

Horizons

Expanding Horizons in Science, Technology, Engineering, and Mathematics
Sponsored by the National Science Foundation

Virtual New Mexico AMP Student Research Conference brings statewide audience

Approximately 225 attendees were present for the 2020 Virtual New Mexico Alliance for Minority Participation Student Research Conference. New Mexico State University hosted the event that included university and community college students and faculty; high school juniors, seniors; and advisers from Upward Bound and the New Mexico Math, Engineering, Science and Achievement program from throughout the state. The statewide event took place virtually Oct. 9.

Derrick Lente launched the conference with a keynote address. Lente is a member of the New Mexico House of Representatives, an attorney, and a business owner.

In the afternoon, attendees viewed the 39 pre-recorded student presentations. Following that, students attended virtual lightning rounds, presented by 10 students who provided quick two-minute speeches about their research projects, followed by a question-and-answer session led by the judges. The conference culminated with an awards ceremony. Winners of the poster presentations for the university category were first place: Sara Gurule, NMSU; second place: Alex Achuism, UNM; and third place: Jacquelyn Galaviz, NMSU. Winners of the community college competition included first place: Jeremy Sanchez, Santa Fe Community College; second place: Karina Ornelas, SFCC; and third place: Sara Lanctot, who transferred to New Mexico Institute of Mining and Technology. Winners of the lightning rounds included Martha Minor, NMSU, and Taylor Busch, University of New Mexico.

Lente's talk centered around the many opportunities in science, technology, engineering and mathematics that New Mexico has to offer students and he shared his own personal story. He was raised in the northern New Mexico in a close-knit Pueblo community, and his father encouraged him to work hard and to dream big.

Lente's journey to success included a program at NMSU early in his education in which he learned more about water resources.

Current NM AMP Director and NMSU Civil Engineering Professor **J. Phillip King** was one of the faculty members who led the program. Lente found that his niche was not engineering or science but continued his academic journey at Central New Mexico Community College and UNM where he earned a bachelor's degree in intercultural communications and English. He then attended the UNM School of Law and earned his law degree. He applied his education as a successful entrepreneur for many years, running one of the largest U.S. solely-owned Native American companies.



New Mexico State Rep. Derrick Lente gave the keynote address at the 2020 Virtual New Mexico Alliance for Minority Participation Student Research Conference and shared his educational experiences.



New Mexico State University Civil Engineering Professor J. Phillip King, who is director of New Mexico Alliance for Minority Participation, spoke during the 2020 Virtual NM AMP Student Research Conference.

Lente's message to the students was that their time is now, with science and engineering involved in all the important decisions being made in the state, nation and the world, especially during this pandemic. He reminded the students of the multitude of opportunities in New Mexico, with two national laboratories, Spaceport America and many other technology-based organizations.

Attendees could attend two of three workshops: "How to be a Leader Without Anyone Knowing," presented by Michael Voegerl, Director of Student Affairs and International Coordinator at the New Mexico Institute of Mining and Technology; "The New Mexico Advanced Manufacturing Personal Protective Equipment Project: An Internship at Santa Fe Community College to Promote Engineering Design Knowledge and Community Service During a Pandemic," presented by Miguel Maestas, assistant professor and lead faculty for engineering and the information systems and computer science program at Santa Fe Community College; and "International Opportunities for Undergraduates," a panel discussion led by Manoj Shukla, director of the NMSU ACES Global Programs and Aggies Go Global; and Abby Nayra, senior program specialist for AGG. Panelists, who discussed their international experiences, included Ana Cristina Garcia Escalante, Emily Creegan, Anita Rodriguez, Camila Prieto, Lucas Rivera, Jonathan Ortiz, Alessa Ibanez and Jayme Yancy.

A faculty workshop was presented by David Torres, chair of

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A Message from the Director, Dr. J. Phillip King

Although this has been a difficult time of our history, with the Pandemic and many transitions and challenges, our partner institutions and NM AMP persevered and successfully continued our programs virtually, including the NM AMP Virtual Conference in fall 2020, which was a success, with 225

attendees (See more information in this newsletter.)

