UNM-Gallup and Ecological Forecasting Initiative Student Research Scholars Program

The University of New Mexico Gallup is offering an undergraduate research experience during the Fall 2025. This program will introduce students to the research process and help them gain technical skills in data science with ecological forecasting and remote sensing, leveraging NEON data sets, PhenoCam network, and Google Earth Engine. The Student Research Scholars Program is an initiative designed to facilitate the participation of students in STEM-related research activities who have faced social, educational or economic barriers. The goal is to support an original research project prior to undergraduate STEM degree completion and successful matriculation to a 4 year STEM program.

Project Overview

Ecological forecasting can be used to predict changes in ecosystems and influence decision making in communities in topics such as fisheries, wildlife, algal blooms, wildfire, and more. One area of interest in particular is terrestrial vegetation phenology, or the seasonal timing of vegetation growth and senescence, which has been identified as one of the primary ecological fingerprints of global climate change. While today there is a growing monitoring network to improve data and forecasts, recurring phenological events have long been observed and recorded by Indigenous peoples for harvesting, agricultural, cultural significance, and other ecosystem services. Students will spend time exploring the following:

- Why is phenology important to study from the perspective of both Western environmental science and Indigenous Knowledge?
- What environmental factors can be used to forecast phenology?
- How will phenology shift with climate change for vegetation in McKinley County?

No prior experience with coding or data science is required!

Program Benefits

This program provides a stipend of $1,500 paid in increments upon completion of milestones and tasks. Students who are funded through this expected to develop their research into a poster presentation.

Application and Eligibility

Eligibility is restricted to students who (1) are US citizens or permanent residents; (2) are undergraduates enrolled at UNMG interested in pursuing a STEM degree; and (3) are in current good academic standing. Students who have faced social, educational, or economic barriers to success in STEM are encouraged to apply.

To apply, send a complete application in email to: Drs. Antoinette Abeyta (abeytaant@unm.edu) Rachel Torres (rdt47@humboldt.edu) and Chad Smith (cssmith@unm.edu) with the subject line “EFI Research ‘Your Last Name’”
For best consideration, apply by September 12th, 2025.

This program is done in conjunction with the University of Notre Dame University, Cal Poly Humboldt, University of Minnesota, and Salish Kootenai Tribal College. Funding provided by the Alfred P. Sloan Foundation.

UNM-Gallup and Ecological Forecasting Initiative Student Research Scholars Program Application

Ecological Forecasting Initiative
UNDERSTAND · MANAGE · CONSERVE

GALLUP

Name:_____ **Student ID:**_____

Local Address:_____ City:_____ Zip Code: _____

Cell Phone #:_____ UNMG Email: _____

Intended Major:_____ Expected Graduation Date:_____

GPA:_____

In the space below write a brief statement about what participating in the proposed research will mean to you and how you think it will enhance your academic and professional career in a STEM discipline (no more than 350 words).

In the space below write a brief statement about what your academic goals are at UNMG and your goals after graduation (no more than 350 words).

Tentative Timeline Schedule - Fall 2025

Week	Date	Activity / turn in
0		Welcome - first meeting, nothing is due
1		Literature review pt 1: Traditional ecological knowledge, culturally relevant plants
2		Literature review pt 2: Ecosystems, phenology, ecological forecasting
3		Asking a question: summarize literature reviews and define data, plant species, and locations of interest
4		Forecasting: using NEON data to forecast phenology from CA sites
5		Data processing: exploring spatial data
6		Data processing: applying forecasts to local sites
7		Continuing work / catching up
8		Data Visualization
9		Communicating results
10		Everything is due - Final presentations

Schedule is subject to change

Mentorship and Student Expectations

Drs. Abeyta, Torres, and Smith will provide mentorship based on student needs and schedules. Weekly meetings will be with all students as a community, and we will have individual meetings as needed. Mentors will also host office hours or create an optional meeting scheduling for student schedule flexibility which will provide a space for coworking or troubleshooting. Mentors will track progress with weekly deliverables and student feedback. Expectations for students include:

- meeting minimally once per week, schedule permitting
- communicating through messaging and emails
- collaborating on work with timely communication and sharing deliverables on time
- filling out surveys and reflections for feedback
- willingness to try new things!

Students who are funded through this project will submit a presentation in the format of a powerpoint, google slideshow, story map, or related visual describing the research activities completed, including figures and research highlights.

Student Signature/Release

Please read the statement below and sign where indicated:

(1) I agree to conduct my research under the supervision/support and/or in conjunction with Drs. Abeyta, Torres, and Smith and to complete the research activities outlined (acknowledging that sometimes project modifications may be necessary)
(2) I agree to submit a presentation to research mentors following project completion by **November 21st, 2025.**
(3) I agree to **develop my research findings into an oral presentation** that will be presented at the end of semester.

The information I have submitted in my application is true and accurate to the best of my knowledge. I understand that to track the progress of the scholars and to evaluate program effectiveness, UNMG and EFI requires access to student information. Photographs and research abstracts may also be obtained for use by the program in program dissemination materials such as websites, newsletters, and reports.

I authorize release and use of personal information, as described above, to the UNMG and EFI. I understand that this information is to be used solely for evaluating the impact and effectiveness of the program and that individual student data will not be released to parties other than those directly involved with the program.

I have read and understand all of the statements above.

Printed Name of Applicant:_____

Signature of Applicant: _____ Date: _____

If applicant is under the age of 18 and/or a dual enrolled student

Printed Name of Parent/Guardian:_____

Signature of Parent/Guardian : _____ Date: _____