

MENTORING COMMUNITY COLLEGE MATH STUDENTS THROUGH TRANSFER

EDDIE TCHERTCHIAN | LOS ANGELES PIERCE COLLEGE

OLSUME - NOVEMBER 23, 2021

HOW DID I GET HERE?

- Born and raised in Sofia, Bulgaria
- Moved to Los Angeles at age 13
- First job in education – math tutor at LAPC
- Degrees from UCLA (BS-Mathematics) & CSUN (MS-Applied Mathematics)
- **Attended Los Angeles Pierce College (LAPC)**



FULL CIRCLE

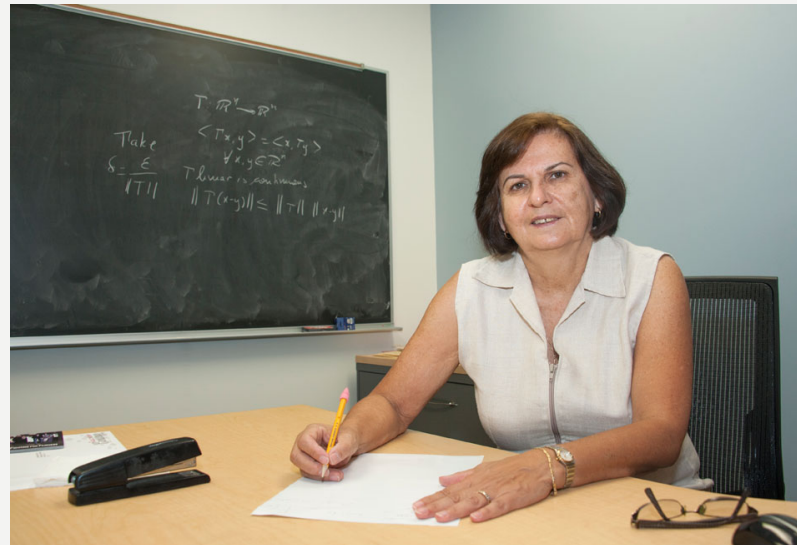
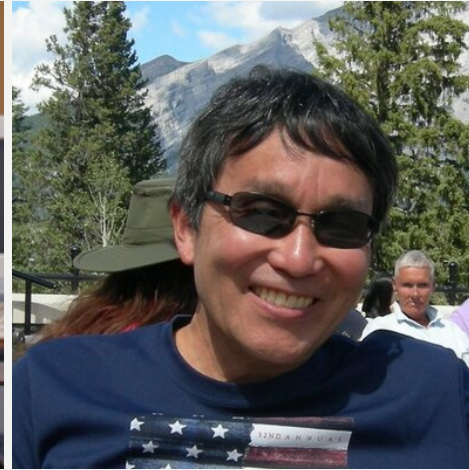