Our Undergraduate Research Scholars and STEM PREP program participants performed the necessary work of their projects, including literature research and reviews, and, in some cases, hands-on research in socially distanced labs and field work. We did have to cancel our 2020 SCCORE program, but plans are moving ahead for Summer 2021 to hold the program. We will adapt the delivery methods of virtual or in-person to fit the guidelines at the time of the program. We also plan to have an in-person, virtual, or hybrid conference, depending on the statewide pandemic situation, on October 7-9, 2021, with the conference event on the 8th, and the Community College Professional Workshop taking place on the afternoon of October 7th and the morning of October 9th.

Although we did not have SCCORE, our usual summer bridge program for community college students, NM AMP collaboratively funded an internship in Summer 2020 at Santa Fe Community College (SFCC) for SFCC students, with the purpose of designing and printing Personal Protective Equipment (PPE) which were disseminated to the Navajo Nation, the Pueblos and others of high-need and low-access to PPE. Students performed the course work and design work from home, using 3-D printers available to them for PPE. The students were provided a credit-bearing course to provide training. This project

was collaboratively funded by NM AMP, Growth Sector, and the University of Colorado Boulder through an NSF INCLUDES alliance project.

Currently in Spring 2021, we are supporting an internship for Native American NM AMP Students Taylor Yazzie and Carissa Arthur at New Mexico Institute of Mining and Technology (NM Tech) in collaboration with the Indian Resource Development program, NM Tech, and the NM Tech Petroleum Recovery Research Center (PRRC). The purpose of the research project is to increase the efficacy of the filter system and to adapt the system to potable wells for a sound water filtration system on the Navajo Reservation in northern New Mexico.

With the new administration in office, the nation-wide Louis Stokes Alliance for Minority Participation (LSAMP) community is reaching out to educate lawmakers and the public on the importance and success of this successful organization, of which NM AMP is a vital part. Fifty-one alliances in the U.S. have served over 650,000 under-represented (URM) minorities to get them into STEM careers.

Dr. Art Hicks, the long-time Director of the LSAMP program, retired, effective January 1, 2021. Dr. Hicks has been a great advocate and leader for LSAMP, and he will be sorely missed. See the article on his career in this issue of Horizons.

With the many challenges our nation and institutional partnership have faced this year, we still believe we have much to celebrate, as we made progress in our overall goal of increasing the number of underrepresented students in STEM in New Mexico, with the collaboration and leveraging of many other STEM New Mexico statewide programs. We have also made our data reporting more seamless, with the new method of reporting and the use of our newly acquired data base system. We continue to be grateful for our fine staff at the Lead Institution, New Mexico State University, and our Institutional Coordinators at our alliance partner institutions throughout the state. We owe our success to these wonderful people who work tirelessly to ensure our students are trained, valued, and encouraged to pursue and complete the B.S. degree.

Virtual New Mexico AMP Student Research Conference brings statewide audience

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the Department of Mathematics and Physical Science at Northern New Mexico College and NM AMP institutional coordinator. Torres discussed his work on curriculum efficiency that seeks to help others understand the time investment and bottlenecks in a college degree plan.

Another workshop was presented for the NM MESA and NMSU TRIO Upward Bound Gadsden and Las Cruces high school students. Anita Gonzales, the statewide program coordinator for NM MESA, helped students understand how to read abstracts through various exercises.

Save the Date

The 2021 NM AMP Undergraduate Student Research Conference will be held October 7-9, 2021

The conference will take place on Friday, October 8th, and the Community College Professional Development Workshops will be held on afternoon of October 7th and the morning of October 9th. Conference registration will open in June, and the Community College Workshop applications will open in August. The conference format will be announced at a later date pending ongoing pandemic measures.

