



# Growing in STEM at El Centro College



## El Centro College

### DALLAS COUNTY COMMUNITY COLLEGE DISTRICT

Things have been looking a lot greener lately at El Centro College in downtown Dallas, Texas. The living wall outside the Student Center is lush with green pepper plants, the plants thriving in the rooftop greenhouse are on view from inside the library, and the STEM Success Center has an aroma of basil thanks to the hydroponic system. These new additions are part of the Urban Agriculture and Renewable Resources program, just one development of the Innovative Pathways to STEM Success Project funded by a USDE HSI-STEM grant. El Centro's student population consists of 50% Hispanic students. The IPSS project aims to improve the participation and success of Hispanic students in STEM degree pathways.

UARR is teaching students about using the resources around them to support both plant and animal life. The program will offer a total of eight agriculture courses as part of an associate's degree, with two new courses offered each semester. For El Centro College students living and studying in an urban setting, this new access to agriculture courses offers unique STEM pathway options that were previously unavailable. The program is designed to transfer credits to a number of agriculture related baccalaureate programs in North Texas.

IPSS offers early interventions to promote math success, a gateway that often derails potential STEM students. Every summer, high school seniors and recent graduates are invited to participate in the Algebra Summer Bridge, a two-week bootcamp that provides free mathematics lessons with seasoned professors, placement testing, and college readiness activities.

Over 100 students have been served by Algebra Bridge over the last three summers, and over 6,000 high school students in Dallas County have received small-group math support with the free in-class workshop series. When entering El Centro as college freshmen, students have the option of enrolling in STEM Learning Communities. Students in STEM Learning Communities have a greater chance of success through this cohort model with embedded supports, including peer mentorship and case management. The IPSS project also aims to transform STEM instruction by offering faculty development opportunities on innovative teaching strategies. As a result, El Centro's STEM classes have expanded the use of project-based learning, offering culturally relevant curriculum, and fast track and hybrid programs.

The STEM Student Success Center is the hub of specialized STEM services and resources. Whether students need tutoring, are working on a group project, want transfer or career guidance from an advisor, or just need a place to relax until their next class, the STEM Center is there to meet their needs. For students looking for more of a challenge, the STEM Ambassador program offers additional opportunities to develop academic and professional skills by supporting undergraduate research, honors projects, and peer mentorship opportunities. To date, 56 students have participated in this program and completed projects ranging from teaching a finals review session to building a Smart Mirror.

For STEM Students, El Centro is typically just the first step of their educational journey, and El Centro aims to make a student's transition to a four-year institution as seamless as possible through IPSS. The STEM articulation specialist is currently developing detailed transfer pathways and before long, an El Centro student will know precisely which courses they should take for any baccalaureate STEM degree plan offered in North Texas. The IPSS project is creating a lasting support infrastructure that will improve the outcomes for El Centro's Hispanic STEM students.

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By: Devon Kodzis and Rebecca Britt  
El Centro College

# University's Summer Bridge program paves career path for Mexicali student



Eugenio Patricio Bernal didn't know what to do. With each step he took toward a college degree, obstacles arose to challenge him, including a low score on a math assessment test.

Bernal, who goes by Patricio, is from Mexicali, Mexico and is a first-year pre-orthotics and prosthetics major at La Sierra University in Riverside, Calif. It was a career path that almost didn't happen. He graduated from Calexico Mission School located along the U.S.-Mexico border. To manage costs, he first considered community college as well as taking a year off to work and save money. But his first interest was La Sierra from which his older brother graduated last June. He applied and was accepted, and through the resourceful research of his mother along with a fortuitous summer camp tuition-matching job, the financing was in place. He was all set. Then his score on a college math placement test proved too low to take required freshman courses.

The university, one of more than 100 private Hispanic-serving institutions of higher education across the United States, offers a solution for students in Bernal's predicament -- the Summer Bridge program, funded by a five-year grant in 2015 from the U.S. Department of Education's Title V program. Summer Bridge provides eligible freshmen five weeks of no-cost, holistic instruction in a supportive environment that builds academic skills and provides an opportunity to re-take the math placement test called Accuplacer. Bernal became aware of Summer Bridge just days before its application period closed last summer. He rushed to submit the required documents and a few days later received an acceptance notification.

During the immersive program, Bernal stayed in a college dorm and focused on the boot-camp style daily math classes. He loved his instructors and learned how to study, he said. "I have a bad time memorizing, but Summer Bridge helped me do that."



