CBASE: Communities to Build Active STEM Engagement

A Unique Undergraduate Research Structure with Dramatic Effects on Persistence and Grad Rates

Overview

- Background of our Institutional Gaps
- The CBASE structure
- Benefits of our structure in our context
- Activity #1 – Identification of your own gaps
- CBASE outcomes and core commitments
- Activity #2 - Can UGR programs in your context help to bridge your Gaps?

Goals/Outcomes

- UGR structure
- Identification of Gaps on your campus
- Can UGR programs help to bridge those Gaps

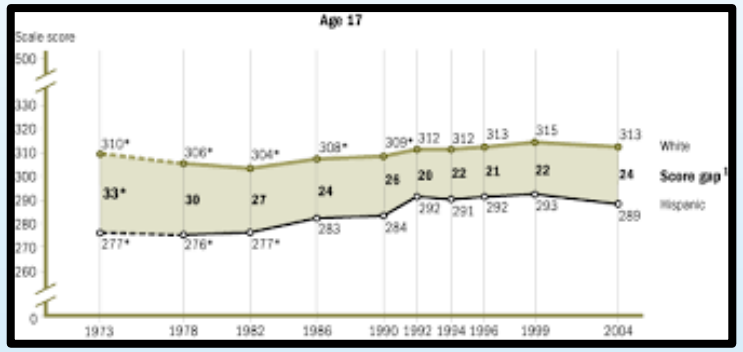
What were our Institutional Gaps?

Colorado State University Pueblo

CBASE Communities to Build Active STEM Engagement
Colorado State University-Pueblo

