Awards issued prior to January 20, 2025, were funded under previous Administrations and may not reflect the priorities and policies of the current Administration.

United States Department of Agriculture
Project Initiation

Project Data for Accession Number 1033036

Project Title

Developing an educational pathway in geocultural science for underserved coastal communities of Southeast Alaska

Project Details

Sponsoring Institution National Institute of Food and Agriculture	**Project Status** ACTIVE
Funding Source NIFA Non Formula	**Grant Year** 2024
Grant No. 2024-38470-43375	**Cumulative Award Amt.** $556,402.00
Proposal No. 2024-04293	**Multistate No.** (N/A)
Project Start Date Sep 15, 2024	**Project End Date** Sep 14, 2027
Program Code [RD] Alaska Native and Native Hawaiian-Serving Institutions	

Project Director

Pyare, S.

Recipient Organization

UNIVERSITY OF ALASKA SOUTHEAST
11066 AUKE LAKE WAY
JUNEAU, ALASKA 998018623

Performing Department

(N/A)

Non Technical Summary

We propose to establish a cross-disciplinary, educational pathway in geocultural science as a mechanism to advance educational access for rural and Alaska Native student populations at the University of Alaska Southeast, an Alaska Native-Serving institution. All 6 Teaching and Education Needs Areas identified by USDA-ANNH will be addressed by 3 focal activities: development of mapping/visualization technology as an equity based tool for local, culturally relevant applications; strategic refinement of curriculum across multiple disciplines; and finding synergies with a network of organizations to support full-cycle student learning. These activities will strengthen and diversify institutional education capacities to support Alaska Native student skills, heritage, leadership, and success.

Animal Health Component

Animal Health Component: 0%

Awards issued prior to January 20, 2025, were funded under previous Administrations and may not reflect the priorities and policies of the current Administration.

United States Department of Agriculture
Project Initiation

Research Effort Categories

Basic	0%
Applied	100%
Developmental	0%

Classification

Knowledge Area (KA)	Subject of Investigation (SOI)	Field of Science (FOS)	Percent
608	6050	3000	20%
605	7210	2060	80%

Knowledge Area

[608] Community Resource Planning and Development

[605] Natural Resource and Environmental Economics

Subject Of Investigation

[6050] Communities, areas, and regions, including states and their institutions and organizations

[7210] Remote sensing equipment and technology

Field Of Science

[3000] Anthropology

[2060] Geography

Keywords

geospatial TEK UAV drone STEM community environment rural training mapping undergraduate tribal K-12

Goals / Objectives

Objective 1. Develop geocultural mapping/visualization technology as an equity based tool for local, culturally relevant applications.This objective meets the ANNH Teaching and Education Need Areas to a) prepare faculty for teaching, including obtaining experience & competence skills in innovative technologies and instruction delivery; and b) develop scientific instrumentation for teaching and research.Objective 2. Establish geocultural-science educational pathway thru a fourfold curriculum development strategy implemented across regional STEM programs.This objective directly meets the ANNH Teaching and Education Need Areas for a) curricula design, materials development, and reference materials; b) enhancing instructional delivery systems to address differences in learning styles between the diverse student populations and education levels targeted by this project; and c) advancing student experiential learning via field based studies, problem solving, community development, and multi-cultural coursework.Objective 3. Maximize Alaska Native-student access to geocultural science by making strategic inter-institutional connections that support full-cycle and diverse learning modes.This component of the project directly meets the ANNH Teaching and Education Need Areas to a) increase Alaska Native student recruitment, retention, and educational equity (#6) and b) advancing student experiential learning via field based studies, problem solving, community development, and cross-cultural coursework.

United States Department of Agriculture
Project Initiation

Project Methods

Objective 1. Develop geocultural mapping/visualization technology as an equity based tool for local, culturally relevant applications.The corresponding set of 3 activities will focus on intensive "bench testing" of geotechnologiesfrom technical, curriculum and pedagogical standpoints with the outcome being a set of templates for geocultural science applications that can be scaled from secondary to upper division undergraduates. a) Technical: This will involve geotechnology configuring, testing and identifying of stresspoints; developing customized protocols and reference /troubleshooting manuals; workflow integration across different geotechnologies from data collection to processing and visualization/analysis; and ultimately deriving scalable data and products. b) Alignment: Deployment of technology across an array of culturally significant features and/or contexts with active participation and consultation by anthropologists and tribal/TEK specialists to review products, assess protocols. And c)Pedagogical: Identification of learning "hingepoints" for conceptualization or other (non-technological) exercises to support full-cycle learning. Objective 2. Establish geocultural-science educational pathway thru a fourfold curriculum development strategy implemented across regional STEM programs.The corresponding set of activities involves refinement of geocultural science templates developed above into more specific modules meeting the needs and opportunities (content, timing, grade level) of each course, or pair of courses when groups of students are collaborating. Each situation will vary: for instance ENVS 475 is a specialized course developed by PD Pyare for scientific drone mapping whereas BIOL 172 Freshman Science Seminar includes a module on basic phone- and cloud-based mapping but neither has been culturally aligned and would be modified to incorporate mapping of culturally significant features. Other courses such as ANTH 311 and SSCI300 exclusively or significantly address aspects of cultural heritage but students do not get hands-on exposure to geotechnology surveying & mapping in current curricula.There are 14 courses that have been identified by faculty for program implementation, representing a cross section of STEM: 4 upper division and 2 lower division "core" or regularly offered and established courses that meet undergraduate degree requirements; 2 experimental upper division courses in cross cultural geography or community based service learning; 3 dual-credit, lower division courses that emphasize TEK and/or community-based learning, one of which has been routinely offered in collaboration with Sealaska Heritage Institute's summer programming; and 1 non-credit 4H/Youth curriculum in food security. We expect this plan for existing curriculum to be adaptive asnew and possibly exciting opportunities can also be expected to arise for curriculum alignment during the 3-year grant cycle. In addition, a focused, interdisciplinary 1-cr (12.5hr) project based learning course in Geocultural Mapping & Surveying will be established at both upper division and dual-credit levels to supplement degrees and prime future program development in geocultural science. Objective 3. Maximize Alaska Native-student access to geocultural science by making strategic inter-institutional connections that support full-cycle and diverse learning modes.The associated set of activities will comprise the following: a) Sponsoring paid undergraduate leaders (2 annually) in AISES-branded service learning and leadership internships that includes mentorship of pre-college students. b) Integration of community-based, dual credit coursework with pre-college students through tuition scholarships (12 annually across 2-4 communities). c) Co-sponsorship of paid tribal interns graduating from pre-college coursework (2 annually) d)Co-sponsorship of Alaska Native students in UAS cross-cultural coursework, supported by alignment with parallel coursework and activities incorporating geotechnology at the University of Hawaii (6 annually). e) Student participation in the Community of Practice (CoP) developed primarily as a project-wide, co-mentorship vehicle (below) will also reinforce learning in geocultural-science as broader issues and techniques arise in discussions among team members and also allow ample opportunity for students to self-reflect and communicate what they have learned. And f) Sponsoring Alaska Native undergraduates to accompany PD Pyare and other partners to the national AISES conference to present, network, and interact with role models (2 annually).Collectively, these activities -- from campus based internships and tribally affiliated externships to engagement in a semi-professional CoP and conferences -- represent a novel and diverse set of learning opportunities that are not only interlinked but critically, tied to academic curricula. This cohesive strategy will yield multiple, reinforcing opportunities for students with different modes of learning to transcend geocultural science coursework and pivot toward professional aspirations and a broader community seeking greater alignment of Native engagement in STEM.