SAN DIEGO MESA COLLEGE

STEM Core & Work-Based Learning: Partnering to Improve Latinx Students' Math Success & Employability

AHSIE 2020 Presenters

Patty Rodriguez STEM Counselor

Dr. Pavel Consuegra Internship Coordinator

Katlin Choi Work-Based Learning Coordinator

Brian Mackus STEM Center Supervisor

OUR TIME TOGETHER

- Overview: What is STEM Core?
- How does STEM Core looks like at Mesa?
  - Student Demographics & Campus Culture
  - How the program has evolved over 3 years
    - Math curriculum
    - Embedded Peer Mentor
    - Dedicated Counselor
    - WBL Overview
- Student Success Data
- Where do we see the program going? Institutionalization?
  - Improving math readiness for Physics and Chemistry

“Yes and…”

Describe and demonstrate the warm-up activity.

Topic: You are going on a vacation. Where are you going to go and what will you be doing?

STEM CORE Network

OVERVIEW

The STEM Core Network is a growing partnership of major scientific/technical employers including NASA and federally funded labs, 20 community colleges, and statewide and national workforce intermediaries focused on expanding the pipeline of students for engineering and computer science careers.

GOAL

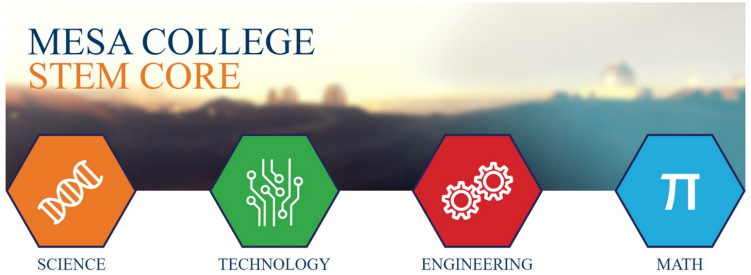
Build and support a network of community colleges and science/engineering employers committed to:

- Developing a STEM Core curriculum and program designed to increase the number and diversity of students mastering the foundational skills needed for success in today's economy;
- Developing continuing employer-driven pathways leading to an A.S degree and STEM careers;
- Offering students a broad range of internship, on the job training, and employment opportunities

STEM CORE @ MESA

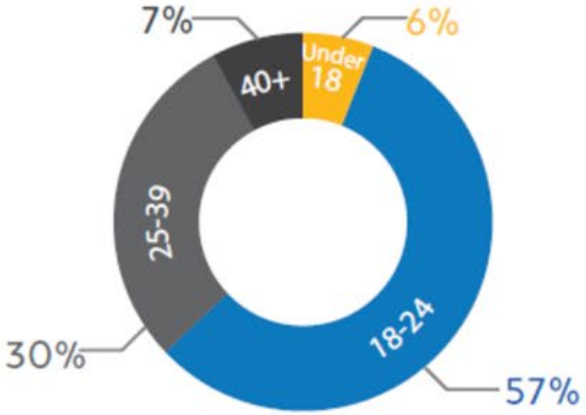
PROGRAM OVERVIEW

- STEM Core is a one-year STEM-preparatory program with an emphasis in math, designed to help students finish pre-requisite courses in order to major in STEM disciplines
- The STEM Core program is a block-scheduled, cohort-based model that provides STEM counseling, career exploration, Work-Based Learning opportunities, tutoring, and one-on-one support to get students ready to pursue STEM degrees and careers



STUDENT DEMOGRAPHICS @ MESA

STUDENT AGE



GENDER

55%

Female Students

45%

Male Students

ETHNICITY

Latino 37% · Caucasian 32% · Asian 11% · African American 6% Two or more 6% · Filipino 5% Other 6% · Unreported 6% Native American <1% Pacific Islander <1%

