and Engineering pathway, STEM programs, and student support strategies.
2. Engagement – Engages students through wrap-around services focused on mental health, financial, and academic programs (including mentoring and academic life coaches).
3. Outreach – Exposes K-12 youth to STEM by creating 20 modules for teachers, developing specialized field trips highlighting West Texas's only planetarium, and introducing a new museum that will motivate K-12 students to pursue a STEM career.

ISEC addresses the components and responds to both Competitive Preference Priorities 1 & 2 and the Invitational Priority. The primary goal of the ISEC project is to increase and support the number of Hispanic and low-income students majoring in STEM and completing STEM degrees. The project aims to increase the total number of STEM Hispanic and low-income graduates by 10% increase by the end of each grant period and a 50% increase in just five years.

**Objectives:**

1. Increase New First Time First Time (NFT) and transfer enrollment, retention, and completion rates of Hispanic and low-income students through transformed educational pathways and co-enrollment models.
2. Engage NFT and transfer STEM students using programs and services that capitalize on evidenced-based high-impact practices to retain and graduate Hispanic, low-income, and other groups underrepresented in STEM majors.
3. Create educational opportunities for K-12 youth and their families by expanding awareness and resource capabilities for teachers to stimulate interest.

Funding Request: The budget is \$4,776,989 over five years.

**P031C210210 San Jose State University Research Foundation**

*Project Engineering Success: Increasing Hispanic Student Success in Engineering at SJSU, San José City College (SJCC) and Gavilan College*

1. San José State University (SJSU), lead. Partner institutions: San José City College and Gavilan College
2. *Project Engineering Success: Increasing Hispanic Student Success in Engineering at SJSU, San José City College (SJCC) and Gavilan College*
3. Abstract:

- a. Target Population: Hispanic and other low-income (LI) students attaining degrees in the fields of engineering at SJSU, SJCC and Gavilan
- b. Services and Proposed Activities. *Project Engineering Success* has five activities: Activity 1. Implementation of engineering undergraduate research opportunities at SJSU, SJCC, and Gavilan; Activity 2. Expansion of the MESA Engineering Program at SJSU and Gavilan and development of a MESA program at SJCC; Activity 3. Faculty development for student success of Hispanic and LI students in engineering; Activity 4. Development of model transfer and articulation agreements between SJSU and the two community college partners: SJCC and Gavilan; and Activity 5: Outreach and collaboration efforts with industry and community colleges
- c. Anticipated Results: This project will (1) increase the number of Hispanic and other LI students attaining degrees in engineering and computer science at SJCC, Gavilan, and SJSU and (2) to develop model transfer and articulation agreements between SJSU and SJCC and Gavilan. We will (1) increase the percentage of Hispanic and LI engineering and computer science degree-seeking undergraduate students enrolled; (2) increase the percentage of Hispanic and LI first-time, full-time degree-seeking undergraduate students who were in their first year of postsecondary enrollment in the previous year and are enrolled in the current year who remain in an engineering program; (3) increase the three-year transfer graduation rate for Hispanic and LI first-time undergraduate students enrolled at SJCC and Gavilan, graduating within 3 years of enrollment with an engineering degree or credential; (4) increase the six-year graduation rate for Hispanic and LI first-time undergraduate engineering students at SJSU; (5) increase the number of Hispanic and LI students participating in grant-funded activities, in good academic standing, and who have completed a degree or credential; (6) increase the percentage of Hispanic and LI students transferring successfully to a four-year institution from SJCC and Gavilan and retained in engineering or computer science. In addition, (7) we will expand the MESA program at SJSU and Gavilan and establish it at SJCC; (8) train engineering faculty to address the needs of Hispanic and LI students in their classes; and (9) develop engineering pathways between SJCC and Gavilan and SJSU.

4. Absolute Priority Addressed: Yes. SJSU will partner with SJCC and Gavilan on this project.
5. Competitive Priority Addressed: Yes. Priority 1: We will address this competitive priority in three ways: MESA, College and department Engineering Advisory Boards and the newly created Industry Education Liaison Committee. Priority 2: Activity 1 is the development of an undergraduate research activity model, based on Nagda, B. et al [1] and Moon et al [2]. Also, we intend to expand MESA (Activity 2). We are using studies on learning communities in postsecondary education WWC [3]. Also, we are implementing intrusive intervention Abelman and Molina [4] and the practice of students developing an academic performance improvement plan based on Bowman et al [5].
6. Invitational Priority Addressed: No

1 Nagda, B. A., Gregerman, S. R., Jonides, J., von Hippel, W., & Lerner, J. (1998). Undergraduate student faculty research partnerships affect student retention. *Review of Higher Education*, 22(1), 55–72

- 2 Moon, S., Hershey, J., & McMahan, S. (n.d.). A case study of evaluating undergraduate research courses as high-impact practices fostering student learning outcomes Unpublished presentation, California State University, Fullerton
- 3 What Works Clearinghouse (2014). Linked learning communities. WWC Intervention Report. Washington, DC: U.S. Department of Education IES. Available: [https://ies.ed.gov/ncee/wwc/Docs/InterventionReports/wwc\\_linked\\_111814.pdf](https://ies.ed.gov/ncee/wwc/Docs/InterventionReports/wwc_linked_111814.pdf);
- Visher, M. G. Et al. (2012). *The effects of learning communities for students in developmental education: A synthesis of findings from six community colleges*. New York: Columbia University, Teachers College, National Center for Postsecondary Research. Retrieved from: <https://eric.ed.gov/?id=ED533825>; Sommo, C., Mayer, A. K., Rudd, T., & Cullinan, D. (2012). Commencement day: Six-year effects of a freshman learning community program a Kingsborough Community College. New York, NY: MDRC
- 4 Abelman, R. & Molina, A. (2001). Style Over Substance Revisited: A Longitudinal Analysis of Intrusive Intervention. *NACADA Journal*, 21(1-2), 32-39.
- 5 Bowman, N. A., Jang, N., Kivlighan, D. M., Schneider, N., Ye, X. (2020). Journal of Higher Education, 61(1): 142-166

**P031C210211 Broward College**

*Accelerating College Completion by Engaging Students in STEM (ACCESS) Project*

**Applicant:** Broward College **Partner Institution:** Florida International University

Faced with declining STEM enrollment and completion trends that indicate Hispanic and other low-income students are left out of opportunities and support to enter STEM careers, Broward College's (BC) Accelerating College Completion by Engaging Students in STEM (ACCESS) project was designed to address the academic and support services needs of Hispanics and underrepresented population. The ACCESS project addresses a growing need of employers in the region and needs of the students to improve completion and transfer rates in the Information Technology field of study. It is imperative that the institution expand, improve upon, and maintain STEM academic and support services providing high quality and effective STEM programs. BC is seeking HSI STEM funding, targeting Hispanic and other low-income students, to continue, enhance, and improve transdisciplinary and integrated approaches involving STEM academics and support services. In carrying out this activity, BC has the opportunity to create opportunities for experiential learning through a Innovation STEM Center (iSTEM Center) designed to provide students the opportunity to explore and engage in STEM hands-on learning in gaming and simulation programs; GIS programs; mobile applications aligned to curricula and programs in Information Technology; strengthen and develop transfer and articulation agreements; conduct a summer bridge program; creates a unique pathway to degree through microcredentialing, success coaching, align an apprenticeship program to degree, offer research opportunities, utilize a co-teaching model and conduct early college outreach to increase enrollment of underrepresented populations. The project is based on evidence-based strategies including success coaching, and summer bridge programming.

The goals of the project are to increase enrollment of full-time Hispanic and other low-income degree-seeking students in STEM fields; expand integrated student academic and support services for Hispanics & low-income students in IT Career Pathways; increase success and completion of Hispanics and other low-income students in IT Career Pathway programs; and Strengthen and Develop Articulation Agreements and Activities in IT Career Pathways. Project ACCESS addresses the absolute priority and the two competitive preference priorities. The project will focus on increase attainment and completion of degrees in the Information Technology field of study and will strengthen and develop articulation with the 4-year programs. Competitive Preference 1 is addressed by linking students to STEM-focused research opportunities at FIU, apprenticeships, or experiential learning opportunities. The ACCESS project will align the state approved standalone non-credit program with the AS degree so that students receive credit while participating in the apprenticeship program creating a true connection with academic program and the workforce. In addition, through an iSTEM Center, students will participate in hands-on experiential learning that mimics real life situations while they use workforce skills to provide solutions. The iSTEM Center will expand access and outreach to help increase enrollment, retain students and help students complete their educational program. Competitive Preference 2 is addressed through success coaching, summer bridge, experiential learning opportunities and co-teaching model to help retain students and move them rapidly into core courses through program completion. The project will document all activities and test whether the projected project outcomes and success were achieved using a mixed methods quasi-experimental research design.

Bettinger, E.P., & Baker, R. (2011). The effects of student coaching in college: An evaluation of a randomized experiment in student mentoring.

[https://ed.stanford.edu/sites/default/files/bettinger\\_baker\\_030711.pdf](https://ed.stanford.edu/sites/default/files/bettinger_baker_030711.pdf)

**P031C210011 Arizona Board of Regents, University of Arizona**

*PROJECT CREAR (Culturally Responsive Engagement, Articulation, and Research)*

The University of Arizona proposes **PROJECT CREAR (Culturally Responsive Engagement, Articulation, and Research)**, a HSI STEM initiative that will improve the University's capacity to enroll, support, and graduate Hispanic and/or low-income (H/LI) students in STEM fields. The proposed activities of *Project CREAR* represent proven strategies to bring capacity and comprehensive change and to dismantle barriers to a STEM education. The proposed project takes a comprehensive approach to support the overarching goal of increasing the number of Hispanic and low-income students attaining degrees in the fields of science, technology, engineering, and math (STEM) through four key activities:

- 1. Scaling up academic STEM pathways for freshman and transfer students** by developing **curricular Societal Impact Group (SIG) pathways** for freshman and transfer students that build a sense of belonging and self-efficacy, and scaffold STEM research opportunities focused on problems that have social impact in the Hispanic students' communities.
- 2. Developing model transfer and articulation agreements** between two-year HSIs and four-year institutions in STEM fields through developing online tools for transfer students to plan balanced articulated pathways between community colleges and UArizona in STEM majors.
- 3. Developing course-based undergraduate research (CURE) curriculum** in introductory STEM lab classes and General Education CURE courses to increase success rates of Hispanic and other low-income students in STEM majors and new online modules demystifying access to undergraduate research.
- 4. Cultivating an inclusive and culturally-responsive environment in STEM** through professional development for faculty who teach gateway lecture and lab courses with disproportionate DEW rates (with E meaning failing and W meaning withdrawing from the course) for Hispanics, and for staff involved with the program.

These interventions will produce such systemic impacts as: (a) increased numbers of students participating in SIG Learning Communities; (b) increased numbers of faculty, staff, and student leaders in Culturally Responsive Curriculum Development Institute; (c) increased numbers of SIG students passing core gateway STEM courses; (d) increased numbers of students served by Supplemental Instruction; (e) STEM labs redesigned as CUREs and new introductory CURE courses developed.

The *CREAR Project* addresses the absolute priority, both competitive preference priorities, and invitational priority of the Title III Part F competition and meets measurable objectives for moving Hispanic and low-income students from enrollment through STEM degree completion.

The WWC citation for promising evidence is Walton, G. M. & Cohen, C. L. (2011). A brief social-belonging intervention improves academic and health outcomes of minority students. *Science* 331(6023), 1447-1451.