Patricio Bernal, a first-year pre-orthotics and prosthetics major at La Sierra University in Riverside, Calif. poses in a biology lab where he has taken classes. (Photos: Natan Vigna)

After the five week course, he scored two levels higher on the Accuplacer test and was accepted into a university statistics class. The experience impacted Bernal on an even deeper level. "Summer Bridge helped me to understand that I shouldn't put myself down and should start believing in myself more," he said. After two years at La Sierra, Bernal plans to continue at Loma Linda University to ultimately earn bachelor's and master's degrees.

The Title V grants awarded to La Sierra University are intended to help Hispanic and low-income students achieve greater academic success leading to graduation. The initial Summer Bridge program has resulted in substantive improvements in Accuplacer scores for almost all of its students. Results for 2018 showed that of 24 students, 19 tested into a categorically more advanced math course.

Marvin Payne, La Sierra's project director of the Title V program said, "Our Title V funding is pivotal in making it possible for us to design and execute an effective Summer Bridge program that integrates at-risk incoming students into college life and accelerates their path to college level courses. This will make a real long-term difference in their careers."

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By: Darla Martin Tucker  
La Sierra University



# TITLE V SUCCESS AT OLLU



At Our Lady of the Lake University, a Hispanic-Serving Institution and charter member of the Hispanic Association of Colleges and Universities, Title V funding allowed the department of English to create a technical and professional writing program and construct a technical writing lab, reaching across disciplines to better serve Hispanic students and produce contributors to a digitally literate society in which writing is power and field-specific; where writing is professional power.

OLLU faculty members Wallis Sanborn, Ph.D., Candace Zepeda, Ph.D., and Robbie Kouri created the program through Title V funding that offers an 18-credit hour Technical and Professional Writing minor, a 12-credit hour certificate, and elective options in grant writing, business communications, visual rhetoric, technical editing, fundamentals in technical communication, and writing for the web. Specialized Composition II courses are also offered, such as Composition II for STEM, Business, Psychology and Social Work. Current courses in development are upper-level technical writing for the sciences, technical writing for law, technical writing for psychology, and a just-completed master's level Writing for Social Work. The digital era demands highly-specialized, field-specific research methods and document design, and the program empowers students to research, read and write effectively in their fields.

Title V funding has also provided for the design and creation of the OLLU Technical Writing Lab, a sixteen-seat computer lab designed with current pedagogy and equipped with state-of-the-art hardware and software. The Lab offers a student-centric learning experience where students can: immerse themselves in technical communication theory and practice; design and edit documents at a professional level for production; create web sites using HTML5 and CSS3; analyze visual rhetoric; practice the grant writing and application process; and draft and revise business documentation, all in a clinical environment directed by faculty with experience in the professional world.

Three students stand out in the program's history of success: Ana Quintero, Carlos Garza-Medrano, and Walter Garcia. Quintero was a technical and professional writing minor and a chemistry major who graduated May 2018, and immediately entered Baylor University's chemistry and biochemistry doctoral program. Garza-Medrano was an English minor and psychology major who graduated May 2017, and entered the University of Georgia's masters of education program in professional counseling (mental health counseling). Garcia was a technical and professional writing minor and English major who entered the workforce and is now a fairness review coordinator and technical editor at ETS. All three of these exceptional students were directly aided by Title V funding, which has been a tremendous asset to many other OLLU students and the professional writing program across the disciplines. Title V funding has prepared OLLU students to enter graduate school, doctoral programs, and the post-baccalaureate work force prepared to conduct field-specific researching, reading and writing as professionals.

# Cal Teach Student Success at UCI

**UCI** University of California, Irvine

The journey to teaching is often very personal and can be especially challenging for students from low-income backgrounds. In California, becoming a teacher can require nearly \$1000 in testing and certification fees, and over 500 hours of student-teaching in K-12 in schools without pay. Support from Hispanic-Serving Institution grants can make a difference in becoming a teacher. Valeria Ordoñez Zavala is one student for whom support from an HSI grant had a significant impact.

Zavala immigrated to the United States while in middle school and worked tirelessly to realize her college dream, becoming the first in her family to attend college. She enrolled at the University of California, Irvine because she, “knew that [she] wanted to be a teacher from the beginning, but also wanted a science degree.” Supported by the Developing Hispanic-Serving Institutions grant, the UCI CalTeach program allows students to complete both their STEM degrees and preliminary teaching credential in four years. CalTeach at UCI was designed to prepare diverse STEM teachers to serve marginalized communities. The program is rigorous, with students starting preliminary teaching in classrooms in their first year, and then spending over 700 hours in K-12 classrooms teaching during their senior year.

