UCI MATH CEO

WINTER 2018 MENTOR’S GUIDE

Weekly commitment
RSVP Weekly
Sign in by 2pm pick up name tag
Behavior expectations, ask Brandi
Math instruction
Interact with children
How to leave table
About MATH CEO

UC Irvine Math CEO program is committed to offering free enrichment activities in mathematics for middle school students in underserved communities, and creating free educational material to be used in classrooms around the world. An essential goal of our program is to encourage students in low income, minority communities in Southern California to pursue a college degree in Mathematics, Science or related fields through a solid foundation and adequate planning.

**Inspire** and support the **interest in mathematics** of middle school students from nearby communities who might not otherwise have access to math enrichment activities.

**Impart** the **mathematical foundations** and critical thinking skills required for students to successfully pursue a college education and a career in STEM areas.

**Instill the desire** in these young achievers and their families for a college education and share information about college access and financial aid opportunities.
Welcome to Math CEO! We are excited that you have chosen to be a part of our wonderful program. CEO stands for Community Educational Outreach. Math CEO is an inclusive program designed to spread the joy of mathematics to middle schoolers who may not typically be exposed to academic enrichment opportunities. These students come to UCI on a weekly basis during the academic year for 2 hour mentoring sessions in mathematics.

Dr. Alessandra Pantano and Dr. Li-Sheng Tseng, faculty members in the Department of Mathematics at UC Irvine, founded Math CEO in 2014.

Math CEO has an annual impact on approximately 150 students from two middle schools in Santa Ana, California: Lathrop Intermediate and Villa Fundamental. The majority of participants are Hispanic/Latino students. Through Math CEO, the students gain access to enriching math curriculum that is not part of their daily school work. The curriculum contains activities that reveal the excitement of mathematics and its applications. By working with college mentors in a university setting, the middle school students also gain a multidimensional perspective of university life.

Math CEO inspires and supports interest in mathematics, with the overarching goal of imparting the mathematical foundations and critical thinking skills required to successfully pursue a college education and career in areas related to STEM, which stands for Science, Technology, Engineering and Mathematics. The program also seeks to instill the desire for a college education by sharing college access information and financial aid opportunities with participating students and their families.

https://www.youtube.com/watch?v=DyBik87GnHU&t=5s
UCI MATH CEO MEETINGS:

BASIC GUIDELINES FOR VOLUNTEERS

- Weekly commitment
- RSVP Weekly
- Sign in by 2pm pick up name tag
- Behavior expectations, ask Brandi
- Math instruction
- Interact with children
- How to leave table

OUR TEAM

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OUR AWESOME ASSISTANTS

ANA GOVEA

HALEY FENG

OMAR SIMJEE

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MASON WEUPE

MARIA SALAZAR

ELENA MEJIA

MONICA GONZALEZ

LEONARDO CASTRO

VALERIA CARDENAS
UCI MATH CEO MEETINGS:

BASIC GUIDELINES FOR VOLUNTEERS

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AND, OF COURSE, MENTORS (YOU)!

If you haven’t already, please join us officially:

www.math.uci.edu/mathceo/join

or

https://docs.google.com/forms/d/e/1FAIpQLSfBuiwjNXKwlcRlSZFct6SibhtwDb9JzGc4jD6NVMPnhV-L-w/viewform?c=0&w=1
“Coming into the program of Math CEO, I did not really know what to expect. [...] Never did I expect to have an active role in which I became a mentor and teacher to a group of middle school students.

This was such an amazing experience, seeing how many kids actually showed up each week to be a part of this program, to learn math from me as a student teacher, and seeing how eager most of them were to learn math and have me as a mentor; this experience was very heartwarming.” - A Math CEO mentor.
About the Meetings

Logistics & General Recommendations
Math CEO in Winter 2018

2 schools from Santa Ana, CA: Villa Fund & Lathrop Int.

~100 students (grades 6 to 8)

~60 UCI mentors

8 Monday training sessions (Math 192: Studies of the Learning and Teaching of Secondary Mathematics)

2-4PM, NS 2 1201

9 Wednesday meetings 2-4PM, NS 2 1201 & new room

2 College workshops Feb 8 (Lathrop) & Mar 1 (Villa)

Schedule

We will email you for changes

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<th>Wednesday Meetings</th>
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Holidays: January 15 & February 19
LOCATION OF OUR MEETINGS
NS 2 1201 (LATHROP) & PSCB 140 (VILLA)
LOCATION OF OUR MEETINGS
NS 2 1201 (LATHROP) & PSCB 140 (VILLA)

NS2 1201
Lathrop

PSCB 140
Villa

Tables A1 to A10

Tables B1 to B10
**EXPECTATIONS FOR MENTORS AT UCI MATH CEO**

**BEFORE EACH MEETING**

- **RSVP by each Saturday and complete Meeting Report Questionnaire for last meeting** 
  (Form sent every Wednesday)

- **Review next week’s material** 
  to prepare for Wednesday 
  (Instructor’s Manual sent each Saturday). Meet with your Teaching Buddy!