People, Places, and Things

Institutional & Collaborator Happenings

A true gamechanger, **Dr. A. James Hicks**, has retired from his 24-year-long directorship of the National Science Foundation's Louis Stokes Alliances for Minority Participation (LSAMP). With Dr. Hicks' long tenure as director since 1997, he is largely responsible for guiding LSAMP to help more than 650,000 students from groups historically underrepresented in STEM earn a science or engineering bachelor's degree since 1992. Hicks has collaborated with more than 600 colleges, universities, and partner alliances to strengthen the quality and quantity of STEM degrees awarded to URM students. Prior to Dr. Hicks' directorship, he served as the Dean of the College of Arts and Sciences and Professor & Chairperson of Biology at North Carolina A&T, where he significantly increased the research capacity of the biology department with his research in plant systematics. During his tenure as dean, he oversaw significant renovations to 4 buildings and plans for another \$34 million classroom building, later occupied in 2003. Dr. Hicks received his bachelor's degree in biology from Tougaloo College with high honors. He earned his doctorate in botany at the University of Illinois- Urbana and received postdoctoral training at the Missouri Botanical Garden in St. Louis. In 1971, Dr. Hicks became the first black scientist to be employed at the University of Georgia before his tenure with North Carolina A&T. Dr. Hicks' public service activities and awards are numerous, including international boards, honorary doctorates and achievement awards. In addition to Dr. Hicks' meritorious awards, he remained an amicable director of LSAMP with many personal conversations with program staff, students and collaborators. The New Mexico Alliance for Minority Participation thanks Dr. Hicks for all of his hard work and wishes him and his family the best.

Welcome to **Dr. Joann Latorre**, a new NM AMP Institutional Coordinator at Doña Ana Community College (DACC). Dr. Latorre is an assistant professor of chemistry who credits her passion for chemistry to her freshman undergraduate professor at Marymount College in Tarrytown, NY. She holds two master's degrees: one in Medicinal Chemistry from St. John's University in Queens, NY and a second in Secondary Education from Long Island University, located in Brooklyn, NY. She joined DACC in 2016 and completed her interdisciplinary Ph.D. in Chemistry and Curriculum and Instruction from NMSU in 2019. Her research interests are organic synthesis and pharmacology. Dr. Latorre has been influential in recruiting recent AMP students in collaboration with current DACC IC, Dr. Timothy Chappell, and former IC Joe Butler. Butler was recently appointed the acting Vice President for Academic Affairs, and is the Science, Engineering and Math Division Dean

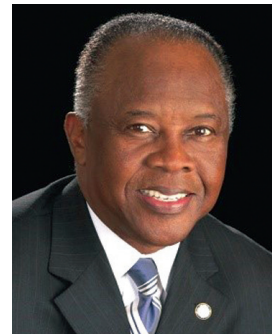
at DACC. Kudos to Dr. Butler for all the service he provided our students and program. We will miss him!

NM AMP would like to thank the students who attended the 2020 New Mexico Research Symposium. The annual symposium consists of oral presentations, a poster competition, and a keynote address geared towards undergraduate and graduate students from New Mexico's colleges and universities. The New Mexico Academy of Science (NMAS) and New Mexico Established Program to Stimulate Competitive Research (EPSCoR) collaboratively host the conference. The New Mexico Journal of Science publishes the presentation and poster proceedings. NM AMP would like to congratulate **Clayne Williams**, ENMU NM AMP Undergraduate Research Scholar, on his second-place award in the poster contest with his presentation entitled "The Trouble with Traffic."

The New Mexico Tech Student Research Symposium (SRS) is an annual event where New Mexico Tech Students and invited students from other institutions and programs to present their research. Students at all levels, from freshman to graduate, have the opportunity to participate in the SRS, providing a forum to share the exciting projects on which students have been working. The SRS provides a venue to showcase the students' knowledge and skills by giving an oral or poster presentation to peers, professional researchers and engineers, and a platform to communicate their research or design to people outside of their field. In addition to presenting students' original work, they also have the opportunity to compete in a three-minute oral speech competition. The 2021 SRS marks the second year of a virtual event, and the third year that NM Tech has invited a limited number of NM AMP students from across the state to participate in the conference and present their research. The SRS will be held April 14-16, find more information about the conference at <http://www.nmt.edu/srs/>.

The Annual Academic Research, Creativity & Scholarship Symposium (ARCSS) at Northern New Mexico College Highlights student activity across various disciplines at NNMC, including biology, psychology, education, and engineering. Congratulations to **Megan Osmus**, NNMC NM AMP URS, who participated in the 2020 Spring Virtual ARCSS in the mathematics category with her work entitled "Analyzing Genes for T-ALL CNS Infiltration." A date for the Spring 2021 ARCSS will be announced at a forthcoming date. **Josef Weese**, a previous NNMC NM AMP URS Student, presented work at the 2019 ARCSS related to the Pythagorean forest, which produced a sculpture that is now on display at the famous Abiquiu Inn.