*Fall 2005 – Calculus III class @
Los Angeles Pierce College*



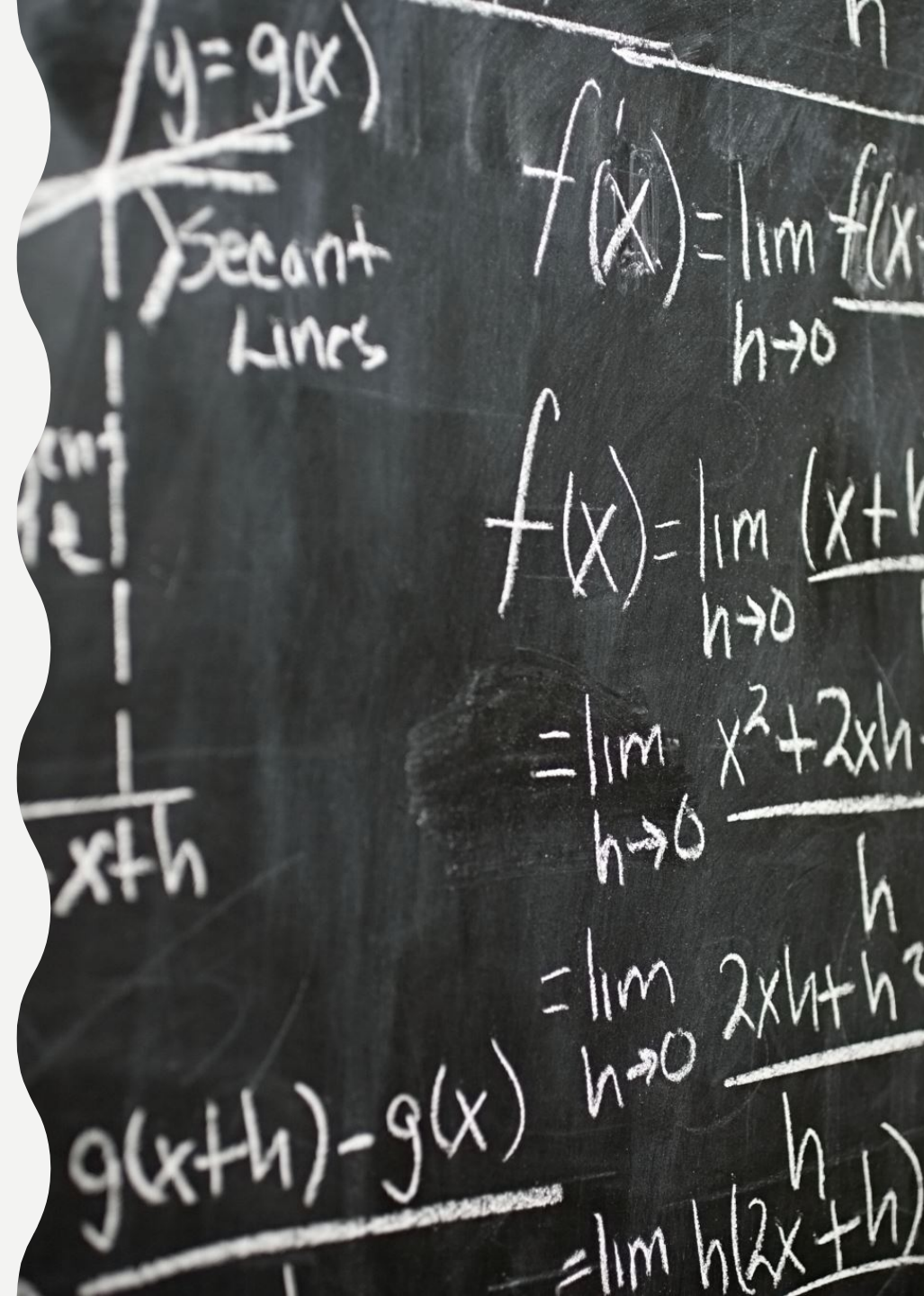
*Spring 2017 – posing with Professor of the
Year Award @ Los Angeles Pierce College*

THE IMPORTANCE OF MENTORSHIP



MENTOR- AND RESEARCH-BASED CAMPS OR ACTIVITIES

- Proven to be extremely effective in welcoming students into the field of mathematical sciences
- Demystify majoring in mathematical sciences
- Inform students of all the career and life options they have with a graduate-level math degree
- Introduce students to discovery and research
- “A life-changing experience”
- Outline an education and career path in a much “better way”
- Create networking opportunities that are different from those in class.





**BUT ALL STUDENTS' PERSONAL
FAVORITE PART OF IT ALL IS...**

**THE CONNECTION THEY MAKE WITH THEIR
PEERS AND THEIR MENTORS/INSTRUCTORS**



SOUND FAMILIAR?

REU OPPORTUNITIES

- According to <https://reufinder.com/programs-for-community-college-students/>

Of 58 freshman/sophomore level REUs in 2021:

- Only one was in the mathematical sciences
- Seven were dedicated to community college (CC) students
- None for CC minority students in any STEM field.



