United States Department of Education HSI-STEM Grantees

Moderated by:
Dr. Frank A. Gomez
Executive Director, STEM-NET
Office of the Chancellor

https://www2.calstate.edu/impact-of-the-csu/research/stem-net

Frank A. Gomez  CSU Office of the Chancellor  fgomez@calstate.edu
Speakers

Mark Filowitz & Megan Drangstveit, Cal State Fullerton
Project RAISE: Regional Alliance in STEM Education

Eric Marinez, Cal State Long Beach
CSULB Sí Puedo (Strengthening the Impact by Providing Undergraduate Educational Development Opportunities)

S.K. Ramesh, CSUN
AIMS2: Enhancing Student Success with a Multi-Institutional Collaborative Program

Sastry Pantula, Cal State San Bernardino
Advising for Undergraduate Success (A4US)

Iqbal Atwal & Harold Stanislaw, Stanislaus State
STEM Success at Stanislaus State

Frank A. Gomez
CSU Office of the Chancellor
fgomez@calstate.edu
Project RAISE: Regional Alliance in STEM Education

Dr. Mark Filowitz
Associate Vice President for Academic Programs & Enrollment

Dr. Megan Drangstveit
Project Director

California State University, Fullerton
• CSUF has a strong history of utilizing grants to focus on STEM transfer student success

• Project RAISE integrates a variety of services and project components to increase the number of Hispanic and low-income STEM transfer students and increase persistence, retention, and graduation rates among participants

• Project RAISE Partners:
  - Community Colleges: Citrus, Cypress, Fullerton, Golden West, Mt. San Antonio, Orange Coast, Santa Ana, Santiago Canyon
  - CSUF Colleges: Natural Sciences & Mathematics, Engineering & Computer Science
  - CSUF: Career Center, college academic advisors, IT
  - External Evaluator: Arroyo Research Services

**Dr. Mark Filowitz**, CSUF, mfilowitz@fullerton.edu  
**Dr. Megan Drangstveit**, CSUF, megand@fullerton.edu
Activities & Results

Peer Advisors

• 1:1 mentoring for research and transfer programs, lead workshops and activities at CCs and CSUF; ideally products of the program / STEM transfer students
• **Result:** built connections with students, provided support and referrals to campus resources, increased self-efficacy and skills with leadership, communication, confidence; lead trainings

Community college outreach activities

• Workshops focused on careers in STEM, undergraduate research, transfer success; transfer fairs
• **Result:** connected with community college students and counselors; students expanded understanding of transfer and career options; showcased CSUF as transfer institution; recruited students for research and transfer programs; added CC visits to CSUF with lab tours

*Dr. Mark Filowitz, CSUF, mfilowitz@fullerton.edu*  
*Dr. Megan Drangstveit, CSUF, megand@fullerton.edu*
Activities & Results

Undergraduate Research Experience

• 8 weeks at CSUF for 32 CC students each summer, individual project, research poster, summer symposium, assigned Peer Advisor, $5,000 participant stipend, $1,500 faculty research supplies

• **Result:** offered in person in 2017 (32), 2018 (41), 2019 (48); virtual/hybrid in 2021 (32); students have increased confidence in STEM pursuits, commitment to STEM careers, transfer to 4 yr.; CSUF has adopted URE model for campus-wide student research program pilot
  • Far exceeded goal of attracting HLI participants (+186% over baseline by Year 3)
  • 100% of participants reported plans to transfer to a four-year institution
  • 85% reported being “very likely” to seek other STEM research or internship opportunities
  • Substantial gains in: ability to make academic presentations (44% to 77%); knowledge of transfer process (54% to 71%); ability to find resources on scientific/technical topics (67% to 83%); knowledge of how to achieve STEM education and career goals (69% to 83%)

Dr. Mark Filowitz, CSUF, mfilowitz@fullerton.edu  
Dr. Megan Drangstveit, CSUF, megand@fullerton.edu
Activities & Results