## **P031C210023 Napa Valley Community College District**

Napa Valley College (NVC) is a two-year, public community college located in Napa County, California. The county has a Latinx population of 38%. NVC's Title III Part F grant project, *Cultivamos Con Cariño*, will overcome weaknesses identified through ongoing assessment and analysis and will put into place innovative advising and support structures that are "high impact practices" designed to create enriching academic opportunities that foster success for our highly diverse student population. These high impact practices will be informed by the Guided Pathways research and include: 1) the development of an online STEM orientation, 2) proactive and intrusive academic advising, 3) co-curricular and co-requisite supports for gateway, and high DFW STEM courses, 4) Supplemental Academic Instruction, 5) peer mentoring, 6) work-based learning experiences and career placement for students with a job placement component, 7) alignment of student learning outcomes and curriculum with in-demand industry needs, and 8) enhancement of articulation agreements with local educational partners.

The purpose of the *Cultivamos Con Cariño* Project is to build institutional capacity to increase the number of Latinx and low-income students attaining postsecondary degrees and facilitate access, persistence, retention, and completion. Project Goals include (1) Increase access, retention, transfer, and graduation rates by removing obstacles, supporting students in developmental, gateway, and high DFW STEM courses, (2) Improving advising infrastructure and articulation agreements as well as providing advising and intervention strategies that support success, (3) Expand co-requisite and co-curricular support structures including supplemental academic instruction, co-requisite courses for developmental and gateway courses, and summer math camp, and (4) Expand career-aligned pathways through the alignment of curriculum with in-demand industry needs, and (5) Develop a system building upon career-aligned pathways to provide greater access to internships and apprenticeships in high-demand industries that help students transition from postsecondary education into careers that support sustainable living and feed regional economic growth.

The Project meets the Absolute Priority, Competitive Preference Priorities 1 and 2, as well as the Invitational Priority. The Project will have measurable and significant outcomes: (1) increase the number Hispanic/Latinx and low-income students accessing STEM pathways; (2) increase number of Hispanic/Latinx and low-income students persisting through developmental, gateway, and high DFW courses; (3) increase the number Hispanic/Latinx and low-income students completing college-level math, (4) increase the graduation and transfer rates of Hispanic/Latinx and low-income students; and (5) increase the placement rate of graduates into high demand industries.

NVC is requesting **\$4,999,804** to support the *Cultivamos Con Cariño* over five years. The request includes no *indirect costs* to diminish the direct impact of initiatives and activities on students.

**P031C210024 Dalton State College**

*Running Boldly into the Future: Increasing STEM Success through Student-Centered Services and Activities*

**1. Applicant:** Dalton State College **Partner Institutions:** Georgia Northwestern Technical College, Lanier Technical College, North Georgia Technical College, Chattahoochee Technical College (Absolute Priority)

**2. Running Boldly into the Future: Increasing STEM Success through Student-Centered Services and Activities**

**3. Abstract**

**a. Target Population:** Hispanic and Low-Income STEM and Potential STEM Students

**b. Activities and Services:** (1) Develop/enhance STEM articulation agreements/MOUs with two-year and four-year institutions; (2) Expand research opportunities; (3) Provide targeted coaching and advising to STEM students; (4) Develop/implement a centralized STEM internship program; (5) Establish peer mentoring program for STEM students; (6) Expand dual enrollment program with a STEM emphasis; (7) Provide integrated (wraparound) services; and (8) Establish endowment for STEM scholarships.

**c. Anticipated Results:** Obj. 1: Increased dual enrollment of Hispanic students; Obj. 2: Increased six-year STEM degree-completion rate for Hispanic students; Obj. 3: Increased retention of Hispanic STEM students; Obj. 4: Increased number of students who conduct STEM research; Obj. 5: Increased percentage of Hispanic students who conduct STEM research each year; Obj. 6: Increased STEM internships; Obj. 7: Increased STEM transfer-in rates from four technical colleges; Obj. 8: Increased transfer rates to a four-year institution for students who complete Dalton State’s associate degree in physics/pre-engineering; and Obj. 9: Increased STEM scholarship endowment.

**4. Absolute Priority Addressed: Yes.** Georgia Northwestern Technical College, Lanier Technical College, North Georgia Technical College, Chattahoochee Technical College (pp. 41-43)

**5. Competitive Preference Priority 1 Addressed: Yes.** See above #4 (pp. 44-45)

**6. Competitive Preference Priority 2 Addressed: Yes.** See above #2-6 (pp. 46-47)

**7. Invitational Priority Addressed: Yes.** See above #7 (pp. 48-49)

**Promising Evidence: Dalton State College identified the WWC intervention report, *Transition to College Intervention Report: Dual Enrollment Programs*, which describes findings that dual enrollment programs “have positive effects on students’ degree attainment (college), college access and enrollment, credit accumulation...”<sup>1</sup> Through the proposed Strategy 6: Expand Dual Enrollment Program with a STEM Emphasis, Dalton State will expand outreach to dual enrollment students, especially Hispanic and low-income students, by providing dedicated resources and services. (Section A.4., p. 12)**

<sup>1</sup> U.S. Department of Education, Institute of Education Sciences, What Works Clearinghouse. (2017, February). Transition to College intervention report: Dual Enrollment Programs. Retrieved from <https://whatworks.ed.gov>

**P031C210034 Laredo College**

*(LEAPS POWER Project) Leadership, Excellence, and Academic Preparedness in STEM Promoting, Optimal, Wellness & Emotional Resilience*

Laredo College (LEAPS POWER Project) Leadership, Excellence, and Academic Preparedness in STEM Promoting, Optimal, Wellness & Emotional Resilience aims to increase the number of Hispanic and low-income students who attain a degree in the fields of science, technology, engineering and math (STEM), and increase the number of articulations with universities. A Hispanic-Serving Institution located in Laredo, Texas, (5,248 total undergraduate FTE, 96.95% Hispanic, fall 2020), requests (\$5,000,000) through the Hispanic Serving Institutions STEM and Articulation Program for the purpose of expanding its capacity to improve academic attainment for Hispanic and other low-income individuals.

a. Target Population: 100 Hispanic STEM majors/yr., 5 Faculty Partners/yr., 9 staff, 4 Academic Tutors, 5 Research Mentors, information transmitted to hundreds of students K-12.

b. Services and Proposed Activities: Four components to address goals and objectives 1) Academic and Student Services, 2) Articulation Agreements, 3) Affordable Paths to Knowledge and Skills, 4) Promoting Optimal Wellness and Emotional Resilience (POWER)

c. Anticipated Results: Goals are to investigate the impact of URO and self-efficacy on student retention as defined by the students' persistence through graduation and/or core completion. The research design for the HSI STEM LEAPS POWER Grant follows the What Works Clearinghouse Evidence Standards. The project will use Promising evidence from studies to study the HSI STEM LEAPS POWER interventions. Results: Increases in retention, persistence, completion, and transfer as well as an increased sense of self-efficacy and sense of belonging in higher education and STEM careers to increase success.

**Absolute Priority 1 Addressed:** Yes. LEAPS POWER will increase the number of Hispanic and other low-income students attaining degrees in STEM and develop/enhance model transfer and articulation agreements between LC and Texas A&M University-Kingsville (TAMUK), Texas A&M International University (TAMIU), University of Texas Rio Grande Valley (UTRGV), Texas State University and the University of Texas San Antonio (UTSA).

**Competitive Preference Priority 1:** Yes. Affordable Paths to Knowledge and Skills/Through Undergraduate Research and Internships.

**Competitive Preference Priority 2:** Yes. Academic Achievement and Retention Strategies In at least one study, "Undergraduate Student Faculty Research Partnerships Affect Student Retention," Nagda, B.A, Gregerman, S. von Hippel, J.W., & Lerner, J.S. The Review of Higher Education 22.1 (1998) 55-72, reviewed and reported by WWC to be at the evidence of effectiveness without reservations that participation in undergraduate research opportunities has a significant positive effect on student retention ( $p < .03$ ) and GPA ( $p < .07$ ). The theoretical and conceptual basis for the LEAPS intervention, URO (Undergraduate Research Opportunities) will use a modified version of Nagda's Undergraduate Research Opportunities Program Model (1998) to include data gathered from prospective fall 2021 focus groups and findings from Editors Nuñez, Hurtado, Calderón Galdeano et al (2015) to meet the needs of STEM students. <http://www-personal.umich.edu/~jonides/df19986.pdf>

**Invitational Priority:** Yes. Promoting Optimal Wellness and Emotional Resilience (POWER) LEAPS POWER project recognizes the effects that the COVID-19 pandemic has had worldwide and academically, and the aims to create a wrap-around safety net for STEM students.

**P031C210043 Colorado State University Pueblo**

*CSU Pueblo's Project MAPS (Mentorship, Access, and Platforms in STEM)*

*Experiences & Support to Build Hispanic and Underrepresented STEM graduates*

Colorado State University Pueblo, Arapahoe Community College, Pikes Peak Community College, Otero Junior College, Pueblo Community College, Trinidad State

The CSUP MAPS Program integrates co-curricular (research opportunities, internships, mentorship, entrepreneurial activities, student services), curricular (new and redesigned coursework with focus on career preparation and entrepreneurialism, course and curriculum articulations, support courses with increased access), and programmatic (wrap around services, mental health and wellness referrals, professional development, internship and work place training) activities to achieve our primary goals of: 1) Increase the number of Hispanic and low income students attaining degrees in STEM and develop a model transfer and articulation agreements between 2- and 4-year HSIs (Absolute Priority), 2) Improve collaboration between our consortium and employers in southern Colorado (Competitive Priority 1), 3) Provide work-based learning experiences (Competitive Priority 1), 4) Enhance tutoring, counseling, and student service programs (Competitive Priority 2), and 5) integrated wrap-around student support services (Invitational Priority).

We have designed three major programs/activities to achieve our primary goals, including; **1) Building the STEM Foundry, 2) Creating a Center for STEM Support, and 3) Creating the Southern Colorado STEM Consortium.** The Broad theme of the MAPS Program is to build our institutional capacity to attract, support, and graduate Hispanic and low-income students in STEM disciplines from the local community and region.

The expected outcomes of the MAPS Program at year 5 for Hispanic and low income students are; 1) a 10% increase in persistence of students, 2) a 10% increase in the retention of students, 3) a 25% increase in the 6 year graduation rate, 4) a 100% increase in the number of students participating in grant funded activities, and 5) a 25% increase in the transfer percentage.

## **P031C210057 Mesa Community College**

*MCC HSI-STEM Guided Pathways Enhancement Project.*

### **1. Applicant institution and partner institutions :**

- Mesa Community College (MCC), Applicant Institution.
- Arizona State University (ASU), Partner Institution.
- Mesa Public Schools (MPS), Partner Institution.

**2. Project title:** MCC HSI-STEM Guided Pathways Enhancement Project.

### **3. Abstract:**

Mesa Community College (MCC) will increase the number of “Hispanic, low-income students who pursue a degree in STEM fields.” In order to serve these students better, MCC proposes enhancing its Guided Pathways system with three (3) project objectives as follows:

1. Increase the capacity of an early college program to serve the target population,
2. Provide additional tutoring, counseling, and support services for the target population, and
3. Cultivate undergraduate research; encourage the target population to transfer to university.

Expected outcomes of the project include:

- More Hispanic & low-income students will pursue a degree and career in STEM fields,
- The project will contribute to reducing academic achievement gaps,
- More qualified people will be available to meet future workforce needs of STEM industries,
- More qualified STEM teachers will be available at local K-12 schools, and
- MCC will get recognized as an outstanding HSI by disseminating the project outcomes.

### **4. Absolute Priority Addressed:**

**Yes;** Over 45 schools, including the three Arizona public universities, have formed transfer partnerships with MCC to give you an abundance of choices when deciding where to further your education. The Maricopa-ASU Pathways Program (MAPP) assists students with the transition from MCC to the university. Students follow a prescribed sequence of course work that meets all of the requirements for a specified major at ASU and includes the appropriate associate degree at MCC. Providing hands-on learning opportunities, such as lab experiments, internships, and faculty advisement/mentoring, will prepare the target population to pursue a degree in STEM at university. MCC’s Undergraduate Research Committee will cultivate undergraduate research activities by partnering with ASU for the target population.

