Bridging the Gap with AIMS² – Enhancing Student Success with a Multi-Institutional Collaborative Program

S. K. Ramesh, Ph.D.
Project Director and Lead PI of the HSI-STEM Grant

•*AIMS² Cohort: Photo Courtesy Armando*

AGENDA

- Introduction – Stacey Slijepcevic
- Overview of the AIMS^2 grant program – Ramesh
- Perspectives from Glendale CC – Scott Rubke
- Partnership with College of the Canyons– Amy Foote
- Student Outcomes and closing comments – Ramesh
- Q & A and discussion with Panelists

AGENDA

- Panelists

Ramesh   Amy   Scott

Contact Information:
S. K. Ramesh   s.ramesh@csun.edu
Amy Foote   amy.foote@canyons.edu
Scott Rubke   srubke@Glendale.edu

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Disclaimer

- Supported by the [AIMS^2 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.

Student Success is our #1 Priority

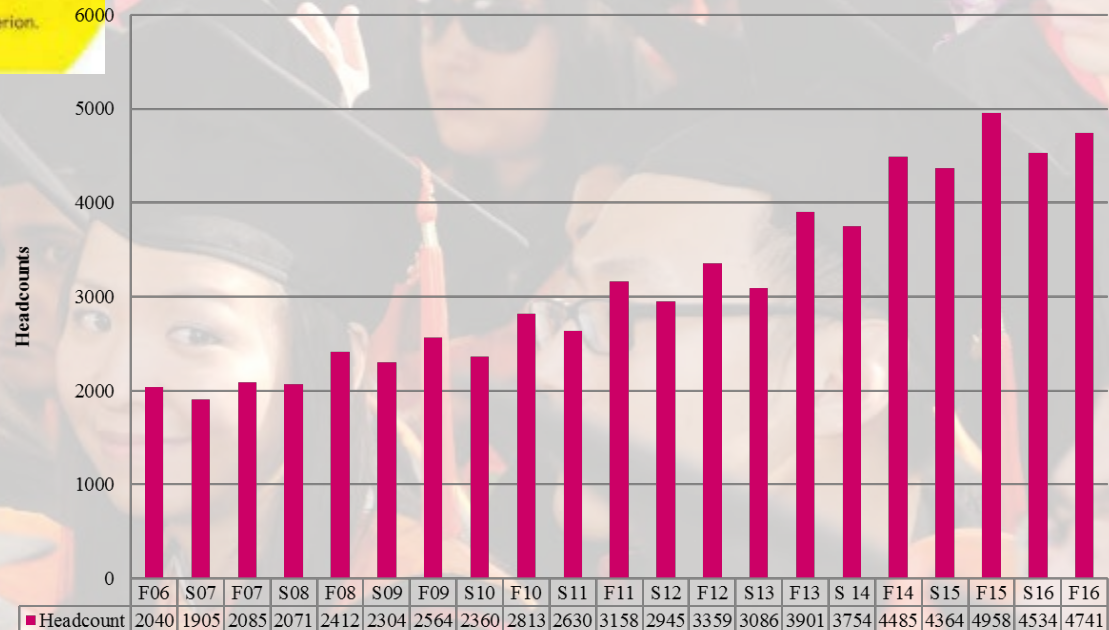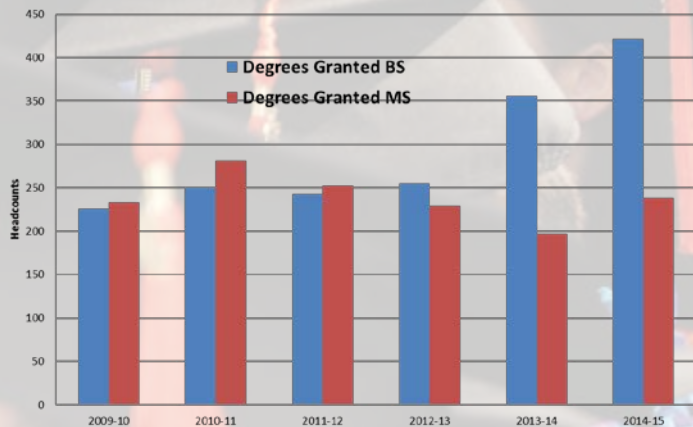## FASTEST-GROWING UNDERGRADUATE ENGINEERING SCHOOLS: 2005 TO 2008

