UCI Math CEO
(Community Educational Outreach)

A university community partnership to support students’ math achievement and motivation, in preparation for college and STEM careers.

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In collaboration with: Sandra Simkins, Mark Yu

UC LINKS Conference, February 28, 2020
THE STEM CHALLENGE

Math Skills

Math Motivational beliefs

Knowledge of college and STEM careers

More Latinx students in STEM majors & STEM careers
Middle school is a critical period for developing lasting interests in STEM because

- It is the time when youth starts forming career aspirations
- It also the time when motivation in math and science begins to decline.

Math CEO: A program designed to reach out to Latinx middle school (*) youth to foster

- Math Motivational beliefs
- Math Skills
- Knowledge of college and STEM careers

(*) Middle school is a critical period for developing lasting interests in STEM because

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A University-Community Partnership built around Math Enrichment
A University-Community Partnership
A Hispanic-Serving Institution that attracts a diverse student body

- 60% of students are first-gen in college
- 47% are low-income
- 25% are Latinx

The largest city in Orange County: predominantly Latinx families with low-educational attainment

- 77.3% of Santa Ana population is Latinx
- 26.3% of children live in poverty
- 5.3% of Latinx age 25+ have a Bachelor’s degree
A growing trajectory

- 2014-15: Lathrop MS
- 2015-18: Lathrop MS, Villa MS
- 2018-19: Lathrop MS, Villa MS, Marco Forster MS, Carr MS
- 2019-2020: Lathrop MS, Villa MS, Marco Forster MS, Carr MS, Century HS

Mentees: 25, 180
Mentors: 6, 75
A growing trajectory

Mentees | Mentors
--- | ---
25 | 6

Mentees | Mentors
--- | ---
180 | 75

STEM CEO

2014-15
Lathrop MS

2015-18
Lathrop MS
Villa MS

2018-19
Lathrop MS
Villa MS
Marco Forster MS
Carr MS

2019-2020
Lathrop MS
Villa MS
Marco Forster MS
Carr MS
(El Sol MS)
Century HS
Our students

<table>
<thead>
<tr>
<th></th>
<th>Lathrop MS</th>
<th>Villa MS</th>
<th>Foster MS</th>
<th>Carr MS</th>
<th>Century HS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Latinx</td>
<td>98.5%</td>
<td>98.6%</td>
<td>63.1%</td>
<td>98.3%</td>
<td>97.2%</td>
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<tr>
<td>English learners</td>
<td>39.4%</td>
<td>28.2%</td>
<td>23.7%</td>
<td>36.8%</td>
<td>29.9%</td>
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<tr>
<td>Socioeconomically disadvantaged</td>
<td>96.1%</td>
<td>92.2%</td>
<td>62.9%</td>
<td>93.0%</td>
<td>94.8%</td>
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<tr>
<td>Students with disabilities</td>
<td>18.1%</td>
<td>6.2%</td>
<td>13.7%</td>
<td>13.7%</td>
<td>15.1%</td>
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<tr>
<td>Proficient in Mathematics</td>
<td>12.0%</td>
<td>17.0%</td>
<td>45.0%</td>
<td>14.0%</td>
<td>13.0%</td>
</tr>
</tbody>
</table>

Table 1. Data from School District Accountability Report Card
UCI faculty and students work together with Santa Ana parents and teachers to support youth’s journey towards college and STEM careers.

UCI Mathematics & Education faculty

Expert in mathematics content and pedagogy, & curriculum development

Expert in afterschool and STEM motivation

UCI Math CEO

Parents:
Strongest influence on youth college-going decisions

K-12 Math teachers:
Our partners in math instruction. Our “bridge” to reach the kids.

UCI undergrad. and grad. students

Mentors for math activities

Santa Ana parents & teachers

UCI faculty and students work together with Santa Ana parents and teachers to support youth’s journey towards college and STEM careers.
A mutually-beneficial partnership
A mutually-beneficial partnership

Mathematics mentors and role models for academic pathways

TRAINING: Math 192
- Math Content
- Teaching with inquiry
- Supporting diverse youth

UCI undergrad. and graduate students
UCI Math CEO
Santa Ana middle school students

Teaching experience, reinforced interest in serving the community
Program Components
Math enrichment sessions on the UCI campus
Astronomy
Manufacturing
Physiology Lab
Chemistry Lab
Climate Change
Astronomy
The Brain
Physiology Lab
Manufacturing
Lunch with Mentors

Campus tour

College panel

What kind of classes do you take if you are undecided?
“It resonated with me that their parents are from Mexico and they still continued with their studies.”
Spanish-speaking financial consultants from UCI advise parents about college admission and financial aid.

Spanish-speaking students from UCI share their college experience.
Math CEO: A program designed to reach out to Latinx middle school youth to foster Math Skills and Knowledge of college and STEM careers.

Math Motivational beliefs:
- Inclusive and culturally responsive learning environment, students don’t feel judged
- Emphasis on building positive mentor-mentees relationships
- Interesting and challenging math activities that promote inquiry
- The program sparks and sustains interest in math (continuous exposure)

Math Skills:
- Create rich math content
- 24 math enrichment sessions a year, where kids work in small groups with college students

Knowledge of college and STEM careers:
- Host most meetings on a college campus
- Provides (near-peer) college mentors
- Annual day-long fieldtrip (visits to STEM labs, campus tour, dine at campus cafeteria)
- College-orientation workshops for families

Collaboration with School of Ed: Research & Evaluation for continuous improvement and quality control; assistance with mentor training grants.