

GEOFORCE MONTHLY

Changing lives since 2005



L - 11th grade students at Smith Rock, R - 11th grade students around a campfire at Agate Beach.

ACADEMY SPOTLIGHT: 11TH GRADE

By Tiernan, 2024 High School Intern

This summer, GeoFORCE was joined by four high-school interns through partnership with the City of Austin and Travis County. One of the projects delegated was a write-up of the academies, done by each intern.

As the 11th graders traveled throughout the West Coast, they discovered a multitude of Geological wonders formed over thousands of years ago. From the caldera of Crater Lake shaped by an ancient volcano to the Columbia River Valley completely transformed by glaciers. As these future Geologists traveled, they made sure to be were fully up to date on the volcanic processes and our planets ever shifting tectonic plates.

The highlight of this trip would have to be the trip to Mount Saint Helens, the site of the most recent eruption in the continental U.S. This volcano erupted in the early 1980s, shocking the world as it sent ash all the way to New Mexico. The eruption recreated the mountain as we know it today with the collapsed center. Students also visited Crater Lake, a large caldera formed from the eruption of a 12,000-foot-tall mountain called Mount Mazama. This singular eruption then created the deepest lake in the United States. The lake is especially important for showing the students the direct impact of volcanic eruptions on an environment over a long period of time.

Throughout this trip the 11th Grade academy moved from location to location learning how obsidian is formed to why the Oregon coast is full of jagged cliffs and rocky beaches. A favorite activity of the students was learning how obsidian was formed and why it has such a glassy look. As they soon found out, obsidian was formed from igneous rock with a high silica content that gives it a glassy look. They also looked at one of the most fascinating geological formations of obsidian and pumice where, for over a mile, volcanic material oozed leaving a trail of destruction and obsidian to be found later.

The students also discovered the wonders of the Oregon coast as they observed the coastal sand dune which has built up over the last 6,000 years as various sediments were carried by harsh winds. These dunes are unique in their composition with a diverse range of minerals. While by far the most interesting thing the students did throughout their trip would be how they were able to go and learn more about geology and make new friends along the way. This trip has paved the way for future geologists to make their way into a field of science not as popular as biology or physics but still equally important.

11th grade student Lela Thornhill reflected, "Hiking in the Obsidian Flow and visiting the Cascades Volcano Observatory was an amazing experience and I gained so much understanding about one of the coolest fields of science."



L – Students in Tisato's research group studying earthquakes, R – Students in Moretti's research group studying fossils.

ACADEMY SPOTLIGHT: 12TH GRADE

By Meron, 2024 High School Intern

As students enter their final year with the GeoFORCE program, the 12th grade academy brings their trip back to Texas. Students from regions around Uvalde, Houston, Austin, and Dallas stay together at a University of Texas at Austin dormitory for their week-long academy and partner with geoscience faculty from the Jackson School of Geosciences in a research project. The research projects motivate students to connect the knowledge they've learned throughout their previous summers to apply to solving real-world problems.

The topics of the nine research projects vary from carbonate sedimentology, geologic sequestration of CO₂, GeoHeritage, drone imaging of coastline change, critical minerals, radiogenic dating of Antarctica, vertebrate paleontology, ice sheet modeling, and earthquake modeling. Allowing students to join a research group based on their level of interest, GeoFORCE provided a learning opportunity where students were joined by other like-minded peers. Although divided amongst research groups, the students were a combination of the different regions, which encouraged them to make new connections and new friendships.

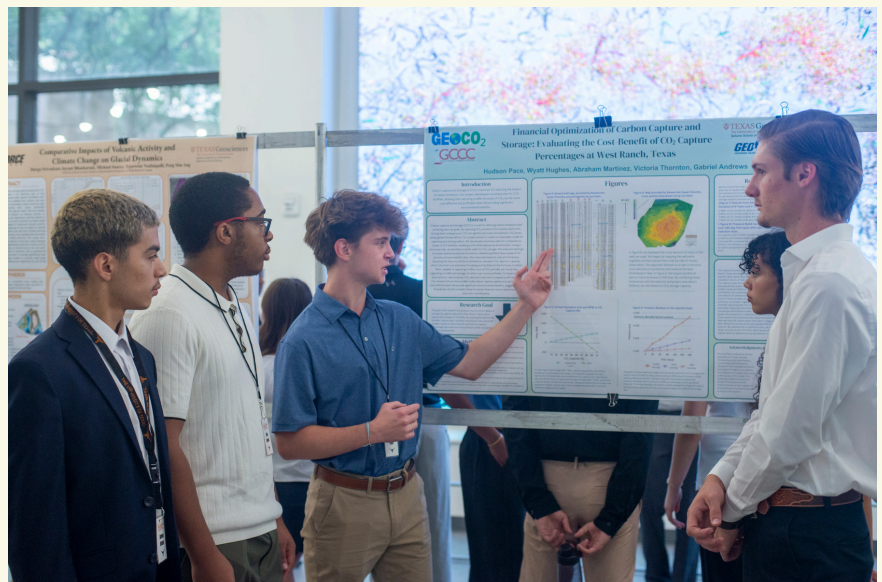
Along with the research mentors, each group had a research group lead with prior experience in research and the geosciences. These research group leads had a mentor-like role, as they stay alongside the students for the entire academy, providing any assistance and answering questions.

