

## National Hispanic Environmental Council



### 8th CALIFORNIA ENVIRONMENTAL STEM INSTITUTE

JUNE 12--21, 2022

To be held at

**NATIONAL FORESTS, NATIONAL PARKS, FEDERAL RESEARCH STATIONS,  
AND OTHER PUBLIC/PRIVATE LANDS IN SOUTHERN CALIFORNIA**

**“10 DAYS OF LEARNING, A LIFETIME OF EXPERIENCE”**

The National Hispanic Environmental Council (NHEC) is pleased to announce it will hold its 8<sup>th</sup> California STEM Institute on June 12—21, 2022 at a variety of sites in southern California.

#### PROGRAM OVERVIEW

NHEC is accepting applications from top college STEM students -- especially from underrepresented/people of color communities -- for our upcoming 8<sup>th</sup> CA Environmental STEM Institute. Also eligible are (a limited number) of high school seniors in STEM fields entering college as freshmen in September. NHEC will hold its 18<sup>th</sup> annual NM Environmental STEM Institute on August 4—15, 2022 and our NY/NJ Institute later in the fall.

**Students are competitively selected from across the U.S. and Puerto Rico based on a variety of criteria**, including a minimum 3.0 GPA, science major and background, demonstrable interest/experience in the environment, and diversity. NOTE: 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. Geological Survey -- **NHEC covers all major costs for those students selected to attend** -- roundtrip airfare, lodging, meals, local transportation on-site (by chartered bus), science equipment, and more.

Like all our Institutes, the CA Institute is an intensive, residential, strongly-science based, hands-on, 10 day residential environmental STEM program for top undergraduate college students deeply interested in science and the environment. The Institutes are designed to provide a high-level, high-quality science experience.

To be eligible, students must be actively pursuing a **science degree in an environmental, natural resource, or agricultural major, and want a related career in this field, especially with federal agencies.**

Overall, NHEC's Institutes are designed **to help build the next generation of diverse/of color scientists/researcher/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 and instrumentation. Facilities like the Pacific Southwest Research Station of the U.S. Forest Service; USDA ARS (Agricultural Research Service) National Salinity Laboratory; and the Univ. of CA at Santa Barbara's Field Research Station/Santa Cruz Island are participating, as are their staff and scientists, many with Ph.D's. They are offering 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 quickly call to discuss all travel arrangements, typically airfare, for which NHEC must give final approval. Once in California, NHEC will transport students to/from each site by chartered bus; provide breakfast, lunch, dinner, and snacks/water; provide lodging; provide science equipment; and coordinate all logistics/travel. **See below for a detailed description of the 2022 CA Program.**

**Also participating are "role models" from NHEC's federal sponsors and other partners.** These are environmental professionals/scientists, most in the science/research/technical arena, and many of diverse/of color 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 and us 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 please state that, and 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, natural resource, or ag. 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.-- you understand that the age range for this program is 18—22?
- 11.-- how old are you?
- 12.-- what is your date of birth?
- 13.-- list your race, ethnicity, and/or other demographic factor you wish NHEC to know-optional.
- 14.-- are you interested in a potential job or other opportunity in fall 2022 and/or summer 2023 with the Institute's sponsors—U.S. Forest Service, USDA NRCS, and USGS. If you have a preference among these agencies, please state.
- 15.-- you understand that only US Citizens or Legal Permanent Residents are eligible for positions with a federal agency?
- 16.-- are you a US Citizen or Legal Permanent Resident? You must state which one.
- 17.-- you understand that only students who are fully Covid vaccinated can be selected?
- 18.-- are you fully Covid vaccinated and can provide the CDC proof-of-vaccination card to NHEC?
- 19.-- provide a home and cell number and email address so NHEC may contact you promptly.
- 20.-- provide your full home address.

**NHEC will contact you shortly after receiving your email to further discuss** your environmental, natural resource, or agricultural 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 science position in the environmental arena, this program is for you.**

**To answer some common FAQ's**

- 1.-- yes, slots are still available although these are going 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](mailto:jrodriguez@nheec1.org) and NHEC President Roger Rivera at [rrivera@nheec1.org](mailto: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](http://www.nheec1.org)

## **2022 CALIFORNIA ENVIRONMENTAL STEM INSTITUTE—PROGRAM OUTLINE**

**The Institute will be held in sunny Southern California, at sites ranging from Ventura, to Santa Cruz Island, through the Santa Monica and San Gabriel Mountains, and ending in Riverside.**

**Saturday, June 11** -- Students will fly into Los Angeles International Airport (LAX) throughout this day until 5:30 pm. On arrival students collect their luggage, then are met by NHEC staff who will escort them (on the hotel shuttle) to the **Holiday Inn LAX**, about ½ mile from the airport.