RAISE Transfer Program

- Transition program for STEM transfers at CSUF – academic, social, and skills workshops, Transfer Resource Center, assigned Peer Advisor, priority registration
- **Result:** students completed required activities aligned with student persistence and success, higher rates of students in good standing vs non participants, participants credit program for persistence and success; adapted formats to include asynchronous and virtual content
  - Despite COVID-related campus closures, in Year 4:
    - 53% of HLI students were on track to complete a STEM degree within 3 years of transfer, a 29% increase from baseline
    - 93% of HLI STEM students in RTP were in good academic standing, exceeding 75% target
    - 87% of HLI STEM students in Year 4 cohort from partner colleges remained in STEM in 2nd year, a 9% increase from baseline

*Dr. Mark Filowitz*, CSUF, mfilowitz@fullerton.edu  
*Dr. Megan Drangstveit*, CSUF, megand@fullerton.edu
Activities & Results

Summer Internship Program

- Assist students in preparing for and pursuing paid summer internships, workshops and 1:1 support, 1-day bootcamp in August
- **Result:** students engaged with employers via activities and added site tours, completed paid internships, utilized campus career resources and feel more confident and prepared for searches

Transferology

- Free nationwide website that allows students to explore college transfer options
- **Result:** difficult to track user data, reluctance to change from assist.org especially after update

STEM Articulation Conference

- Annual meeting to discuss admissions & curriculum updates, college-specific course guidance, articulation agreements, networking
- **Result:** held each fall with presenters from CSUF and guests from CCs; limited audience

*Dr. Mark Filowitz*, CSUF, mfilowitz@fullerton.edu  
*Dr. Megan Drangstveit*, CSUF, megand@fullerton.edu
Lessons Learned

• Create partnerships beyond articulation agreements
• Undergraduate research programs are highly impactful, our program is especially supportive
• Transition programs – include mix of academic, wellness, and social opportunities; hybrid offerings
• Mentoring – students appreciate a point of contact to make CSUF feel smaller
• Student staff *are* the program – helpful to be able to recruit from participants
• Use feedback, constantly refine – assess everything, meet regularly with evaluation team
• Transferology = easy to use, ≠ easy to adapt by CC counselors or students
• We were well-positioned to continue many activities, even through the pandemic

Dr. Mark Filowitz, CSUF, mfilowitz@fullerton.edu  Dr. Megan Drangstveit, CSUF, megand@fullerton.edu
Next Steps/Long-Term Plans

• Incorporate pandemic practices: recorded content, planned virtual and in-person activities for greater participant flexibility

• Partner with CSUF research programs and colleges to co-promote opportunities, engage students

• Applied for no cost extension, complete activities due to pandemic

• Applied for 2021 competition
  • Remove Transferology
  • Build on articulation conference with year-round articulation assessment and implementation efforts with partner CCs
  • Add formalized post-transfer research pursuit support
  • Continue undergraduate research, transfer & internship support programs, community college outreach
  • Expand from 8 to 9 community colleges, covering ~64% of incoming transfer students at CSUF

Dr. Mark Filowitz, CSUF, mfiowitz@fullerton.edu    Dr. Megan Drangstveit, CSUF, megand@fullerton.edu
Summary

• Our program is excelling in the following areas:
  • Providing information about STEM careers, transfer, and research to community college and CSUF students
  • Supporting STEM transfer students prior to and after transfer, and through research and internship experiences
  • Considered valuable by participants, and as a primary source of support/motivator for student success
  • Fostering connections between partner community colleges
  • Utilizing assessment to refine activities to best support students and grant objectives
• We hope to secure the next grant and institutionalize more pieces of Project RAISE that have long-term feasibility and high success rates

Dr. Mark Filowitz, CSUF, mfilowitz@fullerton.edu  Dr. Megan Drangstveit, CSUF, megand@fullerton.edu
HSI-STEM SI PUEDO (Strengthening the Impact by Providing Undergraduate Educational Development Opportunities)

Dr. Eric Marinez – California State University

Collaborators:

Dr. Tracy Maples, COE Associate Dean
Dr. Krzysztof Slowinski, CNSM Associate Dean

Dr. Eric Marinez, Associate Professor
CSULB, Department of Chemistry
Eric.Marinez@csulb.edu
Project Overview

- AIM: To close the achievement gap in STEM baccalaureate degree attainment for Hispanic and other low-income students.