ROLE OF CC'S

- Community colleges constitute the largest postsecondary education segment in the US
- Enrollment analysis during the 2020 pandemic is not finalized, nonetheless according to AACCC, community colleges account for roughly 7.3 million out of the 21.6 total enrollment for a 34% of undergraduate education.



ROOM FOR GROWTH

- A recent College Board report predicts a substantial increase in community colleges' share of the undergraduate population in the near future – primarily as a result of their growing attraction of URM students; and learners from low-income and single-parent families.



Los Angeles mayor Eric Garcetti @ Los Angeles Pierce College

STUDENT BARRIERS

- URM students do not gain the value of a STEM degree or the REU experience in their regions or nationwide. Reasons at play:
 - Socio-economic status and life hardships
 - Work full-time jobs while attending school
 - Support children or other family members
 - REUs are typically 6-8 weeks long over summer
 - Pandemic only adds more fuel to the fire
- Majority of these students have an immediate goal – transfer! Summer courses needed to get there faster!



MORE BARRIERS

- Announcement of REUs do not reach CCs – so majority of CC students are not even aware that such opportunities exist.
- When the rare local intervention occurs and CC students are made aware of it, they are often afraid that they lack the proper readiness or mathematical prowess to participate.
- Myths about REU-type events are more widely spread among URM students.



CC INSTRUCTORS' ROLE

- CC faculty's primary focus and responsibilities semester-to-semester are on duties directly related to their teaching assignment, preventing them from keeping students engaged in new trends and research in mathematical sciences.
- CC faculty need proper collaboration with local four-year university mathematical sciences instructors who can provide support in various ways:
 - Mentoring
 - Recruiting within the major
 - Research ideas
 - Collaborating on strong partnerships that would benefit students



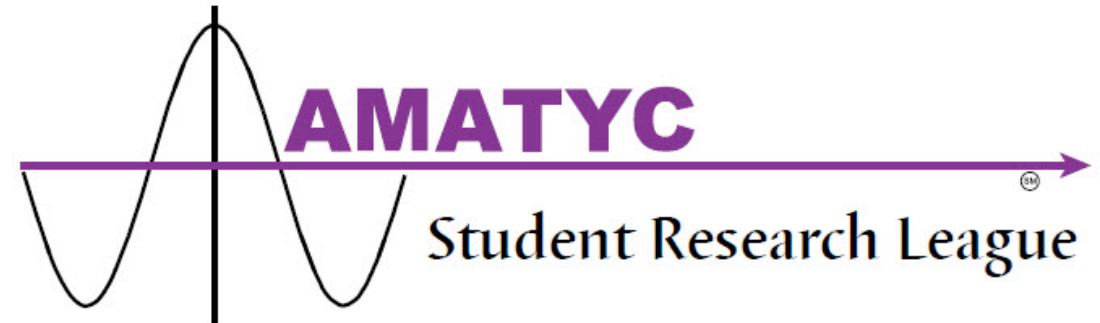
THE HUMAN ELEMENT AND CONNECTION ARE MISSING!

- For CC students, it is at a defining level of the academic journey most of them undertake. The first two years as an undergraduate are key in developing a major, choice of future education and career.
- For CC faculty, it is lost in the day-to-day, semester-to-semester grind and repetition, preventing them from getting an opportunity to do meaningful research or mentor at their institutions.



