

# ***Research Opportunities for Science Educators (ROSE)***



## **Organizers**

**Jeff Rack, CCB, A&S**  
**Eva Chi, CBE, SoE**

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**Sarah Rascon, Program coordinator**

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## **Mission**

The ROSE Program energizes and enhances science teaching in New Mexico by leveraging the research resources of the University of New Mexico (UNM) and the educational resources of the State of New Mexico Public Education Department (PED). The central activity is an authentic research experience in which teachers (ROSE Scholars) join ongoing projects for first-hand participation in discovery-based research. The embedded Scholars see firsthand “how science is done” and the interdependence of various disciplines and subfields while working with faculty and student researchers. Scholars are selected based on the underrepresented minority (URM) and economically challenged student populations of their schools and their own scientific interests and background. They return to their classrooms bringing new ideas, tools and enthusiasm to share with students. From this core experience, ROSE will assist Scholars statewide in building a community to share experiences and educational resources.

ROSE will

- improve the quality of science education in NM schools by refreshing knowledge and inspiring confidence in middle and high school teachers

- forge connections between UNM and schools by acquainting teachers with university resources and educating UNM faculty on issues facing the schools

- incorporate K-12 and higher education faculty into a collaborating community of STEM educators statewide.

# ROSE Annual Report for 2025

## Executive Summary

The ROSE program had a small but successful summer research session in 2025, with 20 Scholars and 16 faculty mentors participating. Scholar comments from anonymous surveys during and after the session were overwhelmingly positive about their experience and its effect on their teaching. One Scholar wrote that “It was an experience that actually changed my mind about teaching, everyone was so passionate about science and research. I was going to quit after this year, but realized last summer this is what I love and am having the best year in my science classes.” The 2025 Scholar cohort teaches >2,000 students each year, and the program total (Scholars participating over 5 years) now teach >5,000 students each year. Another Scholar wrote that “My research poster is hanging in my classroom, and I use it to remind students that we are all lifelong learners, and that true growth comes when we feel outside of our comfort zone.”

Because PED is no longer supporting Scholars with stipend payments, Scholar recruiting efforts and acceptances decreased relative to summer 2024. The program accepted 20 of 48 applicants (~40%), mostly from schools with high enrollments of Yazzie/Martinez students (Indigenous, Hispanic, English Language Learners) and/or economically challenged students. Geographic diversity was also a selection criterion, and 2/3 of the Scholars came from districts outside the Albuquerque metropolitan area- from Shiprock to Lovington. Roughly half of the cohort was new to ROSE, while the other half was returning for a second or third summer.

As usual, Scholars’ summer research projects spanned a range of disciplines (Chemistry, Biology, Engineering, Medicine, Toxicology) and approaches (computational, lab experiments, field work). One Scholar wrote that “The ROSE program really influenced my teaching this semester. Being out in the field collecting litterfall, observing soil, and identifying plants and animals gave me a new appreciation for hands-on science. I felt more connected to the content myself, and that inspired me to bring the same energy into my Biology classroom.” Additional ‘cohort activities’ included tours of research labs, a visit to the Museum of Southwestern Biology, a software tutorial on molecular visualization, two discussions on how to integrate research into classroom activities and regular social events..

At the suggestion of Scholars, a Facebook group was created to promote communication among the teachers and between the teachers and UNM. So far, this has been more useful for UNM-Scholar communication than for ‘community-building’ among the Scholars.

The loss of PED funding for Scholar stipends, which had been variable but significant, prevent the program from expanding and also led to more reliance on funding from NSF and NIH research grants; at the same time, federal policy changes have decreased or eliminated some funding opportunities for programs like ROSE. Going forward, obtaining stable funding at an appropriate level remains a priority for the ROSE program.

## **I. History**

ROSE began as a pilot project in 2021 to provide statewide outreach to public schools and their science classes by embedding teachers into authentic research projects at UNM. With support from NM PED, eight science teachers from across New Mexico came to join ongoing research projects in UNM's department of Chemistry and Chemical Biology (CCB) for 4 weeks in summer. The number of applicants (40) and teacher responses (overwhelmingly positive) encouraged UNM and PED to continue and expand the program.

In 2022, the program secured increased funding from the Math and Science Bureau of PED and from the HED RPSP program (categorical funds for Teacher Pipeline) which permitted an expansion to 20 teachers (Scholars), most of whom were housed in UNM dorms for the 5-week summer session. A quantitative survey approach was used for program assessment, and both Scholars and faculty mentors had very positive responses.

The 2023 research session hosted 22 Scholars for 4 weeks, and the mentor group included faculty from 3 A&S departments (Chemistry, Biology, Earth Sciences), Chemical and Biological Engineering and Pharmacy. In the October follow-up survey, Scholars responded that ROSE had changed the way they teach, reporting increased self-efficacy regarding teaching science concepts (67%) and practices (89%). Following the summer session, ROSE proposed and was approved to implement a more formal organizational structure reporting to the OVPR.

The 2024 research session hosted 28 Scholars for 5 weeks, and the mentor group included faculty from 3 A&S departments (Chemistry, Biology, Earth Sciences), 3 SoE departments (Chemical and Biological, Mechanical and Civil Engineering) and the colleges of Pharmacy and Education and Human Sciences. Scholars teach over 100 students a year, on average (3,679 total students). One Scholar wrote "Doing research in a wet lab changed the way I include science practices in my class...no more graphic worksheets trying to mimic real science. and then to put into posters and presenting them is amazing and makes me more confident. I can't wait to host and make the STEM nights for families in school this year!"

The program continues to evolve in response to feedback from Scholars and other stakeholders, hoping to significantly benefit the STEM education ecosystem by improving the skills, confidence and enthusiasm of science teachers across New Mexico.

## **II. Publicity and Scholar Recruitment**

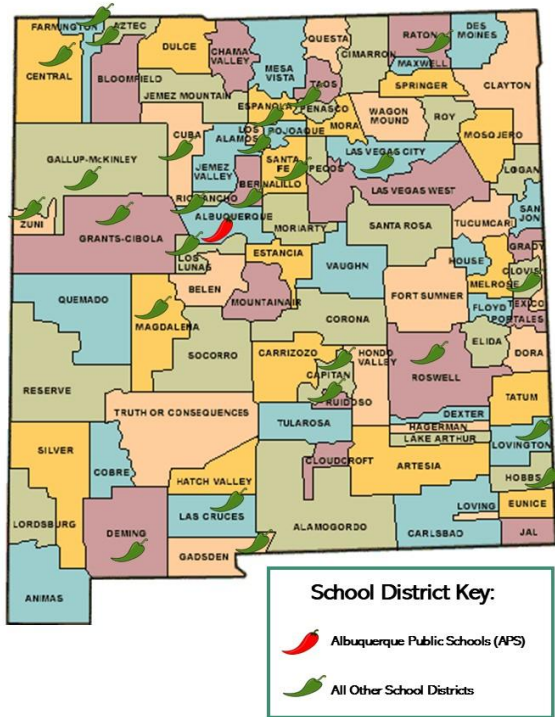
The website (<https://UNMROSE.unm.edu>) continues to be the principal outward 'face' of the ROSE program through the recruitment period and the summer research session. Photos and PI research descriptions were updated as new items became available, and lists of Scholars were posted for each summer session. News stories ran on the departmental website before the summer research session and on the UNM news site after the summer session.