Students will gather here, have lunch, and begin getting to know each other while waiting for all students' flights to arrive. Around 5:30 pm students will board the chartered bus for **California Lutheran University (CLU)**, where students will have dinner and spend the night (in dorm-like suites). CLU is a private liberal arts college in Thousand Oaks, 33 miles from LAX.

### **DAY 1 – Sunday, June 12—**

Breakfast at CLU, then board bus for **California State University--Channel Islands (CSUCI)** in Camarillo (60 miles from LAX). CSUCI is a beautiful campus built in the Old Spanish style. On arrival students go to **Anacapa Village (dorm-like suites)**, drop-off luggage. Students then go to the Classroom where the Institute begins—Introductions, Orientation, Institute Overview, and campus walkaround. After this NHEC Instructors conduct a series of in-classroom environmental and natural resource issue and science presentations and related activities. Lunch and Dinner at CSUCI—in Islands Café. Presentations follow after Dinner.

### **DAY 2 – Monday, June 13—**

Breakfast in Islands Café. A full day of issue and science Presentations by Institute Instructors, as well as staff from several federal agency sponsors. Lunch in Islands Café. In afternoon, board **bus for nearby Conejo Mountain** for a short hike, outdoor observations, enjoy scenic views.

While at Conejo, students will also see several critical environmental issues currently impacting California -- drought, wildfires, and the wildland-urban interface. The WUI is where the built environment meets/intermingles with nature. Over the last 20 years in CA, WUI areas have seen a dramatic increase in wildfires, often severe, with major loss of life, property, and habitat.

After this, return to CSUCI for several presentations. Dinner in Islands Café. Presentations afterwards. Note: **NHEC deliberately holds many of its classroom presentations the first few days** of the Institute. This is to provide needed information to students for the following site visits, field studies, and other activities.

### DAY 3 – Tuesday, June 14—

Breakfast at Islands Cafe. More Instructor Presentations in morning, then Lunch in Islands Cafe. Joined by federal agency sponsor staff, and held are presentations by them on federal opportunities-- internships, jobs, science/research, and more. Also included is an overview and tutorial on USA JOBS, the main federal employment portal, including how to navigate the site, set-up your profile, and search for/apply for specific jobs. Also held are sessions on these agencies' mission, programs, locations, and more.

In the afternoon Instructors will **hold a practice Environmental Field Study—in Calleguas Creek**, a wetland/riparian area at a side entrance of campus. Accompanied/assisted by participating sponsor staff.

After this, board bus, depart for site tour—a **USDA NRCS technical-assisted Farm near CSUCI**. Meet owners, tour Farm, engage with NRCS staff and learn about NRCS conservation assistance to private land owners. Afterwards, return to CSUCI. Dinner in Islands Cafe, then presentations.

### DAY 4--Wednesday, June 15—

Breakfast in Islands Café. Then board bus, depart for site tour of **King Gillette Ranch, in Calabasas, headquarters of the National Park Service--Santa Monica Mountains National Recreation Area**. Here, students will explore the Visitor Center, see orientation film, tour exhibits, etc, for an overview of this national park and the spectacular Santa Monica mountains.

After this, board bus--site tour of **Las Virgenes Tapia Municipal Water Reclamation/Treatment Plant**. Here, students will tour the facility, including the on-site laboratory, to see/learn about the operations of water recycling, a critical need for California in their ever-worsening drought.

After this, board bus for **Stunt Ranch Santa Monica Mountains Reserve—UCLA, in Calabasas**. Stunt Ranch Reserve is one of the most pristine/biologically diverse areas of the Santa Monica Mountains. Welcome and Presentation by Dr. Gary Bucciarelli, Reserve Director, on history and ecology of the Reserve, followed by a short walkaround. Box Lunch in field.

**UCLA Stunt Ranch is part of the University of California's (UC) Natural Reserve System.** The NRS is a series of 41 preserves and research stations, operated by 9 UC universities, located in and representing all major ecosystems of CA. The NRS offers university-level outdoor laboratories to field scientists, classrooms without walls for students, and showcases California's natural heritage. The NRS is the largest university-run network of field sites in the world.

**Divided into teams, students conduct the First Environmental Field Study** -- air, water, soil testing, plant inventories, tree mensuration, biological assessments, birding, more. Also included is eDNA equipment, with demonstration/instruction/usage provided by staff from the Univ. of California--CALeDNA team. Accompanied/assisted by agency sponsor staff.