### **5. Competitive Preference Priority Addressed:**

**Yes (CPP #1);** The project will support the target population’s learning objectives by providing hands-on learning activities (e.g. lab experiments), work-based learning experiences (e.g. internships), and faculty advisement/mentoring. **Yes (CPP#2);** The project will communicate and collaborate with MCC’s Integrated Student Support Services Team, and provide additional tutoring, counseling, and support services for the target population.

### **6. Invitational Priority Addressed:**

**Yes;** MCC’s Counseling Department takes an active role in addressing COVID-19’s impact on students’ mental health and academic outcomes. The grant funding allows the college to hire an additional counseling faculty who can provide individualized counseling, develop new curriculum and practices, and conduct workshops for the target population.

**P031C210084 University Enterprises Corporation at CSUSB**

*Proactive Approaches for Training Hispanics in STEM (PATHS)*

1. **Applicant Institution:** California State University San Bernardino (CSUSB)

2. **Project Title:** Proactive Approaches for Training Hispanics in STEM (PATHS)

3. **Abstract**

**a. Target Populations:** The proposed project will increase the number of Hispanic and low-income students who attain degrees in STEM fields at CSUSB. In the fall of 2020, CSUSB enrolled 19,404 students (81% first-generation college students, 66% Hispanic, and 58% receiving Pell Grants). In the fall of 2020, 5,754 students enrolled in the College of Natural Sciences (CNS). The project will also encourage and assist faculty members in CNS to adopt evidence-based practices that bring systemic changes to enhance student success in STEM.

**b. Services and Proposed Activities:** The proposed project will create a Science Success Center, support undergraduate research, arrange industrial internships, create alternative degrees, stimulate evidence-based pedagogy, augment active learning classes with learning assistants, provide Hispanic mentors and role models, institute a career planning and mentoring program in which freshmen and transfer students create Individual Development Plans (IDPs), provide Science Buddies for first year freshmen and transfer students, and support student memberships in regional and national professional societies.

**c. Anticipated Results:** The proposed project will align students' learning objectives with the skills required for employment in in-demand industry sectors, provide work-based learning experiences, and increase the frequency with which students from local community colleges transfer to degree programs within CSUSB's College of Natural Sciences and earn STEM degrees. It will improve students' sense of belonging, their knowledge of university resources, course pass rates, GPAs, CNS retention rates in STEM, rates of graduation with STEM degrees, time to graduation, and post-baccalaureate placement in graduate schools, professional schools, or STEM professions.

**4. Absolutely Priority Addressed:** Yes. We will address both absolute priorities. To address the articulation and transfer model priority, CSUSB will partner with Chaffey Community College, Riverside Community College, San Bernardino Valley College, College of the Desert, Victorville Valley College, Crafton Hills College, Moreno Valley Community College, Norco College, and Mt. San Jacinto College. This work will significantly increase the number of Hispanic and other low-income students receiving degrees in STEM.

**5. Competitive Priority Addressed:** Yes. CSUSB will foster flexible and affordable paths to obtaining knowledge and will implement academic achievement and retention strategies by providing the *Services and Proposed Activities* listed above.<sup>1,2,3</sup>

**6. Invitational Priority Addressed:** Yes. This project will assure that students are aware of CSUSB's Counseling and Psychological Services. It will organize seminars for faculty members to urge them to support their students' mental health by appropriate techniques.

1 D. Morisano et al., *Journal of Applied Psychology* 95(2), 255, 2010.

2 U.S. Dept. of Education, *First Year Experience Courses*, WWC Intervention Report, 2016.

3 NASEM, *Integrating Discovery-Based Research into the Undergraduate Curriculum*, 2015.

**P031C210047 Garden City Community College**  
*STEM Central*

**1. Applicant Institution:** Garden City Community College (GCCC), Garden City, Kansas

**2. Project Title:** *STEM Central*

**3. Abstract**

**a. Target Population:** students, faculty, and staff

**b. Services and Proposed Activities:** 1) three new degree/certificate programs and ten STEM courses converted for online delivery; 2) Articulation Program with Fort Hays State U. (FHSU) with Transfer Center and services; 3) services such as tutoring, summer programs, student research projects, outreach especially to Hispanic and low-income students with financial aid services, Summits to explore directions in STEM; 4) renovated space for a STEM Hub with STEM labs and classrooms equipped for safety and distance learning.

**c. Anticipated Results:** Outcomes include at least 75% of new program and online course students earning grades of C/+ and 75/+% new program students re-enrolling, at least 49% of new program students completing in 150% time, at least 15% more STEM students transferring to Fort Hays State University each year, and at least 10% more FTE enrollment by 2026 over baselines specified in the proposal.

**4. Absolute Priority Addressed: Yes.** Articulation partner is Fort Hays State University, Kansas.

**5. Competitive Preference Priorities (CP) Addressed: Yes.** **CP1a** addressed by involving area organizations in project planning, program Advisory Committee members (employer representatives) in development and ongoing operation, GCCC faculty and staff maintaining currency in program fields and instruction through ongoing conference attendance and professional development. **CP1b** addressed by convening 30 potential employers of new program graduates to discuss opportunities for internships and apprenticeships responsive to in-demand industry sectors or occupations; representative letters of support to consider partnerships for work-based experiences attached. **CP2** addressed with project services to be developed (tutoring, transfer advising, summer programs with research options, summits, outreach including financial aid assistance).

**6. Invitational Priority Addressed: Yes.** Project participants will continue to be referred to on- and off-campus sources of support such as Genesis Family Health, Campus Closet, City-Link, expanded broadband access.

*STEM Central* project efforts are supported by promising evidence of effectiveness including **Castleman, B. L., & Page, L. C.** (2014), Freshman year financial aid nudges: An experiment to increase FAFSA renewal and college persistence (*EdPolicyWorks Working Paper Series No. 29*); **Harackiewicz, Judith M., et al.** (2014), Closing the social class achievement gap for first-generation students in undergraduate biology (*Journal of Educational Psychology*, v106 n2 375-389); **Murphy, T. E., et al.** (2010), Will participation in a summer bridge program contribute to success? (*Educational Evaluation and Policy Analysis*, 32(1), 70–83); **Walton, Gregory M. & Cohen, Geoffrey L.** (2011), A brief social-belonging intervention improves academic and health outcomes of minority students (*Science* 331 (6023): 1447-51); and **What Works Clearinghouse** *Designing and Delivering Career Pathways at Community Colleges Practice Guide* (WWC 2021007 2021) and *Practice Guide on Technology to Support Postsecondary Learning* (WWC 2009001 2019; USDE IES NCES).

**P031C210051 EDP University of Puerto Rico**

*Promoting Retention and Graduation Rates in STEM Careers (PRGSTEM)*

1. Applicant institution: EDP University of Puerto Rico, Inc.

Partner institution: Instituto Tecnológico de Puerto Rico (ITEC-San Juan Campus)

2. Project title: **“Promoting Retention and Graduation Rates in STEM Careers (PRGSTEM)”**

3. Abstract: EDP University of Puerto Rico, Inc. (EDP), a Hispanic Serving Institution, proposes a Hispanic-Serving Institutions, Science Technology Engineering & Mathematics and Articulation Program (HSI STEM & Articulation Programs) entitled **“Promoting Retention and Graduation Rates in STEM Careers (PRG-STEM)”** to improve and expand our capacity to serve Hispanic and other low-income students in our region. PRG-STEM seeks to increase the number of Hispanic students completing degrees in Technology and Computer Sciences in our region. The PRG-STEM is designed to strengthen STEM disciplines, increase the number of Hispanic and other underrepresented low-income students in our region attaining degrees in STEM fields, and to encourage transfer to EDP from two-year public community colleges. EDP has identified the Instituto Tecnológico de Puerto Rico, San Juan Campus (ITEC-San Juan), an eligible Hispanic Serving Institution, as a collaborative partner who is supportive of the Project and who will participate in various aspects of the articulated activities.

a. Target Population: Faculty, and students

b. Services and Proposed Activities: The PRG-STEM goal will be achieved through a vigorous and cost-effective implementation of a number of activities to include: 1) peer tutoring; 2) faculty mentorship program; 3) faculty professional development; 4) model transfer and articulation agreements; 5) curriculum alignment; 6) student tracking system; and, 7) laboratory renovations and equipment upgrades.

c. Anticipated Results: Increase persistence and graduation rates by 10%; 100% of faculty using innovative teaching strategies as well as the efficient use of technology-based teaching techniques; improved teaching and learning environment; improved academic programs; Model Seamless Transfer Agreement; and increased numbers of Hispanics graduates in Technology workforce.

4. Absolute Priority Addressed: **Yes**. A seamless transfer articulation agreement will be developed with ITEC-San Juan for a smooth transition between the college and the University, thus meeting the articulation and transfer model absolute priority.

5. Competitive Preference Priority Addressed: **Yes**. Competitive Preference Priority 1 will be achieved through collaboration with employers to ensure student learning objectives are aligned with the skills or knowledge required for employment in in-demand industry jobs and by providing work-based learning experiences. Competitive Preference Priority 2 will be achieved through enhance tutoring (WWC), counseling, student service programs.

6. Invitational Priority Addressed: **No**.

## **P031C210056 Ventura County Community College District - Ventura College**

*Servingness: Aspiration, Identity, and Learning (S:AIL) in STEM*

1. **Applicant:** Ventura College, Ventura, California

2. **Project Title:** *Servingness: Aspiration, Identity, and Learning (S:AIL) in STEM*

3. **Abstract:** Ventura College (VC) is an accredited, public, two-year California Community College located in Ventura, California, a community located approximately 60 miles north of Los Angeles and 30 miles south of Santa Barbara. Founded in 1925 as the first institution of higher education in Ventura County, VC enrolls nearly 18,000 students annually—61% of whom are Hispanic. Through this Title III Project, VC will embrace its identity as a Hispanic-*Serving* Institution by fostering an institution-wide commitment to providing a high quality, equity-minded learning environment in three domains: 1) Aspiration, 2) Identity, and 3) Learning. Ventura College faculty & staff will become stewards of VC's commitment to being a Hispanic-*Serving* Institution. They will be supported to encourage students' aspirations for STEM degree completion and transfer, honor cultural wealth and foster a sense of identity and belonging, and improve the relevance of learning in and out of the classroom.

a. **Target Population:** Hispanic and low-income students and families in the service area, including the VC East Campus population.

**Services/Proposed Activities:** Strategy 1: *Serving:* Aspiration–STEM Transfer Hub; Experiential & Work-Based Learning; STEM Transfer & Community Liaison Engagement Council. Strategy 2: *Serving:* Identity–Success Team Coaching\*; Non-Academic Peer Mentoring & Support; Servingness Training. Strategy 3: *Serving:* Learning–STEM Harbor; Hybrid & HyFlex Course Modality Expansion; Proactive Service-Minded Academic Supports & Peer Tutoring; Comprehensive Servingness-Minded Professional Development Initiative.

b. **Anticipated Results:** A comprehensive suite of goals, objectives, and outcomes (as detailed in the Project Design Section) will work in concert with each other to chart and measure progress towards the overarching anticipated results, which include: Increased access and participation in STEM degrees/careers among underrepresented students; More equitable degree and career outcomes for Hispanic and low-income students in STEM; Increased transfer to CSU/UC STEM programs for Hispanic and low-income students in the service area, including VC East Campus.