NM AMP would also like to congratulate the NMSU Students who participated in the 2020



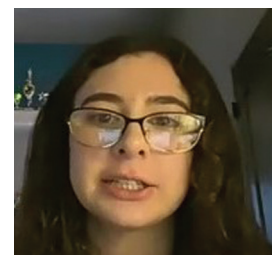
Dr. A James Hicks, LSAMP Director (retired)



Joann Latorre, DACC NM AMP Institutional Coordinator



Clayne Williams accepts the 2nd Place Undergraduate Poster Award at the NM Research Symposium



Ester Lujan, presenting her work, "NEK4 modulation of DNA-PKcs recruitment to DNA damage" via Zoom (Story on Page 4)



Beatrice Armijo, Student Advisor



Katherine DeLong, Student Advisor



Mariah Armijo, Student Advisor



Saul Navarrete-Martinez, Student Advisor



Sulema Montoya, Student Advisor



Amanda Barela, Student Advisor



Tara Gray, Ph.D.

Undergraduate Research and Creative Arts Symposium (URCAS) and 2020 Research and Creativity Week (RCW). Both conferences were held virtually due to the ongoing pandemic mitigation efforts. The NMSU Honors College hosts URCAS every Spring Semester, and returning NMSU URS students, along with other students from NMSU, present their research findings. The 2021 URCAS event will be held virtually on Wednesday, May 5, 2021. The RCW event is hosted every Fall semester by the NMSU Graduate School, and includes many activities such as workshops, poster presentations, and talks. The following NMSU URS Students won prizes at 2020 RCW: **Isabella Terrazas** – Life Sciences 1st Place Poster; **Ester Lujan** – Life Sciences 2nd Place Poster; and **Lucas Rivera** – Engineering 3rd Place Poster (tied).

During the Fall 2020 semester, NM AMP hosted a “Publish and Flourish” workshop series led by **Tara Gray, Ph.D.**, and sponsored by Textbook and Academic Authors, taaonline.net. Approximately 30 AMP students participated in the four-part series on academic writing which took place over Zoom. The first two workshops focused on developing the habits of prolific scholars. The latter workshops focused on the process of efficiently drafting manuscripts and revising drafts. The instructor, Tara Gray, serves as the first director of the Teaching Academy at New Mexico State University (NMSU), where criminal justice is her tenure home. She has published 50 other academic works, including four books. Tara is the author of Publish & Flourish. She has been honored at New Mexico State University and nationally with ten awards for teaching, scholarship or service. Tara has presented faculty development workshops to 10,000 participants at more than 120 venues, in 35 states, and seven countries.

Congratulations to **Dr. Jamil Al-Nouman** on receiving NMSU’s 2020 Roush Award. The award is named in honor of former NMSU executive vice president, Dr. Donald C. Roush, for his 35 years of service to improving teaching across New Mexico. Recipients are selected based on information from students, department heads, deans, and branch campus directors. Dr. Al-Nouman is the NM AMP Institutional Coordinator at NMSU-Carlsbad and has developed the engineering program at NMSU-Carlsbad since he joined in 2015. Dr. Al-Nouman teaches introductory engineering classes such as engineering physics, introduction to engineering, and electrical engineering courses. Congratulations, Dr. Al-Nouman!



Dr. Jamil Al-Nouman



Ryan Quintana

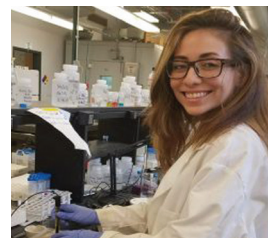
Student Advisory Board

An ongoing effort of NM AMP is to spend time recruiting and making students around the state of New Mexico aware of the opportunities and stipends available for our community college and undergraduate STEM students. To aid in our effort, NM AMP started a Student Advisory Board. Of the fourteen partner institutions, and on a bi-annual rotation, seven of the institutions will elect an outstanding student to be the voice and representative of their respective college. The student elected by the respective universities' and community colleges' Institutional Coordinator will aid year-round with recruiting events as well as represent their institution at various events. This year, our student advisors were the following: **Sulema Montoya**, Eastern New Mexico University; **Mariah Armijo**, New Mexico State University- Alamogordo; **Saul Navarrete-Martinez**, New Mexico State University-Carlsbad; **Beatrice Armijo**, New Mexico Highlands University; **Amanda Barela**, Santa Fe Community College; and **Katherine DeLong**, Western New Mexico University.