- **Attend Monday’s Training** 
  2-4 PM @NS2 1201 
  Mandatory for MATH 192 students. Recommended for all mentors.

**DURING EACH MEETING**

- **Sign in:** 
  - Courtyard by NS 2 1201, 2PM (or 3PM) 
  - In front of PSCB 140, 2PM (or 3 PM)

- **Go to your assigned table:** you may be with other mentors. Identify the Leader.
  - Leaders: during 10 first minutes meet outside the room to receive general recommendations for that day.

- **Towards the end of the meeting:** 
  - Ask kids to fill out surveys 
  - Complete the Meeting Report 
  - Ask kids to clean the table 
  - Return the whiteboards and markers 
  - Return documents to the folder

- **Clean the room and move tables and chairs back**
INSTRUCTOR’S MANUAL
(READ IT BEFORE THE MEETING)
IN SOME MEETINGS THERE IS ALSO A STUDENT BOOKLET

MEETING REPORT (2 PARTS)
1) FILL AT END OF MEETING
2) COMPLETE ONLINE QUESTIONNAIRE AFTER MEETING (MANDATORY)

STUDENT SURVEYS (INDIVIDUAL)
• MATH QUESTIONS (AFTER SOME ACTIVITIES)
• NON-MATH QUESTIONS (END)

FAMILY PROJECT
KIDS TAKE IT HOME AND RETURN IT ON THE NEXT MEETING

TABLE FOLDER
PLACE MR & SS; ALSO FP FROM THE PREVIOUS MEETING. BE ORGANIZED!

WHITEBOARDS & PENS
ONE PER STUDENT USE THEM AT ANY TIME

NAME TAGS
YOU AND THE KIDS NEED TO USE THEM AT ALL TIMES

EXPECTATIONS MATRIX
GO OVER IT WHEN NEEDED. USE IT!
**KEY GUIDELINES DURING THE MEETINGS**

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<td><strong>KNOW YOUR STUDENTS</strong></td>
<td><strong>ASK FOR EXPLANATIONS</strong></td>
<td><strong>MOVE &amp; MONITOR</strong></td>
<td><strong>CHECK WORK</strong></td>
<td><strong>AT THE END</strong></td>
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<td>Call students by their names most of the time: talk about their day before the math</td>
<td>Ask students how they got their answers. “How do you know?”, “Why?”, “Draw a picture”, “Convince me!”</td>
<td>Move around your table; monitor all students; use an adequate tone of voice; promote teamwork.</td>
<td>Verify that the students write the solutions to the problems, not just the answers.</td>
<td>Ask students to fill out the survey individually, and to help pick up trash from the table and floor.</td>
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**TEACHING TIPS**

Tips which you will find in the booklet: procedures, questions to ask, recommendations, methodologies
## EXPECTATIONS FOR KIDS AT UCI MATH CEO

Working with middle school kids can be challenging. Our after-school math program is definitely not the easiest! Kids come from school at 2PM, so they are **tired and hungry**. It is sometimes hard for them to stay on course.

We have an matrix of expected behavior customized for our program. **Make sure that kids are aware of this matrix** and use it if you are having behavior challenges at your table to remind kids of what is expected of them.

During the meeting, if you need immediate assistance managing disruptive behaviour from some of the kids, please let Brandi Schumacher (one of our coordinators) know.

If you have any further questions, please email Brandi (blschuma@uci.edu)

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MENTOR THIS WINTER AT UCI!

Teach to 6-8th Graders in a Friendly Environment

Wednesdays 2pm at UCI

PROMOTE PROBLEM SOLVING SKILLS

INSPIRE STUDENTS TO ENTER HIGHER EDUCATION

ENCourage STUDENTS TO PURSUE STEM-RELATED FIELDS

JOIN US!

www.math.uci.edu/mathceo/join

MATHCEO@MATH.uci.edu

FIELDWORK HOURS

Wednesdays 2 to 4 pm
NS 2 1201 (UCI)

9 MEETINGS STARTS JANUARY 10

Choose to take our companion training course MATH 192 (learning & teaching of secondary mathematics):

- WEEKLY TRAINING (MON 2-4)
- MENTOR FIELDWORK (WED 2-4)

= 2 ACADEMIC UNITS
VOLUNTEER FOR COLLEGE WORKSHOPS FOR PARENTS

FEB 8 @ LATHROP & MAR 1 @ VILLA

See more: www.math.uci.edu/~mathceo/collegeprep.php
Write your own inspirational life story (road to college)

PRESENT YOUR STORY TO KIDS AND PARENTS AT THE UPCOMING COLLEGE WORKSHOPS FOR PARENTS
FEB 8 @ LATHROP & MAR 1 @ VILLA
MORE WAYS TO HELP UCI MATH CEO

Refer our program to potential donors

Take pictures and videos during the meetings

Invite a STEM professional to have a career dialogue with kids

Do a “career invitation” in one of our meetings

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Culinary chefs require food preparation, coordinating staff, time managing for orders, seeing how much needs to be ordered.