4. **Absolute Priority Addressed:** Yes; VC's STEM Liaison Community Engagement Council will include faculty and counseling professionals from VC, CSU, and UC systems with a particular focus on CSU Channel Islands and UC Santa Barbara, the institutions to which the majority of VC students transfer. Council priorities include 1) developing a collaborative approach to increasing equitable transfer, 2) improving the transfer experience, 3) collaborative curriculum development & alignment, and 4) a model articulation agreement to support development of a clear degree roadmap, published in Program Pathways Mapper.

5. **Competitive Preference Priority Addressed:** Yes; Competitive Preference Priority 1: Fostering flexible & affordable paths to obtaining knowledge and skills by addressing gaps in the community college to university pipeline, offering high-quality experiential and work-based learning experiences, and improving feedback collection from regional partners to inform program and support design. Competitive Preference Priority 2: VC's project design incorporates elements of the ASAP model\*, e.g., enhanced tutoring, counseling, and student service programs designed to improve academic success, including innovative and customized instruction courses in gateway math and English courses to retain students and accelerate program completion and transfer.

6. **Invitational Priority Addressed:** Yes; Leverage a completion coaching model and comprehensive professional development campus-wide to ensure student support for addressing the impact of COVID-19 on students' mental health and academic outcomes.

\*Meets WWC "Promising Evidence" of Effectiveness Standard

## **P031C210097 Chico State Enterprises**

### *Chico STEM Connections Collaborative (CSC2+)*

California State University, Chico (CSUC) is a comprehensive, public, four-year institution located in Northern Sacramento Valley. In the Fall of 2020, CSUC enrolled 16,630 undergraduates. In 2019, CSUC enrolled 16,099 students, 56.9% of which were classified as Hispanic and Other low-income (HLI). The number of those students pursuing STEM degrees was 4,120 with 55.8% of those students classified as HLI. The proposed *Chico STEM Connections Collaborative (CSC2+)* Project will serve 750 students across three STEM Colleges and addresses the **Absolute Priority** of: 1) increasing retention and graduation rates of undergraduate Hispanic and Other Low-Income (HLI) students pursuing degrees in STEM, and; 2) enhancing transfer and articulation through a partnership with neighboring Butte College, an HSI Community College located in Oroville, California. CSUC's overarching goal is to build institutional capacity at both institutions and enhance the sustainability of student services with an innovative plan of student-centered services supporting academic improvement and degree completion. This proposal also responds to **Competitive Preference Priority (CPP) 1** with the development of a STEM professional career development Certificate Program that will enhance the connection between learning outcomes in the classroom and the expectations of STEM industry employers. This activity is aligned with findings of a model program "*Beyond Learning: Leveraging Undergraduate Research into Marketable Workforce Skills*"<sup>1</sup> and **(CPP 2)** which will address increasing retention in STEM majors through enhancing opportunities for students to engage in the high-impact practice of undergraduate research experiences. It's expected that an innovative cross-disciplinary Sustainability Research Hub will interest and motivate higher levels of participation. The project also addresses the **Invitational Priority** by supporting and enhancing CSUC's efforts to provide critical resources for basic needs and student support addressing the impact of COVID-19 on students' mental health and academic outcomes. All Project Staff will complete the Chico State WellCat Health Center "I CAN HELP Wellbeing Training Program" designed to create a campus culture in which students receive trauma-informed, compassionate care from all campus personnel.

The categories of services for student support include: **1) Academic Support:** Supplemental Instruction, Tutoring, Academic Advising, Math Boot Camp; Computer Science Camp; **2) Peer Mentoring/Coaching:** All first year STEM students receive mentoring by Junior and Senior level "STEMCAT Peer Mentors"; **3) Financial Literacy:** Tools to develop college and personal financial plans; **4) Undergraduate Research Scholars (URS):** Faculty mentoring, academic year and summer; and **5) Community College Transfer Support:** Peer mentoring and opportunities to participate in an online STEM research preparation course, campus visits, and the Undergraduate Research Assistantship (URS) Program. The project will also develop **The HSI STEM Endowment** to sustain student scholarships and undergraduate research opportunities. The mixed-methods Evaluation Plan provides for rigorous data collection and formative assessment to inform timely modifications to project activities. An HSI Leadership Council, led by the Office of the Provost, brings together the CSC2+ team with all STEM-related HSI initiatives on campus and representatives from our partner Butte College to review institutional policy and procedures and identify opportunities to enhance services for HLI STEM students.

1 McClure-Brenchley, K., Picardo, K. & Overton-Healey, J. (Spring 2020). Beyond Learning: Leveraging Undergraduate Research into Marketable Workforce Skills. *Scholarship and Practice of Undergraduate Research (SPUR)*. Volume 3, Number 3. <<https://www.cur.org/what/publications/journals/spur/issues/>>

**P031C210111 Northeastern Illinois University**

*ARCOS - Advancing Research and Career Opportunities in STEM*

**1. Applicant/partner institutions:** Northeastern IL University and Harold Washington College

**2. Project title:** ARCOS - Advancing Research and Career Opportunities in STEM

**3. Abstract a. Target Population (e.g., faculty, staff, students):** Students, faculty, and staff

**b. Services & Proposed Activities:** 1) Develop integrated and collaborative opportunities for STEM students at both campuses; 2) Increase the number of Hispanic and low-income students attaining STEM degrees; 3) Redesign transfer, degree, and articulation agreements; 4) Implement programming, curriculum, and experiential learning opportunities focused on STEM workforce development; 5) Enhance current and develop new student-focused service programs and infrastructure; 6) Foster cross institutional collaboration; and 7) Develop and implement wrap-around student services that address mental health and academic supports related to the impact of COVID-19.

**c. Anticipated Results:** For Hispanic and low-income students: 1) 5% increase in students who completed a degree or credential in STEM; 2) 10% increase in STEM degree-seeking undergraduates enrolled; 3) 5% increase in those who were in their first year of enrollment and are enrolled in current year; 4) Increase the number transferring successfully to a 4-year institution from a 2-year institution and retained in a STEM major from 153 to 222; 5) Increase the number of first-time, full-time degree seeking undergraduate students enrolled at 2-year HSIs graduating within 3 years of enrollment with a STEM degree or credential 5% over baseline; and 6) Increase the number in good academic standing by 5% over baseline. Additional anticipated results include: a) Enhanced curriculum alignment based on STEM workforce/industry needs and new industry and research internships; b) Revised/redesigned STEM articulation agreements; c) New curriculum pathways and degree programs; d) STEM student-specific programming that includes peer-to-peer support groups and mentoring networks, and wrap-around services addressing student's mental health/wellness due to COVID-19's impact; e) Faculty/staff professional development trainings/workshops, faculty exchanges, and Faculty Fellows program; and f) Interdisciplinary Computational Lab/Classroom at NEIU and STEM Learning Hub at HWC.

**4. Absolute Priority (AP) Addressed (YES):** We will develop faculty collaborations through common professional development, faculty exchanges, dual enrolled courses, and redesigned articulation and reverse transfer agreements. In addition, we will move away from the traditional separation of activities and programming between two- and four-year institutions and develop integrated and collaborative student opportunities spanning the two campuses for students at both institutions. AP Citations: Scrivener & Weiss (2009) and Sommo et al. (2018).

**5. Competitive Preference Priority (CPP) Addressed (YES):** We meet CPP 1 through improved collaboration between NEIU, HWC, and STEM industry partners in terms of curriculum, programming, student learning outcomes, and long-lasting employment sector-academia relationships. CPP 2 is met through promoting proactive academic achievement and retention strategies by developing and implementing new student wrap-around service programs, including improved advisor communication and collaboration, and innovative and customized courses/workshops that focus on preparing students for academic, personal, and professional success in STEM. CPP 2 Citation: Bettinger & Baker (2014).

**6. Invitational Priority (IP) Addressed (YES):** We meet the IP by providing student supports for addressing the impact of Covid-19 on student's mental health/wellness and academic outcomes through the development of service programs/workshops, hiring of a STEM Case Manager, and the creation of peer support groups.

**P031C210128 Northern New Mexico College**  
STEM XL

Northern New Mexico College in Espanola, New Mexico, proposes the **STEM XL** project. As both a 2- and 4-year STEM certificate and degree-granting institution, the project's proposed services target **academic and transfer success in STEM for Hispanic and other low income students** who comprise the majority (74%) of NNMC's enrolled population. We anticipate the project will result in increased enrollment (7%), retention (11%), persistence (25%), completion (25%), and transfer (900%) for Hispanic and other low-income STEM degree-seeking students. These students are the project's **primary focus and target population**.

**Invitational Priority:** The proposed **Integrated Student Support System** will provide a comprehensive system of holistic supports, including mental, emotional, physical, and basic needs support referrals consistent with the findings of *Scrivener, S., Weiss, M. J., Ratledge, A., Rudd, T., Sommo, C., & Fresques, H. (2015). Doubling graduation rates: Three-year effects of CUNY's Accelerated Study in Associate Programs (ASAP) for developmental education students. New York: MDRC. Retrieved from: <http://files.eric.ed.gov/fulltext/ED558511.pdf>. Citation meets What Works Clearinghouse standard of evidence of promise without reservations. 75% of our students also work at least part-time, which has been shown to reduce academic momentum; thus, services are oriented toward advancing students' successful **full-time** enrollment.*

**Competitive Preference Priority 1: As described in letters of support attached to this proposal, Course Redesign** in 3 STEM certificate and degree programs is aligned with Los National Laboratories, N3B, and Sandia National Laboratories to meet employer hiring needs.

**Competitive Preference Priority 2: The Integrated Student Support System will feature** customized academic instruction and support via Accelerated Summer Bridge Math Camp and Peer-Led Team Learning (PLTL). Summer Bridge has been shown to increase persistence (Dika, S. L., & D'Amico, M. M., 2016). PLTL increases student time and effort invested in educationally purposeful activities resulting in persistence and success (Bridges et al., 2007).

**Absolute Priorities & Transfer Activities:** The project's 2-year HSI Partners are Clovis Community College, Central New Mexico Community College, Northern New Mexico College, San Juan College, and Santa Fe Community College will jointly support student success and transfer.

Key strategies and activities: 1) **Integrated Student Support System including dedicated STEM Transfer and Career Advisors**; 2) **STEM career and transfer exploration and internship experiences** via a **Career, Transfer & Internships Coordinator**. 3) Wraparound academic and non-cognitive support system featuring Accelerated Math **Summer Bridge, Peer-Led Team Learning** 4) **Model transfer and articulation pathway development**. 5) **Faculty professional learning**; and 6) **Evaluation and intervention research and assessment to investigate whether outcomes** for students who participate in selected project activities – such as the **Summer Bridge** experience --- are favorable, compared to peers who do not.

**The STEM XL** project application has addressed the invitational, absolute, and both competitive preference priorities as defined in the HSI STEM and Articulation Program solicitation.

## **P031C210201 Saint Xavier University**

### *Conexiones*

**1: Applicant Institution: Saint Xavier University (SXU)** (Chicago, IL)

*Partner Institutions: Moraine Valley Community College* (Palos Hills, IL) and **Joliet Junior College** (Joliet, IL)

**2: Project Title: Conexiones**

**3. Target Population:** Latinx and low-income students enrolled at SXU, and students transferring to SXU from Moraine Valley Community College and Joliet Junior College

#### *Services and Proposed Activities:*

- Create relevant and intentional **developmental math solutions** to strengthen overall understanding of foundational mathematical concepts and remove barriers to academic progress, especially for students entering programs in Computer Science;
- Improve SXU's **Computer Science program** through enhanced opportunities to connect coursework to career possibilities and increase the number of students majoring in Computer Science through the establishment of a **Motion Graphics and Game Design program** and additional academic supports; and
- Enhance transfer and articulation agreements with Moraine Valley Community College and Joliet Junior College and offer dual admission and concurrent advising to **facilitate pathways for and increase the number of Latinx and low-income transfer students** in Computer Science and Computer Information Systems.