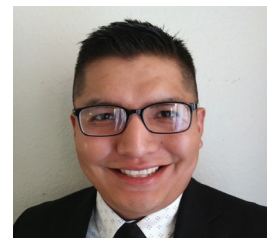
Student News

Two NMSU Engineering and NM AMP Alum receive NSF Graduate Research Fellowships. The Graduate Research Fellowship is the nation’s oldest fellowship program, established in 1952. The GRFP is also highly competitive- NSF received more than 12,000 applications and only made 2,000 awards for the 2019 competition. The fellowship awards are three-year, \$48,000 per year awards to fund research projects proposed by the recipients. Among the 2020 awardees are **Ryan Quintana** and **Priscyla Marquez**. Quintana is pursuing a doctorate in mechanical engineering under Dr. Abdessattar Abdelkefi, with whom he also worked as an undergraduate. He will research mechanical insights on drug delivery nanosystems. Marquez is pursuing her master’s degree in environmental engineering at the University of Texas at Austin. She is researching the solidification/stabilization of brine water and waste byproducts. While earning her undergraduate degree in civil engineering at NMSU, Marquez studied zeolite barriers under the supervision of Dr. Lambis Papelis.

Benson Long, a senior in Civil Engineering at UNM was recently recognized as a 2021 Minority Student Fellow at the Transportation Research Board (TRB) 2021 Annual Meeting. Benson’s research with his mentor, Dr. Nicholas Ferenchak, entitled “Spatial



Priscyla Marquez



Benson Long

Equity Analysis of Nighttime Pedestrian Safety: The Role of Land Use and Alcohol Establishments in Albuquerque, NM” is one of only three papers from a class of 25 fellows that were selected for publication by the TRB. This is Benson’s second publication, after his work with Drs. Cherie DeVore and Jose Cerrato regarding arsenic uptake in *Schizachyrium scoparium* (little bluestem) which was presented at the 2019 AMP Conference and is under review for publication in ACS Earth and Space Chemistry. After Benson graduates this December, he plans to earn his master’s degree with a focus on transportation engineering while continuing his internship with Souder, Miller & Associates..

Brittany Griego is a Senior URS participant studying Earth and Planetary Sciences at the University of New Mexico. During the Fall 2020 semester, Brittany attended and presented at the NM AMP Virtual Undergraduate Research Conference. She presented her poster titled “A hydrogeochemical analysis of springs in the Sandia and Manzano Mountains, New Mexico.” Brittany also presented at the Geological Society of America’s 2020 virtual conference and won second place in the hydrogeology division of the undergraduate poster presentation competition. Brittany is conducting her research under her Faculty Mentor Dr. Laura Crossey of the Earth and Planetary Sciences Department of UNM. In addition to presenting her research, Brittany was also awarded the UNM Earth and Planetary Sciences Department Leonard Research Fellowship for the Fall 2020 semester. In her free time, Brittany volunteers as a student mentor at the Catholic Church of Incarnation and is involved with the National Honor Society of Leadership and Success.

Caleb Adams is a Junior URS participant studying Computational and Applied Mathematics at Western New Mexico University. Over the winter break between the Fall 2020 and Spring 2021 semesters, Caleb participated in Los Alamos National Laboratory’s Virtual Wildlife Visualization and Simulation Camp. The virtual camp taught undergraduate students how to use ParaView to analyze and visualize real-world data on wildfires. Students also had an opportunity to participate in professional development opportunities and received a stipend for their work. In his free time, Caleb tutors high school and college students through the Upward Bound program in Taos and the University of New Mexico Taos. Caleb is mentored by mathematics professor Dr. Nancy Livingston of the Mathematics and Computer Science department of WNMU.