Ecologists study the interactions among organisms and their environments.

Electrical engineers design, develop, test, and supervise the manufacture of electrical equipments.

Environmental scientists study the interactions of atmosphere, biosphere, hydrosphere, lithosphere, and cryosphere.

Firefighters respond to emergency situations and protect people, the environment and property.

High-school Math Teachers teach students subjects like geometry, statistics, algebra and calculus.

Conduct review sessions for mentors
Prepare materials for and conduct review sessions for the Instructor Manual with our enrolled mentors. You would walk the mentors through the booklet in order to prepare them for the Wednesday meeting. Creating videos for this could be also be an option.

Prepare & Present a Career Presentation
Prepare a Career Presentation (including a lesson plan and hands on activity) and present it during a Wednesday Meeting.

Create math activities
Help create activities or problems for a Wednesday booklet involving applications of Mathematics to a real life context (science, food, sports, arts, etc).

Create a video
Create a short video (3-5 minutes) explaining one of the activities to be carried out in one of the Wednesday’s Meetings.

Family Project
Create a Family project for students in the Math CEO Meetings.

If you are interested in one or more of these, please email us as soon as possible: mathceo@math.uci.edu
Expectations for Mentors at UCI Math CEO

1. Commit to the program
   - Seek to attend all meetings
   - Be on time
   - Respond to emails promptly

2. Be a role model
   - Share your experiences
   - Be friendly & respectful
   - Encourage kids to succeed

3. Prepare for teaching
   - Read the booklets before the meeting
   - Attend to training sessions

4. Collaborate with other mentors
   - Contact your teaching buddy
   - Practice co teaching

5. Collect assessment
   - Math assessment (end of activities)
   - Students survey (end of meeting)

6. Complete meeting reports
   - Use rubric to assess each student
   - Write a short reflection on your mentoring
EXPECTATIONS FOR MENTORS AT UCI MATH CEO
“Having the same group every week helped students and tutors become more comfortable with each other and even formed somewhat of a mentor-mentee relationship. As a tutor, this helped me tutor the students better because I was able to figure out the strengths and weaknesses of each student and was able to help them based upon their mathematical knowledge.” - A Math CEO mentor
“There were many precious moments during the course. For example, they are curious about college life. They asked me many question about college: what is the difference between university and college; what classes do you need to take; do you have homework during the spring break. They were excited to know that students can choose elective classes and take classes that they are interested in. I also liked them teaching me some easy Spanish phrases. All children in my group spoke Spanish. I think it really built confidence in them when they know they were better than me in some aspects. The teaching did not only go one way. They can teach me something as well.”

- A Math CEO mentor
"The training sessions were very helpful. I learned many ways to solve problems like a middle school student, for example, use double line bar to do fraction problems.

This is very important because sometimes the way I used to solve a problem may be very confusing to the children.

It is also fascinating to learn that there are many other smart ways to a question than I was so used to."

- A Math CEO mentor
EXPECTATIONS FOR MENTORS AT UCI MATH CEO

4

Collaborate with other mentors

Contact your teaching buddy

Practice co teaching
TEACHING BUDDIES

YOU WILL BE PAIRED WITH A TEACHING BUDDY (ANOTHER MENTOR WORKING IN THE SAME TABLE).

YOU AND YOUR TEACHING BUDDY WILL:

● REVIEW THE MANUAL BEFORE WEDNESDAY
● DISCUSS TEACHING IDEAS
● LOOK AFTER EACH OTHER
● REFLECT ABOUT TEACHING (TALK AFTER!)

AT THE END OF THE QUARTER, WRITE A 2 PAGE STORY SHARING YOUR JOURNEY TOGETHER

NOTE: PAIRINGS WILL BE DONE BY FRIDAY, JANUARY 12
Expectations for Mentors at UCI Math CEO

UCI Math CEO - Winter 2018 Survey
Meeting 1 January 20, 2018

Please write your name in the back

Please answer all questions individually

Problem 1
(Take at the end of Activity 2)

(A) When we stretch Figure 1 horizontally by a factor of x3, we obtain Figure 2:

Figure 1

Figure 2

We stretch Figure 3 horizontally by a factor of x3 to obtain Figure 4. Draw this figure.