Advertising for the 2025 session began in Fall 2024 and included a table display at the annual NMSTA conference (October 2024 at UNM HSC) as well as online mechanisms. All NM superintendents were notified by email in October that due to loss of funding from PED, ROSE was soliciting stipend support from districts; only APS responded. A preliminary advertisement (informational, but no online application available) ran in PED's STEM Connect newsletter in November 2024. The first advertisements containing the online application link ran on the NMSTA website in January and early February 2025 and in STEM Connect during the same period (text for all ads can be found in Appendix A). Also in late January, recruiting emails were sent to the 2021 and 2022 Scholars and to superintendents of all NM school districts (including charters). Both the NMSTA and STEM Connect newsletter are 'opt-in' channels which teachers must sign up for; we have not found a comprehensive email list for science teachers in NM.

### **III. Scholar Selection and Distribution**

The ROSE online application for summer 2025 went 'live' on January 15 with a best consideration date of March 1. The first round of application acceptances had a target date of March 8 to be followed by Scholar acceptances until the end of March (Timeline in Appendix B). The application used Qualtrics and was managed by the ROSE program coordinator.

We received 48 completed applications by the best consideration date (Appendix C). The organizing committee evaluated applicants based upon student demographics at their schools, geographic distribution, professional preparation, the ability of PIs to accommodate returning Scholars and short-answer questions about motivations. Demographic data obtained from the NM PED STARS site (<https://webnew.ped.state.nm.us/bureaus/information-technology/stars/>) included percentages of Hispanic and Native American student populations, English language learners and economically challenged students. Professional preparation data included self-reported academic degrees, years taught and subjects currently/recently taught.



**Geographic distribution:** The 2025 Scholar cohort of 20 teachers (Appendix D) represented schools from across the state, including 12 returning Scholars from Shiprock, Zuni, Las Vegas, Santa Fe, Gadsden, Gallup, Santo Domingo, Lovington, and Valencia county. The 8 new Scholars included 3 from Albuquerque and others from Santa Rosa, Grants, Santa Fe and the Dine’ reservation. The majority of Scholars teach in the northern half of the state, with only two from schools in the southern NM.

**Student demographics:** The 2025 Scholars typically teach at schools with high percentages of Hispanic, Indigenous and/or economically challenged students, all groups cited in the Yazzie-Martinez decision of 2018. Five of the Scholars (25%) came from schools with  $\geq 90\%$  Indigenous students, while 7 (35%) came from schools with  $\geq 70\%$  Indigenous. Nine of the schools (45%) have over 70% Hispanic enrollment. Nine Scholars (45%) taught at schools with  $\geq 50\%$  economically challenged students, and 13 (65%) taught at

schools with  $>20\%$  English language learners.

#### IV. Summer Research and Cohort Activities

The 20 Scholars of the 2025 cohort were matched with 16 faculty mentors from across campus (Appendix E). This represents a  $\sim 30\%$  decrease in the number of mentors versus 2024, but includes the new participation of faculty from the Cancer Research Center (Gillette, Kim). Twelve Scholars were mentored by A&S faculty (6 in CCB, 5 in Biology, 1 in E&PS), four were mentored in SoE (2 in CBE, 1 in MechE and 1 in CCEE) and four at HSC (2 in CoP and 2 in the Cancer Research Center). Nine Scholars were mentored by six women faculty (four worked on the Sevilleta LTER under the overall direction of Prof. Rudgers).

The summer research session ran for 5 weeks from Monday June 9 to Friday July 11, similar to 2024. Out-of-town Scholars moved into the UNM housing (Redondo Village) on the

UNM campus on Sunday June 8. The first day (June 9) included program orientation, safety training and a welcome reception at the Student Union Draft and Table; new Scholars also met their mentors in person. Beginning June 10, Scholars joined ongoing research projects which were their principal occupation for the duration of the session. Research projects ranged from the computational sciences (molecular modeling, evolutionary theory) to molecular synthesis and analysis, to organismal and cell biology and ecology. Specific projects and Scholar/mentor pairings are given in Appendix E.

To encourage interactions among the Scholars and to broaden their exposure to UNM faculty and activities, Scholars were asked to attend a series of activities. These cohort activities included weekly coffee breaks (Tuesdays) and lunches (Fridays) to promote social interactions and informal exchanges of knowledge. An evening reception at the Explora Museum in Old Town ABQ was organized with fellows in the TODOS program (Noyes Scholars, science teachers from across NM). A more formal activity was scheduled each Friday afternoon:

a) two small-group sessions on ‘Taking it Back’ to the classroom, in which Scholars were asked to discuss how research principles can be used to improve their students’ classroom experience.

b) an interactive tutorial on Chimera software molecular visualization software presented by graduate student Emily Hendrix from Prof. He’s group.

c) an optional visit to the Museum of Southwestern Biology, a research museum with controlled public access, coinciding with a campus museum conference.

d) tours of faculty research labs and facilities to allow Scholars to see and hear about research outside of their own projects.

The summer session concluded Friday, July 11, with poster presentations by the Scholars on their summer research (poster titles in Appendix E). Posters were displayed in the atrium of the UNM Science and Math Learning Center; Scholars were encouraged to keep the posters afterwards for display in or near their classrooms. The session included a catered lunch and closing comments by the organizers. The session was attended by ~60 UNM students and faculty in addition to the Scholars and also by Jan Williams from the Society of Women Engineers, Eric De Santo and Marisol Fraga from Albuquerque Public Schools and NM Senator Harold Pope.

## **V. Ongoing connections with Scholars**

At the suggestion of Scholars during the 2025 summer session, a Facebook group was created to promote Scholar interactions during the year. The group “UNM ROSE Program” was created in July 2025 and can be found at <https://www.facebook.com/groups/1277725693761458>. The group is visible but private (only members can post) and has 23 members as of this writing. The group has been used for ROSE program announcements, publicizing STEM Education activities (for NMSTA, STEM Innovation Network NM, US Crystal Growing competition,

Society for Science grant, etc.) and to share Scholar accomplishments and activities. Scholar activities posted since July include:

Kathryn Samora- STEM IN mini-grant for Lincoln Middle School STEM club

Violet Hobbs- recommending Strawberry Extraction Activity

Geizi Dejka- received Outstanding Biology Teacher award

Vandhana Ramchandran- Extra Yard for Teachers award

Lamberto Geolin's students are New Mexico Finalists in the National STEM Festival

## **VI. Funding**

ROSE received support from several different sources and mechanisms in 2025, including direct payments to ROSE, payments to Scholars, and in-kind organizational support. A major change from previous summers was the absence of PED funds to pay Scholar stipends, which substantially decreased the number who could be supported and prevented any program expansion. The HED requested a significant increase in the ROSE allocation from RPSP (\$275K for FY26) which would have allowed continued program growth, but this was not approved in the 2025 legislative session.

UNM operating funds for the 2025 summer session were obtained from the HED RPSP program Teacher Pipeline Initiative (TPI) and the Office of the Vice President for Research (OVPR). For FY25 and FY26, \$100K annually was allocated to ROSE from TPI. Because ROSE expenditures are centered on the June-July period, program expenses are more easily monitored on a CY (calendar year) basis. The OVPR contributed \$50,000 as part of a 3-year, \$150,000 internal grant.

