

HORIZONS

Expanding Horizons in Science, Technology, Engineering, and Mathematics

Sponsored by the National Science Foundation

2024 New Mexico AMP Student Research Conference

The 2024 NM AMP Student Research Conference, held on October 4th, 2024, brought together students and researchers from various Science, Technology, Engineering, and Mathematics (STEM) fields in New Mexico. Attendees engaged in lively poster presentations; workshops; and discussions, fostering collaboration and knowledge sharing. Distinguished keynote speakers provided insights and inspiration, emphasizing the importance of perseverance and STEM curiosity. The event proposed NM AMP's shift to Climate: Sustainability and Resilience for this next award period (2024-2029), encouraging students to pursue research focused on climate, sustainability, and/or resilience solutions. This conference celebrated the diverse and impactful research conducted in New Mexico's higher education institutions, providing a glimpse into the bright future of academic endeavors in the region.



Corbett Center West Ballroom, Attendees



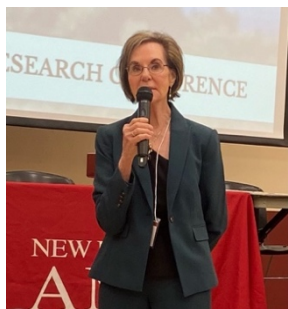
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A TIMELY THEME

Funded through the National Science Foundation Grant EES-2408898, the New Mexico Alliance for Minority Participation (NM AMP) held its annual Student Research Conference on Friday and Saturday, October 4-5, 2024. For the first year since their inception 31+ years ago, NM AMP's research programs will be rooted in a theme for the next five years entitled ***Climate: Sustainability and Resilience***. This theme was carried over into the Conference, as the keynotes, guest speakers and workshop presenters addressed the Science, Technology, Engineering and, Mathematics (STEM) scholars as they consider and determine how their student research will relate to the theme.

For NM AMP scholars, it was impressive to see them arrive early morning between 7:00-7.30 a.m. to hang their posters. It was equally impressive to see their supportive mentors who are professors in STEM from around the state to assist their students in this process.



Jeanne Garland, NM AMP Director

After check-in, conference-goers began their conference experience at the Breakfast Keynote Session. **Jeanne Garland, Director of NM AMP**, gave a warm welcome to conference attendees as she introduced the agenda for the day, along with welcoming the morning speakers.

New Mexico State University Interim Provost and NM AMP Principal Investigator, **Dr. Lakshmi Reddi**, welcomed attendees over breakfast noting that STEM jobs in *Climate: Sustainability and Resilience* are dynamic and yet to be fully defined. Interim Provost Reddi assured attendees that the upcoming workforce will be everchanging through innovation and time. He also spoke of the importance of being service-oriented and student-focused through interdisciplinary endeavors, such as NM AMP. Dr. Reddi also noted that

commencement, the ceremony that honors graduates, by definition, means *a beginning*. He encouraged NM AMP scholars to continue their path to success throughout their careers after graduation.



Dr. Lakshmi Reddi, NMSU Interim Provost and NM AMP Principal Investigator

Dr. Laura Crossey, Distinguished Professor of Earth and Planetary Sciences from the University of New Mexico, gave an overview of the conference theme, *Climate: Sustainability and Resilience* that stems from NM AMP's NSF award with the same theme for the next five years (2024-2029).

Dr. Crossey began with the question, "What does an emphasis on climate solutions, sustainability, and the development of resilient systems in both the natural and built environments mean for you and your research?" She emphasized four key points: adaptive infrastructure, sustainable water systems, healthy ecosystems, and community health and vitality — points that were also seen in other areas of the conference. She also stressed that the climate theme is interdisciplinary, and that no matter what students' STEM majors are, they can work within this framework with mentors in disciplines other than their own.



Dr. Laura Crossey, Distinguished Professor, UNM

The breakfast keynote speaker, **Dr. Sanna Sevanto**, Research Scientist from Los Alamos National Laboratory, gave a talk entitled, “Climate: Sustainability and Resilience in Ecosystems — From Individualism to Collectivism.” She discussed newer models for understanding juniper and pine species that indicate more of a species-to-species system of perspective (community studies of carbon signaling via root systems) rather than a single model of competition (e.g., one that utilizes single microbial research). That is, making predictions from a symbiotic perspective rather than from the perspective of competition.



Dr. Sanna Sevanto, Research Scientist, Los Alamos National Labs

STUDENT’S MORNING WORKSHOPS

Student’s Morning Workshop themes were also based on the topic of *Climate: Sustainability and Resilience*. Students were provided with the choice between two workshops as listed below.