Gap1 - Workload

Gap2 - Achievement



Gap3 - Recruitment

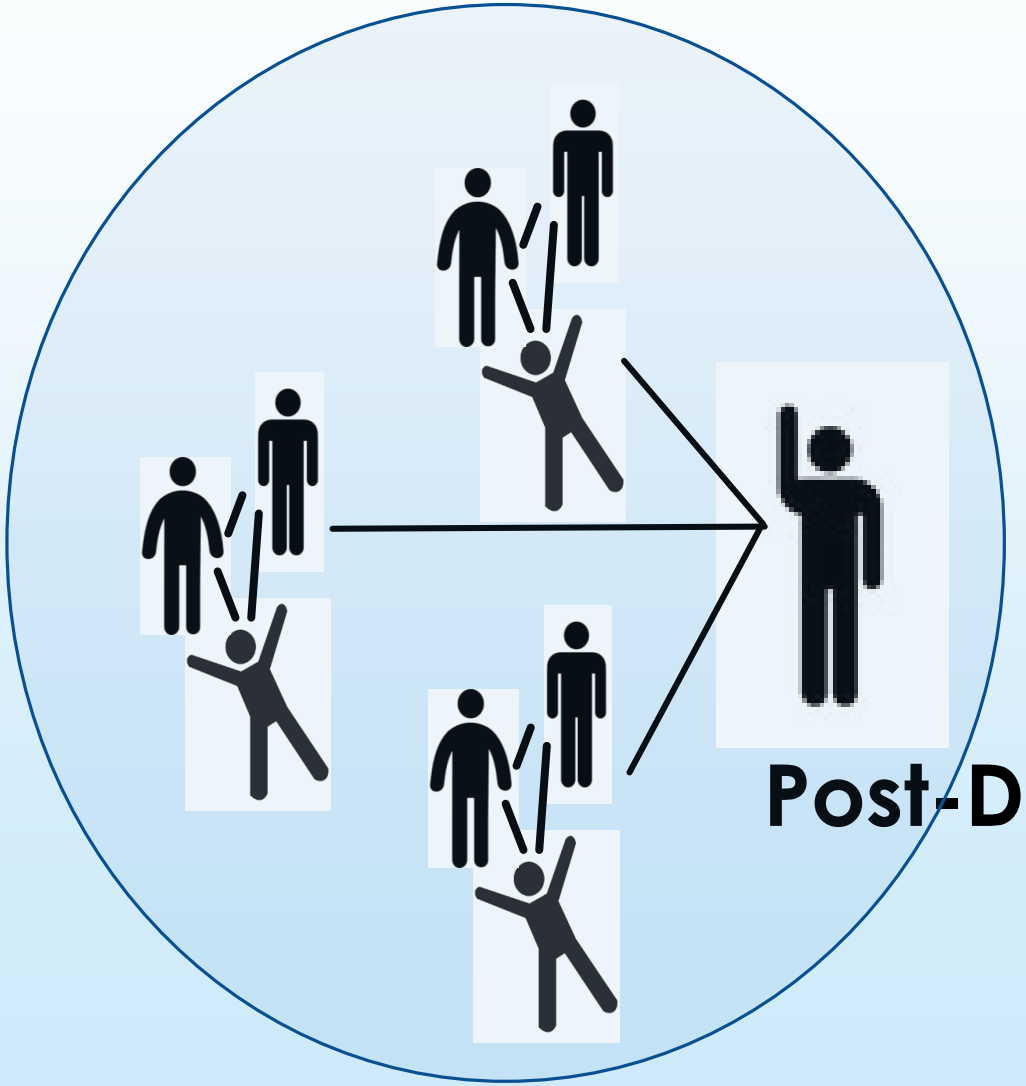
Research Communities

Peer Mentor (J/S)

