ROSE Annual Report for 2023

Executive Summary

ROSE continues to provide high-quality research experiences to teachers from across New Mexico, improving their scientific knowledge and confidence while helping to build ties across the STEM education community.

The third summer of the ROSE program attracted over 50 applicants and brought 22 of these to UNM as Scholars (slight increase from 20 in summer 2022). Most (70%) of the Scholars teach at schools with over 70% minority enrollment, and most (>70%) teach at schools with over 90% economically challenged students; 80% of the Scholars teach at schools outside the Albuquerque metropolitan area. These Scholars worked with 15 faculty mentors- 6 from Chemistry and Chemical Biology (CCB), 4 from Biology and Earth Sciences, 4 from Chemical and Biological Engineering (CBE) and 1 from the College of Pharmacy. This mentor pool is slightly larger than in 2022 (12 mentors) and includes 6 first-time mentors from outside of CCB and 7 women.

The summer research session ran four weeks from Monday June 5 to Friday June 30. 2023; roughly 2/3 of the Scholars stayed in the UNM dormitories, moving in on June 4. Projects ranged from the computational (protein simulations, genetic diversity, Valles Caldera structure) to purely laboratory (anti-microbial properties of oligomers, catalyst testing, synthesis of iron complexes for photo-reactions) to organismal work (uranium uptake by wild min, rainbow trout development, Sevilleta fieldwork). As in 2022, Scholars presented their results to each other as posters which could be taken back to their classrooms for the academic year; in addition, tours were organized to allow Scholars to visit other labs and hear from other mentors about the longer-term research goals. Scholars also participated in panel discussions with UNM faculty and staff on college application and preparation and attended a workshop on molecular visualization software they can use for teaching.

Contact with Scholars continued during the academic year to variable degrees. A few classroom visits were arranged, and two virtual meetings of Scholars. In the follow-up survey in October 2023, all Scholars responded that ROSE had changed the way they teach, with new classroom activities and approaches and increased self-efficacy regarding teaching science concepts (67%) and practices (89%). One wrote “Participation in the ROSE program has significantly impacted my motivation as a science teacher. Thank you!”

ROSE organizers continued to pursue a stable funding model with the state of NM, requesting expansion funds from RPSP and presenting to the LESC in May; however, no additional funds were obtained. A proposal to formalize ROSE as a UNM program was submitted to the OVPR in August.

Priorities for the coming year include establishing a stable, ongoing funding model, improving Scholar recruiting and preparation procedures, expanding the pool of faculty mentors developing longer-term methods to evaluate program impact on teachers.