	School	Growth in Bachelor's Degrees*	B.S. Degrees: 2008	B.S. Degrees: 2005
1.	California State U., Northridge	96%	190	97
2.	South Dakota State University	82%	162	89
3.	California State U., Long Beach	70%	350	206
4.	University of Texas, Arlington	59%	295	186
5.	Univ. of California, Riverside	57%	182	116
6.	City College of the CUNY	54%	249	162
7.	SUNY — Binghamton	49%	218	146
8.	University of Connecticut	44%	272	189
9.	Syracuse University	43%	173	121
10.	George Mason University	42%	317	224

*excluding all computer science
Schools must have awarded at least 75 B.S. degrees in 2005. 215 schools met this criterion.

CSUN's undergraduate engineering programs were recognized for being the fastest growing in the nation in the 3 years from '05-'08 (96% growth)- ASEE March 2010

Degrees Granted

- Degrees Granted BS
- Degrees Granted MS
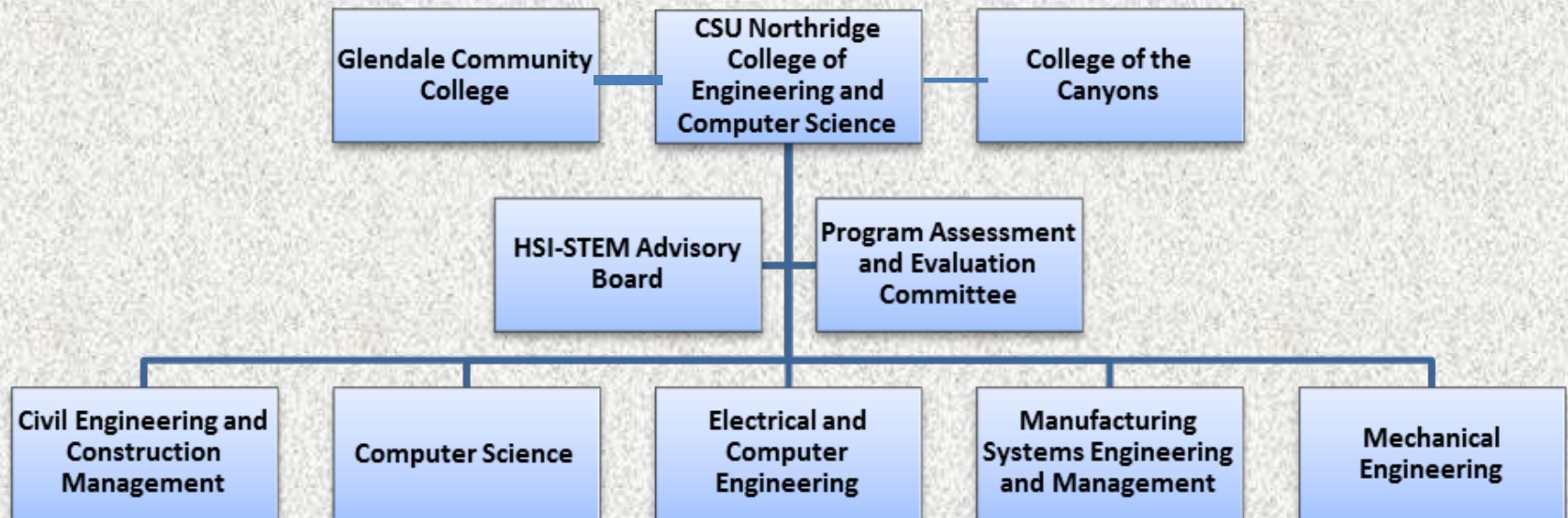
(2009-10, 2010-11, 2011-12, 2012-13, 2013-14, 2014-15)