*Anticipated Results:* The *Conexiones* program will result in:

- A reduction in the number of students placed in developmental math;
- An increase in year 1 to year 3 retention for Latinx and low-income STEM majors;
- An increase of Latinx and low-income STEM majors graduating with a STEM degree;
- An increase in retention for STEM transfer students; and
- An overall increase in Latinx and low-income students enrolled in STEM programs.

**4. Absolute Priority Addressed: YES;** SXU will partner with Moraine Valley Community College and Joliet Junior College to meet the articulation and transfer model absolute priority.

**5. Competitive Preference Priorities Addressed: YES;** *Conexiones* will address **Competitive Preference Priority 1: Fostering Flexible and Affordable Paths to Obtaining Knowledge and Skills** by establishing coordinated efforts to connect students to internships and externships through a **Computer Science Professional Mentor** and a **Computer Science Internship and Externship Fund** to support students in unpaid learning experiences.

*Conexiones* will also address **Competitive Preference Priority 2: Academic Achievement and Retention Strategies** by **reducing the number of STEM students in developmental math**, the hiring of a **STEM Academic Success Coach** and the provision of **Learning Assistants** and graduate assistants in Computer Science courses.

**6. Invitational Priority Addressed: YES;** Through **virtual video modules** to supplement learning in STEM, *Conexiones* will also meet the **Invitational Priority**.

**P031C210203 Los Angeles Mission College**

*STEM Mission's Excellence Towards the Advancement of Students (METAS)*

Los Angeles Mission College  
13356 Eldridge Avenue, Sylmar, CA 91342

Grant proposal for \$996,276 per year.

**Project Title:**

STEM Mission's Excellence Towards the Advancement of Students (METAS)

**Goal:** To increase the number of Los Angeles Mission College Hispanic and low-income students who complete or transfer in STEM fields.

**Expected Outcomes:** Improved student completion and transfer rates among the targeted population, strengthened model transfer/articulation agreements, and establishment of a resource development mechanisms with engaged STEM alumni and a \$100,000 HSI STEM endowment to support long-term sustainability and support the success of LAMC students in STEM fields/pathways.

**Population to be served:** Hispanic and low-income STEM students at Los Angeles Mission College (LAMC). The proposed project is comprised of one single activity and three subcomponents to provide comprehensive and wrap-around academic and support services to students interested in STEM fields. Through STEM METAS, the college proposes to 1) increase the number of Hispanic and low-income students attaining degrees in the fields of science, technology, engineering or mathematics (STEM); and 2) LAMC, a two-year HSI, will develop model transfer and expanded articulation agreements in STEM fields with four-year institutions.

## **P031C210086 Dominican College of Blauvelt**

### *STEM Opportunities for Hispanic and Low-Income Students (SOHLIS)*

Dominican College, Orangeburg, New York, will develop and implement the *STEM Opportunities for Hispanic and Low-Income Students (SOHLIS)* project. The project will establish comprehensive student-centered services and curricular programs that will increase rates of (1) enrollment, including strengthened articulation pathways from three area community colleges to Dominican STEM programs, (2) first to second year retention, and (3) persistence to degree completion and career entry. **Target populations** for this project are Hispanic and low-income undergraduate students at the college (including ESL undergraduates), transfer students from community college, high school students, community college STEM faculty and Dominican STEM faculty. Dominican will partner with Rockland, Westchester, and Bergen Community Colleges to strengthen articulation agreements. The **proposed five-year activities** include the following:

### **HSI-STEM and Articulation Project Summary of Major Activities**

#### **Goal 1-Enrollment**

##### **Major Activity: Strengthen the Pipeline to STEM Success**

Activity 1.1: Professional Development in Transfer and Articulation Best Practices

Activity 1.2: STEM Transfer and Bridge Advisor

Activity 1.3: Science Seminar Series

Activity 1.4: Faculty-mentored Summer Research Opportunities

Activity 1.5: Environmental Science Summer Camp

Activity 1.6: Grant-Seeking and Management Support for STEM Faculty

#### **Goal 2-Retention**

##### **Major Activity: Academic and Student Support Services**

Activity 2.1: Diversity, Equity and Inclusion Training

Activity 2.2: Academic Supports

Activity 2.3: Transform Guzman Residence Hall into STEM Study and Peer Networking Center

#### **Goal 3-Completion**

##### **Major Activity: Supports Tailored to Juniors and Seniors**

Activity 3.1: Academic Supports

Activity 3.2: On- and Off-Campus STEM Programming and Activities

Activity 3.3: Science Seminar Series

Activity 3.4: Work-Based Learning Experience Coordinator

Activity 3.5: Aligning Learning Objectives and Required Knowledge/Skills of In-Demand Occupations

SOHLIS draws from five research models to improve retention and completion of STEM degrees: **(1)** Stephens, NM, MarYam, G, Hamedani, MD (2014). Closing the social-class achievement gap: A difference education intervention improves first-generation students' academic performance and all students' college transition (WWC reviewed, moderate evidence of effectiveness). **(2)** Nagda, et al. (1998). Undergraduate Student-Faculty Research Partnerships Affect Student Retention. **(3)** Jones, et al. (2010). Importance of Undergraduate Research for Minority Persistence and Achievement in Biology. Quasi-experimental design that has not been reviewed by WWC. **(4)** Yue, H., et al (2018). Supplemental instruction: Helping disadvantaged students reduce performance gap. **(5)** Chen, et al (2021). Am I a Science Person? A strong science identity bolsters minority students' sense of belonging and performance in college. SOHLIS meets the **Absolute Priority** (degree completion and articulation) and **Competitive Preference Priorities 1 and 2** by providing flexible and affordable pathways and significant WBLE as well as multiple layers of academic support including extensive tutoring, workshops, developmental course enhancement, and targeted tutoring resources for ESL/ELL STEM students.

**P031C210143 The Research Foundation CUNY - The City College**

*City College initiative to Promote the Academic Success of STEM Students – Experiential*

1. Applicant institution and partner institutions: The City College of New York, Borough of Manhattan Community College, LaGuardia Community College

2. Title: City College initiative to Promote the Academic Success of STEM Students – Experiential Learning & Career Engagement Initiative (CiPASS-ExLCEI)

3. Abstract

a. Target: Students and Faculty

b. Services and Proposed Activities: **The City College of New York (CCNY)** is a public, 4-year Hispanic and Minority Serving Institution established in 1847. CCNY is the flagship campus among the twenty-four colleges and institutions in the City University of New York (CUNY) system - the nation's largest urban university system. Located in the predominantly Hispanic and African American neighborhood of West Harlem, CCNY serves more than 13,000 undergraduate students per year. **Borough of Manhattan Community College (BMCC)** is a CUNY Community College located in lower Manhattan, serving more than 26,000 associates-level students in their work as an HSI and MSI. **LaGuardia Community College (LaGCC)** is a CUNY Community College and HSI located in Queens, NY, serving more than 18,000 students. CCNY, BMCC, and LaGCC provide an affordable entry point into higher education for low income and first-generation students, and have an extremely diverse student body, reflective of the diversity of the city.

The central focus of this proposal is to address the current gender, racial, and ethnic disparities among STEM professionals via a series of interventions at CCNY with the ultimate goal of increasing retention, graduation, and workforce readiness among Hispanic and low-income students pursuing STEM careers. The HSI/STEM grant project **CiPASS-ExLCEI** will scale up intervention and practices from existing small but successful programs to reach a larger portion of the student population, and address weaknesses identified through ongoing assessment and analysis of our institutional work. This initiative will focus on three key major activities: *i)* increasing hands-on and experiential learning in coursework and internship opportunities; *ii)* building new initiatives for STEM-specific academic supports; and *iii)* creating new supports for STEM transfer students from the 2-year colleges. We will build the internal structures and processes to ensure CCNY can successfully support students in these endeavors.

c. Anticipated Results (e.g., learning outcomes): These activities will result in a peer mentoring program, STEM transfer bridge program, significant additions to project-based learning in coursework, more than 200 STEM students participating in internships, and the expansion of academic supports and early alert systems in STEM and impact the retention and graduation rates of Hispanic and low-income students.

4. Absolute Priority Addressed: Yes; both proposal partners are 2-year schools to address the AP.

5. Competitive Preference Priority Addressed: Yes, both

- Activity 1: STEM Transfer Bridge Program, and Activity 2: Expanded Academic Support and Community Building in STEM will address Absolute and CPP-2

- Activity 3: Infusing Project-Based Learning across the Curriculum and Activity 4: Experiential Learning Program will address Absolute and CPP-1

Specific Project Activities will: *1)* improve the academic readiness, sense of belonging, and self-confidence of entering students to better prepare them for the demands of regular college coursework, focusing on transfer students; *2)* infuse project based learning across the STEM curriculum by revising existing gateway courses and engaging faculty to improve their courses; *3)* promote early career engagement and skills consistent with experiential learning, and career mentoring programs to expose students to real world experiences and problems at an early stage in the students' academic journey; and *4)* provide career and professional advising to undergraduate students to help them achieve their goals

6. Invitational Priority Addressed: No.

**P031C210162 The University of New Mexico**  
*STEMx Project*

The University of New Mexico – Taos proposes the *STEMx Project*, a systemic and sustainable strategy to develop the institution’s capacity to enroll, support, and graduate Hispanic and/or low-income (H/LI) students in STEM fields. The Project has been designed with the four pillars of the Guided Pathways initiative providing a framework for considering the supports and resources necessary at every stage of the student’s educational experience. The project **will target faculty** as the primary participants in the activity components of this Project, which are:

- Component 1: *Help students clarify and enter the path* – UNM-Taos will
  - offer summer STEM programs to students in the K-12 system and those transitioning to the UNM-Taos campus after graduation and
  - build an Employer and Faculty Advisory Committee to provide a venue for K-12, employer, and local non-profit input into STEM degrees
- Component 2: *Help students stay on the path* – UNM-Taos will
  - Provide work-based learning experiences outside of the STEM classroom and project-based learning in the STEM classroom
  - Provide wrap-around coaching/advising and academic supports for STEM students
  - Dedicate a STEM Student Success Center to house supports and related activities for STEM students
- Component 3: *Ensure students are learning* – UNM-Taos will
  - Provide professional development to faculty on culturally responsive pedagogy and on STEM-specific practices to STEM faculty
  - Provide mini-grants to faculty to revise their curriculum with an equity-lens
  - Incorporate STEM-specific practices such as Writing Across the Curriculum
- Component 4: *Develop new degrees in the Guided Pathways framework* – UNM-Taos will
  - Launch new programs in IT, Construction Technology, and Environmental Sciences to increase STEM offerings for our students and community
  - Launch a new concentration in STEM teaching within the existing teacher preparation program

With these components implemented, UNM-Taos expects to realize a 40% increase in number of Hispanic/Low Income students enrolling in STEM, an increase of 100% in H/LI students enrolling in STEM programs, an increase of 25% in H/LI math and science pass rates, an increase of 25% in H/LI fall-to-fall retention in STEM, an increase of 6% in H/LI student graduation rate in STEM, and an increase of 20 per year in the number of H/LI students transferring in STEM to regional four-year programs.

The STEMx Project proposes to address both Competitive Preference Priorities, the Absolute Priority, and the Invitational Priority. The citation for promising evidence is What Works Clearinghouse. *Designing and delivering career pathways at community colleges practice guide*. US Department of Education. <https://ies.ed.gov/ncee/wwc/Docs/PracticeGuide/WWCPraxGuide-Career-Pathways-full-text-Final-508.pdf>.