The NSF CISTAR grant (lead UNM PI Abhaya Datye) paid the stipends for three Scholars who worked on CISTAR research. This grant also provided funding to bring the Scholars to UNM campus in October for a research meeting. NSF grants obtained by Sevilleta LTER director Prof. Jennifer Rudgers paid the stipends of 4 Scholars, and the UNM Cancer Research Center provided stipends for two Scholars to work with Prof. Kim and Prof. Gillette (Associate Director for Training and Education of the Comprehensive Cancer Center).

The Albuquerque Public School District (APS) paid the stipends for two Scholars teaching in that district (another Scholar from APS was paid using ROSE funds).

UNM expenditures for CY 2025 included \$60K for Scholar stipends, \$30K for on-campus housing and parking, \$17K for graduate student "lab mentor" awards, \$3K for staff coordinator salary, and \$4K hospitality (space rental, catering). Miscellaneous expenses included lab safety equipment, poster printing, off-campus housing for CISTAR Scholars, conference participation and minor supplies. Total UNM expenditures from ROSE accounts in CY 2025 were ~\$110K, with \$63K remaining at the end of the calendar year (see Appendix F for December 2025 account statements for indices 885528 and 889561).

## **VII. Organization**

ROSE continues to be run by an executive faculty committee and director assisted by a temporary, part-time staff program coordinator. The committee for 2025 consisted of Steve Cabaniss (CCB, A&S), Jeff Rack (CCB, A&S), Cari Hushman (EdPsy, CoEHS) and Eva Chi (CBE, SoE). Cabaniss and Rack were primarily responsible for planning, organization, and interactions with mentors, while with Hushman was primarily responsibility for program assessment and interactions with CoEHS and the STEM education community. Program coordinator Sarah Rascon handled correspondence, publicity, summer session logistics and the Facebook group.

With the upcoming retirement of Cabaniss planned for summer 2026, Rack became the sole program director starting in January 2026. The completion of Mark Walker's PREC grant leaves ROSE as the only program supported by Rascon, so her position will be converted to an 'on call' part-time.

## **VIII. Assessment Process and outcomes**

Program assessment consisted of a series of Scholar surveys and PI surveys during and after the summer session (summary report is attached as Appendix G). Results were summarized as:

1. The ROSE fellows overwhelmingly had positive things to say about their experiences with ROSE and with their lab groups. They would come back again.
2. The PIs were overwhelmingly positive about hosting a ROSE scholar.
3. The majority of ROSE fellows reported little to moderate amounts of research experience prior to ROSE.
4. The average ROSE fellow has 14 years of experience teaching STEM, and has a degree in Education. Half of the fellows reported a LEVEL II teaching license. All had at least one endorsement in science or math.
5. This experience has impacted their ability to address the practices of science and engineering standards, the activities in their classroom, and the amount of open ended inquiry with their students.

Surveys were written, conducted and summarized by Carolyn Hushman, Associate Professor of Educational Psychology and Associate Dean for Research in the College of Education and Human Sciences. Scholars were asked to complete 3 surveys in Qualtrics- a welcome survey at the start of the summer session (20 completed), an endpoint survey in July (17 completed) and a follow-up survey in December (12 completed).

## **Scholar Impact**

Classroom teaching impact of the ROSE experience is significant. On average, each scholar teaches 115 students in STEM classes (range 55-200), on average (5,279 total students

were taught by ROSE scholars from all cohorts). All the Scholars responding in December reported that they changed the way they teach due to their ROSE experience, including improved confidence in talking about research, new examples, new activities and the use of open-ended inquiry. Most teachers reported an increase in self-efficacy regarding teaching science concepts (64%) and practices (82%). In scholars' own words:

- “I work in a school where the Pueblo's culture is integrated in with the state teaching for NGSS. I am developing ways to mimic the research that I learned and passing that on to my students through the ways we think and talk about science in class.”
- “I am now more confident in my science teaching, particularly in doing laboratory activities. We are planning to do the science fair project this second semester in the middle school since this was not continued after some years due to science teachers turn over. I am sure that this is another activity where we can concretely apply what we learned from the ROSE program.”
- “The ROSE Program influenced my teaching by being more conscious in incorporating laboratory activities and by not being afraid of students experiencing experiments in the laboratory.”
- “I am currently teaching Earth Science and I was able to utilize the activity I did during the ROSE Program on how to balance pH from an acid mine waste.”
- “My research poster is hanging in my classroom, and I use it to remind students that we are all lifelong learners, and that true growth comes when we feel outside of our comfort zone. It is also referenced when we discuss the future careers and scientific breakthroughs that will be possible in the future, which makes the content more relevant to my students.”
- “The first part of my semester fit in to my teaching using the New Mexico Standards which was "Assessing the Impact of Technology on Society", I integrated what I learned at UNM with the ROSE program and asking questions for instance, "what kinds of simulation do scientists and engineers use?" and "How social and environmental factors can change technology needs in different locations?"
- “Even at the start of the class, during the course orientation, I shared to my students my experience working and learning in one of UNM laboratories. I shared with them the work that the lab is doing on cancer research. There were more opportunities especially in the Medical Detectives class where we discuss about patients' vital signs, food outbreak, and how the brain works- I would share a bit about being a researcher. We also did the bacteria culture and antibiotic test, the sheep brain dissection, and toxin tests in the lab which my students greatly enjoyed. I processed the purchase of laboratory gowns for my students instead of using the plastic lab aprons so that when worn with their goggles and gloves, they are really like scientists or medical researchers.”

- “The UNM-ROSE program deeply influenced my teaching approach by emphasizing culturally responsive pedagogy and inquiry-based learning. I became more intentional about connecting lessons to students' lived experiences, fostering a classroom environment where curiosity and critical thinking thrive. The hands-on activities and collaborative learning strategies I learned through the program helped me better engage diverse learners, especially in science. I've also focused on providing more opportunities for students to explore real-world problems and solutions, encouraging them to see science as not just academic, but as a tool for understanding and impacting their communities.”

The ROSE experience also changed how teachers saw themselves. Survey responses showed 13% increase in agreement with the statement “I am part of the STEM workforce in New Mexico”. Most (87%) teachers agreed or strongly agreed that ROSE left them more motivated to teach science. Scholars wrote:

- “I am more confident in guiding students during science experiments and asking more questions regarding deep thought for my students so they can ask 'why' or 'how' in a way they are able to determine the 'why' or 'how'.”
- “The ROSE program really influenced my teaching this semester. Being out in the field collecting litterfall, observing soil, and identifying plants and animals gave me a new appreciation for hands-on science. I felt more connected to the content myself, and that inspired me to bring the same energy into my Biology classroom. Because of that experience, my students now use these techniques not only in their science fair projects but also in our regular classroom experiments. They collect their own samples, compare soil types, and observe local ecosystems with more confidence and curiosity. ROSE helped me see how powerful real-world data can be, and it made my lessons in ecology and climate science feel more authentic and engaging. Overall, it strengthened my teaching and helped my students see themselves as actual young scientists.”
- “Looking back, I'm really grateful for the experience. One of the biggest successes was how easily I could bring what I learned into my lessons. My students were genuinely more engaged when we used local, hands-on activities. A challenge for me was balancing the time commitment with school responsibilities, but it was worth it. Overall, ROSE was a valuable and memorable experience that strengthened my teaching and changed how I engaged with my lessons.”
- “My ROSE experience has greatly boosted my confidence in teaching scientific research skills to my students, particularly in the field of computational chemistry and biology. I was able to share with students the same research experience I gained last summer, guiding them through the concepts I learned under the mentorship of Dr. He and Ms. Emily. It was really the first time I saw what I did as part of the greater STEM workforce in NM”

- “After having several months to reflect, I can say that my ROSE experience was both transformative and deeply meaningful. It strengthened my teaching practice, expanded my scientific skills, and inspired me to bring more authentic research experiences to my students. We are all, students and me, having more fun in science this year.”