- GOALS:
  1. Improve student academic success;
  2. Improve timely degree completion and retention;
  3. Increase degree attainment; and
  4. Develop model transfer programming.
Project Overview

To achieve program goals, to improve student academic success and timely degree completion and retention, Si Puedo offers:

- tutoring, mentorship and culturally relevant workshops,
- freshman summer program to address math preparation for successful completion of gateway courses,
- transfer experience course that increases emphasis on career exploration and science identity within the transfer learning community,
- STEM-specific family orientation,
- faculty training to engage in culturally responsive pedagogy.
Project Overview

To achieve program goals, to increase degree attainment and develop model transfer programming, Si Puedo offers:

- first-year freshman and transfer learning communities that aim to increase retention and degree attainment for Hispanic and/or low-income students,
- a STEM transfer-specific orientation,
- summer bridge research experience program for first semester transfer students,
- student-friendly articulation roadmap between each CSULB STEM major and the top 10 feeder community colleges.
Activities – Sí Puedo Programming

CSULB HSI-STEM
Sí Puedo Programming

- **STEP into STEM**
  - Increase calculus placement for incoming freshmen

- **Summer Bridge to The Beach**
  - 9-week research program for incoming transfers

- **Transfer Orientation**
  - All-day event for incoming transfers

- **Bienvenida**
  - Spanish & English family event

- **EXCEL STEM Peer Mentors**
  - Current students; mentoring & tutoring

- **EXCEL Learning Communities**
  - 12 freshmen and 2 transfer learning communities

- **Faculty Development**
  - Workshops for STEM faculty

Dr. Eric Marinez
CSULB/Department of Chemistry
Eric.Marinez@csulb.edu
Student Activities

STEM Transfer

• Summer Bridge to the Beach (Summer)
• EXCEL Learning Community (Fall & Spring)*
• Transfer Orientation (Fall & Spring)*

STEM Freshmen

• STEP into STEM (Summer)*
• EXCEL Learning Community (Fall – Spring)*
• Bienvenida Family Event (Fall)*

*Activities supported by Near Peer STEM Mentors
Results

- Si Puedo’s programming served 1850 students.
  - Freshmen and Transfer LCs served 1523 (49% Hispanic & 52% Pell eligible).

- Students who participated in two semesters of the Freshmen EXCEL LCs show higher persistence rates than those who did not participate at all.
  - First year persistence was 82% for participants versus 54% for non-participants in CNSM and 90% for participants versus 76% for non-participants in COE.

- For the transfer LC,
  - the fall 2017 cohort 3-year graduation rate of 71% is higher for Hispanic transfer students that participated in the EXCEL Transfer LC versus 64% for Hispanic non-participants.
  - 92% of the fall 2018 Hispanic cohort are in good academic standing (Fall overall GPA of 2.0 or better) compared to non-participants (78%) and have a higher average first term GPA of 3.00 versus non-participants average GPA of 2.57.
Lessons Learned

• Critical to integrate with college mission and initiatives on student success

• Learning Communities continue to be successful
  • For both transfer & first-time freshmen
  • Observe increases in first semester academic standing, retention, math course grades, and first semester GPA

• STEP into STEM program
  • Aim is to increase mathematics placement & preparation
  • And to increase first semester academic performance and standing
  • Observe increases in first semester math course grades & academic standing vs non participants

• Peer Mentors
  • Continue to be crucial component for freshmen and transfer STEM student support & success
  • Have been effective at creating a sense of community and belonging
  • Participating PMs increase personal leadership and professional skills through training and experience as peer mentors
  • Reflections and input inform and improve programming
Next Steps/Long-Term Plans

• **Expand programming**
  • Increase transfer support capacity & programming/outreach
  • Move from Transfer Roadmaps to Digital Transfer Road Mapping
  • Create EXCEL LC for students in academic risk

• **Implement CSULB/HSI-STEM Alumni Group that will**
  • Support near peer mentors and program participants
  • Share insights into STEM industry and field that will inform HSI-STEM events and programs of workforce needs
  • Engage students on their pathway and connect students to experiential learning opportunities

• **Strengthen STEM outreach among LBUSD and LBCC to**
  • Increase access to first year STEM programs in first Summer and Fall following admissions
  • Improve student interest in STEM to attend CSULB
Summary

• The Department of Education HSI-STEM & Articulation program has been instrumental in changing the culture of STEM education at CSULB (2011-2021).

