The Research Experience for Undergraduates Programme offered at United Tribes Technical College gives Native American students the opportunity to conduct ecological research on their home reservations. This programme not only aims to restore the ecology of tribal lands, but it also engages tribal students who would not normally have access to STEM research projects.

Since 2009, the United Tribes Technical College in Bismarck, North Dakota has been recruiting Native American students to participate in The Tribal College REU (Research Experience for Undergraduates) Programme, funded by the National Science Foundation. Each summer, eight students are selected to conduct environmental ecological research critical to the preservation of tribal lands in the Plains, Prairies and Grasslands of the United States. Dr Jeremy Guinn, Certified Wildlife Biologist® and Chair of the Tribal Environmental Science Department at United Tribes Technical College, explains further: “While the curriculum contributes to the restoration of Native American lands, the main focus of the programme is to increase recruitment and retention levels among Native American students in science and give them the foundation to pursue a graduate education beyond tribal universities.”

TCUs – A BRIEF HISTORY
Tribal colleges and universities (TCUs) are minority-serving institutions controlled and operated by North American indigenous tribes. The first was founded by the Navajo Nation in 1968 in Arizona with intent to preserve and pass on the Navajo culture, language and traditions. Several others were then established in the 1970s. In 1994, the US Congress authorised them as land-grant colleges. Land-grant colleges focus on teaching practical and technical agriculture, science, and engineering and are eligible to apply for funding directed at providing these types of trainings.

Typically located on or near Indian reservations, TCUs provide access to post-secondary education, accredited degrees, and vocational training to both Indian and non-Indian students. Educational programmes also integrate North American indigenous cultures and traditions into the curriculum. In general, enrollment has increased significantly since the 1970s, and today, there are 37 accredited TCUs in the United States serving over 30,000 students. This upsurge in attendance certainly indicates an interest in using education to improve economic situations and protection of natural resources.

A MULTIFACETED PROGRAMME
The Tribal College REU Programme is a ten-week research immersion rewarded to eight students every summer in the form of a generous stipend and travel expenses. Students are recruited from across the Northern Plains and beyond, with priority given to students matriculated at tribal colleges and universities provide access to post-secondary education, accredited degrees, and vocational training to both Indian and non-Indian students.
This includes collecting and managing STEM teachers from grade schools within the region. It also includes a programme model which does not stop with presentations at regional and national conferences. The programme has become well known within our tribal college community and programmes are being recruited by tribal students and faculty. Building collaborative research teams that include students, teachers and scientists, allows us to provide full-spectrum mentoring to students who would normally not have access to such research projects. TCUs provide education that is critical to Tribal lands in the United States.

The programme provides training in research ethics, project design, field techniques, advanced laboratory technology, and an introduction to scientists. Not only do they acquire the necessary research skills that prepare them for graduate school or for a scientific career, they also gain confidence in presenting their results and positioning themselves among their peers.

PARTNERSHIPS AND COLLABORATIONS

The programme has a collaborative nature with the Tribal College REU Programme has been working hard to broaden the awareness of on-going research at smaller colleges in the region and to build partnerships with regional research institutions and faculty members of various Life Science departments. Strong relationships have already been established with the ND EPSCoR Programme and the Department of Biological Sciences at North Dakota State University. Such collaborative efforts have opened doors for REU participants, giving them access to graduate programmes that are local to their home reservations.

The collaborative nature of the programme has created a positive environment for participants to establish themselves as scientists. Not only do they acquire the necessary research skills that prepare them for graduate school or for a scientific career, they also gain confidence in presenting their results and positioning themselves among their peers.

Q&A

What is the current percentage of Native American undergraduates enrolled in STEM education programmes in the United States?

The current percentage of Native American undergraduates enrolled in STEM programmes in the US is, according to NSF figures, about 1% (1.3% STEM AS Degrees and 0.6% STEM BS degree) [https://www.nsf.gov/hb/servlet/data/college-11.html]

What percentage of these undergraduates continue their scientific studies at graduate schools beyond TCUs?

Low – using the same NSF dataset from above, Native American students make up 0.5% of STEM MS students and 0.4% of STEM PhD students. Most of the participants in the REU programme participated very early in their academic career, so most of them are still in school (finishing their BS degree). Of the students that have finished, most have obtained employment directly upon graduation and a few have continued on to graduate school.

Is the REU programme well known?

The REU programme has become well known in our tribal college community that includes 13 TCUs. Each summer, this provides eight students with the opportunity to conduct environmental research critical to Tribal lands in the United States.

What needs to be done to improve the REU programme and attract more applicants?

Many students are interested in summer research programmes, both locally and at other institutions. The programme is currently providing a Native American Tuition Waiver. STEM programmes usually include some work-study opportunities for students to gain skills while also receiving payment to reduce the expense of attending college. The REU programme is promoted mostly from within the TCU network, as our primary target population is Native American STEM students at TCUs. We post on the website and use direct mailing for recruiting, but most of our applications come from students who were advised, by a mentor, to apply. There is a Tribal College Journal [https://tribalcollegejournal.org/] and a Tribal College and University Research Journal [https://issuu.com/collegefund/docs/ECOLOGY_525-540] to reach to a larger audience.

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