**P031C210103 Morgan Community College**

*STEM Preparacion, Equidad y Exito*

**Applicant Institution:** Morgan Community College, Fort Morgan, Colorado

**Partner Institution:** Colorado State University, Fort Collins, Colorado

**Project Title:** *STEM Preparacion, Equidad y Exito*

**Target Population:** Current and future MCC STEM-declared students, especially those who are Hispanic and/or low-income.

**Services and Proposed Activities:** *STEM Preparacion, Equidad y Exito* has been designed with three in-depth activities.

- **Preparacion** will assist MCC in providing outreach to area high schools to help students learn more about STEM careers and educational opportunities. A variety of outreach programming will be developed to serve K-12 students and the community in an effort to share more information about STEM education and careers.
- **Equidad** is designed to provide a variety of resources to MCC STEM students to bring parity among students, regardless of ethnicity or background. This includes improving facilities; providing intensive advising, tutoring, mentoring, and referrals; and offering opportunities to participate in research and summer bridge.
- **Exito** will focus on improving resources for faculty to assist students in achieving success in their courses. Faculty will attend targeted, ongoing trainings and incorporate culturally relevant programming into their courses.

**Anticipated Results:** This project has seven measurable outcomes, illustrated in the table below.

Objective 1: By Sept. 30, 2026, improve the percentage of Hispanic area high school graduates coming to MCC who select STEM as their area of study by 11 percentage points.

Objective 2: By Sept. 30, 2026, increase the percentage of Hispanic high school students enrolling in STEM-related concurrent programming by 10 percentage points.

Objective 3: By Sept. 30, 2026, increase the success rate (grade C or better) of Hispanic students in STEM courses by 3 percentage points.

Objective 4: By Sept. 30, 2026, improve the retention rate of all STEM students by 10 percentage points.

Objective 5: By Sept. 30, 2026, increase the three-year graduation rate of Hispanic STEM students by 9 percentage points.

Objective 6: By Sept. 30, 2026, increase the transfer rate of Hispanic STEM students by 9.4 percentage points.

Objective 7: By Sept. 30, 2026, improve STEM students' self-reported sense of belonging at MCC by 30 percentage points.

**Absolute Priority Addressed:** MCC is addressing the Absolute Priority. For the articulation component, MCC will partner with Colorado State University, located in Fort Collins, Colorado.

**Competitive Preference Priorities Addressed:** Both CPP 1 and CPP 2 are addressed.

**Invitational Priority Addressed:** No; MCC already has a variety of programming in place to address student needs as a result of the pandemic and is not addressing that in this application.

**P031C210178 Riverside Community College District/Riverside City College**  
*Inclusive Opportunities for Nurturing STEM Success (IONSS)*

1. Applicant: Riverside City College; Partner: California State University San Bernardino

2. Title: Inclusive Opportunities for Nurturing STEM Success (IONSS)

3a. Target Populations: STEM faculty; Hispanic and other underrepresented college students

b. Services and Proposed Activities: Our overarching goal is to improve Hispanic and other low income and first generation student performance in the STEM disciplines by improving student learning, particularly in those courses that campus data indicate are playing the most significant role in impeding student progress towards graduation. The strategy for attaining this goal is to implement and sustain a holistic, coherent set of professional development opportunities and structures to involve a growing number of faculty in redesigning their courses and enhancing their instruction to incorporate equity-minded, evidence-based teaching practices.

The faculty who participate in the learning community will also implement an experimental intervention through a randomized control trial design that meets the WWC standards for promising evidence and involves a values affirmation writing exercise that students complete as part of their coursework.

Additionally, we will complement the faculty development with enhanced academic and social support, pre-transfer advising, and expanded opportunities for hands-on experience in science career settings.

Within those foci for intervention, there are multiple synergistic activities.

Promising Evidence Intervention: Harackiewicz, J. M., Canning, E. A., Tibbetts, Y., Giffen, C. J., Blair, S. S., Rouse, D. I., & Hyde, J. S. (2014). Closing the Social Class Achievement Gap for First-Generation Students in Undergraduate Biology. *Journal of Educational Psychology*, 106 (2), pg. 375–389.

c. Anticipated Results: Increased STEM faculty knowledge, skills, and utilization of culturally sensitive, inclusive, and active learning pedagogical techniques and course content. Improved student understanding of, enrollment in, and success in recommended STEM guided pathways courses leading to an associate degree to transfer—10% increase in Hispanic and/or low income first-time, full-time degree seeking undergraduate students enrolled at RCC graduating within three years; 10% increase in successful transfer and retention within STEM. Increased student science identity and interest in STEM careers among Hispanic and other low-income or URM students.

4. Absolute Priority Addressed: Yes. We are partnering with California State University San Bernardino, our students' primary transfer destination, to implement IONSS and address the absolute priority.

5a. Competitive Preference Priority 1 Addressed: Yes. We will substantially expand paid opportunities for students to engage in brief and more intensive experiential learning and work-based learning through various educational and industry partnerships. We will also build the institutional capacity at RCC to provide such experiences, as we work toward longer-term institutionalization and sustainability of these important programmatic interventions.

5b. Competitive Preference Priority 2 Addressed: Yes. With the planned project and the additional resources, we will be able to support accelerated development and strengthening of the existing integrated support services within our STEM Engagement Center, including enhanced/expanded methods of pre-transfer advising.

6. Invitational Priority Addressed: No

**P031C210060 Southwestern Adventist University**  
*STEM Excellence*

Southwestern Adventist has developed “**STEM Excellence**,” a project that addresses identified needs of Hispanic students, as well as low-income and high-need students, in Biology and other STEM disciplines, enabling them to complete a college degree and to shorten their time to completion. Specifically, STEM Excellence will: a) add an additional dimension to our Ecology and Conservation emphasis in Biology by creating additional upper division courses with additional faculty to strengthen the program; b) redefine the Biology curriculum as a flexible, integrative degree path that will lead students into a broad range of new internship and career opportunities within the world of biological sciences; c) create programs of support for first-year STEM students through enhanced faculty advising, preventative tracking of student challenges, and the creation of a peer Course Navigators program to assist in advising, offering course-specific tutoring, and leading supplemental instruction for fundamental math concepts.

Our measurable goals include:

- **Goal 1:** Increase the number of STEM majors from an average of 23 (2014-2020) to 35 majors by 2026.
- **Goal 2:** Increase the number of Biology majors from a average of 13 (2014-2020) to 25 by 2026.
- **Goal 3:** Increase the one-year average retention rate (2014-2019) for our first-year Biology cohort from 70% to 80% by 2026.
- **Goal 4:** Increase the four-year graduation rate (average 29%, 2014-2017) by the end of year four; the five-year graduation rate (61%, 2015) by 10% by the end of year five, and the six-year graduation rate (31%, 2014) by 40 % by the end of year six.
- **Goal 5:** By the end of year five, the percentage of Hispanic, and all STEM graduates employed in relevant fields or in graduate school within six months of graduation will increase to at least 95% by 2026.

STEM Excellence program is also designed to address the **Invitational Priority** which will be accomplished by increasing capacity for mental health services, as well as leading faculty, staff and key student leaders through mental health workshops allowing them to be able to identify and address early signs of mental illness. Additional mental health support will be available in the occurrence of mass causalities and major trauma.

Since this is a new program, our measurable goal is to:

- **Invitational Priority Goal:** Train 75% of the faculty, staff, and student leaders by 2022 and 100% thereafter each year including new hires.

**P031C210072 Felician University**

*Fostering Inclusive Excellence for STEM Achievement (FIESTA) at New Jersey HSIs*

1. Applicant institution and partner institution: Felician University (applicant) and Union County College (two-year college partner).

2. Title: *Fostering Inclusive Excellence for STEM Achievement (FIESTA) at New Jersey HSIs*

3. Abstract:

Felician University and Union County College are both HSIs in New Jersey, which is considered a global hub for life sciences. Felician and Union will collaborate in the FIESTA project, designed to increase the enrollment of Latinx and low-income students in STEM majors; to improve Felician's STEM learning environments and strengthen STEM pedagogy at both institutions for increased student engagement and success; and improve the success of Latinx and low-income students in STEM at Felician as measured by retention and graduation.

To increase STEM enrollment, Union and Felician STEM leadership and faculty will establish a model STEM articulation agreement that streamlines baccalaureate pathways and admission to Felician and accelerates students' progress towards STEM baccalaureate degrees. This work will be a primary focus of Year 1 of the FIESTA project.

Felician will modernize its STEM learning environment through the renovation of its chemistry and physics labs and the purchase of state-of-the-art instrumentation; these investments will better reflect today's STEM workplace and greatly enhance Felician's ability to provide collaborative, hands-on learning experiences and training in current tools, techniques, and workforce skills sought by STEM employers. To strengthen STEM learning and success, especially in STEM gateway courses, Felician will host an annual two-day STEM Faculty Institute for both Felician and Union faculty to learn and deploy best-practice STEM pedagogies as well as culturally responsive teaching practices. Felician will form a new STEM advisory board composed of representatives from STEM industry, fostering expanded internships and industry-informed curriculum for STEM students.

To foster the success of STEM students, the institutions will collaborate on the design and implementation of a suite of evidence-based student support services and engagement covering every phase of students' undergraduate experience. These services include distinct summer bridge programs for both first-year university students and community college transfer students, enhanced academic supports such as peer tutoring, peer-led team learning, peer mentoring, integrative academic advising, participation in paid, faculty mentored research experiences, career readiness programming, and expanded mental health services. Student success services have been carefully chosen to support a range of key student metrics including academic performance, persistence, self-efficacy, sense of belonging, and degree attainment, ensuring the success of students supported through the project. Additionally, the project will meet What Works Clearinghouse Standards for moderate evidence in two areas: implementation and measurement of evidence-based interventions and impact analyses.

4. Absolute priority addressed? Yes; the project will develop a model transfer and articulation agreement between a 2-year HSI and a 4-year institution, and it will increase the number of Hispanic and other low-income students attaining degrees in the fields of STEM.

5. Competitive preference priorities addressed? Yes; the project will establish a new STEM advisory board to improve collaboration between education providers and employers, and it will provide a range of academic achievement and retention strategies to foster STEM student success.

6. Invitational priority addressed? Yes; Felician's counseling center will expand its range of supports for addressing the impact of COVID-19 on students' mental health.

**P031C210171 Indian River State College**  
*STEM PIONEERS*

The Indian River State College (IRSC) Science Department (administrators, faculty, and staff) will implement the Science, Technology, Engineering, and Mathematics, Pioneers (STEM Pioneers) project to increase the number of Hispanic low-income students who attain degrees in STEM fields. This project will target students who reside in the College's service district of St. Lucie, Indian River, Martin, and Okeechobee counties. This project will focus on student success in undergraduate STEM coursework and develop a model articulation and transfer agreement between IRSC and the University of Florida.

STEM PIONEERS will support first-time-in-college STEM students towards graduation or transfer in a STEM program of study by addressing the Absolute Priority, the Invitational Priority, and Competitive Preference Priorities one and two. STEM PIONEERS will address student challenges through integrated academic and student support strategies and activities that will promote retention and graduation in a STEM field.

**Project Objectives:** IRSC has identified the following objectives to ensure the success of this program: 1) By September 2026, IRSC will increase the number of full-time degree-seeking Hispanics and low-income undergraduates enrolling in a STEM program of study by 8%; 2) By September 2026, IRSC will increase the number of full-time degree-seeking Hispanic and low-income students retained from fall to fall by 10%.; 3)By September 2026, IRSC will increase the number of full-time degree-seeking Hispanic and low-income students retained from fall to fall by 10%; By September 2026, at least 12% of Hispanic and low-income student participants in STEM PIONEERS will participate in research activities; 4) By September 2026, IRSC will increase the number of Hispanic and low-income students who transfer to a four-year institution to pursue STEM studies by 25%.