• The grant has enabled campus to
  • better serve Hispanic students, URM, first-generation, and Pell-eligible students
  • better serve freshmen and transfer students majoring in STEM at CSULB
  • evaluate and assess student programs as high impact practices
  • redesign and develop new student success courses for freshmen and transfer students
  • offer faculty development workshops and training promoting assets-based curriculum

Dr. Eric Marinez
CSULB/Department of Chemistry
Eric.Marinez@csulb.edu
AIMS²: Enhancing Student Success with a Multi-Institutional Collaborative Program

S. K. Ramesh, Ph.D.,
Founding Project Director AIMS²
California State University Northridge
email: s.ramesh@csun.edu
URL: http://www.ecs.csun.edu/aims2

S. K. Ramesh, Ph.D., Professor
CSU Northridge, Department of Electrical and Computer Engineering
s.ramesh@csun.edu
Supported by the AIMS² Program and funded by the United States Department of Education FY 2016 Title III, Part F, Hispanic-Serving Institutions (HSI) STEM and Articulation Program five-year grant, Award Number P031C160053, CFDA Number 84.031C. However, the contents of this presentation do not necessarily represent the policy of the US Department of Education, and you should not assume endorsement by the Federal Government.
Project Overview

• Cohort based model
• Collaboration between CSUN and CCC’s
• High Transfer Achievement
• GPA, Persistence, and Graduation
• Served over 250 transfer students (approximately 67% Latino/a) with 2011 grant
• Served over 500 freshmen and transfer students with 2016 grant
Activities: AIMS² is all about “community"

- Workshops/Industry Panels
- Career preparation
- Research Presentations
- Support to attend conferences
- Annual AIMS² Research Symposium
- Faculty mentors
- Peer mentors
- Student tutors
- Weekly/biweekly meetings
- Advising
- Maintain minimum requirements for scholarship

Ramesh  
CSUN/CECS  
s.ramesh@csun.edu
Research and Mentoring → Keys to student success

- Number of projects – 63
- Number of students – 205
- Number of faculty – 57
- Approximate # of hours of paid research – 37,000

Ramesh
CSUN/CECS
s.ramesh@csun.edu
Results

• Increased persistence and completion (3 Year Transfer Graduation rate of 70% for transfers. Cohort Persistence rate of 86%)

• Increased completion of gateway courses (67% - 80% across partner institutions)

• Increased Latino degree completion in CECS (Tripled # of graduates from 57 to 171 in five years)

• Fostered positive career outlook (100% of cohort students felt prepared compared to 63% of other students)

What works for Latinos in Higher Education: 2019 Example of Excelencia

Ramesh
CSUN/CECS
s.ramesh@csun.edu
Lessons Learned

• Adapting to online modalities
• Supporting students in a virtual environment
• Faculty/Peer Mentoring, Tutoring and Research

Monitoring student concerns
• Academic struggles
• Financial concerns
• Depression
• Anxiety
• Family conflict
• Roommate conflict
• COVID-19 struggles
• Other

Process
• Mentor reports concerns
• Automated email sent to AIMS² staff
• AIMS² staff reaches out to Mentor to determine action plan

Ramesh  CSUN/CECS  s.ramesh@csun.edu
Next Steps/Long-Term Plans

• “Servingness” model to enhance belonging and student success
• Enhance HIP’s including Faculty/Peer Mentoring, Tutoring, and Student Research participation
• Faculty and staff professional development under a servingness model
• Develop culturally sensitive pedagogies to strengthen student success in engineering and computer science
• Strengthen industry and community engagement with external advisory committee to prepare students for professional and career success
Summary

