

National Hispanic Environmental Council



17TH ANNUAL NM ENVIRONMENTAL STEM INSTITUTE

AUGUST 6-15, 2021

To be held at

**NATIONAL FORESTS, NATIONAL PARKS, FEDERAL RESEARCH STATIONS,
AND MORE IN ALBUQUERQUE, LAS CRUCES, SANTA FE AND OTHER
PUBLIC/PRIVATE LANDS IN NM**

“10 DAYS OF LEARNING, A LIFETIME OF EXPERIENCE”

The National Hispanic Environmental Council (NHEC) is pleased to announce it has resumed holding its "Environmental STEM Institutes" (none were held in 2020 due to the pandemic).

With nationwide Covid vaccination readily available, adhering to all CDC and state guidelines, and with the full knowledge/participation of NHEC's federal agency funders, NHEC has restarted the program for 2021. To be clear--this means Institutes will be in-person, not virtual.

PROGRAM OVERVIEW

NHEC is accepting applications from top college STEM students -- especially from underrepresented/minority populations -- for our upcoming 17th annual NM Environmental STEM Institute, to be held August 6--15, 2021. This also applies to a limited number of high school STEM seniors entering college as freshmen in September. NHEC's NY and CA Institutes will be held later in the fall.

Students are competitively selected from across the U.S. and Puerto Rico based on the information in the attached “INSTITUTES SELECTION CRITERIA” document. As this is a federally-funded program all applicants and selectees must be U.S. Citizens or Legal Permanent Residents. There is no fee to apply and no fee to attend.

With funding from our federal sponsors – the U.S. Forest Service, USDA Natural Resources Conservation Service, and U.S. EPA -- **NHEC covers all major costs for those students selected to attend** -- roundtrip airfare, lodging, all meals, local transportation on-site (by chartered bus),

science equipment, camping equipment (students camp for one night), and more. NHEC is proud to note that all three agencies have been long-term funders (over 10 years) of NHEC's NM and other Institutes.

The NM Institute is an intensive, residential, strongly-science based, hands-on, 10 day environmental STEM program for top undergraduate college students deeply interested in science and the environment. To be eligible, students must be actively pursuing a **science degree in an environmental, conservation, agricultural, or natural resource major, and want a related career in this field, ideally with federal agencies.**

Overall, the Institutes are designed **to help build the next generation of diverse/of color scientists/professionals in environmental and natural resource science fields**, an area within STEM that still remains severely underrepresented for people of color.

Students will see, learn, and use sophisticated, professional-grade environmental science equipment. The USGS NM Water Science Center; USDA NRCS Plant Materials Center and Lab; scientists from the U.S. Forest Service Rocky Mountain Research Station; and scientists from the U.S. EPA will offer students an array of research, science instrumentation, and methodologies to learn/use in the lab and field. NHEC also owns/brings science equipment for students to use.

Regarding transportation and logistics: once a student is selected NHEC will call to discuss all travel arrangements, typically airfare, for which NHEC must give final approval. Once in NM, NHEC will transport students to/from each site by chartered bus; provide breakfast, lunch, dinner, and snacks/water; provide lodging (hotels); provide science equipment; and coordinate all logistics/travel. **See below for a detailed description of the 2021 NM Program.**

Also participating are "role models" from NHEC's federal sponsors and elsewhere. These are environmental professionals/scientists, most in the science/research arena, and many themselves of diverse backgrounds. They will be on-site to share information, research and technology, and engage/mentor/inspire students to continue pursuing their science majors and careers. This role model component – so students see faces that look like them who actually do environmental science work -- has been a long-standing, vital element of all Institutes.

Students should especially note that our agency sponsors will be on-site to actively meet/recruit students for a range of new federal opportunities in jobs/internships, science and research, and more. Further, these agencies are particularly **seeking students with majors that meet a number of high-demand federal "mission critical occupations"**, including forestry, ecology, soil science, civil and environmental engineering, range management, and more. Students with these majors are especially urged to apply.