Headcount Enrollments - 2006-2016

	F06	S07	F07	S08	F08	S09	F09	S10	F10	S11	F11	S12	F12	S13	F13	S 14	F14	S15	F15	S16	F16
Headcount	2040	1905	2085	2071	2412	2304	2564	2360	2813	2630	3158	2945	3359	3086	3901	3754	4485	4364	4958	4534	4741

AIMS^2
Attract, Inspire, Mentor and Support Students
www.ecs.csun.edu/aims2

The AIMS² Project - $ 5.5 Million Grant from USDE (2011-16)
Attract, Inspire, Mentor, and Support Students

Faculty and Staff from CSUN and partner Colleges

Goals and Objectives – 2011 Grant

- To increase the number of Hispanic and low-income students who successfully transfer from Glendale Community College (GCC), and College of the Canyons (COC) to California State University, Northridge, to pursue majors in Engineering and/or Computer Science.

- To increase the number of Hispanic and low-income students who join CSUN as upper division transfer students and graduate with degrees from one of the undergraduate programs in the College of Engineering and Computer Science.

- To develop a model, seamless and sustainable transfer program to assist Hispanic and low-income students to successfully transfer from GCC and COC to California State University, Northridge where they will complete their studies in Engineering and/or Computer Science.

Project Activities

- Tutoring to improve student performance in preparatory Math and Science courses.
- Advising and tracking of students in cohort
- Work closely with faculty and staff in feeder community colleges to develop seamless articulation agreements, especially for students transferring from 2 year colleges to CSUN.
- Create a mobile digital environment with Tablet PCs , iPad's, and appropriate software, so that the project team can work with the cohorts to enhance communication, engagement, collaboration and creativity, and instant learning assessment.
- Expand Facilitated Academic Workshops (FAW) in required introductory courses and key upper division courses offered by the college's programs
- Faculty/Peer mentoring and career advising of students in the cohort
- College wide events focused on careers and jobs such as the biannual Tech Fest events held in February and September.
- Provide students with opportunities to work on hands-on projects and research activities that encourage them to stay connected with their majors