Participants are required to engage in field-based classroom observations and instruction each year of the program, meaning they need to either drive or find transportation to classrooms in the field, creating financial burdens for many students. Challenges arose for Zavala early in the program. During those early classes, she had to ride her bike for an hour and a half each way to get to the elementary school she was observing twice a week, while working nearly 20 hours a week to help her parents and support herself.



Once Zavala began student teaching, she realized that her work schedule would be detrimental to her academics. She was able to cut back on her work hours to concentrate on completing her certification through funding she received from the HSI grant. This included retaking one of her CSET exams, a requirement for student teaching. Zavala considered giving up on her teaching dream when she initially failed the CSET exam, but persisted in large part because she would not have to incur the additional cost of retaking the test.

The grant also helped defray transportation costs during student teaching so that she would not have to wake up at 4 a.m. to take a bus to her school site five days a week. Through perseverance and with Title V support, Zavala graduated with her bachelor of science in biology and preliminary teaching credential in 2019 and now teaches science to middle school students in south Los Angeles County.



# The Miner Learning Center announces sustainability beyond grant period



The University of Texas at El Paso completed a five-year grant, awarded by the U.S. Department of Education's Developing Hispanic-Serving Institutions Program, to enhance educational opportunities to students. The Miner Learning Center, a new unit made possible by

the grant, announced its sustainability beyond the grant period, and its move to a larger campus footprint to assist more students as of Spring 2020.

The Miner Learning Center offers undergraduate students two programs, Peers Assisting Student Success, based upon a supplemental instruction model, and tutoring. "Both programs use peer-led study sessions that focus on challenging courses rather than struggling students, avoiding the stigma associated with remedial assistance programs," said John Wiebe, interim provost and vice president for academic affairs. PASS Leaders at the MLC facilitate weekly, course-specific study sessions that they prepare alongside faculty to whose courses they are assigned. The leaders are students who have completed and demonstrated exemplary performance in the courses they are facilitating. "We are trained to understand and work with different learning styles to incorporate activities for all types of learners," said Estefania Castillo, a former PASS Leader now teaching First Year Composition at UTEP. The MLC's walk-in tutoring program has students working alongside faculty to facilitate group review sessions for each exam in courses supported by the MLC.

In 2017, the MLC received the College Reading & Learning Association International Tutor Training Program Certification, providing PASS Leaders and tutors with extensive development resources to implement effective learning strategies. "I was continually impressed by the thoroughness and sensitivity that my PASS Leader invested in developing the class review activities. The program has been a tremendous boon for my for my large PSYC



1301 class," said Lawrence Cohn, Ph.D., professor of psychology. In Fall 2018, the MLC reported that of the students who attended eight or more times, 96% earned a C or better and 67% earned an A.

In addition to improving academic performance and retention, the MLC seeks to enhance student satisfaction levels and promote active collaborative learning and self-empowered, critical thinkers. "Something that we try to achieve as PASS Leaders is that zone of proximal development. Once the students guide each other, they learn more with each other's help. They suddenly start to volunteer to answer questions. Witnessing students make connections to what they are learning is very rewarding," said Joshua Rollins, a PASS Leader who used to attend the MLC for study sessions.

The number of students who visit the MLC has increased by 50% since it was established in 2014. "While our goal at the end of the grant period was to support 20 course sections, we are currently supporting 44," said Vanessa Martinez, director of academic student success at the MLC. The Center has seen over 350 students in just the first two weeks of the Fall 2019 semester. They expect to see more growth after their move to the University Library over the 2019 Winter break.

# Title V grant making a difference for students in Information Technology



## VALENCIA

The University of New Mexico-Valencia Campus was awarded a U.S. Department of Education Title V grant in 2015. One of the goals was to update the Information Technology program at UNM-Valencia Campus. The following fall, the revised program was approved, and the university became an Oracle Academy, CISCO Academy and a VMware Academy. The campus later added the Red Hat Academy.

This success story is about Cinthia Vigil, who came to study Information Technology with her husband's encouragement. Vigil's husband, David, also a UNM-Valencia student, works in IT and she would help him with his projects. He suggested that she go to school to learn about computers. "You're good at it," he told her. In the fall of 2017, she started in the IT program at UNM-Valencia. One of her first IT classes was the hardware class — she was hooked. She said she loves taking computers apart and re-building them.