HOW TO APPLY

Applicants must answer the following questions (see below) and email NHEC asap. This will give NHEC a solid overview of your eligibility and qualifications, and save you time and effort.

Please answer the questions below in the order they are asked:

- 1.-- what college or university do you currently attend and where. (If presently a senior in high school what college will you attend in September)?
- 2.-- if a senior in high school what school do you currently attend and where? List your last GPA and your planned major in college.
- 3.-- college students--what is your current GPA?
- 4.-- what is your current major? Please state the full name of the program.
- 5.-- what is your grade level, meaning sophomore, junior, etc?
- 6.-- describe in several paragraphs past and/or present **experiences** in the environment, agric, or natural resources, especially in the sciences or research, that qualify you for the Institute.
- 7.-- describe in several paragraphs past and/or present **academic coursework** in the environmental, agricultural, or natural resource sciences that qualify you for the Institute.
- 8.-- if you have attended an NHEC Institute or program before, state where, when, and which.
- 9.-- what is the closest airport could you fly out of (if airfare is provided) should you be selected? What is the next closest airport.
- 10.-- how old are you?
- 11.-- what is your date of birth?
- 12.-- are you interested in a potential job or other opportunity in fall 2021 and/or summer 2022 with the Institute's sponsors—U.S. Forest Service, USDA NRCS, and U.S. EPA. If you have a preference among these agencies please state.
- 13.-- you understand that only US Citizens or Legal Permanent Residents are eligible for positions with a federal agency?
- 14.-- are you a US Citizen or Legal Permanent Resident? You must state which.
- 15.-- you understand that only students who are fully Covid vaccinated can be selected?
- 16.-- are you fully Covid vaccinated and can provide the CDC proof-of-vaccination card to NHEC?
- 17.-- provide a home and cell number and email address so NHEC may contact you promptly.
- 18.-- provide your full home address.

NHEC will contact you shortly after receiving your email to further discuss your environmental, agricultural, or natural resource interests, qualifications, and background, **and review the remaining application process. The formal application materials will be sent to you soon after.**

So--if you are passionate about the environment, love science, have a minimum 3.0 GPA, AND been seeking a job or research position in the environmental arena, this program is for you.

To answer some common FAQ's

- 1.-- yes, slots are still available although these will go fast.
2. -- there is no deadline per se; NHEC reviews applications/selects students on a rolling basis until all slots are filled. Thus students are strongly urged to apply asap.
3. -- as this is a federally funded program only U.S. Citizens or Permanent Legal Residents are eligible.
- 4.-- while students from underrepresented and communities of color are especially urged to apply, this is a federally funded program thus students from all ethnic and racial backgrounds, as well as those representing other diversity backgrounds, are eligible to apply.

TO APPLY: email your questionnaire answers to the NHEC Programs Coordinator, Juan Rodriguez, at jrodriguez@nheec1.org and NHEC President Roger Rivera at rrivera@nheec1.org. For questions email or call NHEC at 703-683-3956 or Juan Rodriguez at 703-861-6064. Or see the NHEC website at www.nheec1.org

2021 NM ENVIRONMENTAL STEM INSTITUTE—PROGRAM OUTLINE

The Institute will be held in two parts – one in northern NM and the other in southern NM.

Day 1 -- Friday, Aug. 6 -- will begin in Albuquerque at the Holiday Inn Express, with Introductions, Orientation and Overview of the Institute, and related programming. This is followed by a series of in-classroom environmental and natural resource issue and science presentations and related activities. All meals will be served in the hotel, and students overnight there.

Day 2 – Saturday, Aug. 7 -- students will again be at the Holiday Inn Express for a continuing series of issue and science presentations. Students will also walk a short distance to a nearby green space for a presentation and to get outside on this day. All meals will be served in the hotel and students will overnight there.

Please note: **NHEC deliberately holds many of its classroom presentations the first several days** of the Institute. This is not only to provide needed information for the upcoming site visits and field studies, **but also because of the altitude.** At an elevation of about 5,300 feet, Albuquerque is the highest major city in the U.S. **It takes most people about 48 hours to acclimate to the elevation;** therefore NHEC limits students' physical activities in the first 2 days.