Support Model

- Collaboration CSUN and CC faculty:
  - Facilitating a channel for face to face discussion on curriculum issues among CSUN and CC faculty teaching transferable courses.
    - Promote discussion on learning outcomes, resources, and best practices
    - Build trust to create further collaboration
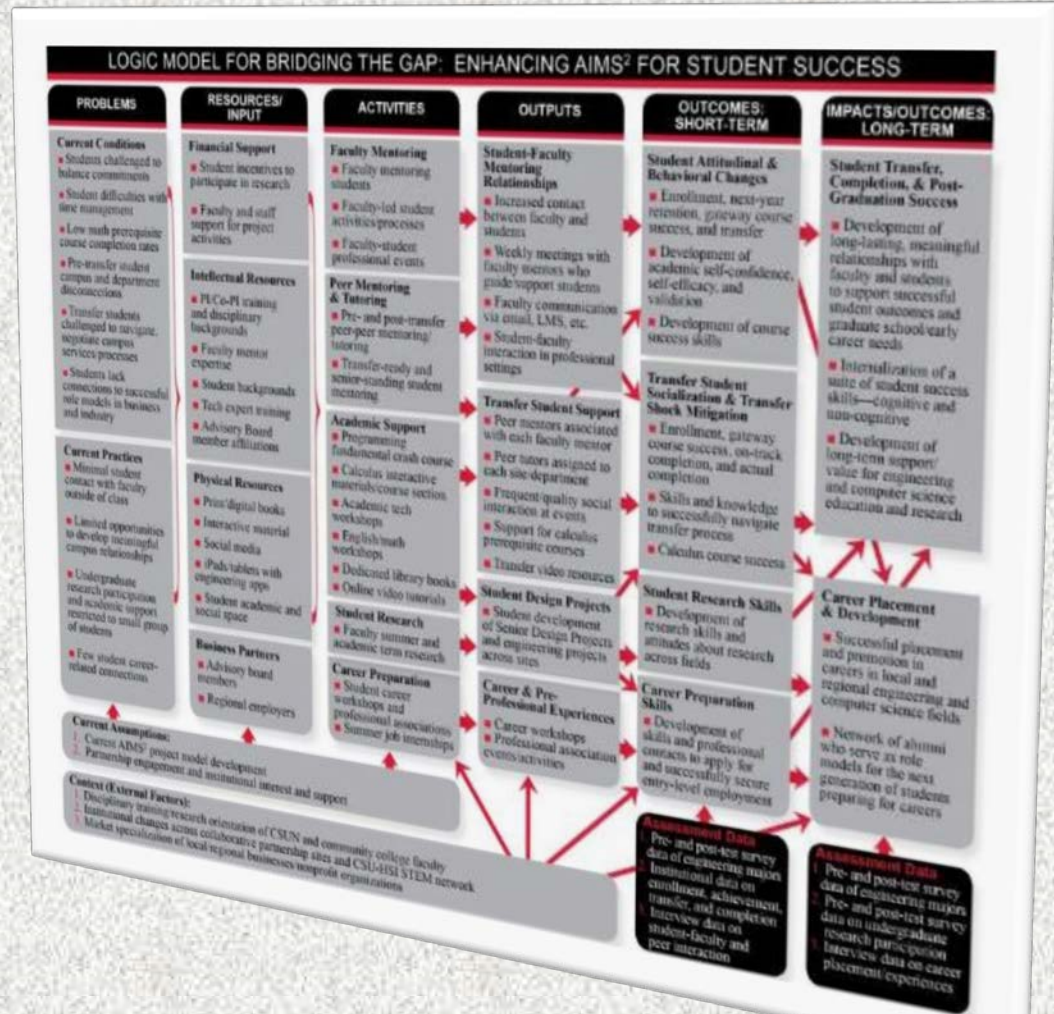   - Challenges to overcome

"What if we don't change at all ... and something magical just happens?"

