

**UC Irvine Math Circle
Department of Mathematics
School of Physical Sciences, UC Irvine**

Lathrop Intermediate School's UC Irvine Visit

Tuesday, October 14, 2014

Organizers: Alessandra Pantano and Li-Sheng Tseng



On October 14, 2014, a group of 32 middle school students, parents and teachers from Lathrop Intermediate School, Santa Ana visited UC Irvine. The purpose of the visit was to have these students and parents experience a university environment and to ferment their interests in college education. The students learned about interesting applications in mathematics and had a chance to interact closely with UCI math undergraduate students and ask questions about UCI college life. The parents were made aware of the various opportunities and programs available for low-income minority students wishing to attend college, and importantly, they also had the opportunity to hear many personal life stories from current UCI math undergraduates who are from similar ethnic and socioeconomic backgrounds.

Background

The student body of Lathrop Intermediate is 98.7% Hispanic/Latino and 95.6% socioeconomically disadvantaged.¹ Beginning September 2014, UCI Math Circle (Prof. Alessandra Pantano, Director) initiated an outreach program at Lathrop that takes place on Wednesday, 1:25-2:25 PM, every other week immediately right after the end of school. At each meeting, a UCI Math Circle Team consisting of two Math Department faculty members (Prof. Alessandra Pantano and Prof. Li-Sheng Tseng) and three UCI graduate students (Andres Forero, Monica Romero and Cynthia Sanchez) work with a group of about 25 Lathrop students to investigate interesting mathematical topics not covered in the regular school curriculum. The main goal of this outreach is to foster the students' interest in mathematics and to encourage them to pursue a career in a STEM-related field. To further entice the students to work hard towards a college education, on October 14, 2014, we invited this group of students and their parents to spend a day at UC Irvine and get a taste of UCI's exciting university environment. A special emphasis was placed on parental involvement, as it is known especially for low-income Latino kids that the success in reaching higher education correlates strongly with the support and encouragement of their parents at home.

Program Activities

The one-day event at UCI consisted of two concurrent programs: one for Lathrop students in Natural Sciences II 1201 and another for parents in Natural Sciences II 2201. After a general introduction to UCI and a welcome from our Department Chair, the students enjoyed three short talks by UCI Math Department faculty members on fascinating applications of mathematics, they engaged in an hour-long problem solving/exploration session with 12 UCI math undergraduate students on Taxicab Geometry, and participated in a wide-ranging 25-minute long question and answer session with 6 UCI undergraduate students. The parents program, conducted entirely in Spanish, consisted of a presentation of pathways to college and several moving accounts by Hispanic UCI undergraduate math majors who described their own personal experiences to strive for a college education.

At midday, the entire Lathrop group enjoyed lunch at UCI's Pippin Commons located on campus within Middle Earth undergraduate student housing. This allowed the students to get a taste of university life. The lunch was followed by an informative campus tour given by UCI's Office of Admissions.

¹ From Lathrop Intermediate School's "2012-2013 School Accountability Report Card" published by Santa Ana Unified School District.

Comments from participants:

From one of the Lathrop teachers: *"Thank you for organizing a very memorable day for our students and parents. Lives of our students will never be the same. They cannot stop talking about the trip. Students enjoyed lectures and got to see math from a very different perspective. They also got an idea what going to college means, and parents were very happy to learn that their low income is not an obstacle on the path of getting excellent education."*

From an 8th-grade student, *"Something new I learned was the 'taxicab (geometry).'* So thank you very much for you teaching and showing us your campus.... I enjoy the tour because I saw many things that convince me to come here later on."

From another 8th-grade student, *"I learned how to plot, graph, and route different ways to point to point. (About college), I learned the safety on campus, transition, how a student life works on campus, and the fun it brings. How do I come to UCI? I hope I'll be an Anteater."*

From a 6th-grader, *"I learned about new ways of geometry. I learned more about symmetry. I learned that with good grades, you don't have to pay anything in college or university. If I come here, will you guys still be here?"*

From a parent, *¿Qué fue lo que le pareció más valioso? "Los estudiantes que nos abrieron los ojos para que nuestros hijos sean tambien como ellos en el futuro de esta escuela."*

[What did you find most valuable? "The (UCI) students who opened our eyes and made us realize that our children can be, just like them, in the future of this school."]

