MUREP Inclusion Across the Nation of Communities of Learners of Underrepresented Discoverers in Engineering and Science (MUREP INCLUDES)

Title: Partners Aligned to Heighten Broad Participation in STEM (PATHS)
Organization: University of Massachusetts, Boston
Primary Investigator: Robert F. Chen

Summary: Recent events have ignited a renewed and sustained social movement for racial justice which is percolating through all sectors of society, including science, technology, engineering, and mathematics (STEM, e.g., #ShutdownSTEM), with institutions and individuals reflecting upon how systemic racism may manifest itself within their walls. This movement has provided a unique opportunity in history to investigate barriers for underrepresented minorities (URMs) in STEM and to propose and implement bold changes to knock down these barriers. As the only funded research-intensive minority-serving institution (MSI) in New England, UMass Boston is particularly responsive to the needs of minority students and has recognized programs to increase minority representation in biomedical, biological, engineering, and Earth and Ocean sciences. UMass Boston is a unique Minority Serving Institution in New England with a strong research profile, a diverse student body, and established infrastructure for supporting URMs, a faculty that is proud of its ability to make a difference for these students, and a desire to diversify engineering broadly across Massachusetts. PATHS will build upon our established partnerships with Bunker Hill Community College (BHCC), another MSI, Boston Public Schools, and an established network of 40 supportive organizations, individual NASA-supported scientists and engineers, and local industry leaders to provide opportunities support for pursuing NASA-related careers. Massachusetts is a powerhouse of research but does not yet host a full NASA MUREP Activity. UMass Boston will serve as an MSI hub leader within this research-intensive state (e.g., 35 colleges and universities within an hour drive) and leverage existing science funding to increase engagement of URM students and connect these students to rich, local research opportunities and career pathways. The Overall Goal of this PATHS grant is to broaden participation in engineering in Massachusetts and develop multiple pathways for engineering students to succeed by enhancing the supportive culture of a broad coalition of partners. Specific Objectives of the PATHS grant are: 1) To build an MSI-led coalition of partner organizations and individual scientists and engineers who share common goals to diversify engineering and to support a pathway for children to enter NASA-related disciplines; 2) To measure common metrics among partners to establish a baseline, identify gaps, and broaden participation among the PATHS coalition; 3) To elevate storytelling to communicate student perspectives, educate decision-makers, and inspire advocates to grow the supportive network of mentors and employers; 4) To enhance existing opportunities for authentic engineering and NASA experiences and develop new, innovative experiences for students at key junctures in their career pathways; 5) To build a sense of belonging among BIPOC engineering students and professionals by providing strategic activities that offer professional development and build communities across organizations.

Our approach considers three phases of student experience: A) experiences that engage, inspire, and support a decision to pursue an engineering career, B) a series of institutionalized barriers to key transitions in the career pathway, and C) a plethora of career opportunities for uniquely

qualified individuals with the appropriate credentials. We will implement our three integrated strategies: storytelling, enhancing authentic experiences and developing a sense of belonging across our diverse coalition of organizations, and leverage a great deal of existing opportunities and resources. Additionally, we will analyze and promote the collective impact of work.