Survey feedback on program logistics was helpful, and included information on recruiting, teacher motivation, and preparation for the summer. Teachers learn of the ROSE program from administrators, other teachers, and PED communications; they apply in order to improve their science knowledge and personally experience research. Most (78%) teachers felt they had enough information about logistics and stipends before the start of the summer program, but at the midpoint, 75% of teachers reported they were overwhelmed by the research and equipment in their lab (this decreased to 17% at the end of the session). Some teachers specifically requested more advance information housing and parking. Within the logistics, the state of the rooms in the dorms was mentioned/a concern in 59% of the responses.

Finally, ROSE is changing how Scholars interact with their students. Scholars wrote:  
wrote:

- “It was an experience that actually changed my mind about teaching, everyone was so passionate about science and research. I was going to quit after this year, but realized last summer this is what I love and am having the best year in my science classes.”
- “The ROSE program was a wonderful reminder of what it feels like to be in a new environment and not know the content. It helped me remember patience and grace in a way that I hadn't been reminded of in a number of years. Students also are encouraged to work more independently in the lab with less direct instruction from me. Further, it was helpful for students to see that there are so many things they can do that they may not even be aware of, especially research possibilities.”
- “Thank you so much for giving us the opportunity to see beyond our classroom and our school. You have allowed us to work directly with real scientists and researchers who are passionate in their fields. These are the same people we are preparing our students for in the future. In this way, we saw the future in them and we went back to our classrooms to ready our students in the best way that we can.”
- “Before the ROSE program, I had no knowledge about modern research, since it has been well over a decade since I graduated college. Since attending the ROSE program, I have now gained not only firsthand experience, but the perspective to share this experience with my students in a way that has helped me develop those skills to teach students how to be more independent in the lab and how to collaborate with their peers in a constructive way.”

## **PI Impact**

For the PI Survey, 10 PIs completed the initial survey, seven completed the end of program survey. PIs were overwhelmingly looking forward to hosting a teacher in their lab and expressed being nervous about the short amount of time or not being helpful to the teacher. At the end of the experience, survey results showed an overwhelmingly positive experience for both

the lab group and the PI. Teachers contributed to the research by being good communicators and detailed oriented. It was suggested these surveys should go to the individuals in the groups directly working with the teachers and not the faculty PI. In the PI's words:

- “I did not know that there were dual language/ESL schools, actually I did not know much about the public schools. Our scholar really helped us understand how to be of better service and outreach in the school setting.”
- “My graduate students LOVED working with the ROSE scholar. They learned a lot about how to translate their science into language a middle schooler can understand. It was great experience for us all.”
- “The ROSE scholar collected preliminary data on new project, and we will be using it for the next year. They had a very strong contribution to my research group.”
- “We were impressed with how much the teacher was committed to learning this science and apply it to their profession as a science teacher. It was something to see.”
- “The scholar brought new energy into our group and really learned quickly. I was surprised by how much they wanted to learn about the research and the university. I had a great time walking them around campus and showing them different labs from my colleagues.”
- “It helped us all talk about high school science. It made me think about the introduction courses freshmen take and the gap between high school and college. It will impact how I teach my lower division courses, at the very least.”

**Acknowledgements-** ROSE organizers gratefully acknowledge financial support from the New Mexico Higher Education Department (HED), the National Science Foundation (NSF), The National Institutes of Health (NSF), the UNM Comprehensive Cancer Research Center and the UNM Office of the Vice President for Research.

## Appendix A. ROSE program advertising

### A1. Text for NM STEM Connect, November 2024

#### ROSE: Research Experiences for Science Educators

Middle and high school science teachers- are you interested in learning more about what scientists do and what tools and skills they use in their research? ROSE brings science teachers into UNM research groups for a 5-week summer session to join ongoing research projects and work with our students and faculty.

In summer of 2024, UNM hosted 28 science teachers from schools across New Mexico, including Lovington, Zuni Pueblo, Shiprock, Raton, Bernalillo, Roswell and Santa Fe. They joined research projects directed by faculty from Chemistry and Chemical Biology, Biology, Pharmacy, and Chemical and Biological Engineering. We will host a similar group of projects in the summer of 2025.

The program provides a stipend, on-campus housing for teachers from outside Albuquerque, and opportunities to meet and work with UNM faculty, staff, and students. More information is available on the website:

<https://UNMROSE.unm.edu>

The 2025 session will begin June 9 and continue until July 11; the online application will 'go live' on January 15 and the best consideration date for applications will be March 1. No previous research experience or degree in science is expected or required. Updates on the program and application process will be posted on the website. If you have questions about the program, please email us at

Sarah Rascon, program coordinator

Or

ROSE program

[sdixon3@unm.edu](mailto:sdixon3@unm.edu)

[UNMROSE@unm.edu](mailto:UNMROSE@unm.edu)

## **A2. Text for NM STEM Connect sent Jan. 15, 2025**

### **ROSE: Research Experiences for Science Educators**

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Sarah Rascon, program coordinator  
or  
ROSE program

[sdixon3@unm.edu](mailto:sdixon3@unm.edu)

[UNMROSE@unm.edu](mailto:UNMROSE@unm.edu)

### **A3. Advertisement for the NMSTA website sent Jan 12, 2025**

**Note: This text was also sent to past Scholars and to NM superintendents.**

## **Research Opportunities for Science Educators (ROSE 2025)**

Are you interested in performing cutting-edge research in state-of-the-art facilities? Would you like to learn the latest in the development of scientific theories? Would you like to know more about research opportunities at the University of New Mexico? UNM has partnered with the NM PED to create a program (<https://UNMROSE.unm.edu>) designed to bring science teachers to UNM for an intensive five-week program working in an existing research group (Monday, June 9 to Friday, July 11). Participants will receive a stipend of \$1,200 per week for five weeks. Housing will be provided on-campus for those that do not have local housing. All participants will receive a UNM parking pass and access to the library and other institutional buildings.

Applying is easy! We only need your name, your school, email address, and short answers to a few simple questions:

[ROSE Summer 2025 Online Application](#)

To learn more about individual research opportunities, please see the list of abstracts at our website. This opportunity will allow you to participate in an active research project that seeks to answer important discipline-specific scientific questions. Prior experience in research is **not** a requirement to participate in this program. We continue to expand the program, and previous applicants and ROSE Scholars are invited to apply in 2025. Research topics include Chemical Synthesis, Bioengineering, Nanochemistry and Nanoscience, Molecular Modeling and Computation, Energy Science, Photochemistry, Electrochemistry, Biochemistry, Drug Design, Materials Science, and many others. We look forward to receiving your application.

Please email your questions to [unmrose@unm.edu](mailto:unmrose@unm.edu). Full consideration will be given to applications received by **March 1, 2025**. We plan to send notifications to accepted scholars as early as **March 8, 2025**, and this will continue until the cohort is complete.

#### A4. Email text sent to New Mexico school district superintendents October, 2024

Dear Colleagues in education,

I am writing on behalf of ROSE, a STEM professional development summer program at UNM run in partnership with NM PED.