Support Model

- Collaboration with CC faculty:
  - Facilitate a channel for face to face discussion on curriculum issues among CSUN and CC faculty teaching transferable courses.
  - Success on articulation
    - Avoids waste of resources
    - Avoids confusion
    - Facilitates advising
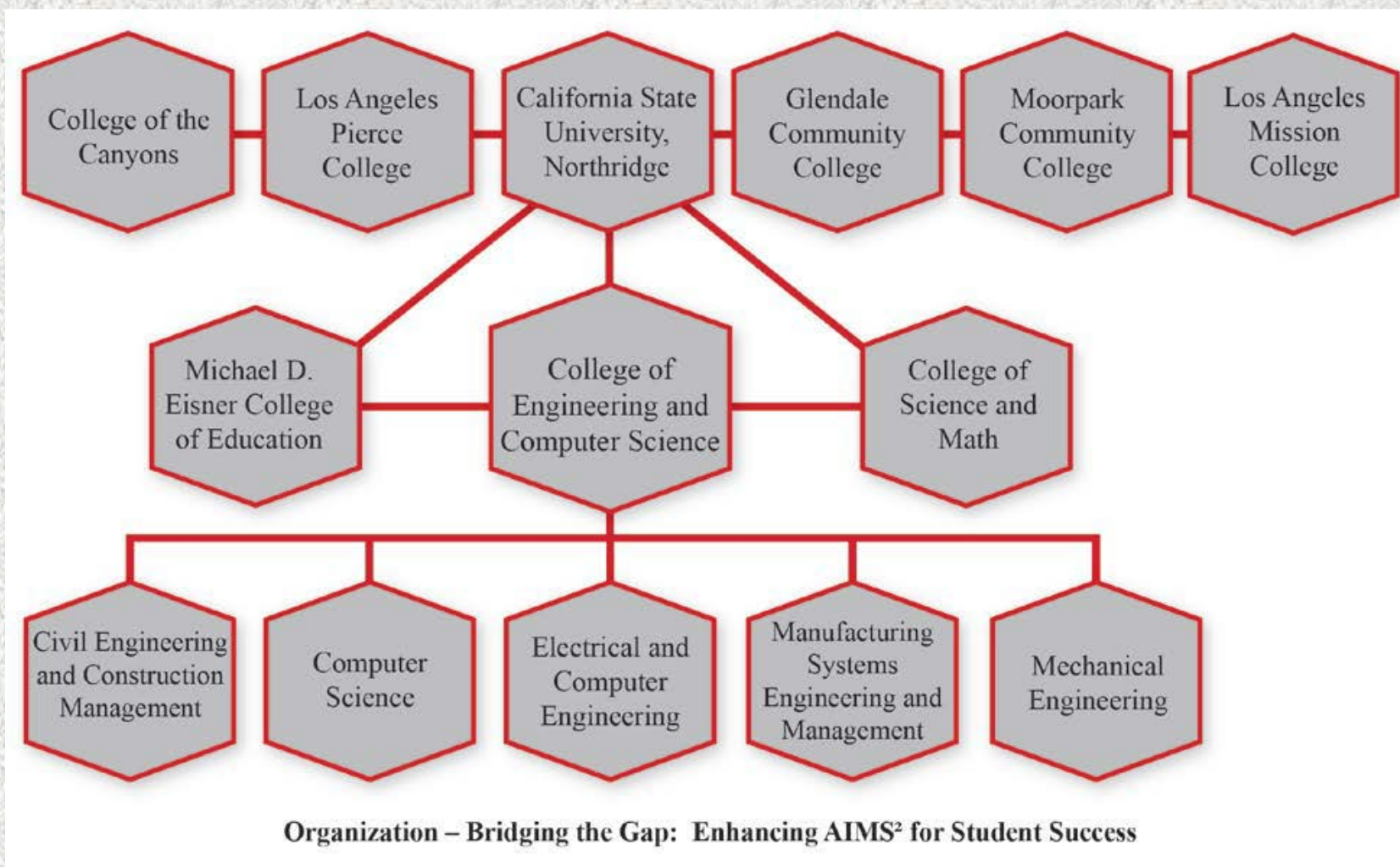   - Faster track to graduate

Sequel to AIMS^2

"Bridging the Gap: Enhancing the AIMS^2 Program for Student Success" - (2016-2021)

• **Selected to receive funding under the HISPANIC-SERVING INSTITUTIONS PROGRAM (STEM) (84.031C). This grant was in the amount of $ 1.2 Million/year. It is anticipated that the grant will be for a total of 5 year(s).**

LOGIC MODEL FOR BRIDGING THE GAP: ENHANCING AIMS^2 FOR STUDENT SUCCESS

USDE HSI STEM 2018 Webinar Series

USDE HSI STEM 2018 Webinar Series

Organization – Bridging the Gap: Enhancing AIMS² for Student Success

Student Selection : CSUN

- To be eligible, STEM majors must be an individual who has faced or faces social, cultural educational or economic barriers to careers in STEM and be a US Citizen or Permanent Resident.

- Application including Essay and Interview

- Enroll and complete a minimum of 24 units/year and passing all courses with grades of C or better

- All students eligible to receive $ 500 towards textbook awards bi-annually upon meeting requirements

- Selected students eligible to participate in paid UG research activities working up to 10 hours/week during the semester and 20 hours/week in the summer. Paid at the rate of $ 15/hour

- Tutors and Peer Mentors. Paid at the rate of $ 15/hour

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Glendale Community College
AIMS²

