

First generation CSUCI Physics major wins two scholarships and helps write an \$80K grant from NASA



April 27, 2023 - [CSU Channel Islands](#) (CSUCI) Applied Physics major Trent Ruiz failed to get into college more than once, often felt discouraged, and struggled with anxiety and depression.

But thanks to mentors, good therapists and sheer perseverance, Ruiz, 29, became the first in his family to attend college, is the recipient of two major scholarships, and served as the lead student for a recently awarded grant from NASA for \$80K.

“I’m graduating but I don’t want to stop being part of the physics department here,” Ruiz said. “The mentors here have changed my life. Sometimes people just need an opportunity.”

One of the scholarships was a \$2,500 STEM-NET SoCalGas Student Research Fellowship for undergraduate students to work with CSU science, technology, engineering, math (STEM) faculty members on research projects during the summer 2022 semester. Ruiz and the five other SoCalGas scholars will present the results of the research during the Spring 2023 STEM-NET SoCalGas Student Research Fellowship Virtual Café on Thursday, April 27 from noon to 1:30 p.m.

“I was killing myself working seven days a week,” Ruiz said. “Having these funded research opportunities allows me to focus on school. I wake up every morning excited. It has allowed me to care for my mental health.”

The title of Ruiz’s research study is: Computational Aspects of Peridynamic Corrosion Damage Modeling and Scanning Vibrating Electrode Technique Validation - which, simply put, describes a mathematical model that can predict corrosion damage in various metals.

“Corrosion plays a big role in our infrastructure,” Ruiz explained. “Especially in our underwater pipelines. Once you put steel in an electrolytic (like saltwater) solution, it corrodes like crazy. Our models will be able to predict where corrosion is going to happen.”

His research interests also played a part in a major grant proposal he wrote with Associate Professor of Mathematics Cynthia Flores, one of the mentors who helped change his life.

“Trent Ruiz is what Channel Islands is all about,” Flores said. “I’ll never forget the effort and creativity he puts into his math assignments. He recently led the successful \$80K [NASA grant](#) we’ve been awarded on modeling and validating corrosion damage for aerospace metals and I look forward to continuing working with him and following his career journey.”

Ruiz also is the recipient of a Hispanic-Serving Institution “STEM Model for Advancing Research and Teaching” (HSI-SMART) scholarship for \$4,200. Flores recommended Ruiz for the scholarship and invited him to participate in her research project.

Ruiz is the first to tell you that his story might have had a different ending had he not known when to ask for help.

The Ventura native graduated from Foothill Technology High School and began studying engineering at Ventura College, but his journey to CSUCI was not a straight line.

“The first time I applied to colleges, I got denied,” he said. “I finally got wait-listed at UC San Diego (UCSD), but I was suffering from some really bad mental health problems and I was not doing well academically. I finally got into UCSD, but they kicked me out because of my grades. For a long time I didn’t think I was going to go to college.”

When he returned to Ventura, a former high school mentor contacted him and asked if he would tutor his son and daughter.

“Through tutoring his kids, I fell in love with science all over again,” Ruiz said. “Trigonometry, calculus, all of it. I began tutoring a handful of Foothill students and I even tutored my mom’s friends so they could get a job promotion. And it paid my bills.”

But his anxiety and depression were still getting the best of him, so his attempts to return to college were unsuccessful.

“I cared so little about myself, I was so stressed about all kinds of things,” Ruiz said. “I was a financial burden on my family, but it was so hard to care

about school. Then I had a friend at UCSD who had gone to counseling at the college, so I went to therapy.”

Therapy was just what he needed. Ruiz then applied to CSUCI and, after one unsuccessful attempt, was accepted. He thrived in physics and mathematics under the mentorship of faculty members like Flores, Physics Lecturer Brian Rasnow, and Professor of Physics Greg Wood, to name a few.

“When I first went back to school and studied physics and math, I just wanted to know more,” Ruiz said. “It’s just - existential. It’s the reason I know I’m in the universe. You can’t make this stuff up and it’s beautiful. The fact that I’m learning a language that is the same throughout the entirety of the universe. It doesn’t matter what language you speak because the language of mathematics is always the same.”

After graduation, he hopes to pursue a Ph.D. or look into starting up a company using the research he’s continuing to develop about corrosion. He is open about his struggles because he wants other students experiencing the same struggles to know that there’s hope, and there’s help.

[Tune into](#) the STEM-NET SoCalGas Student Research Fellowship Virtual Café on Thursday, April 27 at noon to learn more about Trent’s research.

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