After this, **depart for CSUCI**. Dinner in Islands Cafe. After dinner, students begin analyzing data collected from the field study. Also, before bed students pack their bags for departure to Santa Cruz Island in the morning.

### Day 5--Thursday, June 16—

Early Breakfast in Islands Café. Depart early for Ventura Harbor. Board 9 am ferry for **Channel Islands National Park—Santa Cruz Island**. Joined by participating federal sponsor staff. Santa Cruz is 20 miles offshore, a 90 minute boat ride from Ventura. As this will cross the Santa Barbara Channel (a major migratory pathway), students will see marine mammals like dolphins, seals, whales, sea birds, and more on the passage to and along Santa Cruz's rocky coast. Note: students will explore The Nature Conservancy (TNC) side of Santa Cruz, i.e. the western, privately-owned part of the island, not the eastern, NPS side.

Students will overnight for 2 nights **at the UC Santa Barbara (UCSB) Nature Reserve and Field Station, courtesy of UCSB**. The station has a dormitory, restrooms, kitchen, conference room, internet service, and more. Thus students will have the rare opportunity to experience night-time on the Island. Santa Cruz is uninhabited except for UCSB researchers, select TNC and NPS staff, and a small number of campers, located in 3 small public camp sites.

On the TNC-owned land, Santa Cruz has two mountain systems flanking a central valley. The mountains are cut by steep-sided canyons, some with perennial streams/riparian areas. The central valley leads to pristine beaches with tidal pools, marshes, and more. Like the UCLA Stunt Ranch reserve, the UCSB Field Station is in the University of California's Natural Reserve System.

On arrival at Prisoners Harbor, students are met by Dr. Jay Reti, UCSB Field Station Director and staff and transported in their vehicles to the Field Station. Students unload, then Lunch. Presentations to follow by Dr. Reti on various topics, including history/ecology of Santa Cruz by UCSB staff. After this, a walk-around through part of the beautiful central valley. Also participating is Dr. Kathryn McEachern, Research Plant Ecologist and Director of the USGS Western Ecological Research Center/Field Station—Channel Islands. Students will see/learn about her award-winning research and recovery projects for endangered Santa Cruz species.

After this Dinner at the UCSB Field Station, followed by a presentation. After this students work on their field study data. Later in the evening, weather/fire conditions permitting -- smores and a camp fire, observing the brilliant night sky, and listening to the sounds of the night.

### Day 6--Friday, June 17—

Breakfast at UCSB Field Station. Continue exploring Santa Cruz Island, by foot and vehicle. In afternoon, transported by UCSB vehicles and guided by Dr. Reti and his staff, students **conduct the Second Environmental Field Study** --air, water, soil testing, plant inventories, tree mensuration, biological assessments, birding, more. Will also include eDNA equipment demonstration/instruction/usage, provided by staff from the Univ. of California--CALeDNA team. Site will be a riparian area in the central valley, as identified by Dr. Reti.

In late afternoon return to UCSB Field Station for Dinner. Afterwards, students continue work on field study data. After that, smores by the fire, plus stargazing and listening to the sounds of the night.

### Day 7--Saturday, June 18--

Up early in am—**Breakfast at UCSB research station**. Students pack for departure later in day. Transported by UCSB vehicles and guided by Dr. Reti and UCSB staff, students will continue exploration and nature observations of Santa Cruz.

In the morning, site visit to a coastal wetland/tidal pool on north shore of Santa Cruz Island—a cove located off Pelican Bay trail. There, student teams **conduct the Third Environmental Field Study** -- air, water, soil testing, plant inventories, tree mensuration, biological assessments, birding, more. Will also include eDNA equipment demonstration/instruction/usage, provided by staff from the Univ. of California--CALeDNA team.

In early afternoon return to Field Station. Quick Lunch and collect backpacks and equipment. Then, transported by UCSB vehicles to Prisoners Harbor to depart on the 3:30 pm boat. 5 pm--- arrive Ventura Harbor, offload. Board bus for CSUCI.

**At CSUCI**, unload, then students go to Dinner at Islands Café. After Dinner, students to classroom to continue working on data analysis and final presentations. Before bedtime students to pack all luggage—last night at CSUCI; check-out in morning.

### Day 8—Sunday, June 19--

Early Breakfast at CSUCI. Load luggage, then board bus for site tour of **Big Dalton Canyon Wilderness Park, City of Glendora** (just outside the US FS San Dimas Experimental Forest and the Angeles National Forest). Here, hike and explore site to learn about this mountain/canyon/woodland ecosystem, especially in relation to fire ecology.

