

# NSF HSI STEM HUB Webinar

## "Insights from Recent Awardees"

June 30, 2020

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Pueblo, Colorado



NSF Project: *Los Futuros de STEM*

Principal Investigator: Dr. Jeffrey Alexander, Dean of Arts & Sciences

Improving Undergraduate STEM Education: Hispanic Serving Institutions



# Los Futuros de STEM – STEM Futures

## Helping Hispanic Students to See a Career in STEM

### 1. Need/Motivation

A critically important measure of any developed society is its capacity to cultivate and mobilize intellectual capital. Southern Colorado is home to many underrepresented minorities, particularly Hispanics, most of whom have not considered or pursued STEM careers. Minority students often do not have family members in such occupations, and research demonstrates that, for a variety of reasons, many do not possess the scientific literacy needed to succeed in STEM courses.

### 2. New Knowledge

Pueblo Community College therefore aims to target these barriers through researching strategies ranging from outreach to improving access, curricular reform, close advising, and faculty/staff professional development aimed at understanding and aiding minority students seeking STEM degrees.

### 3. Approach

Given PCC's vast and sparsely-populated rural service areas, which measure 11,224 square miles, and its HSI designation with 32.3 percent Hispanic student enrollment, it is our plan to identify and target the principal barriers to Hispanic populations in our region and to increase PCC's capacity to improve Hispanic student success in STEM fields.



### 4. Outcomes

In Year One, the STEM Team organized, advertised, implemented and evaluated the SAJ course. The course was piloted in the 2019 term and provided nearly 100 hours of tutoring and support to students. The STEM Team also implemented the SAJ course in the 2020 term, which was designed to help students improve their confidence and scientific literacy. It incorporated hands-on activities, such as teambuilding and communication. The course is financial aid eligible, but does not count toward concentration requirements. If successful, the STEM Team may expand it to other biology and chemistry courses.



### 5. Broader Impacts

Pueblo Community College proposes to research and develop research-based models and strategies that build capacity and will help to eliminate the current and future barriers to Hispanic students in Southern Colorado that they are equally capable and deserving of careers in STEM fields. The project will also help to address the college completion gap, but the STEM center gap as well. Finally, Year One of the project will include events for students to place them in the PCC STEM Center, which combines a computer terminal, a STEM advisor, and a hangout spot and STEM-centered community that is welcoming to all. Visiting professionals address the needs of the community through the STARs of STEM Wednesdays, and Science Thursdays events. The STEM Center also facilitated trips to STEM headquarters in Boulder, CO.



### 6. Project URLs

PCC Produced several promotional STEM videos featuring actual Hispanic STEM students. Three of them are as follows:  
•STEM Doctor – [https://youtu.be/D\\_pMRAmoRo](https://youtu.be/D_pMRAmoRo)  
•STEM Robotics – [https://youtu.be/hixA\\_iq658M](https://youtu.be/hixA_iq658M)  
•STEM Computer Information Systems – <https://youtu.be/6jKYA2wYe-4>

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Poster Preview  
Full poster will be shared

## When Drafting Your Proposal:

- Collaborate
- Be persistent
- Speak to grant writers and P.I.s
- Find and emulate successful proposals
- Obtain solid institutional and workforce data
- Enlist an experienced external reviewer
- Enlist writing and editing support



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## Tips for Authoring a Quality Proposal:

- Provide clear context and rationale
- Cite supportive research
- Tie budget to clear project goals and outcomes
- Mobilize existing personnel
- Cite best-practices
- Avoid overreaching



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## Obstacles to Manage:

- Time and Colleagues
- Grants lingo: *Knowledge bias ahead*
- College Bureaucracy: HR, Purchasing, Grants Managers
- Online submission sites: numbers and personnel
- Employment contracts and addenda
- Securing approved vendors
- Construction, and other joys

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