Day 3 – Sunday, Aug. 8 – Breakfast and Presentations in the morning, then students travel (by chartered greyhound bus) to the **USDA NRCS Los Lunas Plant Materials Center and Lab** for a site tour. Here, through presentations students will learn more about the Natural Resources Conservation Service and their mission/research; meet NRCS scientists/staff; tour the Center and Lab; see the grounds and fields; and more.

Following this students travel back to Albuquerque for a site tour of the **U.S. Geological Survey NM Water Science Center and Laboratory.** Here, escorted by USGS scientists, students will tour the Center and labs, hear presentations on the Center's science mission/capabilities, and view sophisticated instrumentation. This tour is to prepare students for a return to the Center later in the Institute, where students will perform a series of lab tests on samples collected in field studies, supervised by USGS and NHEC staff. Following the USGS site tour, students return by bus to the Holiday Inn Express for Dinner, followed by evening presentations until 8:45 pm.

Day 4 – Monday, Aug. 9 – Breakfast, then an early departure by chartered bus to Las Cruces, 3 hours south of Albuquerque. On the drive students will see/learn more about the arid terrain, mountains, and varied desert ecosystems of southern NM. Bus will head to the Holiday Inn Express--Las Cruces North for brief check-in, restrooms. Students will then head to the **Chihuahuan Desert Nature Park.**

Students will hike the Loop trail (approx 2 miles) to see/learn more about the topographically and biologically diverse desert/rangeland ecosystems of southern NM.

Following this, students will drive a short distance to the **USDA Agricultural Research Service -- Jornada Experimental Range**. Here, students will meet ARS scientists/staff, tour the facility and lab, learn more about ARS's mission and research, and guided by ARS staff hike their rangeland to further learn about this ecosystem and wildlife.

Following this, students will travel back to Las Cruces to the **campus of New Mexico State University**—the state's flagstaff school. Here, students will tour an NMSU laboratory, after which students will conduct Urban Forestry tree mensuration activities. Founded 130 years ago, NMSU and its campus contain mature trees/canopy that have adapted to the arid environment. Afterwards, students will head for Holiday Inn Express—Las Cruces North for Dinner, then presentations until 8:45 pm.

Day 5 – Tuesday, Aug. 10 – Breakfast, then early departure by chartered bus back to the Holiday Inn Express Albuquerque Mid Town. On arrival students check-in quickly, board bus to conduct the **First Environmental Field Study--in the Rio Grande and adjacent riparian areas**.

Here, student teams using professional-grade science equipment, and taught/supervised by NHEC Instructors, conduct air, water, soil testing and data collection; biological assessments; plant and vegetation surveys; tree mensuration; birding and related nature observations; and more. Accompanied by those scientists/staff participating from FS, NRCS, and USGS.

After the field study, students board the bus for the nearby **USGS NM Water Science Center**. Students enter the Sediment Lab, where supervised by USGS scientists and NHEC Instructors and using the instrumentation, students conduct a series of tests on field study samples. Following this, students return to the Holiday Inn Express Mid Town for Dinner, then presentations or the science teams break out to discuss/further analyze data from the field study. Each team also continues working on their Final Presentation.

NOTE regarding Field Studies: USGS has agreed to accept/process/run sediment tests on the samples from the other 4 Environmental Field Studies in the Institute. NHEC staff will transport samples to USGS Center, pick up results, then return to Institute.

Day 6 – Wednesday, Aug. 11 – Breakfast at Holiday Inn Express Mid Town. Then board chartered bus to travel to the Courtyard Marriott Santa Fe. On arrival students unload, check-in, then proceed to classroom. Presentations continue. Then, board bus to begin the **Second Environmental Study—In Pecos River and adjoining riparian areas**, just outside Town of Pecos.