ROSE (Research Opportunities for Science Educators) provides an intensive, on-campus research experience for in-service science teachers (ROSE Scholars). ROSE began in 2021 and has brought ~50 individual teachers to conduct research at UNM over 4 summers (although we have averaged ~20 teachers per summer, several of these are repeat attendees). We have had very favorable feedback from participating teachers, and last year we had over 80 applicants including ~25 from teachers who had participated in a previous summer and wanted to return. Lists of participating teachers and faculty mentors, along with other program information including online application procedures can be found at our website:

<https://unmrose.unm.edu/>

We are particularly interested in reaching teachers who are not participating in external content-oriented professional development. No research experience or science degree is required or expected- most Scholars have degrees in education; they must have taught for at least one year, and two or three years of experience would be preferable. Scholar selection emphasizes outreach to schools with high URM enrollment and geographic diversity across the state. In summer 2024 we hosted 28 teachers from across New Mexico, 80% of whom taught outside the Albuquerque metro area.

Although the application portal will not open until January, 2025, we are writing now with a request for you as a superintendent. In previous years, ROSE has received funding from PED's STEM Bureau to cover part of the cost of Scholar stipends; while we have funds from other sources to cover on-campus expenses, PED paid over half of the Scholars in 2024. However, the legislature did not provide discretionary funds to the STEM Bureau for FY25, which could lead to a 50% decrease in the number of Scholars for summer 2025. Both state legislators and staff at the LFC and PED have suggested that we ask individual districts such as yours to fund Scholars for 2025.

***We ask that you consider sponsoring one of more Scholars from your district for ROSE 2025. The cost to the district would be a \$6,000 stipend for the 5-week period; the ROSE program will pay on-campus expenses.*** Previous Scholars have reported that ROSE has changed the way they teach science- building their confidence and providing new tools and insights for their students. We believe this investment in NM science teachers can bring substantial benefits to our schools, our students and our state.

We are excited about bringing teachers into a research environment where they can experience 'what scientists do'. We appreciate your help in reaching out to teachers who can benefit from this program. If you have questions about the program, please email me at [cabaniss@unm.edu](mailto:cabaniss@unm.edu); I will also be glad to talk by phone.

## Appendix B. ROSE 2025 Timeline

October 2024	Scholar recruiting begins at NMSTA annual meeting
November 2024	Initial Announcement in STEM Connect
January 2025	Statewide publicity begins (STEM Connect, NMSTA)
Jan. 15	Online application goes live
March 1	Best consideration date for applying for Summer 2025
March 9	Offers sent by email to accepted applicants
March 24	Scholar decisions (accept/decline) due to ROSE
April 2	Final Scholar acceptances sent
Mid-April	Scholar/Mentor matching decisions announced
June 8	Dormitory Move-in and Welcome reception in SUB
June 9	Session begins with Scholar orientation
June 23	Mixer reception with TODOS Fellows at Explora
July 11	Poster presentations and closing ceremony

### Appendix C. Summer 2025- 48 Applicants and their Schools

First Name	Last Name	School Name
Margarett	Aguirre	Cochititi Elementary School
Wilene	Archibeque	Eldorado HS
Janice	Badongen Patal-	Espanola Valley High School
Gloria	Basden	Las Cruces High School
Maribel	Bernal	Gadsden Middle School
Daryl	Cadanilla	Alamogordo High School
Aloisa	Camangian	Early College High School
Ana Rosa	Carmona	Zuni Middle School
Ryann	Carter	Eldorado High School
Elsie	Dan	Nizhoni Elementary School
Cynthia	Dumayas	Tse Bit Ai Middle School
Stacey	Eberhart	Roswell High School
Ma. Ofelia	Elas	Raton High School
Florence	FIEGALAN	Kirtland Central High School
Mae Amor	Flores	CUBERO ELEMENTARY SCHOOL
Lamberto Jr	Geolin	CHEE DODGE ELEMENTARY
John	Glaser	Early College Academy
Lorena	Glaser	Early College Academy/Career
Judith	Guyod	Enrichment Center
Taylor	Harris	Laguna-Acoma High School
Violet	Hobbs	Tres Volcanes Community
Kelly	Holmes	Collaborative
CATHERINE		Lovington High School
KAY	IRIZARI	Washington Middle School
Tyza Faith	Iwag	CUBERO ELEMENTARY SCHOOL
William	Kennedy	Raton High School
Mirasol	Laberinto	Valencia Middle
Margaret	Lewis	Grants High School
Filomar	Lomasag	Robertson High
Jahn Clarisse	Madlangbayan	To'hajiilee Community School
Shielmyn	Manuel	Capital High School
Kate	McDaniel	Newcomb Middle School
Erin	Montoya	La Cueva
Heather	Neuber	pojoaque valley middle school
Kathleen	Paras	Nex+Gen Academy
Oliver	Phillippe	Laguna-Acoma Jr/Sr High School
Venetia		Santo Domingo School

ROLLY	PONCE	Tohatchi Middle School
Irish Jane	Quidet	Coronado Middle and High School
CRIS		
ANTHONY	RABINO	Zuni High School
Amanda	Simmons	East Mountain High School
Kathryn	Samora	Lincoln Middle School
Begli	Sapayev	Albuquerque School of Excellence
Mark		
Anthony	Sayat	Milan Elementary School
Juliet	Tandoy	Zuni Middle School
Ronel	Turquesa	Laguna Jr./Sr. Acoma High School
Romalyn	Ubaldo	Santa Rosa High School
Adrienne	Vigil	Santa Fe High School
Naomi	Vijeila	Solare Collegiate Charter School
Paul	Yackel	Albuquerque High School

## Appendix D. Summer 2025- 20 Accepted ROSE Scholars with School Demographics

First Name	Last Name	School Name	School City/T	Enrolled	%Native	%Asian	%Black	%Cauc	%Hispan	%ELL	%EconChal
Maribel	Bernal	Gadsden Middle School	Anthony	665	≤ 1%	≤ 1%	≤ 1%	≤ 1%	≤ 1%	0.5098	0.597
Ana Rosa	Carmona	Zuni Middle School	Zuni	246	0.95	0.02	≤ 2%	≤ 2%	≤ 2%	0.29	0.50
Cynthia	Dumayas	Tse Bit Ai Middle School	Shiprock	404	0.92	≤ 1%	≤ 1%	≤ 1%	0.03	0.40	0.59
Florence	FIEGALAN	Kirtland Central High School	Kirtland	709	0.80	≤ 1%	≤ 1%	0.09	0.07	0.31	0.43
Lamberto Jr	Geolin	CHEE DODGE ELEMENTARY	Gallup	255	0.73	≤ 2%	≤ 2%	0.05	0.20	0.22	0.62
Violet	Hobbs	Lovington High School	Lovington	764	≤ 1%	≤ 1%	0.01	0.19	0.79	0.25	0.18
Kelly	Holmes	Washington Middle School	Albuquerque	274	0.03	≤ 2%	0.03	0.02	0.90	0.48	0.55
William	Kennedy	Valencia Middle	Los Lunas	492	3.7%	.2%	.4%	25%	71%		100%
Mirasol	Laberinto	Grants High School	Grants	796	0.47	0.02	≤ 1%	0.11	0.39	0.15	0.37
Margaret	Lewis	Robertson High	Las Vegas	340	≤ 1%	≤ 1%	≤ 1%	0.09	0.89	0.13	≤ 1%
Jahn Clarisse	Madlangbayan	Capital High School	Santa Fe	1366	≤ 1%	≤ 1%	≤ 1%	0.04	0.94	0.44	0.34
Venetia	Phillippe	Santo Domingo School	Santo Domingo	95	0.93	≤ 5%	≤ 5%	≤ 5%	≤ 5%	0.37	0.67
ANTHONY	RABINO	Zuni High School	Gallup	306	0.97	≤ 1%	≤ 1%	≤ 1%	0.02	0.28	0.42
Amanda	Simmons	East Mountain High School	Sandia Park	410	0.03	0.02	0.02	0.64	0.29	≤ 1%	0.11
Kathryn	Samora	Lincoln Middle School	Rio Rancho	799	0.02	0.02	0.02	0.28	0.60	0.03	0.18
Juliet	Tandoy	Zuni Middle School	Zuni	246	0.95	0.02	≤ 2%	≤ 2%	≤ 2%	0.29	0.50
Romalyn	Ubaldo	Santa Rosa High School	Santa Rosa	196	≤ 2%	≤ 2%	≤ 2%	0.03	0.96	0.06	0.37
Adrienne	Vigil	Santa Fe High School	Santa Fe	1575	0.03	0.02	0.01	0.19	0.74	0.19	0.26
Naomi	Vijeila	Solare Collegiate Charter School	Albuquerque	302	≤ 1%	≤ 1%	0.04	0.05	0.88	0.31	0.50
Paul	Yackel	Albuquerque High School	Albuquerque	1652	0.03	≤ 1%	0.03	0.13	0.76	0.36	0.38