**P031C210030 Miami Dade College**  
STEM Legacy

**1. Applicant institution and partner institutions.** Miami Dade College (MDC) is the applicant institution. MDC is part of the Florida College System, which allows for articulation agreements with every public institution of higher learning in the state. In addition, the College has fostered relationships with a large number of private institutions both in and out of Florida. Partner institutions include the University of Florida, Nova Southeastern University, University of Miami, St. Thomas University, Florida Atlantic University, Florida International University, University of Wisconsin, Illinois Institute of Technology, and Lake Erie College of Medicine.

**2. Project title.** STEM Legacy

**3. Abstract. (a) Target Population.** 2,500 students and 45 Wolfson Campus faculty members. **(b)**

**Services and Proposed Activities.** STEM Legacy will provide the following services: creation of the STEM AXIS Center; development of a peer-to-peer learning community; installation of Peer Academic Leaders; installation of Peer-Led Team Learning; mentoring; specialized courses using high-impact practices; community workshops; appreciative advising; the enhancement of STEM facilities; and research/internship opportunities. **(c) Anticipated Results.** The outcomes for STEM Legacy include: an increase in retention rates of Hispanic and underrepresented minorities in STEM programs; an increase in Hispanic and low-income students graduating and/or transferring to a bachelor's program in STEM; an increase in students who progress to achieve credential completion benchmarks in STEM; an increase in pass rates of STEM courses;

an increase in students successfully completing research/internship projects; and an increase in recruitment of STEM students.

**4. Absolute Priority Addressed:** Yes. **Briefly indicate the partner institution/s for the purpose of meeting the articulation and transfer model absolute priority.**

STEM Legacy will increase the number of Hispanics and low-income STEM students that transfer from MDC into a 4-year institution in part by leveraging existing articulation agreements and partnerships with schools, colleges, and universities. Partner institutions in Florida include the University of Florida, Nova Southeastern University, University of Miami, St. Thomas University, Florida Atlantic University, and Florida International University. Partner institutions outside of Florida include University of Wisconsin, Illinois Institute of Technology, and Lake Erie College of Medicine.

**5. Competitive Preference Priority Addressed:** Yes. **CPP #1:** STEM Legacy will provide students with work-based learning experiences through research opportunities and internships.

To ensure student learning objectives are aligned with the skills or knowledge required for employment within in-demand industry sectors or occupations, students will participate in Career Readiness seminars using the NACE career competencies designed to support college graduates in successful workplace transition. **CPP#2** To support academic achievement, student engagement, and retention, STEM Legacy will expand on previous evidence-based Title V strategies and support services using an intentional all-inclusive approach that will provide students with academic and transfer advising, promote student involvement and social connectedness through learning communities with mentoring and support services, as well as Professional Development Programming.

**6. Invitational Priority Addressed:** Yes. STEM Legacy is committed to support the mental wellbeing of students. STEM Legacy will provide 15 STEM workshops that will include: Emotional Intelligence topics to increase student engagement and community awareness; knowledge about emotional intelligence and its importance in STEM; and equipping them to maintain a healthy work-life balance.

**P031C210044 California State University Channel Islands**

**Applicant Institution:** California State University Channel Islands

**Partner Institutions:** Ventura County Community College District and Santa Barbara City College

**Project Title:** Project AYUDAS: Articulating Your Undergraduate Degree & Academic Success in STEM

**Target Population:**

- Latinx and Low-income high school and community college students
- Latinx and Low-income STEM students at CSUCI

**Services and Proposed Activities:** CSUCI proposes to implement Project AYUDAS to *strengthen* the STEM student success pipeline and *transform* collegiate STEM pathways for retention and success.

Project AYUDAS will:

- 1) Develop **STEM Transfer and Articulation Pathways** through a transfer college readiness initiative to serve students/supporters, and STEM curricular pathways with CSUCI and community college faculty.
- 2) Cultivate a **STEM Culture of Retention and Academic Excellence** through academic support for technical writing support, technology powered just-in-time interventions, and faculty and peer mentorship.
- 3) Transform institutional culture towards **STEM Inclusive Excellence** through curricular redesign, active learning pedagogies, and equity-minded pedagogy for STEM faculty.

**Anticipated Results:**

- Substantially changed practices, systems, and policies to increase the number of Hispanic and low-income students who enroll in college and successfully complete a STEM major,
- Improve the articulation of STEM courses with 2-year college partners
- Refined student-centered academic support services to help students succeed academically in gateway STEM courses
- Improved STEM student success outcomes (increased student retention, improved progression rates, and improved 3-year and 6-year graduation rates for transfer students and freshmen, respectively, with a focus on Hispanic and low-income students)

**Department of Education Priorities:**

**Absolute Priority, Yes**

- Partnering with Ventura County Community College District and Santa Barbara City College to develop STEM Transfer Articulation Pathways activity
- Increasing STEM degree completion through STEM Culture of Retention and Excellence academic support and STEM Inclusive Excellence faculty development activities

**Competitive Preference Priority #1, Yes**

- Integrating STEM Career pathways curriculum and STEM industry into outreach and retention support services

**Competitive Preference Priority #2, Yes**

- Developing a STEM Writing initiative and creation of faculty and peer mentorship through STEM ASSET Scholars community.

**Invitational Priority, Yes**

- Partnering with Counseling & Psychological Services to increase faculty and peer mentor participation in “Recognize and Refer: How to Help Students of Concern” workshop sessions.

**P031C210053 Mercy College**  
*STEM Ready*

1. Applicant institution: **Mercy College**; partner institution: **Westchester Community College**
2. Project title: ***STEM Ready***
3. Abstract:

a. Target Population: *STEM Ready's* target population is two- and four-year undergraduate students who are Hispanic and/or low-income. *STEM Ready* students are those seeking to major in six STEM disciplines offered at Mercy College: Biology, Psychology, Mathematics, Computer Science, Computer Information Science, and Cybersecurity.

b. Services and Proposed Activities: Four innovative Activities are proposed for *STEM Ready*: 1) **Course Redesign for Project-Based Learning (PBL) in STEM** for a high-impact approach that offers curricula to develop student's interdisciplinary and project-based learning awareness and prepare students to understand and experience complex real-world problems; 2) **Faculty and Peer Mentor Development in Metacognition** to include formal training elements that will infuse curricula with metacognitive teaching and mentoring practices for faculty and near-peer mentors; 3) the **Mercy College/Westchester Community College (WCC) Transfer Pipeline** that supports a pipeline of Hispanic and/or low-income students completing their associate degree and entering as STEM majors at Mercy College for improved student outcomes and attainment of four-year degrees; and 4) the **STEM Workplace Academy** to address employer needs and ensure that student learning objectives are aligned with the skills and knowledge required for successful employment.

c. Anticipated Results: The proposed activities are designed to significantly improve student engagement and success and result in increased rates of retention, maintenance of good academic standing, and graduation in addition to a higher rate of transfer from WCC to Mercy and higher graduation rates for transfer students.

4. Absolute Priority Addressed: Yes. Mercy will partner with Westchester Community College in the Mercy College/Westchester Community College Transfer Pipeline (Activity 3).

5. Competitive Preference Priority 1 Addressed: Yes. *STEM Ready* Activities 1, 3, and 4 focus on improving collaboration between education providers and employers and providing work-based learning experiences for students including internships and research experiences.

Competitive Preference Priority 2 Addressed: Yes. *STEM Ready* Activities 1 and 2 focus on enhancement of student success, including courses designed to help retain students and move them into core courses and program completion. Through Project Based Learning students develop deep content knowledge as well as critical thinking, collaboration, creativity, and communication skills that will improve their academic success, and metacognition and a growth mindset create a motivational foundation for effective learning.

Invitational Priority Addressed: No.

*STEM Ready* will be evaluated using a mixed method design with an embedded randomized control trial (RCT) that includes: a) an analysis of implementation and outcomes for all program participants; and b) an RCT experiment to assess the effectiveness of the Stephens et al (2014) difference-education intervention (promising evidence) on student outcomes.<sup>1</sup>

1 Stephens, N. M., Hamedani, M. G., & Destin, M. (2014). Closing the social-class achievement gap: a difference-education intervention improves first-generation students' academic performance and all students' college transition. *Psychological science*, 25(4), 943-953.

## **P031C210080 Cabrillo Community College District**

### *Advancing in College & Career-pathways to Expand STEM Opportunities (ACCESO)*

Cabrillo College (Aptos, California) is a comprehensive, public two-year community college serving Santa Cruz County with the main campus at Aptos and a Center at Watsonville. The Hispanic/Latino enrollment (46 percent) has increased in the last ten years. The College serves primarily Santa Cruz County including high-need students from the Pajaro Valley of Watsonville where families struggle with persistent poverty and low educational levels.

Proposed Project: Cabrillo College proposes Advancing in College & Career-pathways to Expand STEM Opportunities (ACCESO), a five-year HSI STEM and Articulation project addressing the goals of increasing access to and baccalaureate transfer in high-demand STEM fields, including Biotechnology (Biotech) among Latino and/or Low-income students. Activities and services include the following:

1. Develop contextualized math courses with active learning components to increase the pipeline of Latino and low-income STEM students with a focus on dual-enrollment to enhance student momentum to completion;
2. Develop/revise/pilot courses for a new A.S. degree in Biotechnology;
3. Provide professional development to faculty in active learning & equity pedagogy;
4. Provide STEM outreach to high school students to encourage pursuing STEM pathways;
5. Provide Biotech career pathway development and articulation including curricula alignment, program map development, and establishing articulation agreements with neighboring universities such as UCSC, SJSU, and UC Davis;
6. Provide integrated student support services that are evidence-based and align with the college's Guided Pathways initiative;
7. Connect students with work-based learning opportunities in Biotech / STEM and organize STEM Colloquium with industry speakers to inspire students in STEM careers.

#### Outcomes

Five-year outcomes (by September 2026) include: 1) an increase in STEM enrollment by at least 8% overall (# of STEM majors) among Latino & low-income students (Obj 1.a); 2) the # of PVUSD HS students enrolled in dual credit contextualized math will increase by a total of 210 students (Obj 1.b); 3) increase by 15% in the % of Latino & L.I. students who successfully complete one transfer-level STEM math course (Obj. 1.c); 4) will articulate the Biotech program with at least (3) three regional four-year institutions (Obj 2.a); 5) the % of Latino & L.I. students obtain a Biotech degree and/or certificate will increase by 45 students (Obj 2.b); 6) a 10% point increase in the Fall-to-Fall persistence rate of Latino & Low-income students (Obj 3.a); 7) an increase of Latino/L.I. STEM students earning a degree or certificate increases by at least 55 students (Obj. 3.b); 8) an increase of at least 12% points who are transfer-ready in STEM majors (Obj. 3.c).

#### Project Addresses the Following Priorities

AP 1: To develop an articulation and transfer model in Biotech that involves curricula-specific transfer/articulation agreements with 4-year IHEs. CPP1: Connecting students with work-based learning in Biotech so students develop in-demand industry skills and experience (Cotner, 2021).

CPP2: STEM faculty cooperate to develop innovative, contextualized math courses with active learning elements to build a strong mathematical foundation for advancing in STEM majors (Freeman, 2014; Hayward and Willett, 2014; Bailey, 2015). IP: To provide students with expanded mental health services through COVID-19 grants.