Faculty Mentor

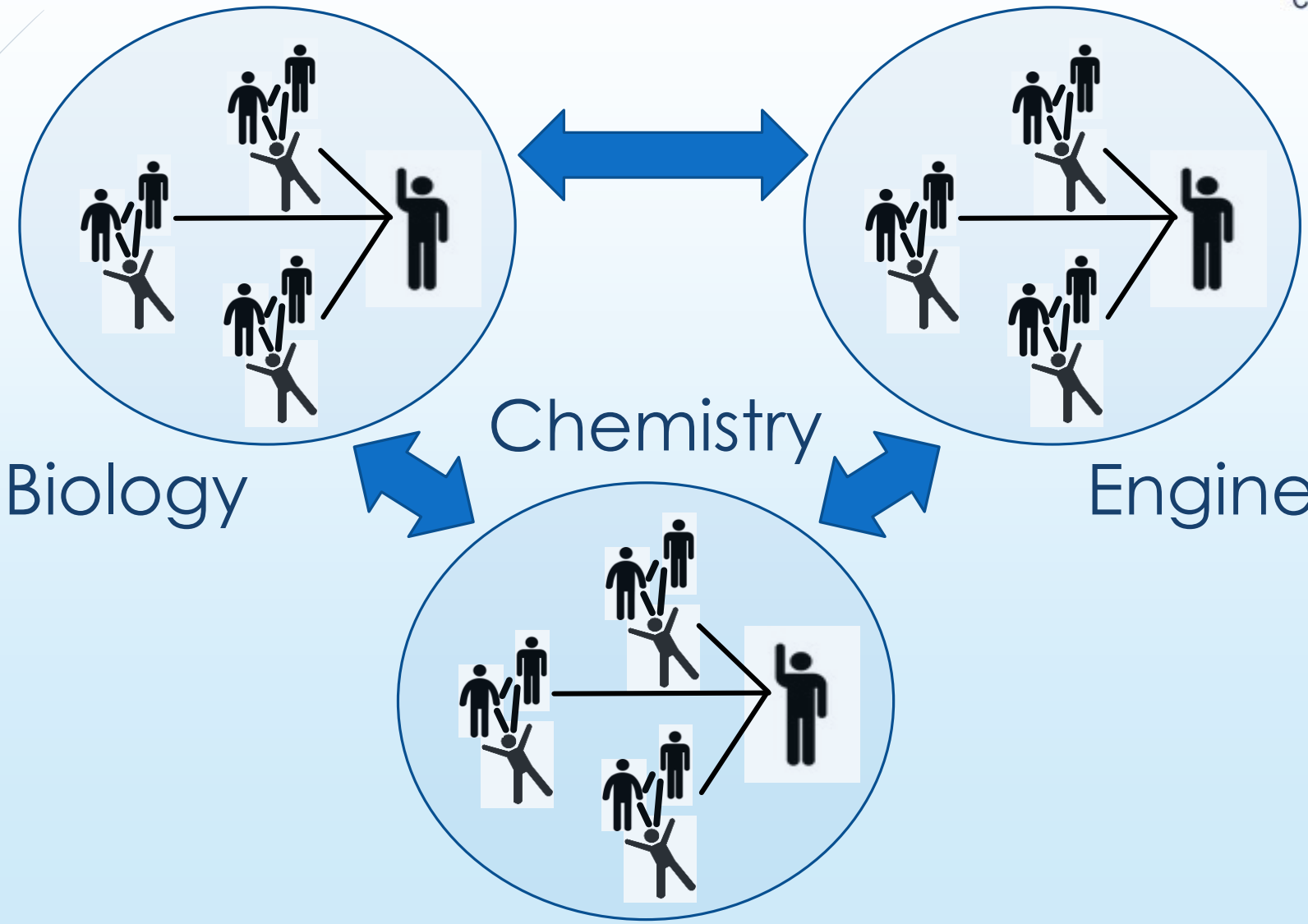
1st Year

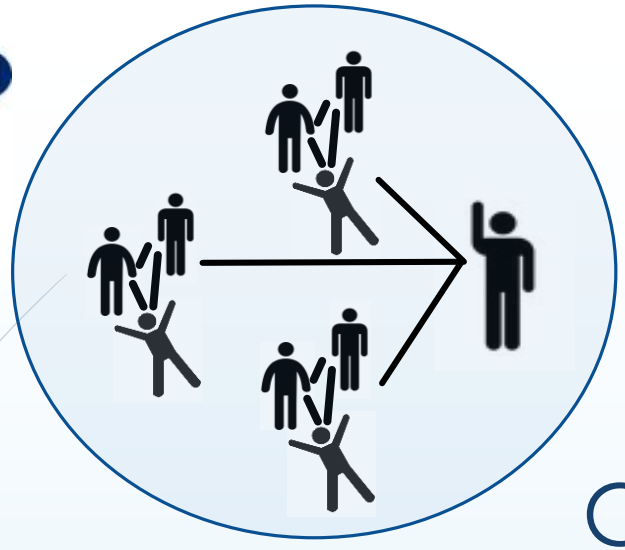
Research Teams



Post-Doc

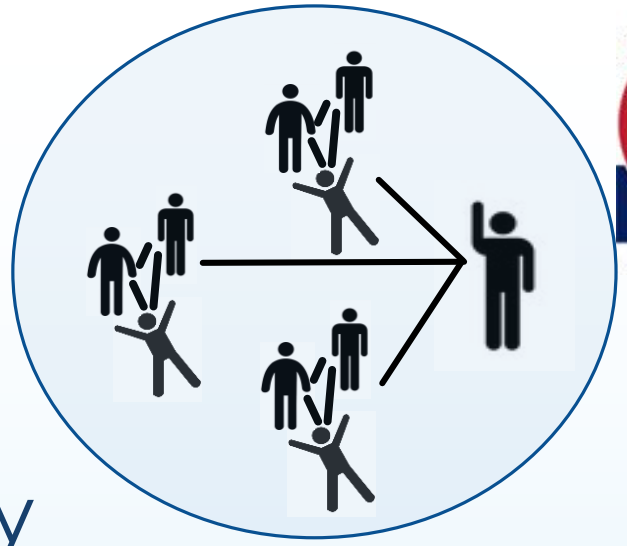
Research Communities



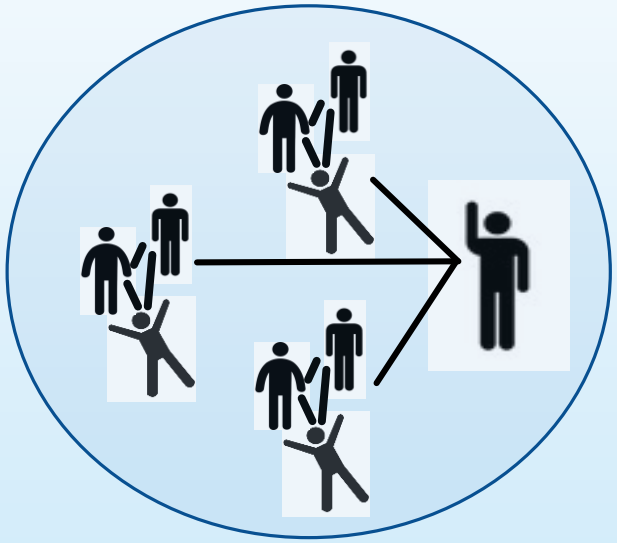


