UNDERGRADUATE RESEARCH-BASED
NATURAL SCIENCE PROGRAM AT
OGLALA LAKOTA COLLEGE, PINE RIDGE
RESERVATION, SOUTH DAKOTA

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ABSTRACT

In 2008 Oglala Lakota College’s (OLC’s) Department of Math, Science, & Technology (MST) realigned its BS in Natural Science to emphasize undergraduate research and a constructivist andragogy. OLC’s 1800 students are 90% Native, 60% female, and 50% non-traditional. MST has 90 declared majors including 20 paid interns. MST’s approach is a significant departure from other programs at OLC, and is partly based on a progressive increase in research emphasis in courses: 1) 100-level classes emphasize basic content knowledge and a survey of our existing research programs; 2) 200-level classes emphasize the scientific method, technical writing, and guided research experiences; 3) 300-level classes emphasize mentor-selected research projects and in-house dissemination; and 4) 400-level classes emphasize self-selected research projects and professional dissemination. Also, our students are encouraged and supported in the pursuit of both individual and team-oriented research projects. We currently support undergraduate research in landscape analysis, geologic mapping, freshwater invertebrate, box turtle, and Bison ecology, radionuclide contamination pathways, volcaniclastic mineralogy and geochemistry, Paleogene stratigraphy, and the pharmacology of native plants. Following the realignment, OLC raised its retention rate from 20% to 60%, quadrupled its number of annual graduates (2 to 8), and overall has placed 96% of its students in jobs on the reservation or in graduate school. OLC MST’s STEM curriculum and undergraduate research is supported by funding from the NSF/TCUP Phase III (Tinant & LaGarry), NSF/PEEC (Tinant & LaGarry), NSF/EPSCoR RII T1 (LaGarry), USDA/NIFA Tribal Research Program (Higa), NSF/TUCP RIA (Higa), NIH/BRIN (Sandoval), and NSF/EPSCoR Biofuels (Sandoval).