**P031C210131 William Paterson University of New Jersey**

*Access to STEM Pathways through Integrated Research and Engagement (ASPIRE)*

**1. Applicant institution and partner institution:** William Paterson University (WP) and Passaic County Community College (PCCC)

**2. Project Title:** Access to STEM Pathways through Integrated Research and Engagement (ASPIRE)

**3. Abstract**

(a) **Target population (e.g., faculty, staff, students):** ASPIRE's target student populations consist of first-time first-year (FTFY) Hispanic and low-income students and Passaic County Community College students. Both student populations will enroll at William Paterson University in a STEM program. (b) **Services and proposed activities:** Pivotal to the proposed project are the roles of the Transfer Success Coordinator and the Student Success Coach(es). The Transfer Success Coordinator will be a WP employee positioned primarily at Passaic County Community College to work with STEM students interested in transferring to a four-year college upon earning their associate's degree in STEM. This Coordinator will provide individualized support, connect students to resources at both institutions, and facilitate a transfer plan. Once a student enrolls at William Paterson, the Transfer Success Coordinator will warmly pass off the student to the Student Success Coach(es). The Student Success Coach(es) will work closely with FTFY and transfer students to provide individualized coaching, create an academic and career plan, and access needed resources including tutoring, supplemental instruction, career services, mental health counseling, and financial aid. (c) **Anticipated results (e.g., learning outcomes) Objective 1.** Increase the total number of overall WP STEM majors by 2% each year of the project term from a baseline of 1,136 (2% year one, 4% year two, 6% year three, 8% year four, and 10% year five). **Objective 2.** Increase the number of low-income and Hispanic STEM students transferring from PCCC to WP in a STEM major by 2% each year of the project term from the baselines of 874 (low income) and 367 (Hispanic). **Objective 3:** In the initial three years, 25% of low-income and/or Hispanic juniors and seniors will participate in work-based learning (internship, research fellowship, etc.); by years four and five participation will increase to 50%. **Objective 4:** WP will improve the low-income and/or Hispanic student four-year graduation rate from the 20.59% baseline to the goal of 34% within the five-year project period.

**4. Absolute Priority Addressed:** Yes; WP will partner with Passaic County Community College to enhance transfer services and create model-articulation agreements that include deeper inter-institution collaboration, transfer support, and access to resources at both institutions.

**5. Competitive Preference Priority 1 Addressed:** Yes; ASPIRE addresses Competitive Preference Priority 1 in that it intentionally fosters flexible and affordable paths to obtaining knowledge and skills that are aligned with the STEM workforce needs through internships with industry partners and research fellowships mentored by WP faculty mentors.

**6. Competitive Preference Priority 2 Addressed:** Yes; ASPIRE is designed to develop or enhance tutoring, counseling, and student-service programs to improve academic success, including innovative and customized instruction courses (supplemental instruction sessions led by peer mentors) to help retain students and rapidly move them into core courses and through program completion.

**7. Invitational Priority Addressed:** Yes; ASPIRE will provide student supports for addressing the impact of COVID-19 on students' mental health and academic outcomes by screening students upon admittance and connecting them with licensed professional counselors and/or individualized academic support as needed.

## **P031C210135 Pasadena City College**

### *Servingness in STEM: Reaching the Next Level in HSI Excellence*

1. **Applicant:** Pasadena City College

2. **Project Title:** Servingness in STEM: Reaching the Next Level in HSI Excellence

**Abstract:** Pasadena City College (PCC), located in Pasadena, California, serves the greater Los Angeles area, which has the largest, fastest growing Hispanic population in America. The College enrolls approximately 30,000 students; 51% are Hispanic. PCC's proposed Title III project aims to improve the STEM degree completion of Hispanic students through strategies that (a) purposefully center Hispanic students' experiences, strengths, and needs in their design, and (b) are likewise well-supported by extensive national and institutional research. The project, *Servingness in STEM: Reaching the Next Level in HSI Excellence*, includes three main activity strategies that represent essential next steps to close the equity gap in the completion rate of Hispanic and other underserved students in the STEM pathway, which will then significantly improve the completion rate and workforce outcomes for all PCC students.

a. **Target Population:** PCC's Hispanic and low-income students who show interest or potential to pursue a STEM degree.

b. **Services/Proposed Activities:** Increase access and close opportunity gaps for Hispanic students in STEM fields to increase degree completion and transfer by redesigning the critical Calculus sequence and developing a model articulation agreement with high schools and our key transfer institution, CSULA; Develop and foster comprehensive and intrusive wrap-around services that validate and positively influence sense of belonging for Hispanic students, and offer robust STEM work-based learning opportunities; Build infrastructure and transform structures that affect PCC's ability to serve Hispanic students, creating a HSI Council to provide direction and leadership and a Center for Teaching Excellence that focuses on anti-racist and equity-minded pedagogy and curriculum.

**Anticipated Results:** PCC's HSI-STEM project objectives are to: 1) Increase the first-attempt success rate in Calculus I and II; 2) Increase STEM student completion of transfer-level math in their first year; 3) Increase the total number of students who declare a STEM program of study by 20%; 4) Increase 3-year transfer rate in STEM programs of study; 5) Increase 3-year degree completion rate in STEM programs of study; 6) Increase students' social self-concept/sense of belonging; 7) Improve STEM pathway fall-to-fall retention; 8) Engage at least 750 students in grant-funded work-based learning opportunities or services; 9) Have Hispanic students represented among work-based learning participants at full parity with the overall PCC population; 10) Engage at least 200 STEM faculty members in grant-sponsored professional development; 11) Close equity gaps in course success rates among STEM faculty participating in grant-sponsored professional development

3. **Absolute Priority Addressed:** Yes; The project is designed to increase the number of Hispanic and other low-income students attaining degrees in STEM fields and collaborate with faculty and staff from California State University, Los Angeles (CSULA) to develop model articulation agreements in order to remove transfer barriers and establish Transfer Acceptance Guarantees (TAGs).

4. **Competitive Preference Priority Addressed:** Yes; CPP 1: Fostering flexible & affordable paths to obtaining knowledge and skills by addressing gaps in the community college to university pipeline, offering high-quality experiential and work-based learning experiences, and improving feedback collection from regional partners to inform program and support design. CPP 2: Enhance tutoring, counseling, and student service programs designed to improve academic success through strengthened coaching, mentoring, and development of a STEM-specific first year seminar course to retain students and accelerate program completion and transfer.

5. **Invitational Priority Addressed:** Yes; Leverage a peer coaching and engagement model to strengthen referrals to student mental health services as part of the Success Team model: STEM Outreach Coordinator will strengthen PCC's presence in the communities hardest hit by COVID-19; Math Retention Specialist will be cross-trained to make timely referrals to campus services while Coaches will be mobilized to ensure students' knowledge of and utilization of wrap-around supports, with a specific focus on campus health services and connecting students to campus and community-based resources, including the student health center, financial aid, food pantry, advising, and programs like EOP, which provide augmented resources for transportation, supplies, and food vouchers.

## **P031C210139 Universidad Politecnica de Puerto Rico**

### *A Multifaceted Approach to Student-Centered STEM Education*

1. **Applicant Institution:** Universidad Politécnica de Puerto Rico (UPPR), located in San Juan Puerto Rico - a private non-profit baccalaureate-granting institution specializing in engineering education. Articulation Partner Institution: Colegio Universitario de San Juan (CUSJ), located in San Juan Puerto Rico – a public non-profit associate-granting institution.

2. **Project Title:** A Multifaceted Approach to Student-Centered STEM Education

3a. **Target Population:** UPPR students are the primary target population. Student characteristics indicate high need: 61.4% receive federal financial aid; more than 75% receive some form of need-based aid; 99.1% are Hispanic (Fall 2019). UPPR students reside on the island of Puerto Rico, a region beset by extreme poverty (43.1% poverty rate; median household income is just \$19,775). Proposed project services will also target UPPR faculty who will receive extensive support and training.

3b. **Services and Proposed Activities:** Project design comprise of three action plans:

Action Plan 1: Expanding Capacity for Virtual & Innovative Education

- Physical Infrastructure Development – Expansion of virtual and innovative education resources via creation of a Streaming Video Development Studio, a Virtual Reality Cave, Remote-Access Virtual Labs and a Makerspace lab for immersive, hands-on, active learning
- Faculty Infrastructure Development – Training for Engineering faculty on effective student-centered instructional strategies for online learners.
- Curricular Infrastructure Development – Conversion of 51 courses in Computer Science, Computer Engineering, Electrical Engineering, and Mechanical Engineering resulting in seven B.S. degree programs fully online.

Action Plan 2: Improved Transfer Partnership with Articulation Partner via cross institutional faculty teams to ensure course alignment, facilitate transfer into UPPR, formalize degree-specific articulation agreements, and encourage UPPR/CUSJ student joint research experiences via new technology and makerspace resources

Action Plan 3: Development of Wrap-Around Support Services & Work-Based Experiences

- Virtual peer tutoring, virtual mentoring, and virtual student learning assistance;
- Faculty/staff training on indicators of students in mental distress;
- Mental health resource/referral mechanisms;
- Virtual internships specific to engineering disciplines

3c. **Anticipated Results:** At project end, UPPR expects to achieve a 5% increase in enrollment over Fall 2019 baseline, 20.8% increase in incoming STEM transfers from associate granting institutions; and 6% increase in number of STEM B.S. degrees awarded annually.

4. **Absolute Priority Addressed:** YES. UPPR will expand access to STEM degree programs by increasing amount of online course offerings in high-demand engineering programs. And will expand articulation efforts with Colegio Universitario de San Juan (CUSJ), a regional associate-granting institution, strengthening pathways for A.S. Engineering students to transfer to one of UPPR's B.S. Engineering programs.

5. **Competitive Preference Priority #1:** YES. UPPR will develop work-based virtual internships in high-demand engineering career fields.

**Competitive Preference Priority #2:** YES. UPPR will develop virtual academic support services inclusive of peer tutoring, peer mentoring, learning assistance; all will be delivered remotely/online thereby expanding access and improving flexibility.

6. **Invitational Priority:** YES. UPPR will train faculty and staff to identify students in crisis and when/where to refer them for support; will expand relationships with community-based mental health offices; and will create database of referral resources

**P031C210063 Mission College**

*Mission College Access-Connect-Transition grant (MC-ACT)*

The Mission College Access-Connect-Transition grant (MC-ACT) will bring together a variety of evidence-based interventions in a comprehensive and intentional way to enhance the success of Hispanic and low-income STEM students. The grant includes three main activities:

1. Access Goal: Increase enrollments and progression of Hispanic and low-income STEM students through co-curricular supports/services.
2. Connection Goal: Increase the academic success of Hispanic/low-income students enrolled in STEM through curriculum enhancements and equity-focused professional learning.
3. Transition Goal: Enhance relationships with transfer institutions and industry partners to expand students' opportunities for work-based learning and preparation for transitions.

These activities will result in the following grant outcomes:

1. Increase in the enrollments of Hispanic/low-income students in STEM fields.
2. Increase the rates of retention, graduation, and transfer for Hispanic/low-income STEM students.
3. Increase in the number of Hispanic/low-income students who participate in grant-supported services and programs.

The grant will ensure Hispanic and low-income STEM students have access to a STEM Counselor, peer mentors, and mental health supports. The MC-ACT grant will build on existing agreements with regional 4-year institutions, expand opportunities for Hispanic and low-income students to interact with faculty and staff at transfer institutions, and expand opportunities for undergraduate research experiences. The grant will strengthen the connections between Hispanic and low-income STEM students and the curriculum through faculty professional learning that promotes a culturally relevant curriculum and active learning in STEM courses. There are also strategies in the grant that enhance industry partnerships, and students' career awareness and work-based learning opportunities.

The grant is also designed to enhance the sense of belonging, confidence, and self-worth for Hispanic and low-income students. A study using "values affirmation" writing exercises will explore how values affirmation can reduce stereotype threats and close the social-class achievement gap when Hispanic and low-income students are guided to affirm their values and self-worth.