Here, science teams using professional-grade science equipment, and taught/supervised by NHEC Instructors, conduct air, water, soil testing and data collection; biological assessments; plant and vegetation surveys; tree mensuration; birding and related nature observations; and more. Accompanied by those scientists/staff participating from FS, NRCS, and USGS.

After this, students board bus for site tour of **Pecos National Historical Monument**, overseen by the National Park Service. Enter Visitor Center, see exhibits, walk Loop Trail, and learn more about this culturally and ecologically significant area.

Following this, board bus back to Santa Fe for site tour of the **NM Land Conservancy**, an organization working with private landowners on conservation easements, which protect large-scale habitats for the future. Enter Conservancy headquarters, meet staff, hear presentation on their mission, hike the Loop Trail (1 mile) to see/learn more about this typical pinon/juniper ecosystem of northern NM. After this, head back to Courtyard Marriott for Dinner, then presentations and/or science teams break out to discuss/analyze data from field studies. Each team also continues working on their Final Presentation.

Day 7 – Thursday, Aug. 12 – Breakfast at Courtyard Marriott, then Presentations. After this board chartered bus for a site tour of **City of Santa Fe Main Waste Water Treatment Plant and Laboratory**, to learn more about this area of environmental protection/health/safety. Following this, a site tour of a polluted area in Santa Fe, so students learn more about science/technology-based remediation efforts, as well as the issue/impact of environmental justice. Accompanied by U.S. EPA scientists/staff.

After this, board bus to begin the **Third Environmental Field Study, Upper Dalton Fishing Access Site—Pecos River and Adjacent Riparian areas --Santa Fe National Forest**. Here, students will see/learn/experience a higher-elevation ponderosa pine ecosystem, and access to Pecos River.

Once again, student science teams using professional-grade science equipment, and taught/supervised by NHEC Instructors, conduct air, water, soil testing and data collection; biological assessments; plant and vegetation surveys; tree mensuration; birding and related nature observations; and more. Accompanied by those scientists/staff participating from FS, NRCS, and USGS.

After this, board bus, return to Courtyard Marriott for Dinner, then Presentations and/or science teams break out to discuss/further analyze data from the field studies. Each team also continues working on their Final Presentation.

Day 8 – Friday, Aug. 13 – Breakfast at Courtyard Marriott, then Presentations. After this board chartered bus for site tour of **the Valles Caldera National Preserve**, formerly part of the US Forest Service and now overseen by the National Park Service. The Caldera is the result of a huge volcanic eruption 1 million years ago that left a 13 mile wide sunken meadow/forested area. Called “America’s Serengeti” for its spectacular beauty and biodiversity, today the Caldera is home to a wide range of plants and wildlife, including large herds of elk. Still active, the Valles Caldera is one of the three super volcanoes in the U.S. Tour guided by NPS rangers.

Following this, board bus for Battleship Rock to begin the **Fourth Environmental Field Study—East Fork of Jemez River and adjacent riparian areas --Santa Fe National Forest, Jemez Ranger District**. Arrive Battleship Rock, greeted by FS scientists/staff. Presentations, begin Field Study.

After this, science teams using professional-grade science equipment, and taught/supervised by NHEC Instructors, conduct air, water, soil testing and data collection; biological assessments;

plant and vegetation surveys; tree mensuration; birding and related nature observations; and more. Accompanied by those scientists/staff participating from FS, NRCS, and USGS.

Following this, board bus, return to Courtyard Marriott Santa Fe for Dinner, then Presentations and/or science teams break-out to discuss/further analyze data from the field studies. Each team also continues working on their Final Presentation.

Day 9 – Saturday, August 14 – Breakfast at Courtyard Marriott, then Presentations. After this board chartered bus for site tour of **White Rock Overlook**. Located 600 feet above the Rio Grande; view the stunning landscapes and far vistas of mountains, mesas, and canyons. Discuss geology, hydrology, and ecology of the area. After this, board bus to **Bandelier National Monument**, overseen by the National Park Service. Enter Park main entrance and proceed to the Frey Trail at edge of mesa. Hike the Trail through switchbacks into Frijoles Canyon; while descending, view the huge, multi-colored, multi-shaped rock formations up-close. On reaching canyon floor, hike to Bandelier Visitor Center; see exhibits and museum.