Biology

Chemistry



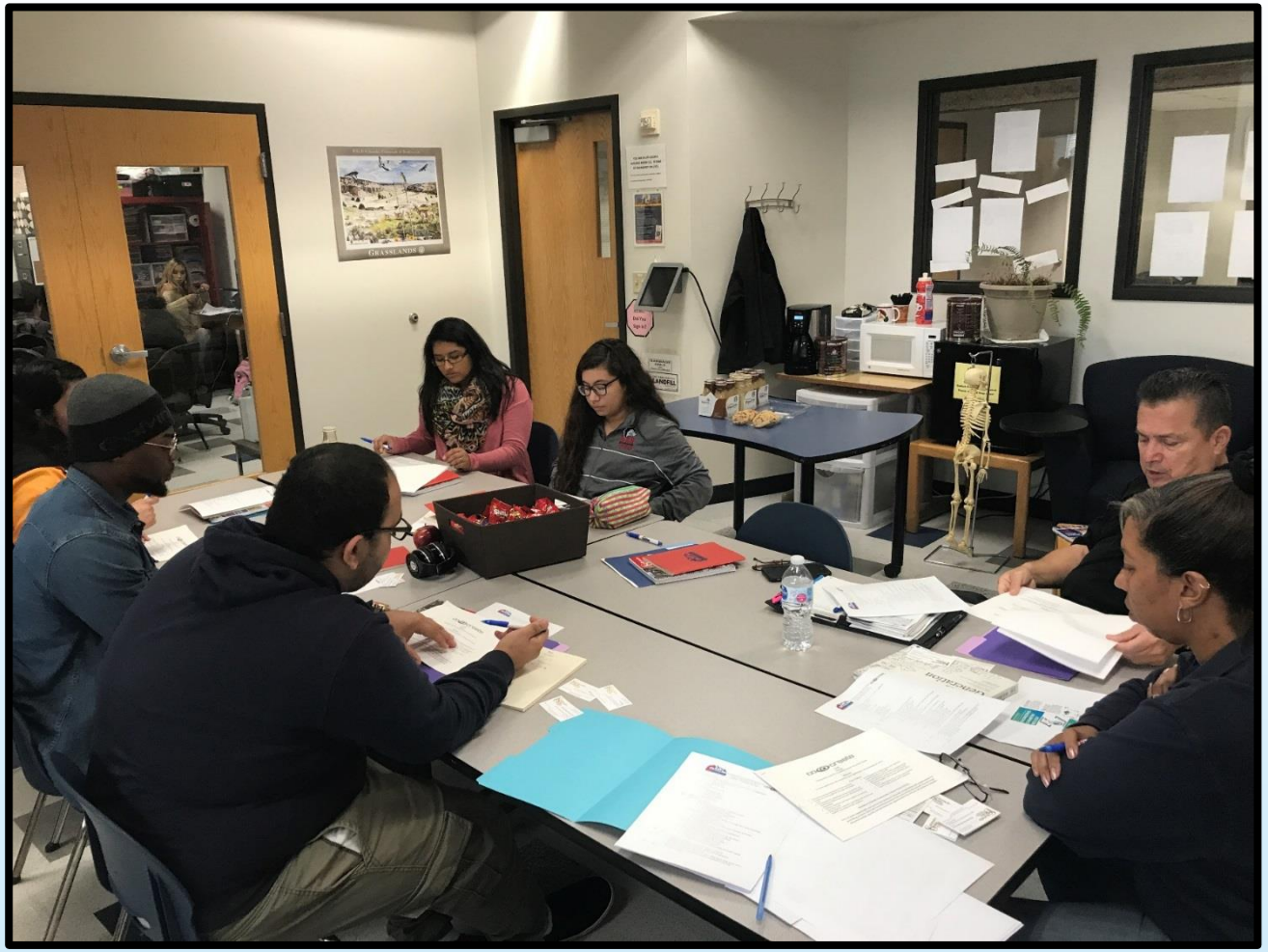
Engineering



- Bridge Workload Gap
- Bridge Achievement Gap
- Bridge Recruitment Gap

(Afghani et al. 2013)
(Good, Halpin, and Halpin 2000)