URS participant **Christopher Ulibarri** has been appointed as New Mexico Highlands University’s student regent by New Mexico Governor Michelle Lujan Grisham. Christopher is a triple major studying political science, environmental geology, and history who serves as a student government leader. In addition to serving as a student regent, Christopher is the Vice President of the Associated Students of New Mexico Highlands University and

is on the Las Vegas Arts Council Board of Directors. In his free time, Christopher volunteers his time and effort with Amnesty International, in which he lobbies members of the U.S. Congress on human rights issues. Christopher hopes to become an environmental attorney in order to defend small ranchers against environmental injustices caused by large corporate ranchers. Christopher is under the faculty mentorship of Dr. Jennifer Lindline of the Natural Resources department of NMHU.

An ENMU NM AMP Alum, **Dr. Eliseo Castillo**, is making an impact in immunology research and mentoring STEM Students. Dr. Castillo is an assistant professor and immunology research lab principal investigator in the Division of Gastroenterology and Hepatology in the Department of Internal Medicine at the University of New Mexico School of Medicine. During his undergraduate career at Eastern New Mexico University, Dr. Castillo found his passion for biology which led to his participation in the NM AMP Undergraduate Research Assistantship. Dr. Castillo became fascinated with immunology while pursuing his master’s degree in chemistry, also at ENMU. He earned his Ph.D. in Immunology from the University of Texas MD Anderson Cancer Center in 2010. As a minority first-generation college graduate, Dr. Castillo hopes to serve as a visual foundation for underrepresented students interested in STEM.

Former New Mexico State University URS participant **Isabel Fernandez** was awarded the College of Engineering Mechanical and Aerospace Departmental Outstanding Senior award for the Spring 2020 semester. She graduated as a dual major and received her Bachelor’s of Science in Mechanical Engineering and Bachelor’s of Science in Aerospace Engineering in May 2020. While in the URS program, Isabel worked extensively on designing and creating a prototype of a flapping wing micro air vehicle (FWMAV) under her faculty mentor Dr. Abdessattar Abdelkefi of the NMSU Mechanical and Aerospace Engineering department. Her and Dr. Abdelkefi’s research was published this summer in the aerospace journal Drones. Isabel is now enrolled at the Georgia Institute of Technology School of Aerospace Engineering earning her graduate degree.

Isabella Terrazas is a Senior URS participant studying Microbiology at New Mexico State University. In the Fall 2019 semester, Isabella was recognized and awarded for her poster presentation at the Society for Advancement of Chicanos/Hispanics and Native Americans in Science’s (SACNAS) 2019 National Diversity in STEM Conference in Honolulu, Hawai’i. Her and her Faculty Mentor’s research is titled "Cortical granule motility in response to hormone stimulation during sea star meiosis" and focuses on sperm binding and how proper development and fertilization affect this. This research has recently been published in the *Frontier in Cell and Developmental Biology* journal. In addition to the 2019 National Diversity in STEM Conference, Isabella has also recently presented



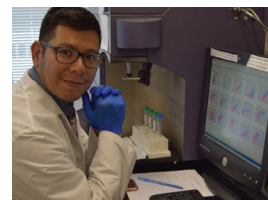
Brittany Griego



Caleb Adams



Christopher Ulibarri



Dr. Eliseo Castillo works in his lab at UNM



Isabel Fernandez



Isabella Terrazas showcases her prestigious award



Jonathan Madrid explaining his research on pupfish sexual preference to high school students visiting NNMC (photo taken prior to pandemic)



Lucas Rivera

at the 2020 NMSU Biology Department Biology Symposium, the 2020 NMSU Virtual Undergraduate Research and Creative Arts Symposium, the 2020 NM AMP Undergraduate Student Research Conference, and the 2020 Virtual NMSU Research and Creativity Week.

Additionally, Isabella has been awarded the prestigious NMSU College of Arts and Sciences Dean's Undergraduate Award for Excellence. The award is used to honor one undergraduate student who demonstrates extraordinary academic achievement, leadership, service, selflessness, and integrity. Isabella is under the faculty mentorship of Dr. Charles Shuster of the NMSU Biology department.