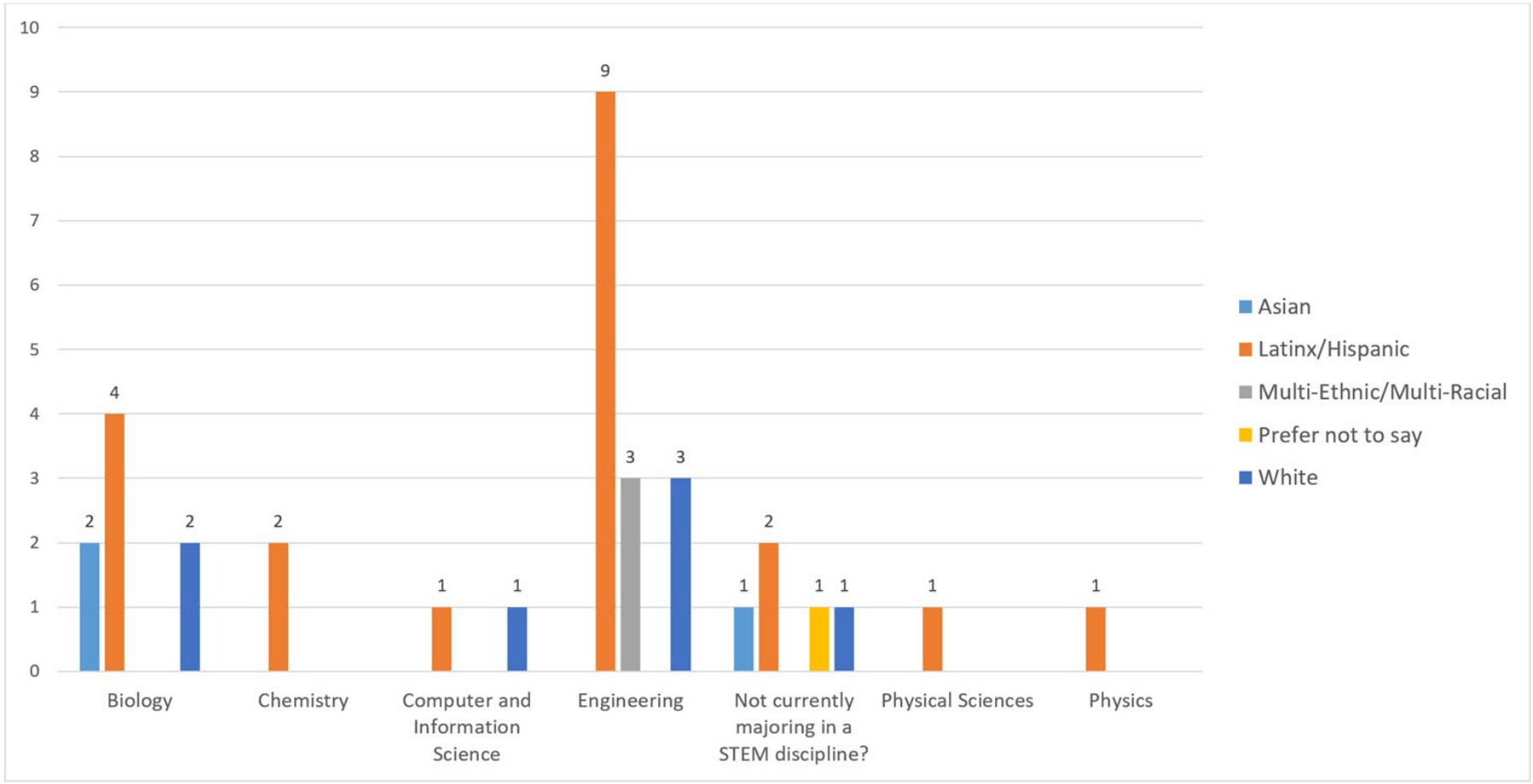
MILITARY

4,332

Active Military/ Veteran/ Spouse/ Dependent

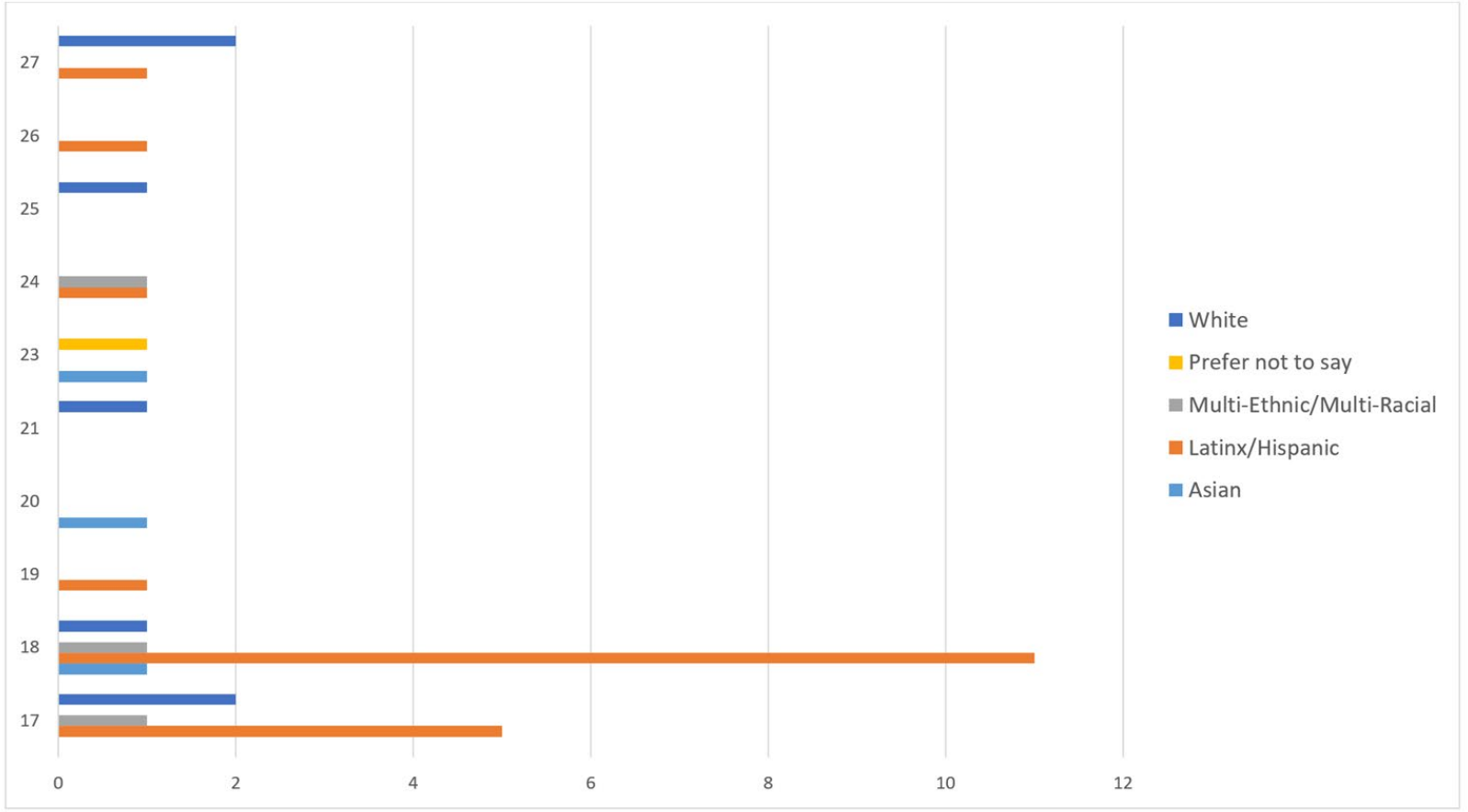
Fast Facts - AY 2019 -2020

Industry by Ethnicity



Fast Facts - AY 2019 -2020

Ethnicity by Age



STEM CORE @ MESA

One- year program model

Fall Semester	Spring Semester
Required Courses: • Trigonometry (6 weeks), • Precalculus (10 weeks) • College Success Course (16 weeks)	**Required Course:** • Calculus with Analytic Geometry I
Work-Based Learning Activities • Industry Speakers & Tours • Employer Panels • Internship & Job Fairs • Career- Readiness Workshops	**Work-Based Learning Activities** • Industry Speakers & Tours • Employer Panels • Internship & Job Fairs
Student Support Activities • Student Orientation & Celebration • Peer Mentor and Tutor Sessions • Student Check-Ins • Support Resources: AVANZA, The Stand, Innovation Research Lab, STEM Center	**Student Support Activities** • Student Orientation & Celebration • Peer Mentor and Tutor Sessions • Student Check-Ins • Support Resources: AVANZA, The Stand, Innovation Research Lab, STEM Center

Suggested Career Readiness Milestones

These suggested milestones can help you with creating your personal career plan and mapping out your next steps to explore and prepare for your dream career!