Student **Workshop I** (see photo below) was facilitated by Dr. Marcy Litvak, Professor of Biology and Co-Director of the Accelerating Resilient Innovations in Drylands (ARID) Program, from the University of New Mexico. Her workshop, located in the Senate Chambers, was entitled “Climate: Sustainability and Resilience in New Mexico.”



Workshop II (see photo below) was facilitated by Dr. Andreas Hernandez, the Director of Sustainability Studies Program at the University of New Mexico. His workshop, in the Senate Gallery Room, was entitled “Sustainability: Creatively Aligning with the Web of Life.”



The Morning Sessions also included the **NM MESA Program and NMSU TRIO Upward Bound GISD/LCPS Program Orientation and Workshop** (see photo below). This session was facilitated by Anita Gonzales, NM MESA Statewide Deputy Director, and Robert Gomez, NMSU Director of TRIO Upward Bound GISD/LCPS Program.



High school students from NM MESA and TRIO Upward Bound were provided activities that assisted them with the purpose of the conference and how to navigate it. They were also given instruction and exercises on how to read an abstract. This helped them select a poster presentation that was most interesting and relevant to them. The students took notes in a booklet log for the events they attended. Additionally, NM AMP students Dante Galaz and CJ Quintana (in the photo above) presented to the high schoolers about their research experiences as Undergraduate Research Scholars (URS).

At the Friday and Saturday morning sessions, 17 students from community colleges around New Mexico, who applied and were selected, attended the **NM AMP Conference Community College Professional Development Workshops**. These

workshops are provided for statewide community college students to get a better understanding of the transfer process to university. Michael Voegerl, Director of International Admissions and Recruitment at the University of New Mexico, facilitated the workshops (see photo below). The Friday workshop was entitled “Navigation of the Conference” and “Reading Abstract and Abstract Exercises.” In the Saturday workshops, students had the opportunity to work in groups and provide feedback on the impact of the conference on their academic lives and professional futures. Attendees of the workshops received a stipend for participating in the workshops and attending the conference.



MORNING CONFERENCE WORKSHOPS AND BUSINESS MEETINGS

Conference attendees from around the state, including faculty, STEM program staff and administrators, and interested doctoral students attended a workshop that was presented in two parts, on both Friday and Saturday. **Dr. Sonja Montas Hunter**, NSF’s Program Director and Program Co-Lead, (see photo below) gave a presentation entitled “NSF Funding Opportunities and the Merit Review Process.” Dr. Montas



Hunter’s talk included the topic of writing a competitive proposal, along with other tips, and this was followed with a Q&A session.

The NM AMP Advisory Board met after the Breakfast Session. NMSU’s Interim Provost and Advisory Board Chair, Dr. Lakshmi Reddi, facilitated the board meeting. NM AMP Director, Jeanne Garland, gave a brief talk on the changes in focus for the next five-years (2024-2029). Interim Dean of the College of Engineering, Dr. David Jauregui, presented the impact of mentors on students, citing his own experiences as an undergrad. Dr. Rachel Boren, Director of the Southwest Outreach Academic Research (SOAR) Evaluation & Policy Center, presented evaluation plans and updates for NM AMP. Then Dr. Stephanie Arnett, the Co-PI and Lead Researcher of the NSF-mandated Broadening Participation Project, presented an update on the project.



Advisory Board Members Discuss NM AMP



Early Morning Session, Workshop I

LUNCHEON KEYNOTE ADDRESS

At the Conference Luncheon, NM AMP's Director Garland introduced **Clayton Abbey, NMSU's Assistant Vice President of Government Relations**. VP Clayton then introduced the **Honorable New Mexico Senator Pete Campos**. Dr. Campos, the longest serving New Mexico Senator, addressed the students and their capacity to grow throughout their lives. He encouraged students to learn from their losses, not just their victories. Dr. Campos also emphasized, and VP Clayton later reiterated, the importance of being of service in their communities. He emphasized the need to be productive as our levels of productivity determine who we are and who we will become.



Senator Campos & Vice President Abbey

Dr. Laura Crossey, who has participated as the UNM NM AMP Institutional Coordinator for the past 23 years, was recognized for her years of service to NM AMP and its students. Dr. Crossey, who is retiring this year, was honored with a plaque for her ongoing, active participation. She has mentored 38 graduate students to completion, all at UNM, that includes 4 post-



Director Garland presents Dr. Laura Crossey a plaque recognizing her retirement and 23 years of service to AMP

docs, 13 Ph.D.s, 25 Masters students, and 63 undergraduate researchers. She will be greatly missed!