- Substantial improvement in student academic performance and gateway course completion across all partner institutions
- Enhanced faculty and peer environments to support and culturally validate students
- Improved transfer success and shortened time to graduation
- Improved career preparation through close interaction with industry professionals
- Quality research-related student-faculty, and peer-peer interaction—contact between faculty and project participants and among project participants
- Enhanced baccalaureate degree completion and closed equity gaps

Ramesh  
CSUN/CECS  
s.ramesh@csun.edu
A4US to PATHS

Dean Sastry G. Pantula, Ph.D.,
HSI-STEM & Articulation Department of Education
California State University, San Bernardino
Outline

- **Advising for Undergraduate Success (A4US)**
  - Last year of the grant
  - No cost extension submitted

- **Proactive Approaches for Training Hispanics in STEM (PATHS)**
  - Submitted, June 14th
  - Overlap year

**Sastry G. Pantula, CSUSB, College of Science, sastry.pantula@csusb.edu**
An excellent proposal

Focused on:

- Intrusive Advising
- EAB
- Community College Connections

Started in 2016

PI changed in 2018

Senior Advisor left in 2018;

New Director of Advising came in 2019

PAC moved in 2020

Dean’s Fellow came in 2021
A4US- Highlights

- Besides additional academic advising to ‘random’ cohorts:
  - Career Panels
  - Major Mixers
  - Workshops on time management; financial aid
  - Transfer Tuesdays
  - STEM Club
  - Nudges
  - Paint nights
  - Learning Assistants
  - Celebration of Teaching
  - Flexible hours
  - Professional Development for STEM Counselors/Faculty

Sastry G. Pantula, CSUSB, College of Science, sastry.pantula@csusb.edu
Advising for Undergraduate Success (A4US)

A4US- Career Panels

Sastry G. Pantula, CSUSB, College of Science, sastry.pantula@csusb.edu
ENJOY THIS TIME TO RECONNECT!

Biology Major Mixer
Spring 2021

Come hang out and reconnect with your fellow classmates, meet other students and share your goals and experiences!

Feb. 12, 2021 @ 1-2 PM

Zoom Link
https://csusb.zoom.us/j/86103545326

ENJOY THIS TIME TO RECONNECT!

Chemistry & Biochemistry Major Mixer
Spring 2021

Come hang out and reconnect with your fellow classmates, meet other students and share your goals and experiences!

Feb. 26, 2021 @ 1-2 PM

Zoom Link
https://csusb.zoom.us/j/86103545326
Advising for Undergraduate Success (A4US)

**A4US-Workshops**

- **Tuesday, September 22, 2020 at 12:00pm**
  - **CREATING A SUCCESSFUL VIRTUAL LEARNING ENVIRONMENT**
  - We will go over some tips on organization, prioritization, and self-monitoring skills to take ownership of your learning!
  - **MEETING ID:** 909-537-5300
  - **ZOOM LINK:** https://csusb.zoom.us/my/cnsadvising

- **Tuesday, September 29, 2020 at 12:00pm**
  - **TIME MANAGEMENT 101 FOR A VIRTUAL ENVIRONMENT**
  - Come learn skills to manage your time effectively.
  - You will have the opportunity to gain the tools to balance your education and personal life.
  - We will also be discussing tips to help you succeed during the virtual learning era.
  - **MEETING ID:** 909-537-5300
  - **ZOOM LINK:** https://csusb.zoom.us/my/cnsadvising
Advising for Undergraduate Success (A4US)

A4US- Events

STEM CENTER

TRANSFER TUESDAY SERIES

Please join us for our Transfer Tuesday series that will be held every first Tuesday of the month! Transfer students are encouraged to attend to learn more about the STEM Center and campus resources!

FEB 2ND, 12 PM TO 1 PM
ZOOM REGISTRATION: HTTP://BIT.LY/3A4YAB

Materials are available via drive-thru pickup for the first 20 people that register!
More details below.

REGISTER HERE:

Paint Night
MARCH 26TH | 4 PM - 6 PM
Advising for Undergraduate Success (A4US)

A4US- Challenges/Lessons (Last Year)

- Engagement from students has been a challenge
- Advising wasn’t as intrusive, since it only expected one meeting a year
- EAB was used more by advisors, and faculty are warming up to it
- Morale issues- PAC vs STEM
- UGS changes
- Counselor changes
- We did see an impact in some of the sense of belonging
- Faculty Learning Community on Advising
- Community College Event!
- Celebration of Teaching
• **Priority 1**: increase Hispanic and **low-income students** attaining degrees in **STEM**

• **Priority 2**: transfer and articulation agreements between HSI CC and CSUSB.