Community-Based Research

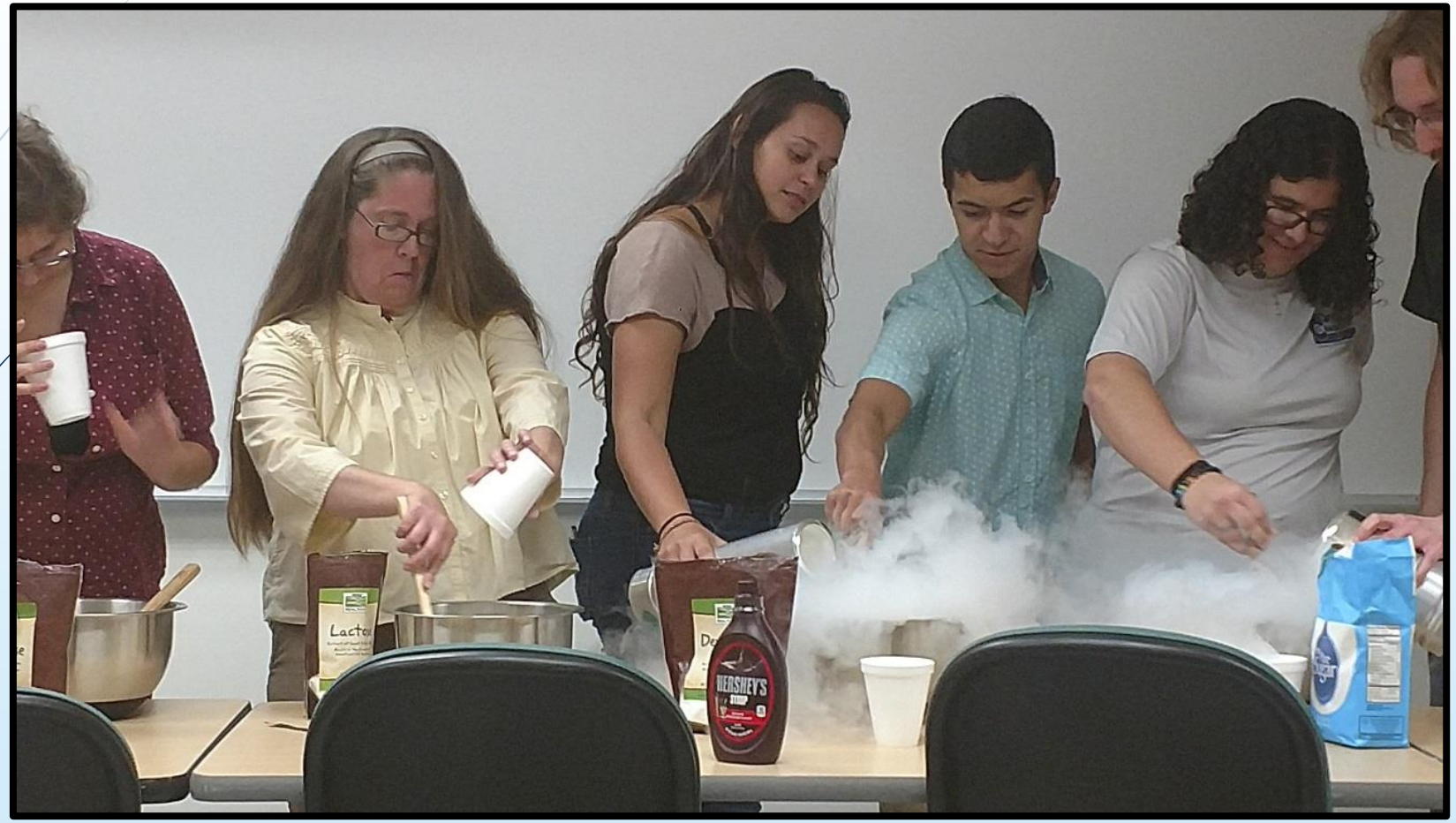


(White, Altschuld, and Lee 2006)
(Atwater et al. 2013)