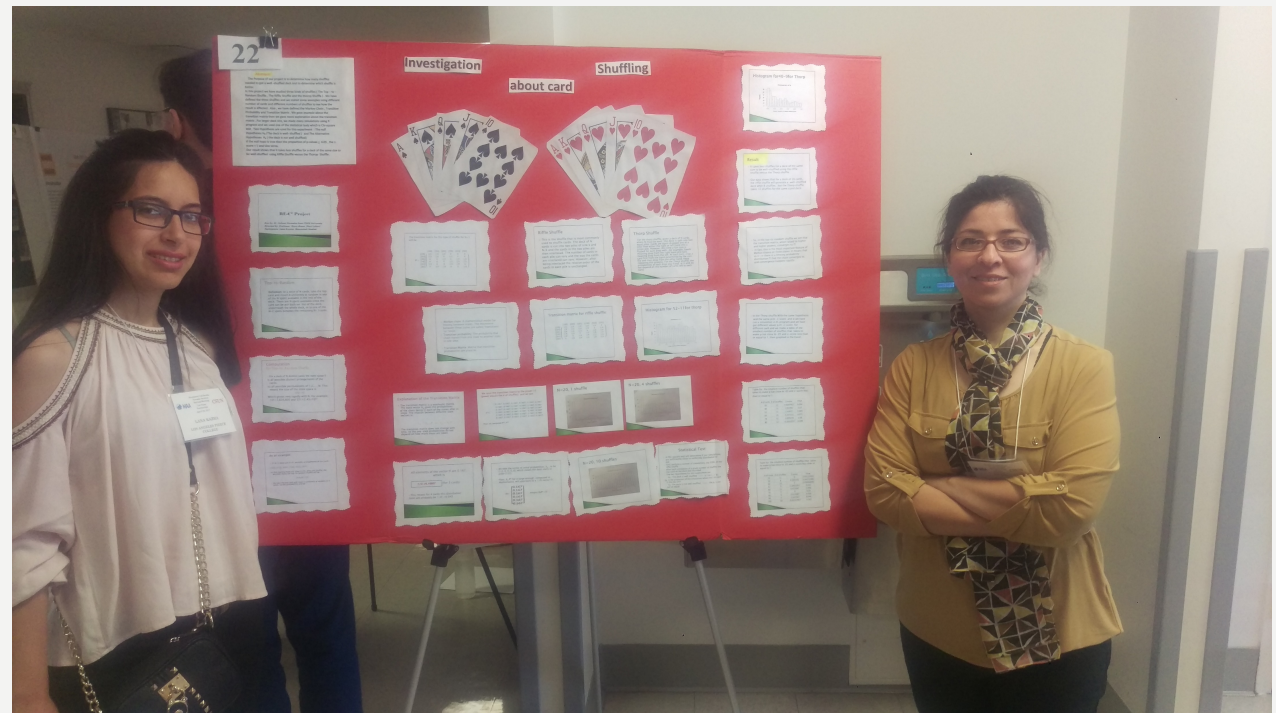
THE FIX – START LOCALLY

- What can you do locally tomorrow?
 - Math/STEM Club on campus
 - AMATYC Student Math League / AMATYC Student Research League
 - Math Day event with support from other departments and counseling
 - Check out local MAA Section or other meetings



AT LA PIERCE, WE DID A POSTER PROJECT THROUGH MATH CLUB

- Thanks to Bakersfield College for setting the tone and leading by example!
- Through 2014-2016, about 8 students were involved each year with 3-4 faculty helping.
- Students presented posters at the Southern California-Nevada MAA section locally.
- Often edged out Ph.D. students presenting their thesis...



PARTNER UP LOCALLY!

- In Spring 2016 at CURM/MAA joint section meeting, I was approached by my CSUN professor/mentor, Prof. Helena Noronha to join forces with several local feeder colleges to write a grant about mentoring community college students.
- Many discussions around our proposal – lots to learn for everyone!



LOS ANGELES
MISSION COLLEGE



PROJECT RE-C² (NSF GRANT DMS-1541911)

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CSUN Brings Mathematics Research to Local Community

Media Contacts: Christine Michaels

christine.michaels.561@my.csun.edu or

Carmen Ramos Chandler

carmen.chandler@csun.edu

(818) 677-2130 | on October 12, 2015 | in [Education](#), [Media Releases](#), [Science and Technology](#)



For many students, community college is an economical first step on their way to getting a bachelor's degree. California State University, Northridge is now giving those students interested in studying mathematics a leg up when it comes to doing research before they even step foot on a four-year college campus.