• **Competitive Preference Priority 1** – Fostering *Flexible and Affordable Paths* to Obtaining Knowledge and Skills - providing work-based learning experiences.

• **Competitive Preference Priority 2** – *Academic Achievement and Retention Strategies* - enhance tutoring, counseling, and student service programs; customized instruction courses.

• **Invitational Priority** – Providing Student Supports for Addressing the Impact of COVID-19 on Students’ Mental Health and Academic Outcomes.
PATHS

- Minority Serving Institutions: America’s Underutilized Resource for Strengthening the STEM Workforce
  1. dynamic, multilevel, mission-driven leadership,
  2. institutional responsiveness to student needs,
  3. campus climate that supports a sense of belonging,
  4. student-centered academic and social supports,
  5. effective mentorship,
  6. undergraduate research experiences, and
  7. mutually beneficial public- and private-sector partnerships
1. Dynamic, Multilevel, Mission-Driven Leadership

- Leadership Team in the College
- President Morales
- Chancellor Castro
- STEM-NET: Frank A. Gomez

Sastry G. Pantula, CSUSB, College of Science, sastry.pantula@csusb.edu
2. Institutional Responsiveness to Student Needs

- Articulation Agreements
- Recruitment at CCs
- Summer early start
- Alternative Degree tracks
- Post-Covid-19 support
3. Campus Climate that Supports a Sense of Belonging

- **Science Success Center**
- serve as a one-stop shop
- improve collaboration between CSUSB, CCs, and employers
- help students find work-based learning experiences
- steer students to valuable resources such as Counseling and Psychological Services, supplemental instruction, learning assistantships, undergraduate research opportunities, and other programs that improve academic and career success,
- host self-help workshops, career panels, and social events where students can cultivate friendships, and
- host peer tutoring and small-group learning communities.

- **Science buddies**
4. Student-Centered Academic and Social Supports

- Learning Assistant Program
- LA-Faculty Learning Community
- Faculty Advising Learning Community
- Supplemental Instruction and Advising
- *Individual Development Plans*

Sastry G. Pantula, CSUSB, College of Science, sastry.pantula@csusb.edu
5. Effective Mentorship

• SACNAS membership- networking, mentoring, annual conference

• Individual Development Plans
  • 2-unit course
  • Faculty Learning Community
  • Science counselors

Sastry G. Pantula, CSUSB, College of Science, sastry.pantula@csusb.edu
6. Undergraduate Research Experiences

• 20 Summer Research experiences +

• Faculty support

• Part of IDP

• Professional/graduate schools

Sastry G. Pantula, CSUSB, College of Science, sastry.pantula@csusb.edu
7. Mutually Beneficial Public- & Private-Sector Partnerships - Khalil Dajani

• Aerospace and Defense industry

• New internships

Sastry G. Pantula, CSUSB, College of Science, sastry.pantula@csusb.edu
### PATHS Priorities

