



ALL THINGS IGNATIAN

Celebrating Mission at Creighton University

Creighton University Collaborative Research Experience

A partnership with Creighton, Red Cloud High School and Oglala Lakota College

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† *Serving those on the margins*

† *Working for social and environmental justice*

† *Searching for truth*

Rationale

Creighton's mission stipulates that faculty "conduct research to enhance teaching, to contribute to the betterment of society and to discover new knowledge." As a Jesuit institution we are committed to serving those on the margins in both our teaching and research. As a Catholic institution we must study organisms "to prevent their depletion and the consequent imbalance of the ecosystem." *Laudato Si'* ¶35. Finally, students learn science best by **doing** science.

To this end, Creighton undergraduate students

- design and perform their own small, independent research projects
- mentor Red Cloud high school students
- work with students, staff and faculty from Oglala Lakota College (OLC)
- co-operate with Tribal Parks and Recreation
- are immersed in Lakota reservation culture

So as to

- meet the scientific needs of the Reservation
- promote STEM among under-represented students
- increase college retention rates
- help protect the environment
- generate publication quality research

Outcomes

- Since 2015, 22 Creighton students, two non-Creighton students and nine Red Cloud high school students have participated, resulting in eleven poster and two oral presentations
- Collaborations with Creighton and non-Creighton faculty
- Long term data set for future publications



Students from OLC and Creighton attended the Field Parasitology course at UNL's Cedar Point Biological Field station in 2016.



Creighton student mentors a Red Cloud high school student in stream flow measurements.

Research Projects

Together, we surveyed and collected data on

- the use of aquatic snail parasites as indicators of ecosystem health for five years
- tick and tick pathogens for two years
- hairworm cysts for three years
- bobcat intestinal parasites for four years



2017 group photo includes an OLC staff member and two Red Cloud students.



Left: One of the snail parasites we find in the aquatic snails; a diverse assemblage of these particular parasites should indicate a healthy ecosystem. Right: Students use white sheets to sweep for ticks, which will later be tested for pathogens in Dr. Bourret's lab at Creighton.



Although our research focuses on invertebrate parasites, we do see and enjoy vertebrates such as these bison (*tatanka* in Lakota).



Dr. Rebecca Gasper and a student from the math department joined us in 2015 to construct mathematical models of parasite transmission.

Creighton students in good spirits after a wet day of snail collecting and getting stuck in the mud.



Scan here to view a short video from 2019



Students, immersed in Lakota reservation culture, visit Crazy Horse Memorial in 2016.



MISSION WEEK