The Instructional Technology program was quite a change for Vigil. Prior to coming to UNM-Valencia, she worked as an administrative/chiropractic assistant, for an online company for eight years and was a hairdresser for 15 years. Going back to school had its challenges. She had some health issues and financial struggles to overcome. While she attended school full-time and cared for six children, she was unable to work outside the home, but her excellent grades earned her a STEM scholarship.



Vigil completed her associate degree in Information Technology with a 4.09 GPA in December. She was also awarded three mini-certificates which were created during her first year in college. The mini-certifications are focused on Networking and Linux, PC Operating Systems and VMware, and are UNM-Valencia awarded certifications.

Vigil's goals are to complete her bachelor's degree and perhaps a master's. She would like to become an IT instructor and teach at a community college like UNM-Valencia. When asked about how her education has affected her personal life, she said her husband used to talk about work and she didn't understand a word he said. Now when he tells her that "there was a DDoS attack in Tokyo," she knows exactly what he's talking about.

Vigil advises students to research the type of work and career they want. This is an associate degree program; to go further, a bachelor's degree is needed. Students might want to major in Computer Science or take a liberal arts program that has a built-in concentration in IT.

The University of New Mexico is working toward such a program. Vigil added, "Plan on learning things that are hard and some things you have no interest in. It's worth it though. Last but not least, get certifications and master at least one technology." In addition to her full load, Vigil worked with her IT instructor to learn Python — a valuable computer language — on her own.

UNM-Valencia wishes Vigil the best of luck as she continues her education toward a bachelor's degree and finds employment in Information Technology.

# 'Building Scholars Program' Builds Brighter Futures for Students



TEXAS A&M  
INTERNATIONAL  
UNIVERSITY

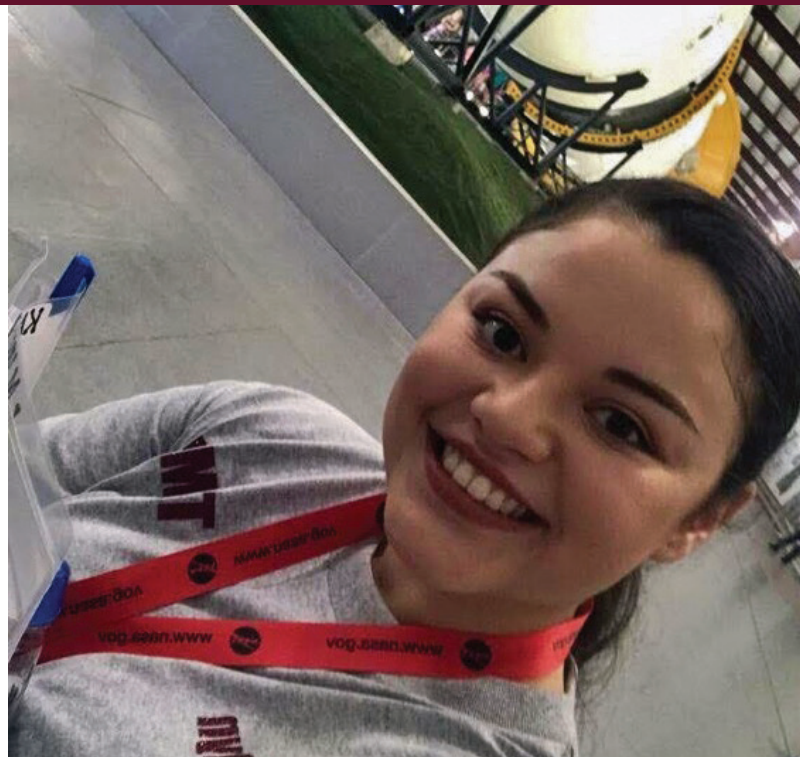
Kaitlyn Michelle Morales may be from a small town in South Texas, but she's got big plans for a bright future. That future has been realized through her participation in the Title V Building Scholars Program, funded by the US Department of Education under the Developing Hispanic-Serving Institutions Program.

It has meant travelling 40 miles each way from her rural home to classes at partner institutions Laredo College and Texas A&M International University (TAMIU), where she earned a bachelor of arts in mathematics with secondary teaching certification. With each mile driven to and from Laredo, her dream drew closer. This year, the dream was made real: Morales will be a Jim Hogg County Independent School District high school mathematics teacher. And she's insisting on growing her love for learning.