Following this, board bus for **Abiquiu Lake and Dam**, operated by the U.S. Army Corps of Engineers (USACE). Bus proceeds **to campsite—Group Shelter # 1**, overlooking beautiful Abiquiu Lake and the Cerro Pedernal, NM’s famous state icon. Unload, allocate **campsites and tents, more, to set up camp**. Greeted by USACE staff; Instructors and USACE staff assist students with set-up. Then, board bus to begin the **Fifth Environmental Field Study—Rio Chama and adjacent riparian areas -- USACE Rio Chama Recreation Area and Carson National Forest**.

As before, science teams using professional-grade science equipment, and taught/supervised by NHEC Instructors, conduct air, water, soil testing and data collection; biological assessments; plant and vegetation surveys; tree mensuration; birding and related nature observations; and more. Accompanied by those scientists/staff participating from FS, NRCS, and USGS.

On conclusion of the field study, Instructors and FS staff will lead students on a hike to the beginning of the **“big bend in the Rio Chama”**. Here, students will hike alongside the river at the base of the cliffs for about ½ mile. Beautiful and serene, with stunning up-close views of the multi-colored high cliffs and the typical NM cottonwood/willow riparian area.

Following this, students hike back to bus, board, and return to **Abiquiu Lake campsite—Group Shelter # 1**. Dinner, catered by JoAnn’s Restaurant. Then Instructors assist students to set up camp. After this, a presentation by the **NM Wildlife Center**—staff from this non-profit bring an array of **previously injured raptors and other wildlife, rescued and now restored**, for display and discussion. Q&A. Then, students enjoy the evening by the lake; smores and more by campfire (if fires permitted). Students listen to the sounds of the night.

Day 10 – Sunday, August 15 -- wake up knock on tents; clean-up in bathrooms and showers. Busy day/last day. **Breakfast, then students break camp**. After this, board bus, depart Abiquiu Lake for **Holiday Inn Express Albuquerque**. Here, each student team will give their **Final Presentations**. Arrive Holiday Inn Express, proceed to classroom. **Students continue working on their Final Presentations**. Lunch, and student science teams continue working on their presentations.

In the afternoon **Student Teams Begin Final Presentations**, with powerpoints. Having worked collaboratively with each other over the last 10 days, each science team presentation collates, analyzes, and draws conclusions from all the research, data, metrics, samples, and biological observations conducted at the 5 Environmental Field Study sites.

Following each team presentation, NHEC Instructors intensively question students, probe their data analysis and conclusions, and more, to ensure they have learned/applied the correct science principles and data methodologies.

Instructors also critique and provide guidance as to the presentations “scientific look”-- their professional appearance, sequencing of information, flow and specificity of data, clarity of conclusions, its contribution to citizen science, and its overall effectiveness. Staff from Institute sponsors are also welcome see the Final Presentations, ask questions/quiz students.

After this, final group photos and goodbyes. Students with evening flights will be transported by NHEC to Albuquerque airport. **Students head off to their airlines for flights home.** Some students with longer flights will be departing early the next morning, transported to the airport by NHEC staff. For those staying overnight, Dinner and a final evening activity.

ABOUT NHEC:

The National Hispanic Environmental Council (NHEC) is a national, non-profit membership organization founded in 1998 and based in Alexandria, VA (just outside Washington, D.C). With over 3,000 members, NHEC is the oldest national Latino environmental and natural resource organization in the country, and we advocate for policies and run programs that further our mission.

NHEC seeks to educate and engage Latinos and people of color on environmental and natural resource issues; encourage Latinos and especially students to actively preserve and protect our environment; provide a voice for Latinos before federal and other national environmental decision-makers; and assist our community to pursue the many career, educational, programmatic, and policy opportunities in the environmental and conservation arena. **Our guiding credo is: “....because it’s our environment too”.**