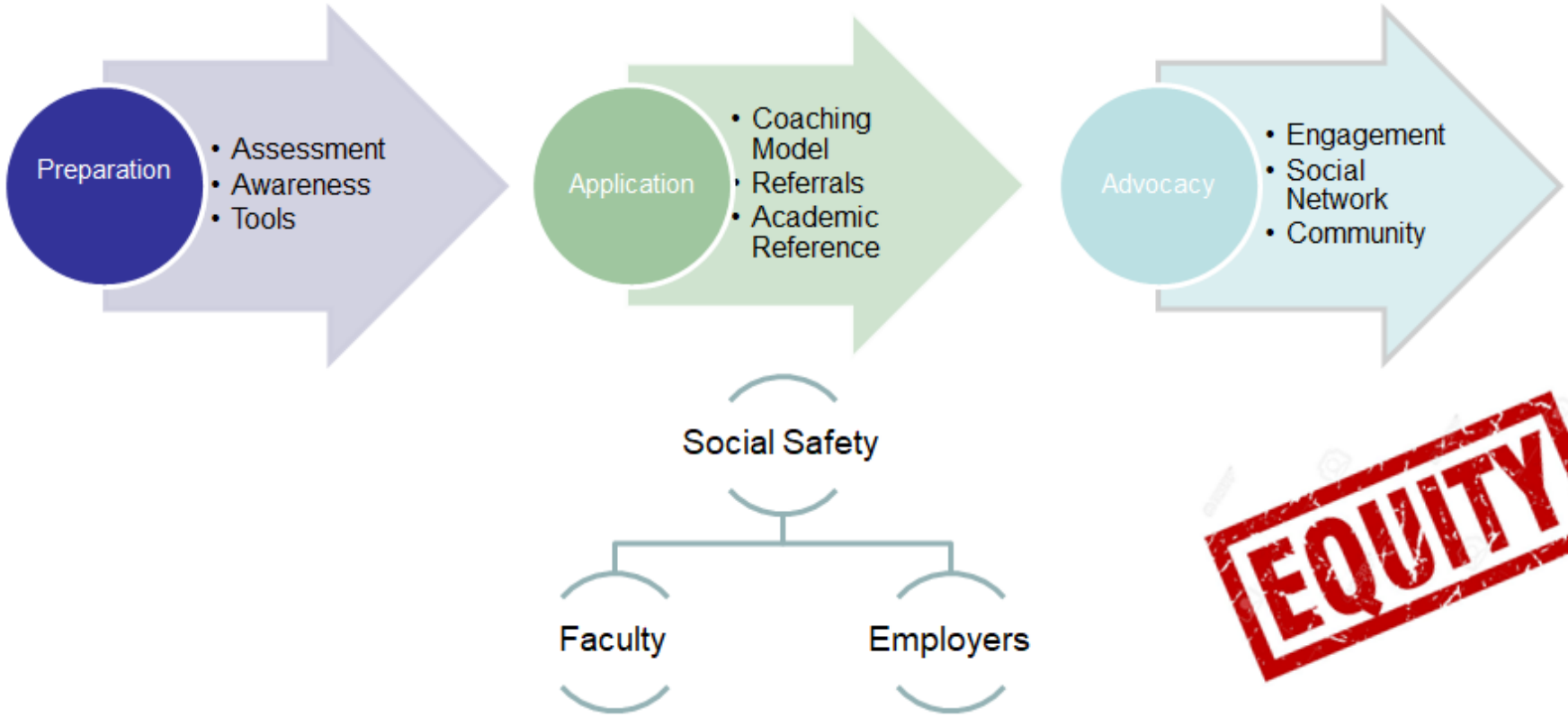
1st Semester - Career Exploration

- Join Mesa Journeys at http://www.sdmesa.edu/mesa-journeys/
- Explore your career interests at the Career Center, in a Personal Growth 130 course or through online resources
- Meet with a Counselor to explore what you can do with your interests, major or career of choice
- Participate in a Career Center or Work Based Learning Workshop
- Participate in Fall Career Fest Events

2nd Semester – Career Planning

- Start networking in your field through campus clubs, professional associations, alumni and faculty connections, or social media
- Do an informational interview with campus faculty
- Meet with a Counselor to define career and educational plan
- Participate in Spring Career Fest and Career Panels

WBL: Coaching Model



WBL: Coaching Model

45 students from STEM Core 18-19 cohort participated in 18-19 WBL Activities:

- 34% Students majoring in Engineering
- 30% Students majoring in Biology
- 58% Students identified as Female
- 39% Students identified as LatinX
- 19% Students identified as Multi-Ethnic/ Multi Racial
- 12% Students identified as African American