"It felt so amazing to walk the stage and move my tassel from right to left," she recalled of her TAMIU graduation, "But don't be fooled... this will not be the end of my college experience. I plan to return to earn a TAMIU master's in mathematics," she confirmed.

Kaitlyn is representative of Building Scholars' students targeted for success: young, low-income Hispanics, most the first in their family to attend college. Because of its proximity to Mexico, 26.6% of Laredo residents are foreign-born, 95.4% are Hispanic or Latino and 90% are Spanish-speakers.

The program engages and retains Hispanic students by implementing well-designed activities through freshman seminars, undergraduate research across disciplines, faculty support and development, student tracking software, and a Summer Research Workshop. The TAMIU Building Scholars program is currently in its fifth and last year of implementation, with a possible one-year, no-cost extension



Morales remembers her Building Scholars 2017 Summer Research Workshop at TAMIU well. "I collaborated with other professionals and enhanced my knowledge about how to integrate STEM disciplines into my future lessons as a mathematics teacher," she recalled.

The SRW is a vital component of the Building Scholars Program and some 110 SRW students have been served since 2015. After completion, participants' plans to perform undergraduate research increased by 43%, to a phenomenal 87%. At TAMIU, programs like Building Scholars are credited with increasing the university's four-year graduation rate.

Morales' dogged determination impressed her faculty from the start, and they encouraged her to pursue and secure the prestigious Robert Noyce Mathematics Teacher Scholarship.

"The Noyce Scholarship was a major help; it gave me the opportunity to fully focus on my studies. It also opened doors for me. For example, I was able to experience many research camps and pre-professional development conferences," she said. She also got the opportunity to spend a week at NASA's Johnson Space Center in Houston, Texas.

Morales is thankful for her Building Scholars Program experience, and looking forward to her first classroom as a teacher this fall. "Not only am I nervous to begin the first chapter of my career, but I am excited and ready for the challenge," she stated.

For additional information, contact program principal Rohitha Goonatilake, TAMIU professor and chair, College of Arts and Sciences, Department of Mathematics and Physics, at [harag@tamiu.edu](mailto:harag@tamiu.edu).



# Whittier College

## ADVANCING STEM ACADEMIC PROGRAM



Whittier College was awarded a U.S. Department of Education Title V designated grant in 2015 to support the success of underrepresented students in Science, Technology, Engineering, and Math, and to enhance the college's instructional and research capacity in STEM. With the support of this grant, Whittier established ASAP, the Advancing STEM Academic Program, which has worked with close to 300 students interested in STEM field careers.

ASAP works collaboratively with the college's Center for Advising and Academic Success and Center for Career and Professional Development to support the academic and professional growth of STEM students, helping them identify campus resources, and secure research and internship opportunities. Via this partnership, ASAP has implemented an adaptation of a proven internship program for students, focusing on internships in traditional STEM disciplines and pre-health, dedicated advising, and a course designed to help equip students to succeed in STEM.

Up-to-date learning and research environments are essential to ensure talented student researchers can reach their full potential. The grant also provides for the needed equipment and supplies to support these students. The equipment factors into the 2016 renovation of the Science & Learning Center. All combined, these elements have strengthened Whittier's support for students underrepresented in STEM and increased their success, particularly those who are Latinx, low-income, and/or first generation.

Monique Perez is one student who has benefited from the ASAP program. Perez, a biology major, is a first-generation college student who emigrated to the United States with her family from Mexico. As a junior, she was selected as one of 30 students invited to attend the UC Davis Neuroscience Initiative to Enhance Diversity, which aims to encourage undergraduate students to pursue a Ph.D. in neuroscience. This summer, Perez is at Kettering University conducting research on environmentally friendly superheated and supercritical fluids to extract medicinal compounds from plants.

Another student who has jump-started his career through the ASAP program is Carlos Heredia-Viteri. Heredia-Viteri is participating in the Biomedical Education Pipeline Initiative Program at Cedars-Sinai Medical Center this summer. He is working with a team to create a web-based data portal that encapsulates research related to ovarian cancer. "The portal will help guide people by research theme or different data classes, and will contain images and brief summaries that are understandable to the public," said Heredia-Viteri of the project. "We will also have web pages with summaries of each study and links to online data available for research. This will ultimately provide a template for other major projects at Cedars-Sinai's Center for Bioinformatics and Functional Genomics."