From another parent, *¿Cuál es el principal mensaje que le queda de este encuentro? "Que si se puede."*

[What is the main message you take out of this meeting? "That we can."]

Evaluation of the Program

The success of this program is the result of a synergistic collaboration among several parties at UCI. The event was sponsored by the UCI Math Circle, directed by Professor A. Pantano. All the faculty involved were from the UCI Math department. The two organizers (Professors A. Pantano and L.-S. Tseng) coordinated the planning of the event. The chair (Professor K. Rubin) welcomed the students upon their arrival to UCI; Professors J. Allard, Z. Lu and A. Pantano each gave a talk to illustrate the power of mathematics in a plurality of settings, while Professor G. Enciso led the entire program for the parents, in Spanish. Four mathematics graduate students (A. Forero, C. Sanchez, M. Romero and D. Agress) greatly helped with the logistics. Viviana Ramos (Assistant Director of Upward Bounds, at the UCI Center for Educational Partnerships) gave a 45-minute workshop – in Spanish - to

parents about pathways to college. Kris Houston (Cal Teach Academic Coordinator at UCI, with a 15 year experience of teaching high school in Santa Ana) offered advice to both students and parents on how to succeed in high school. Kika Friend (Director of the California Alliance for Minority Participation at UCI) gave us flyers – in Spanish – about requirements for admission to UCI, scholarships and fellowships.

Crucial to the success of the program was also the involvement of UCI mathematics majors: we were fortunate to count on the support of as many as 34 volunteers. During the math circle, a good number of our math majors sat with Lathrop students around a giant table, and helped them work through a mathematical exploration of taxicab geometry, while others participated into a panel at the end of the day. Perhaps the biggest heroes of the day were our Hispanic-speaking math majors who engaged in conversations with the parents and described the paths that led them to UCI. (Those who had a class during the scheduled time contributed a video or a narrative that was also shared with the parents.) It was truly moving to hear the stories of so many of our Latino mathematics majors: much like the Lathrop kids, they are all first generation college students and they all had to overcome great difficulties to make it to UCI. Their stories were a source of encouragement and inspiration for the parents. Their desire to help was so sincere that one could feel it in the air. All the students talked about a parent, a teacher or perhaps a school counselor that played a key role in their decision to attend college; reaching out to the Lathrop parents was their attempt to give back to the community. So here they were, sharing with the Lathrop parents the biggest piece of advice that they once got: *"Don't let the money stop you. Just work hard and be passionate about learning."* It was quite surprising for the parents to discover that so many of our Latino math majors are on scholarships or fellowships, and are paying less than a \$1,000 per quarter (or sometimes nothing at all). This fact, alone, will dramatically impact their decision to send their kids to college.

When the parents left with a folder containing informational materials – in Spanish – about scholarships and fellowships, and other admission materials to UCI. Also included in the folder were narratives of personal stories from UCI Latino math majors. It is interesting how the event ended up being very meaningful for our own students, in particular the Latino ones, who had an intrinsic motivation to help students from a similar background. Sharing their experiences with the parents and discovering striking similarities in their stories contributed to create a sense of community among our own Latino math majors. Friendships were formed, and they bonded over this extremely rewarding experience. One of them said: *"I really enjoyed the parent meeting last Tuesday and being a big help. I really loved reaching out to the parents in Spanish. I loved the experience so much that I would like to be a part of future meetings to come."*

It has been a pleasure to see the students' passion for mathematics continue to grow. Hopefully, we will see those kids again in our classes, 4-6 years from now.