Afterwards, divided into teams, students **conduct the Fourth Environmental Field Study** -- air, water, soil testing, plant inventories, tree mensuration, biological assessments, birding, more. Will also include eDNA equipment demonstration/instruction/usage, provided by staff from the Univ. of California--CALeDNA team. During this field study, students joined by Dr. Richard Barhydt, Director, US FS's Pacific Southwest Research Station (PSW), and other FS staff.

In addition, students will hike to see/learn about **Big Dalton Dam, adjacent to the San Dimas Experimental Forest**. This is a multiple arch concrete dam built in 1929, one of the earliest in the area, and operated by the Los Angeles County Dept. of Public Works. Big Dalton Dam and Reservoir provide water, water conservation, and flooding control from Big Dalton Canyon.

Around 5 pm, board bus **for University of California Riverside**. Check into rooms, then students go to Dinner. After Dinner students to classroom for continuing work on field study data and final presentations.

### Day 9—Monday, June 20--

Breakfast in Dining Hall. Return to classroom for presentation by Dr. Barhydt, Director, PSW and others on the US FS Office of Research and Development (R&D), especially its Research Stations. PSW is one of these.

Among other topics, Dr. Barhydt's presentation will give students an overview – the mission, research specialties, science priorities, and student opportunities -- of the 3\_R&D research stations participating in NHEC's 3 Institutes in 2022. These are: PSW; the Rocky Mountain Research Station (RMRS); and the Northern Research Station (NRS).

Following this—site tour of the **UC Riverside Outdoor Botanic Gardens**, guided by Botanic staff. This 40 acre living plant museum spotlights diverse flora from a number of earth's biomes, although primarily from Mediterranean and desert climes, such as is California. Here, students will walk through/see such CA biomes as Oak Forests, Scrub and Chaparral, High Sierra, and Desert. Afterwards, Lunch in Dining Hall.

Following this, a site tour of the **USDA Agricultural Research Service (ARS) George E. Brown U.S. Salinity Laboratory**, located on-campus at UC Riverside. Welcome by ARS staff/scientists and including a presentation on ARS and the mission of this facility. Conducted by Dr. Todd Skaggs, Research Leader for the National Salinity Lab and National Clonal Germplasm Repository for Citrus & Dates.

In mid-afternoon, depart for **site tour of and lab work at the FS PSW Research Station** (located one mile away). Welcome by Dr. Barhydt and participating PWS scientists/staff, including Dr. Jose Sanchez, Research Economist; Dr. Antonio Davila, Research Chemist; Dr. Francisco Escobedo, Urban Forestry/Social Science; and more. Presentations to be held cover key PSW research areas, including social science and fire behavior research. After this students will tour PSW labs.

Here, students at stations perform a series of experiments, using PSW instrumentation. Includes water chemistry analysis/measurements; fuel ladder demonstration/analysis, where students collect flame, temperature, and other data; and experiments/discussion related to fire risk and ecosystem services.

At 5:30 pm, **depart PSW for UC Riverside**. Students go to Dinner in Dining Hall. After this, students return to the classroom to continue field study data analysis and preparation for Final Presentations.

### **Day 10--Tuesday, June 21—**

Breakfast in Dining Hall. Students go to classroom to **continue preparations for their Final Presentations**. Lunch in Dining Hall.

At 12:45 pm **Student Teams Begin Final Presentations**, with powerpoints. Having worked collaboratively over the last 10 days, each science team's presentation collates, analyzes, and draws conclusions from all the research, data, metrics, samples, and biological observations conducted at the 4 Environmental Field Study sites.

**Following each team presentation, NHEC Instructors sit as a panel to question students**, probe their data analysis and conclusions, and more, to ensure they have learned/applied the correct science principles and data/field 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 photos and goodbyes. **Institute ends.** Students with afternoon and evening flights will be transported by chartered bus to LAX airport for flights home. Some students with longer flights will be departing the next morning, transported to the airport by NHEC staff. For those staying overnight, Dinner in the Dining Hall and a final evening activity.

### **Wednesday, June 22—**

In the morning remaining students board bus and depart to LAX for flights home.

### **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”.**

**For questions: contact the NHEC Programs Coordinator, Juan Rodriguez, at [jrodriguez@nheec1.org](mailto:jrodriguez@nheec1.org) or call him at 703-861-6064. Or call NHEC at 703-683-3956. Or see the NHEC website at [www.nheec1.org](http://www.nheec1.org)**