- **Francheska Salazar** – Biology Major, STEM Core, Bridges to the Baccalaureate Scholar for research in Organic Chemistry at San Diego Mesa College and in Biochemistry at UCSD, **Summer 2019**
- **Alexander K Beltzer-Sweeney** – Physics Major, STEM Core, NASA Community College Aerospace Scholars Summer 2018; NASA Solar System Ambassador; Intern at Joint Institute for Laboratory Astrophysics in Boulder, **Summer 2019**
- **Lima Khalid**- Refugee, Civil/Structural Engineering- Intern at TreoBytes, **Fall 2019**

Mesa's Bridges to the Baccalaureate Scholars Summer 2019

STEM Core WBL

STEM Core WBL

STEM Core Fall 2019 Speaker Series

Friday September 20, 2019, 10:00am - 11:00am
Location: MS201

Kartik Bholla

Embedded Engineer with Qualcomm Thinkabit Labs

Kartik Bholla is an Embedded Engineer with Qualcomm Thinkabit Labs. He works on hardware and software development of Internet of Things (IoT) projects from scratch. He will share his journey growing up in India and how his love for tinkering with electronics helped him to figure out his career and academic path. Kartik holds a M.S. in Embedded Electrical and Computer Systems from San Francisco State University and a B.Tech. in Electronics and Communication Engineering from Sharda University.

Questions?
Contact your STEM Counselor!
prodriguezØØ1@sdccd.edu

STEM Core is funded by Title III HSI STEM Conexiones GAN# PO31C160227

STEM Core Fall 2019 Speaker Series

Friday November 15, 2019, 10:30am - 11:30am
Location: MS201

Tamara Kahn

Program Manager, The Maritime Alliance (TMA)

At TMA BlueTech, Tamara assists local companies in identifying opportunities and helping promote water and ocean technologies globally. Previously, Tamara worked for 12 years as a geophysicist in the oil and gas exploration industry. Her experience included logistics and vessel operations management aboard ocean-going survey vessels. After spanning the globe as a mariner and seeing firsthand the state of the world's oceans, she was compelled to shift her career focus to sustainability and ecological solutions. At TMA BlueTech, she is advancing and developing programs that enable STEM students, researchers, policymakers, government officials and technology companies to come together to innovate and collaborate towards sustainability solutions. Tamara holds a BS in Geological Sciences from University of Texas at Austin and a MS in Climate Science and Policy from Scripps Institution of Oceanography in San Diego. Tamara speaks 4 languages: Portuguese, Hebrew, Spanish, and English and finds she is only happy on or near a body of water.

Questions?
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STEM Core WBL

STEM CENTER SUPPORT

- **Funded by the HSI (Hispanic Serving Institution) Title III STEM Conexiones Grant**
- **Seeks to increase the retention rate of Hispanic and low-income students in STEM disciplines**

TUTORS

- Promote independent learning and confidence through empowering relationships
- Support the learning process by continually creating a welcoming and safe space
- Foster a community of learners. At the heart of our mission is cultivating professionalism in order to help students, tutors, staff, and faculty succeed and reach their goals

STEM CENTER SUPPORT

STEM Peer mentors are enthusiastic and supportive students who are STEM majors, successful in their academic courses, actively engage in campus activities, and knowledgeable about the resources related to the subject they mentor

STEM Peer Mentor Traits:

- A STEM student who has previously succeeded in the course it mentors
- Recommended by the subject faculty as someone who is academic model, relatable to other students and has outstanding communication skills
- Knowledgeable about resources available at Mesa related to transfer needs and studying and time
- management skills
- Passionate about helping other students succeed in their STEM path

ACCELERATED MATH

TRADITIONAL MATH PATHWAY	STEM CORE MATH PATHWAY
SEMESTER 1 ● Trigonometry (Math 104)	**SEMESTER 1** ● Trigonometry (Math 104) ● Pre-calculus (Math 141)
SEMESTER 2 ● Pre-calculus (Math 141)	**SEMESTER 2** ● Calculus with Analytic Geometry I (MATH 150)
SEMESTER 3 ● Calculus with Analytic Geometry I (MATH 150)	**SEMESTER 3** ● Continue on with STEM course for major

(input from math faculty on teaching accelerated courses)

SO MUCH INFORMATION...

Questions?

Contact us!

Patty Rodriguez STEM Counselor: prodriguez001@sdccd.edu

Dr. Pavel Consuegra Internship Coordinator: pconsuegra@sdccd.edu

Katlin Choi Work-Based Learning Coordinator: kchoi@sdccd.edu

Brian Mackus STEM Center Supervisor: bmackus@sdccd.edu

WE ARE *Mesa*

The Leading College of Equity and Excellence