JUMP OFF THE CLIFF & BUILD YOUR WINGS ON THE WAY DOWN!

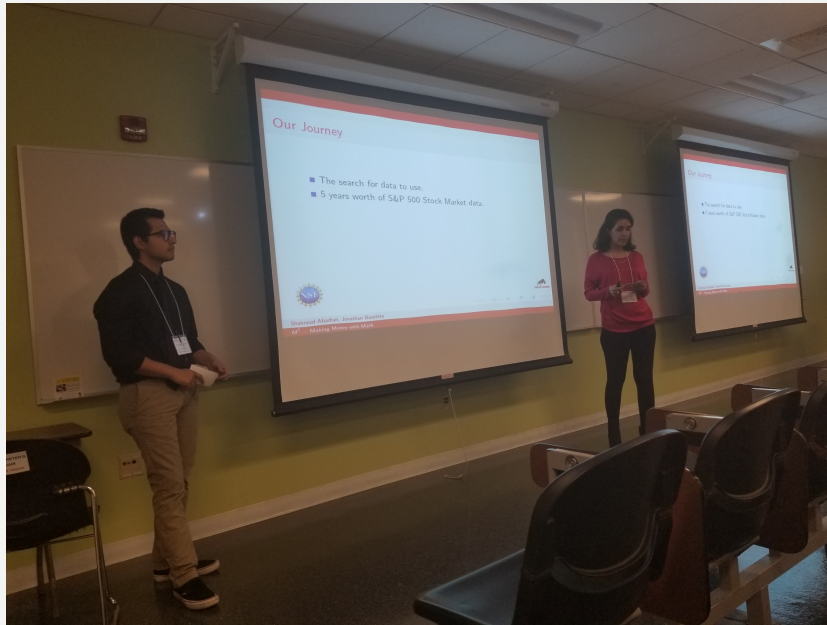
- Structure is key to success:
 - Applicants/participants: CC students who have completed Calculus II
 - One-year **local** program with constant check-ins
 - Kick-off is a **three-week** summer bootcamp
 - Each CC instructor is paired with a student team of 2-3 CC students to form a “CC team”
 - Each CC team is paired with a CSUN professor, who also pitches content of project
 - Check-ups on regular basis (at least once monthly)



SUMMER BOOTCAMP

- THREE weeks is key, as it provides flexibility around CC students' active summer
- Students lived in the dorms on-campus housing apartments at CSUN
- Long days of lecture (depending on projects – linear algebra, real analysis, or differential equations) in mornings, and lots of practice with graduate student TAs in the afternoon – helps build rapport and teamwork! Check-in's daily
- One day of LaTeX basics
- Up to two days of work on any needed software (MATLAB, Mathematica)

THROUGHOUT THE YEAR



- Break project down into various parts for constant check-in's
- CC and university faculty work together to understand progression through project
- CC teams of students continue the work throughout the year at their local college with their instructor being their mentor.
- Monthly check-ins at CSUN/Pierce.
- Students prepare a final report in LaTeX.
- Math Day – presentations of work.

MENTORING



“How do I know where to go at the airport?”



“My flight is at 4pm, so I’ll be there at 3:30 pm latest!”



What is a breakout session? Once the speaker is done at the conference, do I go home?”



“May I take this to go?”