Figure 3

Figure 4

(A) Suppose that we have a rectangle of area of 6. If we stretch it horizontally by a factor of x2 and then we stretch it vertically by a factor of x2, what is the area of the new rectangle?

Justify your choices.
Write your work:
Today's activities were:

How good were you at solving today's activities?

While I was solving the activities, I felt:

How hard did you try in today's activities?

How often do you feel you can really talk to your mentor?

How often do you feel that you and your peers are really a group?

Feedback for your mentor: __________________________

3 words to describe Math CEO: ______________________

__________ _____________________________

Clean your table when you finish, return the dry-erase markers, pick up your trash and take your belongings. Thank your mentor!

Thanks for your responses!
MATH CEO MENTORS: NOT AN EASY JOB (BUT VERY MUCH REWARDING)

“I learned that I need to be extremely patient with the students. Talking with middle school students was a different and challenging experience. It was difficult to gather the team’s attention and make them focus on the topic, but it was exciting when they learned the concept and able to complete the problem on themselves with little guidance from the volunteers.”

- A Math CEO mentor
The MATH in MATH CEO
WHAT IS THE MATH LIKE AT MATH CEO?

MATH CEO is **NOT**

- A class lecture
- A tutoring session

Rather, it is an enrichment experience where kids work together with UCI students to solve fun and challenging problems.

However, from time to time, you will

- Do demonstrations and mini-lectures to provide models and clarify concepts
- Provide individual feedback and so small interventions that resemble tutoring
We will prepare a **new Instructor Manual** with problems and activities for each meeting.

Under your guidance, students will work on a variety of activities:

- *Tasks to be solved by students independently* (to develop individual and cooperative problem solving skills)
- *Free explorations*, such as puzzles and games (to develop intuition)
- *Guided explorations* (to develop inquiry and communication skills)
- *Scaffolded problems* (to solidify and consolidate learning)
USEFUL TEACHING TIPS

- Clearly state your learning goals
- Move around and change pace
- Make kids explain to others

- Explain with pictures, vivid language, metaphors and hand and body gestures
- Ask questions continuously to check for thinking and understanding

Diagram:
- **Involve all students**
- **Embrace multiplicity**
- **Check for understanding**
- **Give students time to explore**

- Pair students
- Ask students to explain to others
- Make all students participate
- Guide with thinking questions
- Give orientations without revealing the solution

- Explore multiple roads to solutions
- Use mistakes for learning
- Relate pictures, tables and formulas

- Monitor student’s work
- Value the process, not just the answer
USEFUL VIDEOS FOR NEW MENTORS

YOUR ROLE AS A MENTOR

THE MATHEMATICAL NATURE OF THE MATH CEO MEETINGS

For more videos, visit our Channel

https://www.youtube.com/channel/UCvMQNFTP-hPf-xKsNixhzYXw
FREQUENTLY ASKED QUESTIONS

WHAT ARE THE MAIN GOALS OF THIS PROGRAM?
To develop a culture of caring, teach math in a meaningful way and help kids pursue a career in college.

SHOULD I ENROLL IN THE MATH 192 COURSE (MONDAYS 2-4 PM)?
Absolutely! It gives you 2 units and helps you prepare for Wednesday’s meetings.

I CAN ONLY COME FROM 2-3 OR 3-4 ON WEDNESDAYS. SHOULD I COME ANYWAYS?
Sure! What’s important is that you have a consistent schedule.

I TOLD A FRIEND ABOUT THE PROGRAM AND HE / SHE WANTS TO JOIN. WHAT SHOULD HE / SHE DO?
He should sign up the form as soon as possible: www.math.uci.edu/mathceo/join

WILL I WORK WITH THE SAME KIDS EVERY TIME?
Ideally yes, and we will do our best to make this happen. We feel that bonding between you and the kids will strengthen this way.

I CAN ONLY COME TO SOME MEETINGS, AND I DON’T EVEN KNOW THIS IN ADVANCE. WHAT SHOULD I DO?
If you are in this situation in which your schedule can change week by week, you can still help! Just remember to sign up each week to let us know what time you are planning to come.

IS KNOWLEDGE OF ADVANCED MATHEMATICS OR TEACHING EXPERIENCE REQUIRED FOR THE MEETINGS?
No, it is not required, but of course it helps. An additional goal for this program is to train you in teaching mathematics (and teaching in general). So consider this as a learning experience.

2018 UC IRVINE MATH CEO MATH.UCI.EDU/MATHCEO