<table>
<thead>
<tr>
<th>Absolute Priority 1</th>
<th>Absolute Priority 2</th>
<th>Competitive Priority 1</th>
<th>Competitive Priority 2</th>
<th>Invitational Priority</th>
</tr>
</thead>
<tbody>
<tr>
<td>Science Success Center</td>
<td>Articulation Agreements</td>
<td>Science Success Center</td>
<td>Science Success Center</td>
<td>Connect to CAPS</td>
</tr>
<tr>
<td><strong>Science Buddies</strong></td>
<td>Summertime Early Start Bridge Program</td>
<td><strong>Science Buddies</strong></td>
<td>Proactive Advising</td>
<td>Mental health panels</td>
</tr>
<tr>
<td>Alternative Degrees</td>
<td>Community College Workshops</td>
<td>SACNAS/HACU/Professional Societies</td>
<td>SACNAS/HACU/Professional Societies</td>
<td>Food and health insecurities</td>
</tr>
<tr>
<td>Learning Assistants</td>
<td>Invite to CSUSB Labs</td>
<td>Career and other panels</td>
<td>On Campus- SI, Tutoring, Centers</td>
<td><strong>ED COVID-19 HANDBOOK-</strong></td>
</tr>
<tr>
<td>IDPs</td>
<td><strong>SSC Counselors at Community Colleges</strong></td>
<td>IDPs</td>
<td>IDPs</td>
<td>Strategies for safe operations-impact of COVID-19</td>
</tr>
<tr>
<td>REUs</td>
<td>CC Faculty Learning Communities</td>
<td>REUs</td>
<td>REUs</td>
<td>Next Generation Smart Classrooms</td>
</tr>
<tr>
<td>Internships</td>
<td>Leadership</td>
<td>Internships</td>
<td>Internships</td>
<td>Leadership</td>
</tr>
</tbody>
</table>
Leadership Team

• Sastry Pantula
• Guillermo Escalante
• Dave Maynard
• Khalil Dajani
• Carol Hood
• Cobblestone
• Budget- supports the Science Success Center; Undergrad Research; FLCs; LAs; PI/Co-PI

Sastry G. Pantula, CSUSB, College of Science, sastry.pantula@csusb.edu
Thank You!

Questions???
STEM Success at Stanislaus State

Iqbal Atwal and Harold Stanislaw
California State University, Stanislaus

US Dept of Education
Title III Part F grant
P031C160070

Iqbal Atwal, College of Science
IAtwal@csustan.edu

Harold Stanislaw, Dept. of Psychology
HStanislaw@csustan.edu
The Challenge: Improve Retention in STEM

STEM Success at Stanislaus State

Iqbal Atwal, College of Science
IAtwal@csustan.edu

Harold Stanislaw, Dept. of Psychology
HStanislaw@csustan.edu
Approach: Improve Senses of Belonging

“Chem lowered my self-esteem”

“I... felt to be more connected to CJ”

“I just felt out of place. Like it wasn’t meant for me”

“The biology classes were too hard”

“I left biology because being a doctor was my parents dream”

“I felt stupid in every science”

“Biology was... taking a toll on my mental health”

STEM Success at Stanislaus State

- Belonging to Stanislaus State
- Belonging to STEM (science identity)
- Belonging to a STEM major

Iqbal Atwal, College of Science
IAtwal@csustan.edu

Harold Stanislaw, Dept. of Psychology
HStanislaw@csustan.edu
Activities

Warriors on the Way to STEM (WOW2STEM)

Outreach and major-specific roadmaps for students at 10 community college partners

STEM Discovery Academy (SDA)

Two-week summer immersion program for entering freshmen and transfer STEM students

Iqbal Atwal, College of Science
IAtwal@csustan.edu

Harold Stanislaw, Dept. of Psychology
HStanislaw@csustan.edu
NSCI 1000 (Information Investigation)

First-year, 3-unit General Education course for STEM majors

Research and Immersion for STEM Excellence (RISE)

Paid research with faculty during first 2 years on campus

Methods

- Traditional cloning to create new plasmids
- Introduce new plantid into E. Coli
- Selecting the colonies with antibiotic resistance

Challenge

- How do they maintain a species boundary?
Results

Transfer students are entering with more prereqs completed

STEM Success at Stanislaus State

Iqbal Atwal, College of Science
IAtwal@csustan.edu

Harold Stanislaw, Dept. of Psychology
HStanislaw@csustan.edu
**Results**

RISE and SDA improve psychosocial factors

<table>
<thead>
<tr>
<th>Statement</th>
<th>RISE and/or SDA</th>
<th>Comparison</th>
</tr>
</thead>
<tbody>
<tr>
<td>The faculty in my major support me</td>
<td>Strongly agree</td>
<td>Neither agree nor disagree</td>
</tr>
<tr>
<td>I can read scholarly articles in my major</td>
<td>Strongly agree</td>
<td>Neither agree nor disagree</td>
</tr>
<tr>
<td>I enjoy conducting research</td>
<td>Strongly agree</td>
<td>Neither agree nor disagree</td>
</tr>
<tr>
<td>I know how to design a scientific study</td>
<td>Strongly agree</td>
<td>Neither agree nor disagree</td>
</tr>
<tr>
<td>I have friends and colleagues who can help me succeed</td>
<td>Strongly agree</td>
<td>Neither agree nor disagree</td>
</tr>
<tr>
<td>I have at least one mentor at Stan State</td>
<td>Strongly agree</td>
<td>Neither agree nor disagree</td>
</tr>
</tbody>
</table>