Recruitment

Structures and Placement

Recruitment



Course and Curriculum Re-Design

Activity #1
What Gaps exist at your institution?

Measures of Success

Faculty Participation *Before CBASE - 11 Year 1 – 11 Year 2 - 20*

Student Participation *Before CBASE - 28 Year 1 – 44 Year 2 - 96*

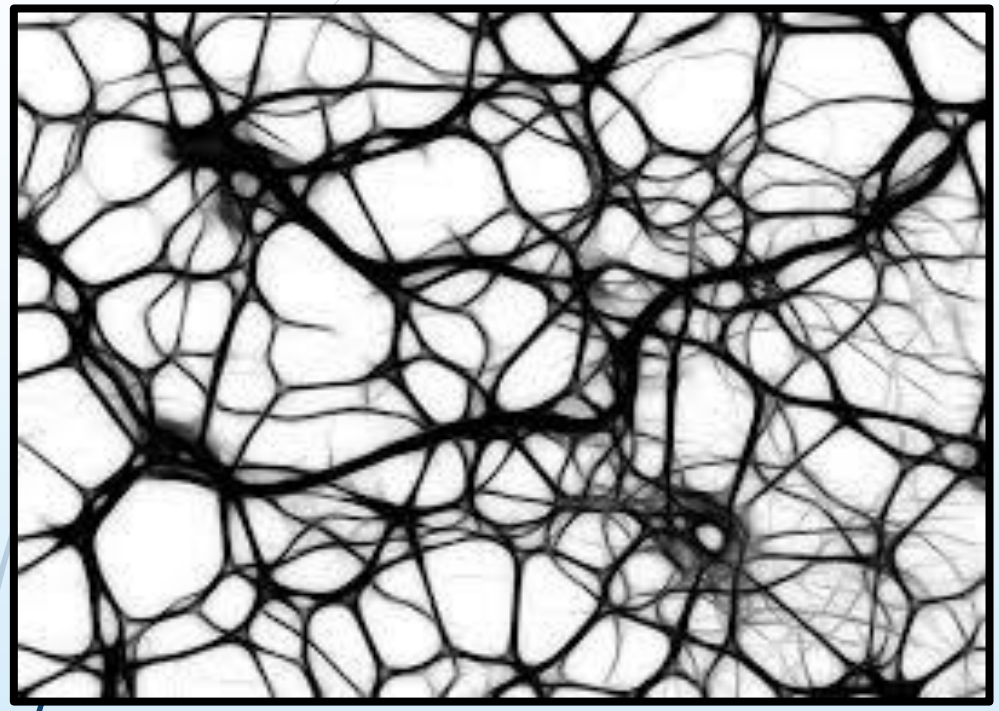
Student Retention Rate *CBASE – 100% CSU-Pueblo – 63%*

Student Graduation Rate *CBASE – 100% CSU-Pueblo – 37%*

Measures of Success

- Plans after graduation
- Mentoring
  - Beneficial
  - Role in Project
  - Understanding
- Learning – Research vs. coursework
- Benefits
  - Career path
  - Tolerance for Obstacles
  - Construction of knowledge
  - Independent work

Core Commitments or Principles
STRUCTURE



Strong Vision
Dedicated Staff
Clear Processes and Expectations

Consistency
Visibility
Transparency
Equity

(Kinkead and Blockus 2012)