GCC Program Profile

- A total of 51 low-income (98% BOG eligible) GCC STEM students participated in the AIMS^2 program (2012-present)
- Cohort 1 (n=13), Cohort 2 (n=13), Cohort 3 (n=11), Cohort 4 (n=14)
- Female (n=20), Male (n=31)
- Average GPA amongst all 4 cohorts is 3.11 vs. 2.6 (comparison group)
- Majors included: Computer Science, Physics, Aerospace, Civil, Computer, Electrical, Manufacturing, Mechanical, and Structural Engineering.
- Thus far, 28 students have transferred to: **CSUN** (n=17), **Cal Poly Pomona** (n=5), **UC Berkeley** (n=3), **CSULA** (n=1), UC Irvine (n=1) & **UC Santa Barbara** (n=1)

Performance by Cohort

Cohort	Spr 12	Fall 12	Spr 13	Fall 13	Spr 14	Fall 14	Spr 15
1	**2.91** (n=13)	**3.05** (n=12)	**2.95** (n=10)	**2.11** (n=7)	*M*=11.71 units carried		
2		**3.09** (n=13)	**3.00** (n=13)	**3.09** (n=11)	**3.36** (n=10)	*M*= 12.84 units carried	
3			**3.38** (n=8)	**3.43** (n=11)	**3.14** (n=10)	**2.74** (n=10)	*M*=12.83 units
4				*M*=11.22 units carried		**2.83** (n=14)	**2.67** (n=14)
Comparison groups							
1	**2.58** (n=14,828)	**2.57** (n=14,962)	**2.59** (n=15,085)	**2.59** (n=14,549)	*M*= 7.86 units carried		
2		**2.57** (n=14,962)	**2.59** (n=15,085)	**2.59** (n=14,543)	**2.63** (n=14,115)	*M*= 7.83 units carried	
3			**2.59** (n=15,036)	**2.59** (n=14,549)	**2.63** (n=14,115)	**2.59** (n=15,036)	*M*=7.88 units
4				M=7.91 units carried		**2.59** (n=15,036)	**2.63** (n= 14,054)

Closing the GAP: GCC/CSUN Articulation Agreements Enhanced

CSUN Course Name/#	Course Title	GCC Course Name/#	Course Title
CIT 101/L	CIT Fundamentals w/lab	CS/IS 101	Intro to Computer Info Systems
CIT 160/L	Internet Technologies w/lab	CS/IS 260	Intro to Website Development
COMP 108	Orientation to Computer Science	CS/IS 112	Intro to Programming using JAVA
COMP 122/L	Computer Architecture & Assembly Language	CS/IS 165	Computer Architecture & Assembly Language
ME 186/L	Computer-Aided Design w/lab	ENGR 111	Solid Works Applications
CE 240/L	Engineering Statics	ENGR 152	Engineering Mechanics-Statics
ECE 240/L	Electrical Engineering Fundamentals	ENGR 140	Electrical Engineering Fundamentals (pending)
MSE 227/L	Engineering Materials w/lab	ENGR 146	Engineering Materials (pending)
ME 209	Programming for Mechanical Engineers	Engr 156	Programming & Problem Solving in MATLAB

Project Activities

- Naval Air Base (San Diego)
- Burbank Water & Power
- JBL/Harman field trip
- Great Minds in STEM Conf
- CSUN Speed Mentoring
- SHPE National Conference
- Calif. Science Museum
- Golden Road Brewery
- CSUN Research Program
- Jet Manufacturing Firm
- Jet Propulsion Lab (JPL)
- Latinas in STEM conf
- Society of Women Engineers Conference
- CSUN Tech Fest
- IPAD trainings
- Boeing field trip

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College of the Canyons Partnership with CSUN

March 21, 2018

Amy Foote

MESA Program Director

College of the Canyons

COC and CSUN Partnership

- AIMS^2 Students

- Services for Students

- Student Opportunities

AIMS² Students

- Students – 1st generation college students, financially disadvantaged, underrepresented and STEM

- 7 years - partnered with CSUN's AIMS² Program

- 50 - COC Students participated in 6 cohorts

- 20 - Students transferred to CSUN from those cohorts

- AIMS²/COC students had a 3.35 average GPA

- Currently have 15 students involved in the AIMS² Program at COC this year

Services for Students

1. Tutorial support from both faculty and peer tutors ~96hrs/week
2. Peer Mentor Program – 1st yr. paired with 2nd yr.
3. Academic excellence workshops in which MESA facilitators, in consultation with faculty, lead weekly skill-building workshops in math, physics, engineering, computer science and chemistry.

