

BioSTORM: Biomedical STEM Transitions through Outreach, Research, and Model Education

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Mission



SKC STEM Academy students collect environmental samples for Science Research class

Mission: To prepare high school students on the Flathead Indian Reservation for entry into college degrees and careers in biomedical and biobehavioral research through a dual enrollment STEM Academy.

STEM Academy students at Salish Kootenai College (SKC):

1. Earn college credits while completing foundational courses
2. Engage in original research by working collaboratively with SKC faculty and STEM professionals
3. Engage in outreach to area elementary, middle, and school students to improve their communication of basic science, generate enthusiasm for STEM-based research and provide peer mentoring

This comprehensive set of activities supports the overarching goal of the Academy, which is to increase the number of Native American and rural high school students who are prepared for college academic majors and careers in STEM fields.

Academic Coursework

First Year

Students complete core coursework in biology, chemistry, and statistics to prepare them for specialized work in their second year. Students who have completed the core courses at their high schools can opt to take different courses.

Second year

Students will choose an area of specialized study such as cellular biology, chemistry, math or psychology and take courses relevant to that specialization.



STEM Academy students perform an air quality research project in chemistry lab in conjunction with the University of Montana's REACH program



Coursework is supplemented by exposure to local STEM professionals such as the medical personnel at St. Joseph Medical Center in Polson, MT

Authentic Research

STEM Academy students undertake inquiry-based scientific research with outstanding STEM professionals: SEA-PHAGES in their first year, and specialized research in their second year, under the guidance of an SKC faculty mentor.

SEA-PHAGES

SEA-PHAGES (Science Education Alliance Phage Hunters) is a discovery-based research course developed by scientists at the University of Pittsburgh and the Howard Hughes Medical Institute, a leader in advancing biomedical research and science education. Out of 160 member institutions, the SKC STEM Academy is the first high school group to be accepted.

SEA-PHAGES research involves a three-phase protocol:

1. Phage discovery-to date, SKC has isolated six phages from local soil samples.
2. Genome annotation-bioinformatic analyses allow students to compare the sequences of their phages to those of known viruses.
3. Annual HHMI science symposium-students present their research to peers.



Academy students employ microbiology techniques during phage discovery

Outreach



STEM Academy students teach a lesson on DNA at Linderman Elementary School



Students at Ronan Middle School learn how to use micropipettors



Students engage in hands-on, minds-on activities at Ronan Family Science Night