Core Commitments or Principles
ACCESS & SUCCESS

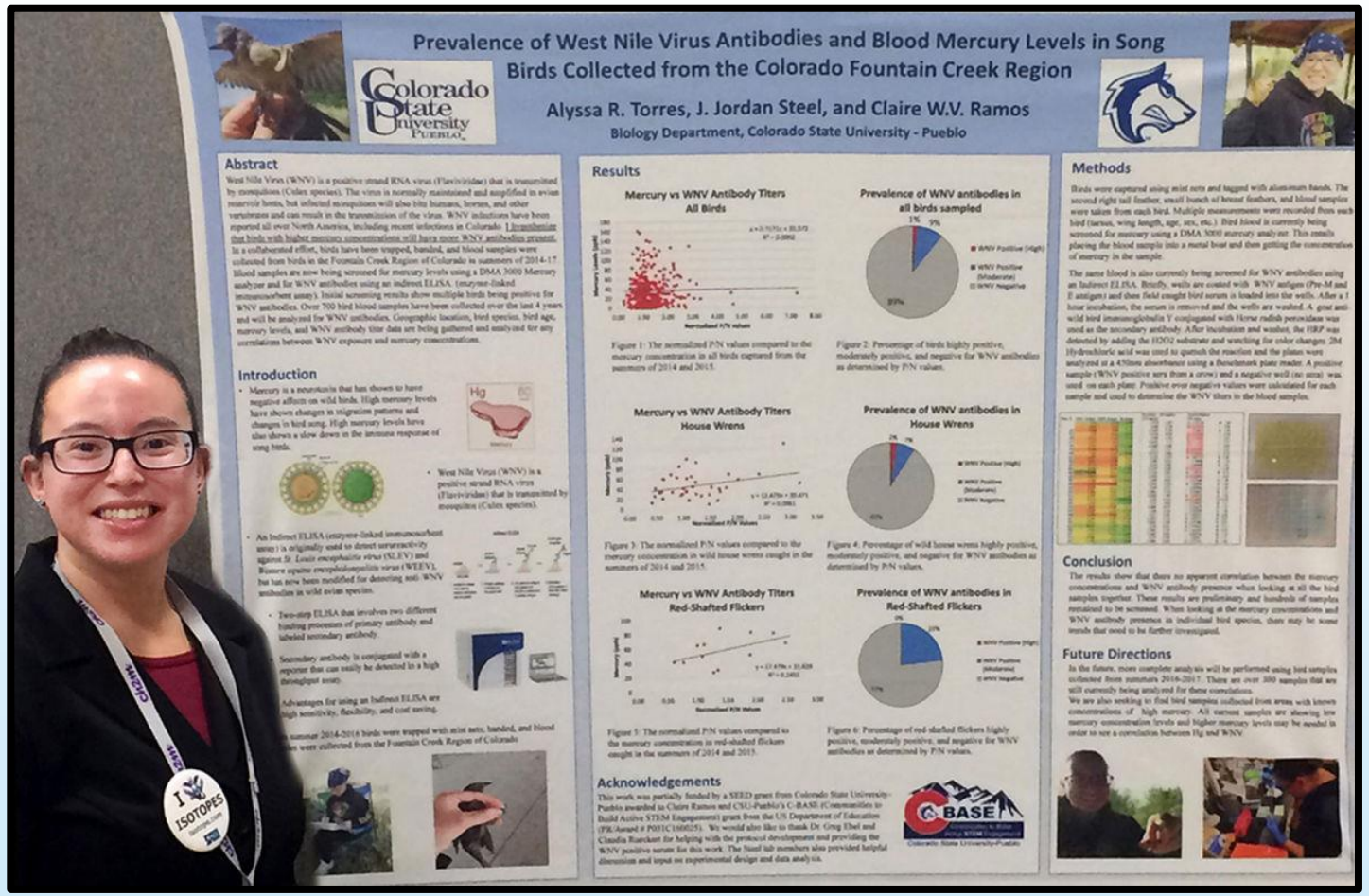
(Dee and Gershenson 2017)

Core Commitments or Principles
MENTORING

Mentorship cascades

- Faculty-Student
- Student-Student
- Faculty-Faculty

Core Commitments or Principles
EXPECTATION OF PRODUCTIVITY



Context Matters

Activity #2
Can UGR programs in your context help to bridge your Gaps?

Questions?