4. Professional development workshops, guest speakers and other activities such as financial aid workshops, UC application workshops, resume workshops, Industry presentations, etc.

Student Opportunities

- **Conferences**

    - Great Minds in STEM – HENAAC

    - SHPE – Society of Hispanic Professional Engineers

    - Women in Engineering

- **Symposiums and EXPOs**

    - CSUN Research Symposium

    - Aerospace Engineering Symposium and Expo

<u>Student Opportunities</u>

- **Research**
  - CSUN Summer Research (10 students last summer from COC)
    - Present their work at Symposium

  - JPL/NASA (~10 students per year)

- **Facility Tours**
  - NASA Armstrong in Antelope Valley
  - NASA/JPL
  - CSUN Engineering and Computer Science Department

Research and Internships

Spring 2017

8 students received notification of acceptance to JPL/NASA's JPLUS and NCAS programs

Fall 2017

6 students were accepted to JPL/NASA's NCAS program and 3 students were nominated to the SIRI program.

Summer 2017

10 students were accepted to AIMS² Summer Research Program

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Student Outcomes

- Multidisciplinary undergraduate research

2ⁿᵈ *Annual Research Symposium*
Sep 15, 2016

AIMS²- Attract, Inspire, Mentor and Support Students
CSU Northridge, Glendale CC, College of the Canyons, LA Pierce College, Moorpark College
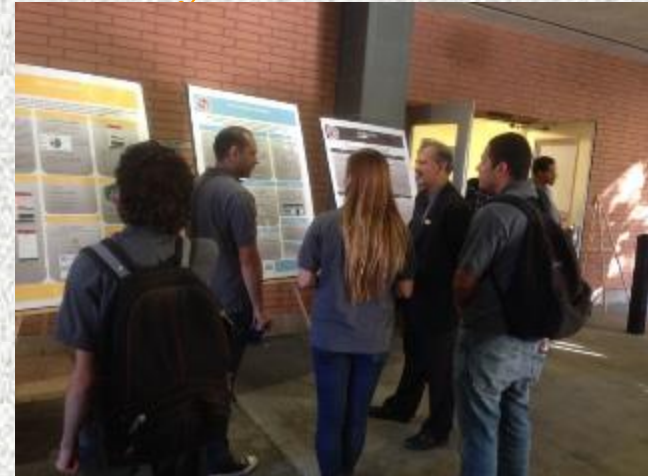
Student-Faculty Interaction

- Resume Workshops
- Tech Fest preparation
- Research Presentations
- Attending conferences
- Annual AIMS^2 Research Symposium

- Student mentors
- Student tutors
- Weekly/biweekly meetings
- Meetings via appointments
- Advising
- Maintain minimum requirements for scholarship

External Advisory Committee

- Ms. Rupa Dachere, Codechix
- Ms. Roslyn Soto, JPL
- Dr. Vaughn Cable, JPL
- Mr. Luis Carbajo, IEEE LA Council Vice Chair
- Ms. Linda Friedman, Northrop Grumman, Woodland Hills
- Mr. Neal Gaborno, Raytheon
- Mr. Bill James, Avery James Inc.,
- Prof. Miguel Macias, Emeritus faculty CSUN
- Mr. Tony Magee, PWR
- Mr. Michael Medina, Hill International, San Diego

Sixth Annual AIMS²(HSI-STEM Grant) Advisory Committee Meeting Meeting # 54

CSUN
June 15, 2017

USDE HSI STEM 2018 Webinar Series

•Advisory Committee Photo Courtesy Kathleen

USDE HSI STEM 2018 Webinar Series

- 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
- Presently serving over 300 freshmen and transfer students with 2016 grant

For more information
Visit www.ecs.csun.edu/aims2

Questions and Discussion