During lunch, judges convened for a Judge's Training Session/Luncheon, where they learned about the rules and procedures for this year's judging. Judges previewed the posters prior to student presentations. The judges selected the three winners in each of the two categories of Community College students and University students.

FACULTY MENTORS OF THE YEAR

Michael Voegerl presented the following **Faculty Mentors of the Year** with their awards for all their hard work and dedication to our NM AMP students:

Dr. Mostafa Hassanalain, Dean's Research Scholar and Associate Professor in the Department of Mechanical Engineering at New Mexico Institute of Mining and Technology, was named **Mentor of the Year**.



Dr. Mostafa Hassanalain, Mentor of the Year, with Facilitator, Michael Voegerl

Dr. Sushmita Nandy, Associate Professor of Biomedical Sciences at Northern New Mexico College was also named **Mentor of the Year**.



Dr. Sushmita Nandy, Mentor of the Year, with Facilitator, Michael Voegerl

AFTERNOON SESSIONS, WORKSHOPS AND BUSINESS MEETINGS

In the afternoon, conference attendees had the opportunity to attend the poster presentations of the community college and university student presenters.

One of our first-year URS participants remarked during our conference debrief that the conference really came together for him when he was able to see the array of posters. He noted his fascination as he was able to listen to other scholars from around New Mexico talk about their research.

The Institutional Coordinators convened in the afternoon, with Director Jeanne Garland facilitating the meeting. Self-introductions were made. The Bridge to the Baccalaureate (B2B) Co-PIs and the community college ICs also attended the IC meeting, along with the University Partner ICs, with the purpose of collaboration of recruitment efforts. ICs were given the opportunity to update the group on the status of their funding, collaborative recruitment efforts between the NM AMP and Bridge to the Baccalaureate (B2B) network, and campus specific outreach and recruitment. NM AMP updates included Director Garland's encouragement for IC's to articulate the benefits of the new thematic research focus of Climate: Sustainability and Resilience with potential scholars. Director Garland also led with the notion that our universities and colleges should continue to become more institutionalized in their approaches and to continue to explore avenues of financial sustainability. Mentors can accomplish this by writing NM AMP into their own proposals. The meeting also included a discussion on collaboration of recruitment by the Community College and University ICs.

FRIDAY CLOSING: AWARDS AND BROWNIE-SUNDAE BAR SOCIAL

At the closing ceremony, Michael Voegerl facilitated the Poster Winner Awards Sundae Celebration. He presented 1st, 2nd, and 3rd place prizes to the community college and university Conference Poster Session Winners, along with the raffle ticket winners.

**The Poster Sessions Winners are as follows:
Community College Category Winners**



*1st Place Community College Team Poster Winners,
DACC: Mario Ochoa-Dominguez &
DACC: Emerald Davis (not pictured)*



*2nd Place Community College Poster Winner,
DACC: Anika Tafoya*



*3rd Place Community College Poster Winner,
DACC: Jessica Pulgarin*

University Category Winner



1st Place University Team Poster Winner,
ENMU: Zoe Hutcherson



2nd Place University Team Poster Winners,
NMSU: Hubert "CJ" Quintana III



3rd Place University Team Poster Winners,
NMSU: Isaac Moreno-Carrillo

SATURDAY WORKSHOPS

On Saturday, Michael Voegerl held a **Breakfast Session for Community College Institutional Coordinators, Conference Community College Professional Development Workshop Participants, Faculty, and Statewide Program Staff** in the Colonel Fountain Room. In this session, students were able to discuss how the conference impacted them and their research directly.

There were great conversations of how the Student Workshop facilitator's talks about *Climate: Sustainability and Resilience* were inspiring and relevant to them personally and to their own present and future research initiatives. During this debriefing, students shared within their assigned break-out groups and were able to report out their discussion highlights with others in the workshop that the students had written together on large Post-its hung on the room's walls.

Students reported back the different ways they connected to the speaker's talks and how their own angst regarding climate, sustainability and resiliency affects who they are as students and how they hope to steer their research now and in the future toward solutions, in keeping with NM AMP's current funding agenda rooted in *Climate: Sustainability and Resilience*.

Dr. Sonja Montas Hunter, NSF Program Director and Program Co-Lead, also led a Saturday morning session that was well attended by faculty, administrative staff of various STEM programs, and doctoral students. In discussion and workshoped were how NSF program goals fit into institutional proposal goals and narratives. Dr. Montas Hunter also facilitated an exercise for attendees to work in groups to create outlines of their future proposal goals.



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