## Appendix E. Scholars, Mentors and Poster Titles

First	Last	Project Title	Mentor	Dept.
Maribel	Bernal	FROM MIST TO MEASUREMENT: THE TRUTH ABOUT ATMOSPHERIC WATER HARVESTING	A Mulchandani	CCEE
Ana Rosa	Carmona	Impacts of Drier and More Variable Precipitation on Microbial Activity in Plains Grassland Ecosystem	J Rudgers	Biology
Cynthia	Dumayas	Molecular and Biochemical Genetics of Norman Pick C1 (NPC1) and Zinc Finger Protein (ZPR1) Diseases in Northern New Mexico	S Garver	CCB
Florence	Fiegalan	Understanding the phase evolution in high-temperature Mo-47 Re alloy	P Kumar	Mech Eng
Lamberto Jr	Geolin	Structure-Guided Design of Peptide Therapeutics via Computational Tools Targeting Osteoporosis	Y He	CCB
Violet	Hobbs	Earth-abundant Ni-based Catalysts for Converting Greenhouse Gases, Methane and CO2 into Useful Chemicals	A Datye	CBE
Kelly	Holmes	Recombinant Production of Functional Histones and p53 in <i>E. coli</i>	J Choe	CCB
William	Kennedy	Elimination of low concentrations of methane via catalytic combustion using earth abundant metals	A Datye	CBE
Mirasol	Laberinto	Rooted in Research: Drylands, Bosques, and Pine Forest A ROSE Scholars Learning Experience with SEV LTER, BEMP, and NMEG.	J Rudgers	Biology
Margaret	Lewis	Microwires in Action: Tunable Drug Release with Silyl Ethers	J-H Olivier	CCB
Jahn Clarisse	Madlanghayan	The evolution of recombination and clustering under heterogeneous varying selection	D Gulisija	Biology
Venetia	Phillippe	How Does Drier Mean and Variability Affect Cyanobacteria Abundance in the Sevilleta Wildlife Refuge.	J Rudgers	Biology
Cris Anthony	Rabino	Comparison of Digestion Protocols for Crop and Food Matrices Prior to Micro(nano)plastic (MNPs) Analysis	E EL Hayek	Pharm Sci
Kathryn	Samora	Probing the Universal Rules for Na-Ion Battery Storage	D Chen	CCB
Amanda	Simmons	Use of Periodic Acid and Schiff's Reagent to Analyze Mucosal Production in the Nasal Cavity of the Rainbow Trout	I Salinas	Biology
Juliet	Tandoy	Invisible Threats in Your Water: Detecting Trace Elements with ICP-MS / Brain on a Fast: Unmasking Metabolic Secrets with Mass Spectrometry Imaging	C Feng	Pharm Sci
Romalyn	Ubaldo	Using microscopy and flow cytometry to understand cancer diagnosis and treatment	J Gillette	Pathology
Adrienne	Vigil	Rate of Reaction of the MdnC Mutants	M Walker	CCB
Naomi	Vijela	"FunGal Amplification: Exploring Fungi Through PCR"	J Rudgers	Biology
Paul	Yackel	Reducing Glucose Uptake in TNBC Cells in Vitro by Inhibition of GLUT1 & GLUT3 transport proteins	T Kim	Pathology