Iqbal Atwal, College of Science  
IAtwal@csustan.edu

Harold Stanislaw, Dept. of Psychology  
HStanislaw@csustan.edu
Results

STEM Success at Stanislaus State

STEM Success students have higher STEM retention rates

<table>
<thead>
<tr>
<th></th>
<th>Freshmen</th>
<th>Transfer students</th>
</tr>
</thead>
<tbody>
<tr>
<td>Matriculation</td>
<td>Start of second year</td>
<td>Start of third year</td>
</tr>
<tr>
<td>100%</td>
<td>80%</td>
<td>80%</td>
</tr>
<tr>
<td>80%</td>
<td>60%</td>
<td>60%</td>
</tr>
<tr>
<td>60%</td>
<td>40%</td>
<td>40%</td>
</tr>
<tr>
<td>40%</td>
<td>20%</td>
<td>20%</td>
</tr>
<tr>
<td>20%</td>
<td>0%</td>
<td>0%</td>
</tr>
</tbody>
</table>

- RISE
- SDA
- NSCI 1000
- Comparison students

Iqbal Atwal, College of Science
IAtwal@csustan.edu

Harold Stanislaw, Dept. of Psychology
HStanislaw@csustan.edu
Lessons Learned

• Tailor roadmaps at each community college for every Stan State STEM major

• Virtual SDA works well

• Virtual RISE is challenging

• Summer STEM academy = Research with faculty

• Connect students with peers whenever possible

Iqbal Atwal, College of Science
IAtwal@csustan.edu

Harold Stanislaw, Dept. of Psychology
HStanislaw@csustan.edu
Next Steps

• Continue to maintain roadmaps with community college partners

• NSCI 1000 has been institutionalized; may add a financial literacy component

• Explore alternate supports to continue involving students in faculty research

• Connect students to STEM employers and improve career readiness
Questions & Answers

Frank A. Gomez  
CSU Office of the Chancellor  
fgomez@calstate.edu
Speaker Contacts

Mark Filowitz, Cal State Fullerton
mfilowitz@fullerton.edu

Megan Drangstveit, Cal State Fullerton
megand@fullerton.edu

Eric Marinez, Cal State Long Beach
Eric.Marinez@csulb.edu

S.K. Ramesh, CSUN
s.ramesh@csun.edu

Sastry Pantula, Cal State San Bernardino
sastry.pantula@csusb.edu

Iqbal Atwal, Stanislaus State
IAtwal@csustan.edu

Harold Stanislaw, Stanislaus State
HStanislaw@csustan.edu

Frank A. Gomez
CSU Office of the Chancellor
fgomez@calstate.edu
Next Steps/Closing Remarks

Dr. Frank A. Gomez
Executive Director, STEM-NET
Office of the Chancellor

https://www2.calstate.edu/impact-of-the-csu/research/stem-net

Frank A. Gomez    CSU Office of the Chancellor    fgomez@calstate.edu
Webcast Feedback Survey
Please take a few moments to tell us about your webcast experience
Join our CSU STEM-NET Community listserv
csustemnet@lists.calstate.edu

Begin a Conversation with Colleagues and Join our Private CSU STEM-NET Facebook Group
https://www.facebook.com/groups/2629611737269292

Frank A. Gomez
CSU Office of the Chancellor
fgomez@calstate.edu
STEM-NET Virtual Research Café 10.0

- July 28th 11AM-12PM
  Registration Here:
STEM-NET September Webcast

- CSU NSF REU and IRES Awardees Webcast, September 2nd 10AM-12PM

Registration Link: Coming Soon