Acknowledgement of Support

The event was supported financially by the UC Irvine Department of Mathematics Department and also in part by Prof. Pantano's Dolciani grant from Mathematical Association of America (MAA). Special thanks go to Jasmina Matasovic, Math Teacher at Lathrop Intermediate, who critically helped organize the trip from Lathrop. We thank all the UCI faculty, staff and students who contributed to the realization and the success of the program, some of which were mentioned before. We also extend our thanks to Lori Greene (Assist. Director of Research Development, School of Physical Sciences, UCI) for her useful advice and for donating Frisbees and other souvenirs to give to the students, and to Tatiana Arizaga (Director of Communications, School of Physical Sciences, UCI) for taking pictures of the event. Last, but not least, we want to thank the students at Lathrop Intermediate for their enthusiasm; it was a real pleasure to host their visit.

Event details and logistics

Targeted school

Lathrop Intermediate School
Santa Ana Unified School District
Santa Ana, California

Targeted group

26 Students (6-8th grades), 4 parents and 2 math teachers (Jasmina Matasovic, Samantha Helstram). Samantha graduated from UCI last year, with a math degree and teaching credential (CalTeach).

Main Program for Students – in English

Location: Natural Sciences II Rm 1201

9-9:15 *Introduction to UCI*, Prof. Alessandra Pantano and *Welcome* from Math Dept. Chair, Prof. Karl Rubin

9:15-9:30 Prof. Alessandra Pantano: *A talk on Symmetry Groups*

9:30-9:45 Prof. Jun Allard: *A talk on Cell Division*

9:50-10:40 Problem Session with *Worksheets on Taxicab Geometry*

10:50-11:15 Prof. Zhiqin Lu: *A talk on Taxicab Geometry & Beyond*

11:20 Group Picture

11:40-12:35 Lunch at Pippin Commons

12:40-1:15 Campus Tour

1:15-1:55 *Questions and Answer Panel with Undergraduate Math Students* (Chaired by Prof. Li-Sheng Tseng), Survey, Wrap Up

Concurrent Program For Parents - in Spanish

Location: Natural Sciences II, Rm 2201

9-9:45 *Pathways to college*, Viviana Ramos, Assistant Director of UCI Upward Bound

9:50-11:15 *Undergraduate math students relates personal stories* (Chaired by Prof. German Enciso)

11:20 Group Picture

11:40-12:35 Lunch at Pippin Commons

12:40-1:15 Campus Tour

1:15-1:55 *Panel with Undergrad Math Students*, Survey, Wrap Up

Involved UC Irvine Math Department Faculty: *Jun Allard, German Enciso, Zhiqin Lu, Alessandra Pantano, Karl Rubin and Li-Sheng Tseng*

UC Irvine Math Graduate Student Helpers: *Andres Forero, Daniel Agress, Cynthia Sanchez, Monica Romero*

UC Irvine Math Undergraduate Helpers:

- English Speakers: *Robert Hoffman, Tej Patel, Renyin Zhang, Stephanie Wang, Haoyue Yang, Yue Guan, Thuy Tien Tu, Christina Vu, Tony Quan, Pari Patel, Minda He, Yu Fu, Kevin Tellez, Han Shu, Joy Lam, Janelle Juarez, Yanting Zhu, Min Ni*
- Bilingual English-Spanish Speakers: *Alejandro Cuevas, Candela Martinez, Cristina Jaimes, Edyth Meza, Fernando Medrano, Kaylee Paola Acuna, Kimberly Gonzalez, David Guzman-Avalos, Mariella Beltran, Mirna Alegria, Tanya Vega, Karina Mendez Arreola, Daniel Ramirez-Guerrero, Linda Patricia Lazaro Guevara, Josselyn Ramos, Eduardo Duran*

Other UC Irvine Helpers:

Kris Houston (Cal Teach Academic Coordinator, Math Master Teacher, UC Irvine)

Kika Friend (Director, California Alliance for Minority Participation, UC Irvine)

Viviana Ramos (Assistant Director of Upward Bounds, Center for Educational Partnerships, UC Irvine)