# Appendix F. Account statement for Indices 885528 and 889561

Operating Ledger Summary Through the Month of December 2025												01/06/26
Index: 889528 - 07XX UNM ROSE Includes Contra-Accounts.												
Account Description	Budget (FYTD) Adopted	Budget (FYTD) Adjustments	Budget (FYTD) Accumulated	Actuals Current Month	Actuals Pct	Actuals Fiscal YTD	Actuals Pct	Encumbrances	Balance Available	Balance Pct		
<b>Revenue</b>												
0720 - State Appropriations Gen	\$101,200.00	\$0.00	\$101,200.00	\$8,333.00	8.23%	\$50,602.00	50.00%	\$0.00	\$50,598.00	50.00%		
0720 - Other Sales and Service Revn	\$0.00	\$0.00	\$0.00	\$0.00	.00%	\$12,000.00	.00%	\$0.00	(\$12,000.00)	.00%		
1900 - Reserves	\$0.00	\$0.00	\$0.00	\$0.00	.00%	\$61,651.71	.00%	\$0.00	(\$61,651.71)	.00%		
<b>Total Revenue</b>	<b>\$101,200.00</b>	<b>\$0.00</b>	<b>\$101,200.00</b>	<b>\$8,333.00</b>	<b>8.23%</b>	<b>\$124,253.71</b>	<b>122.78%</b>	<b>\$0.00</b>	<b>(\$23,053.71)</b>	<b>(22.78%)</b>		
<b>Expense</b>												
2060 - Support Staff Salary Detail Gen	\$11,372.00	\$0.00	\$11,372.00	\$272.93	2.40%	\$2,317.76	20.38%	\$4,094.06	\$4,960.18	43.62%		
20SA - Salary Adjustments	(\$11,372.00)	\$0.00	(\$11,372.00)	\$0.00	.00%	\$0.00	.00%	\$0.00	(\$11,372.00)	100.00%		
2110 - Fica Gen	\$0.00	\$0.00	\$0.00	\$2.24	.00%	\$123.11	.00%	\$0.00	(\$123.11)	.00%		
2140 - Retirement Gen	\$0.00	\$0.00	\$0.00	(\$83.22)	.00%	\$287.93	.00%	\$0.00	(\$287.93)	.00%		
2160 - Group Insurance Gen	\$0.00	\$0.00	\$0.00	\$1,962.14	.00%	\$3,821.88	.00%	\$0.00	(\$3,821.88)	.00%		
2180 - Unemployment Compensation C	\$0.00	\$0.00	\$0.00	\$11.00	.00%	\$93.00	.00%	\$0.00	(\$93.00)	.00%		
21A0 - Workers Compensation Gen	\$0.00	\$0.00	\$0.00	\$2.91	.00%	\$8.13	.00%	\$0.00	(\$8.13)	.00%		
21J0 - Other Staff Benefits Gen	\$0.00	\$0.00	\$0.00	\$9.42	.00%	\$79.98	.00%	\$0.00	(\$79.98)	.00%		
3100 - Office Supplies General	\$2,000.00	\$0.00	\$2,000.00	\$0.00	.00%	\$19.99	1.00%	\$0.00	\$1,980.01	99.00%		
31A0 - Business Food - Local	\$4,000.00	\$0.00	\$4,000.00	\$0.00	.00%	\$0.00	.00%	\$0.00	\$4,000.00	100.00%		
39Z1 - Travel Non UNM Emp-Non For	\$1,000.00	\$0.00	\$1,000.00	\$0.00	.00%	\$0.00	.00%	\$0.00	\$1,000.00	100.00%		
4020 - Student Awards Gen	\$25,000.00	\$0.00	\$25,000.00	\$0.00	.00%	\$16,975.00	67.90%	\$0.00	\$8,025.00	32.10%		
4080 - Student Travel Gen	\$30,000.00	\$0.00	\$30,000.00	\$0.00	.00%	\$0.00	.00%	\$0.00	\$30,000.00	100.00%		
4660 - Participant Support Gen	\$35,000.00	\$0.00	\$35,000.00	\$0.00	.00%	\$46,800.00	133.71%	\$0.00	(\$11,800.00)	(33.71%)		
46A0 - Participant Misc Gen	\$1,000.00	\$0.00	\$1,000.00	\$0.00	.00%	\$0.00	.00%	\$0.00	\$1,000.00	100.00%		
63A0 - Conference Fees Gen	\$500.00	\$0.00	\$500.00	\$0.00	.00%	\$0.00	.00%	\$0.00	\$500.00	100.00%		
63C0 - Copying Gen	\$1,500.00	\$0.00	\$1,500.00	\$0.00	.00%	\$0.00	.00%	\$0.00	\$1,500.00	100.00%		
80K0 - Banner Tax	\$500.00	\$0.00	\$500.00	\$0.00	.00%	\$468.20	93.64%	\$0.00	\$31.80	6.36%		
80K2 - Foundation Surcharge	\$700.00	\$0.00	\$700.00	\$0.00	.00%	\$341.32	48.76%	\$0.00	\$358.68	51.24%		
<b>Total Expense</b>	<b>\$101,200.00</b>	<b>\$0.00</b>	<b>\$101,200.00</b>	<b>\$2,166.53</b>	<b>2.14%</b>	<b>\$71,244.23</b>	<b>70.40%</b>	<b>\$4,094.06</b>	<b>\$25,861.71</b>	<b>25.56%</b>		
<b>Report Total Revenue:</b>	<b>\$101,200.00</b>	<b>\$0.00</b>	<b>\$101,200.00</b>	<b>\$8,333.00</b>	<b>8.23%</b>	<b>\$124,253.71</b>	<b>122.78%</b>	<b>\$0.00</b>	<b>(\$23,053.71)</b>	<b>(22.78%)</b>		
<b>Report Total Expense:</b>	<b>\$101,200.00</b>	<b>\$0.00</b>	<b>\$101,200.00</b>	<b>\$2,166.53</b>	<b>2.14%</b>	<b>\$71,244.23</b>	<b>70.40%</b>	<b>\$4,094.06</b>	<b>\$25,861.71</b>	<b>25.56%</b>		
=====												
<b>Report Net:</b>	<b>\$0.00</b>	<b>\$0.00</b>	<b>\$0.00</b>	<b>\$6,166.47</b>	<b>.00%</b>	<b>\$53,009.48</b>	<b>.00%</b>	<b>(\$4,094.06)</b>	<b>\$48,915.42</b>	<b>.00%</b>		
=====												
<b>Parameters:</b>												
Index: 889528 - 07XX UNM ROSE												
Includes Contra-Accounts.												
<b>Warning:</b> These reports will show fiscal year activity. For inception to date activity for Grants please use the FRRGLDS - Grant Ledger Detail Summary report.												
Page 1 of 1 Date/Time: 01/06/2026 1:54PM												

Operating Ledger Summary  
Through the Month of December 2025

Index: 889561 - UNM ROSE-Secondary  
Includes Contra-Accounts.

Account Description	Budget (FYTD) Adopted	Budget (FYTD) Adjustments	Budget (FYTD) Accumulated	Actuals Current Month	Actuals Pct	Actuals Fiscal YTD	Actuals Pct	Encumbrances	Balance Available	Balance Pct
<b>Revenue</b>										
1900 - Reserves	\$ .00	\$ .00	\$ .00	\$ .00	.00%	\$45,867.11	.00%	\$ .00	(\$45,867.11)	.00%
<b>*Total Revenue</b>	<b>\$ .00</b>	<b>\$ .00</b>	<b>\$ .00</b>	<b>\$ .00</b>	<b>.00%</b>	<b>\$45,867.11</b>	<b>.00%</b>	<b>\$ .00</b>	<b>(\$45,867.11)</b>	<b>.00%</b>
<b>Expense</b>										
31A0 - Business Food - Local	\$ .00	\$ .00	\$ .00	\$ .00	.00%	\$2,136.23	.00%	\$ .00	(\$2,136.23)	.00%
31U0 - Parking Permits Gen	\$ .00	\$ .00	\$ .00	\$ .00	.00%	\$147.00	.00%	\$ .00	(\$147.00)	.00%
40E0 - Housing Gen	\$ .00	\$ .00	\$ .00	\$ .00	.00%	\$18,511.60	.00%	\$ .00	(\$18,511.60)	.00%
4660 - Participant Support Gen	\$ .00	\$ .00	\$ .00	\$ .00	.00%	\$12,000.00	.00%	\$ .00	(\$12,000.00)	.00%
46A0 - Participant Misc Gen	\$ .00	\$ .00	\$ .00	\$ .00	.00%	\$1,009.40	.00%	\$ .00	(\$1,009.40)	.00%
63C0 - Copying Gen	\$ .00	\$ .00	\$ .00	\$ .00	.00%	\$1,555.00	.00%	\$ .00	(\$1,555.00)	.00%
80K0 - Banner Tax	\$ .00	\$ .00	\$ .00	\$ .00	.00%	\$168.47	.00%	\$ .00	(\$168.47)	.00%
80K2 - Foundation Surcharge	\$ .00	\$ .00	\$ .00	\$ .00	.00%	\$176.81	.00%	\$ .00	(\$176.81)	.00%
<b>*Total Expense</b>	<b>\$ .00</b>	<b>\$ .00</b>	<b>\$ .00</b>	<b>\$ .00</b>	<b>.00%</b>	<b>\$35,704.51</b>	<b>.00%</b>	<b>\$ .00</b>	<b>(\$35,704.51)</b>	<b>.00%</b>
<b>Report Total Revenue:</b>	<b>\$ .00</b>	<b>\$ .00</b>	<b>\$ .00</b>	<b>\$ .00</b>	<b>.00%</b>	<b>\$45,867.11</b>	<b>.00%</b>	<b>\$ .00</b>	<b>(\$45,867.11)</b>	<b>.00%</b>
<b>Report Total Expense:</b>	<b>\$ .00</b>	<b>\$ .00</b>	<b>\$ .00</b>	<b>\$ .00</b>	<b>.00%</b>	<b>\$35,704.51</b>	<b>.00%</b>	<b>\$ .00</b>	<b>(\$35,704.51)</b>	<b>.00%</b>
=====										
<b>Report Net:</b>	<b>\$ .00</b>	<b>\$ .00</b>	<b>\$ .00</b>	<b>\$ .00</b>	<b>.00%</b>	<b>\$10,162.60</b>	<b>.00%</b>	<b>\$ .00</b>	<b>\$10,162.60</b>	<b>.00%</b>

Parameters:  
Index: 889561 - UNM ROSE-Secondary  
Includes Contra-Accounts.