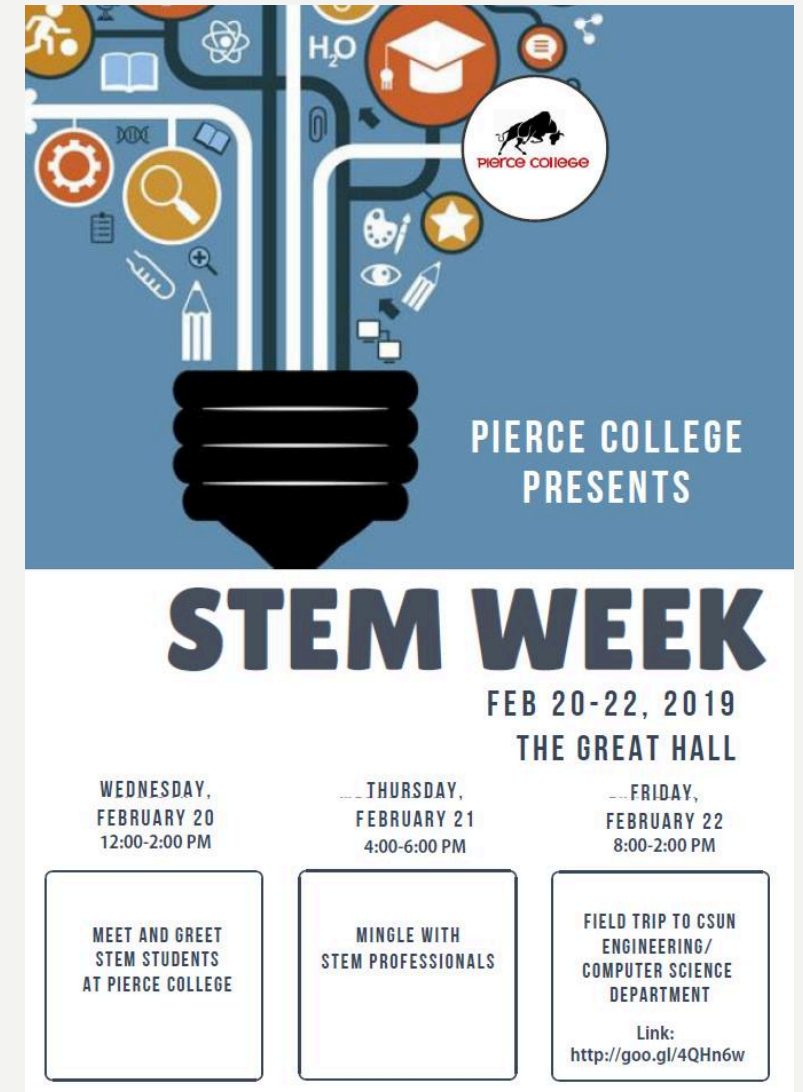
“How do I major in both?”



“What pays more?”

MORE COLLABORATION!

- By year 3 of the grant, more schools who had attended Math Day at CSUN joined: Fullerton College, Los Angeles Valley College, College of the Canyons, Antelope Valley College
- Locally, we collaborated with some new friends and put our energy into local events



The poster features a large lightbulb graphic where the filament is composed of a network of blue and white lines. Various STEM-related icons are scattered around the bulb, including a gear, a magnifying glass, a pencil, a star, a graduation cap, a DNA helix, a water molecule (H₂O), a microscope, a book, a person running, and a cell. The Pierce College logo, featuring a bull, is in the top right corner. The text 'PIERCE COLLEGE PRESENTS' is in white on a blue background to the right of the bulb. Below the bulb, the words 'STEM WEEK' are written in large, bold, dark blue letters. Underneath that, the dates 'FEB 20-22, 2019' and the location 'THE GREAT HALL' are listed. The event schedule is organized into three columns, each with a date, time, and a description of the activity in a white box with a black border.

PIERCE COLLEGE
PRESENTS

STEM WEEK

FEB 20-22, 2019
THE GREAT HALL

WEDNESDAY, FEBRUARY 20 12:00-2:00 PM	THURSDAY, FEBRUARY 21 4:00-6:00 PM	FRIDAY, FEBRUARY 22 8:00-2:00 PM
MEET AND GREET STEM STUDENTS AT PIERCE COLLEGE	MINGLE WITH STEM PROFESSIONALS	FIELD TRIP TO CSUN ENGINEERING/ COMPUTER SCIENCE DEPARTMENT Link: http://goo.gl/4QHn6w



THANK YOU!

TCHERTEA@PIERCECOLLEGE.EDU