Northern New Mexico College Biology Senior, **Jonathan Madrid**, was selected as a 2020 Resilience Studies Consortium (RSC) Student Steward. The RSC explores resiliency in many disciplines, including science, media, art, agriculture, and the environment. As the NNMC representative, Jonathan receives a stipend and access to a group budget of \$5,000 for equipment and travel to support his projects. Jonathan has completed three video projects, the first of which explains animal altruism and how through altruistic acts, organisms themselves are resilient passing their genetic material onto the next generation. Jonathan is working on his application to an REU in animal behavior at Indiana Bloomington University. As for his plans after graduation in Spring 2022, Jonathan is considering pursuing a research master's program or science filmmaking, allowing him to provide science education to the public.

Kimberly Lopez is a Senior Environmental Science major at Northern New Mexico College and will be graduating at the end of the Spring 2021 semester. Kimberly is currently partaking in a part-

time internship with Los Alamos National Laboratory working on a chemistry project with millifluidics. She has been accepted into the University of Denver where she will work toward a Master of Science in Environmental Policy and Management with a concentration in Environmental Management. In addition to attending the NM AMP Virtual Student Research conference in the Fall 2020 semester, Kimberly attended the 2020 SACNAS – The National Diversity in STEM Conference. In her free time, Kimberly participates in Phi Theta Kappa and The National Society of Leadership and Success. Kimberly is under the faculty mentorship of Dr. David Torres of the Northern New Mexico College Department of Mathematics and Physical Science.

Lucas Rivera was awarded the New Mexico State University Outstanding Engineering Graduate Award for December 2020. Lucas graduated with his Bachelor of Science Degree in Civil Engineering with minors in Spanish and Mathematics. As a NM AMP Undergraduate Research Scholar (URS), Lucas served as a research assistant and Undergraduate Lead with the Center for Bio-mediated and Bio-inspired Geotechnics and coauthored a peer-reviewed conference paper in that role, under the guidance of Dr. Paola Bandini. At the Fall 2020 NM AMP Annual Research Conference, Lucas participated in a successful student panel on international undergraduate opportunities. In addition to Lucas' research, he has served in officer roles of the NMSU Chapter of the American Society of Civil Engineers, the NMSU civil engineering honor society – Chi Epsilon, and Aggies Without Limits (AWL). As an assistant project manager for AWL, he led efforts to design and construct a water system in Guatemala, and another design in Nicaragua. Lucas has volunteered in Indonesia, Bolivia, New Zealand, Puerto Rico, Costa

2021 SCCORE Program

The Summer Community College Opportunity for Research Experience will be held from June 1 - 30, 2021

Students at a NM AMP Community College are invited to join a research team at an AMP partner university for 4-weeks for approximately 20-25 hours per week, while earning a college STEM credit. Participants will receive a \$1,500 stipend, professional development, and tuition remission for the credit-bearing portion of the course. Depending on the student faculty mentor's research, the research may be completed in-person or virtually. Additionally, NM AMP has partnered with the Re-Inventing the Nation's Urban Water Infrastructure (ReNUWit) research center to provide the SCCORE/REInWEST program, which will contain the SCCORE program, plus an additional two weeks (June 1 -

July 15) with a \$4,000 stipend. NMSU-Alamogordo and Doña Ana Community College are eligible for the SCCORE/REInWEST program which includes a \$4,000 stipend. Prospective SCCORE/REInWEST students can find the SCCORE/REInWEST application on the NM AMP website along with the regular SCCORE application. Research for the SCCORE/REInWEST program will take place in Alamogordo and Las Cruces, NM. ReNUWit will also help fund regular SCCORE students in addition to the SCCORE/REInWEST program this summer to provide research and professional development opportunities to high school students.

Rica, Peru, Texas, and New Mexico, all in his time at NMSU. He has also held summer positions as a professional fire fighter, working in multiple states with the US Dept. of Interior and State of New Mexico. Immediately following his graduation in December, Lucas volunteered at Jitihada School, an orphanage in Arusha, Tanzania. During his volunteer work with the children, he also raised over \$2,000 to begin constructing a kitchen at the school. After he finishes his master's of civil engineering with an emphasis in water resources, Lucas plans to join the Peace Corps and then complete his Ph.D in civil/water resources engineering.