## **Appendix G. Survey Assessment Report**

All participants were asked to create a unique number to them, so that responses could be matched across the surveys. If responses could not be matched, their results are included in each individual section, but not in the combined experience sections. Surveying was done with the ROSE scholar and the PI. All surveys were sent to participant provided emails and were administered with Qualtrics.

### **ROSE Scholar Survey**

ROSE Welcome Survey: The welcome survey had 32 open (7) and closed (25) ended items. It focused on logistics and clerical matters, measuring aspects of identity, prior experiences, demographics, and current classroom environment. Participants completed the survey in the first three days with 20 completions.

Rose End-point Survey: This survey had 20 items with 12 of them being closed ended and 8 being open ended. The questions focused on logistics and clerical matters, thoughts on classroom impact. It was sent the last day of the program, followed by two email reminders at 2 and 3 weeks after the experience. There were 17 respondents.

ROSE Final Survey: This survey had 15 questions with 5 closed items and 10 open questions. It focused on aspects of identity and changes made to their classroom practices. It was sent the first week in December (4 months after experience) with two email reminders at 2 and 3 weeks. There were 12 respondents.

The scholars:

This year the scholars had:

Level of license:

Alternative/emergency: 6

Level 1: 4

Level 2: 8

Level 3: 2

Endorsement:

Science: 20

Math: 7

Health/PE: 3

Coaching: 2

TESOL/Bilingual: 6

Psychology: 2

Years Teaching:

0-5 years: 4

6-10 years: 8

11-15 years: 8

16+ years: 6

### Logistics and Clerical Matters

- Teachers learn about this program from administrators (33%), other teachers (30%), and PED communications (28%)
- The reasons for applying are mostly (47%) to improve their science knowledge followed closely by the desire to experience research (48%)
- 80% of teachers felt they had enough information about logistics and stipends before the start of the program.

### Helpful:

- “Timing was good as I got my letter in time to make plans
- “This was good to sit and talk with others about the experience in those two workshops. We didn’t design anything useful but it forced us to think about our classes in the middle of the process. I thought of ways to use it in my class and I did it when I got back.”
- “Everyone is soooo helpful but the dorms suck which isn’t your fault.”
- “Having a one-on-one debrief for the teachers with program coordinators would be helpful. I did not want to write all the ways this could improve into the survey”

### Suggestions:

- It would be nice to have more details up front. Information about how and when the stipend gets paid would have been nice to have, especially since many people came in from outside of ABQ.
- Info on the dorm-style housing, or a basic outline of expectations for the program would be helpful too.
- Description/summary of projects available.
- Skip the safety trainings.
- Parking is a bit confusing
- Having more explicit maps about dining locations on campus and other interesting items on campus (10 participants mentioned how beautiful campus is in the summer)
- Timing-five individuals said it was too long and five individuals said it was too short
- 4 respondents mentioned liking the Friday sessions designing and thinking about the impact in their classroom and 5 mentioned those could be better structured so individuals just did individual things.
- 10 respondents mentioned the Friday activities-8 mentioning getting to know more about UNM scientists, labs being the best part of Friday.

### Experiences:

- 75% of teachers report having little to no prior research experience
- 62% of teachers report their teaching spaces/schools are not safe for the use of chemicals
- 71% of teachers report they have never received training in how to safely handle hazardous chemicals
- 80% of teachers report not using chemicals in their classroom (60% reported due to lack of safe space in school)
- 19% of teachers report a science fair or research challenge at their school

- 59% report have clubs geared towards STEM at their school
- 1% of teachers report having training in safety including handling equipment or chemicals in last 5 years
- On average, teachers in ROSE have been teaching for 13 years (range 1-20 years)
- 77% of teachers report a degree (BS or MA) in education, 22% report a degree in science or engineering (BS)
- 92% of teachers agree or strongly agree with the statement “The ROSE program is high quality professional development

#### Identity Impacts

- 38% increase in agreement with the statement “I am part of the STEM workforce in New Mexico” from individuals who completed all surveys
- 87% of teachers agreed or strongly agreed that ROSE left them more motivated to teach science
- 40% increase in agreement with the statement “Science is the best discipline to teach.”

#### Classroom Impacts:

- 56% of teachers report an increase in self-efficacy regarding teaching science concepts
- 69% of teachers report an increase in self-efficacy regarding teaching the practices of science and engineering
- 50% increase in teachers intending to support student projects focused on growing skills in the practices of science and engineering
- 33% increase in agreement with this statement, “research is an important part of teaching science.” For those who completed all three surveys
- 37% increase in teachers who report incorporating the practices of science and engineering in their lessons for those who completed all three surveys
- 100% of teachers report they have changed the way they teach due to their ROSE experience
  - Class activities (50%)
  - Examples in class (74%)
  - Feedback to students on their learning (34%)

## PI Survey

PI Survey-Start: This survey had 15 items with 6 open questions and 9 closed items. It focused on expectations of working with the ROSE scholar and impact on research environment. It was sent the first week in June. There were 10 responses.

PI Survey-End: This survey had 15 items with 6 open questions and 9 closed items. It focused on experiences of working with the ROSE scholar and impact on research environment. It was sent the first week in July with one follow up. There were 7 responses, two of which could be matched to their earlier survey.

Rank:

1 Professors  
4 Associate Professors  
4 Assistant Professors  
Research Professors

Years at UNM:

0-5 years: 7  
6-10 years: 2  
10+ years: 1

Experience working with K-12 teachers:

No experience: 6  
Experience: 4

Logistics: Two PIs reported feeling they needed more information about ROSE and/or that they still had questions before the program started.

How they learned about the program:

Colleague: 6  
Steve/Jeff: 4  
ADR:

Why they participated:

Boarder impacts on funding: 5  
Ability to support K-12 science: 5

While 100% of respondents looked forward to working with teachers, 88% do not feel connected to the science education community outside of UNM.

In regards to what PIs were most interested in learning from their ROSE scholar:

- a) 3 responses mentioned learning about K-12 science education in New Mexico
- b) 7 responses mentioned curiosity in how the experiment/new knowledge will be incorporated into the K-12 teacher's classroom

- c) 2 responses discussed how teachers are preparing students for post-secondary or recruiting students to UNM

After the experience, 100% of respondents indicated feeling strongly connected to the science education community outside of UNM.

Things the PIs report learning from their teachers:

- That there are dual language and ESL schools in the state
- Science classes do not have as much lab experience associated with them as they use to due to equipment costs and safety concerns
- Struggles with math start well before university for many NM students

Things the ROSE scholars contributed to their lab groups:

- Excitement and energy
- Preliminary data collection for proof of concept
- Good sense of flexibility and being able to modify when needed
- Excellent communication and questioning skills (“it was great watching the ROSE scholar really grilling my graduate students and asking ‘why’.”)

100% of respondents at the end suggested that these surveys should really go to the lab groups/students who worked with the ROSE scholar and not the PI.