Mario Escarcega, a Junior URS participant majoring in Mechanical Engineering at New Mexico Institute of Mining and Technology, is working as a team lead for a NASA MINDS team. The team's design has been selected by NASA and is going forward to the preliminary design stage. The NASA MINDS program is a multi-semester program in which faculty-led undergraduate student teams work to submit a proposal that will be used to help support NASA's Artemis mission. The Artemis mission aims to send the first woman to the lunar surface by 2024. Teams selected by NASA receive a stipend and potential award for building their design. In addition to presenting his work to NASA MINDS, Mario attended the 2020 New Mexico Research Symposium with EPSCoR. In his free time, Mario tutors students through the New Mexico Tech's Office of Student Learning. Mario is under the faculty mentorship of Dr. Arvin Ebrahimkhanlou of New Mexico Tech's Mechanical Engineering department.

NM AMP Alum, **Pascual Camacho** is continuing to excel in his early career. Pascual was recognized as the outstanding Spring 2020 graduate from New Mexico State University's Department of Civil Engineering. He was also awarded a 2020 GEM Fellowship. Founded in 1976 at the University of Notre Dame, the National GEM Consortium has graduated over 4,000 underrepresented students from the nation's top schools and provided them with internships in their field of study. Pascual is studying earthquake impacts on infrastructure and urban resiliency as part of the Structural Engineering and Geomechanics Program at Stanford University. Pascual is a civil & structural engineer intern at ExxonMobil. Stanford and ExxonMobil are both members of the National GEM Consortium, which makes Pascual's fellowship possible. The fellowship provides tuition and fees, paid summer internships, and a living stipend. Pascual plans to graduate from Stanford in June 2022 and join ExxonMobil as an engineer.

Senior New Mexico State University Animal Science major **Sara Gurule** won first place in the university division for her poster presentation at the 2020 NM AMP Virtual Undergraduate Student Research Conference. Sara is a URS participant who has helped her Faculty Mentor Dr. Jennifer Hernandez Gifford of the New Mexico State University Animal

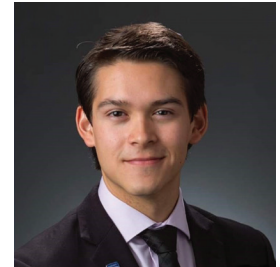
and Range Sciences Department conduct research on infertility within livestock. This research has the ability to help researchers better understand female infertility in humans as well. In addition to presenting at the NM AMP Virtual Undergraduate Student Research Conference, Sara also presented at the NMSU Research and Creativity Week conference. In her free time, Sara is involved in the NMSU chapter of the Block and Bridle club and serves as a student ambassador for the NMSU College of Agricultural, Consumer, and Environmental Sciences.

Senior University of New Mexico URS student **Taylor Busch** has been teaching a virtual water resources course titled "Watermania" in association with the Center for Water and the Environment and Explora in Albuquerque. Taylor started work for the course this summer when she began helping design the course, writing lesson plans, and testing materials for the course. Watermania is offered to middle school, high school, and college students. Taylor teaches students how to use coding and micro:bit to work with systems for monitoring water level and temperatures. In addition to teaching the Watermania course, Taylor also peer mentors freshmen engineering students in an introduction to civil engineering design class with the UNM chapter of Chi Epsilon. Taylor is also a member of the American Chemical Society, American Indian Science and Engineering Society, Hillel at UNM, and Society of Women Engineers, and is co-president of the UNM Student Chapter of the American Society of Civil Engineers.

Taylor also won first place in the Lightning Round Presentations at the NM AMP Virtual Undergraduate Student Research Conference during the Fall 2020 semester. She presented her work on arsenic uptake in root fungi under the faculty mentorship of Dr. Cherie DeVore of the UNM Civil Engineering department. This research is currently under review for publishing in the ACS Earth and Space Chemistry Journal by the American Chemical Society.



Mario Escarcega



Pascual Camacho



Sara Gurule tagging sheep (photo taken prior to pandemic)



Taylor Busch

2020-2021 Academic Year Transfer Stipend Awardees

Fall 2020

Dayan Fuentes
CNM - UNM

Sara Lanctot
SFCC - NM Tech

Jazmin Lopez
NMSU-A - NMSU

Andrea Loya Lujan
DACC - NMSU

Spring 2021

Gabriel Davis
CNM - UNM

Kaia Jo Garley
DACC - NMSU

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