Juan Gutierrez, the research group lead for Benjamin Keisling's ice sheet modeling research group, described how he was "very surprised with how easily [the students] learned new material like coding. I was slightly apprehensive, but I'm more than optimistic about their abilities now."

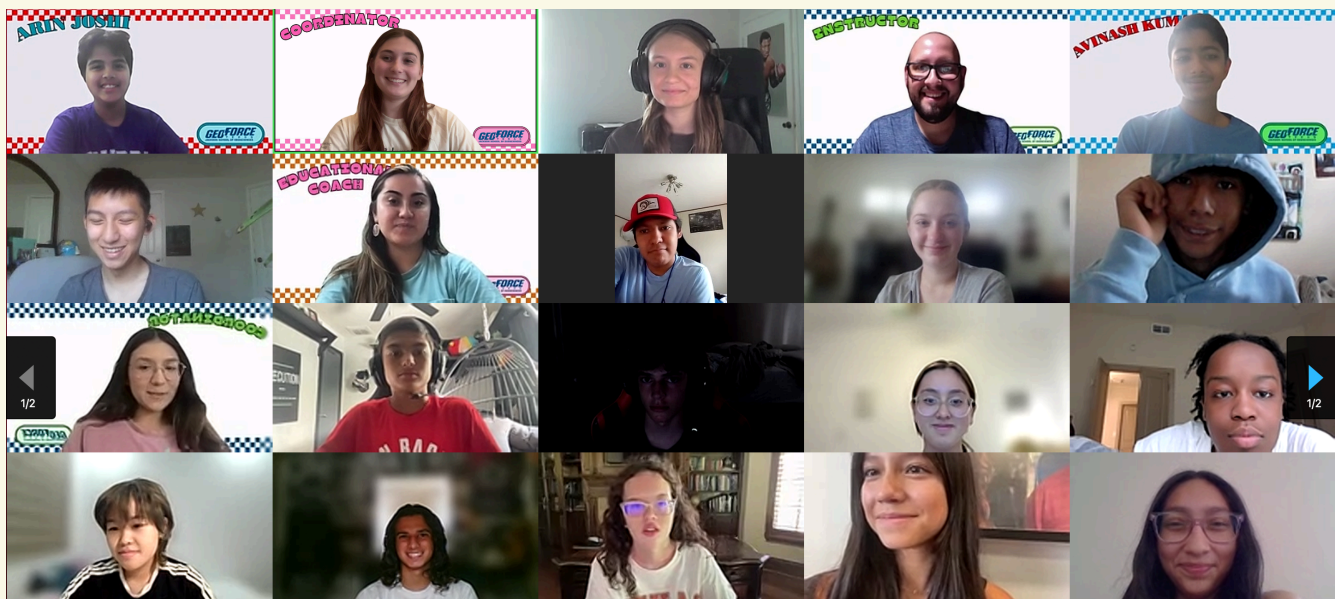
After a long week of putting diligent efforts into their research, students presented their research at the GeoFORCE Symposium. Students, research scientists, GeoFORCE staff, and parents were invited to listen in on the research findings created by each student group. Peng-Sim, a student from the Keisling group, reflected on his GeoFORCE experience as "routinely being the best week of my summer each year."

Another rising 12th grader, Teju Nadimpalli, stated, "Although I'm nervous about presenting at the symposium, participating in all four years of GeoFORCE makes me feel like I'm going in prepared."

The top posters will be offered the chance to join GeoFORCE in December at the American Geophysical Union's (AGU) national conference. AGU brings together leaders in geology and allows GeoFORCE high school students to contribute their findings at the Bright STaRS session.



Students presenting their Carbon Capture research project at the Symposium.



Screenshot of the 2024 GeoFORCE Virtual Cohort.

ACADEMY SPOTLIGHT: VIRTUAL ACADEMY

By Lydia Hamilton, 2024 College Intern

Closing out the summer alongside Math and Science was the GeoFORCE Virtual Academy. This year, students were given the opportunity to learn the coding language Python from a graduate student at the Michigan State University, Luis Martinetti.

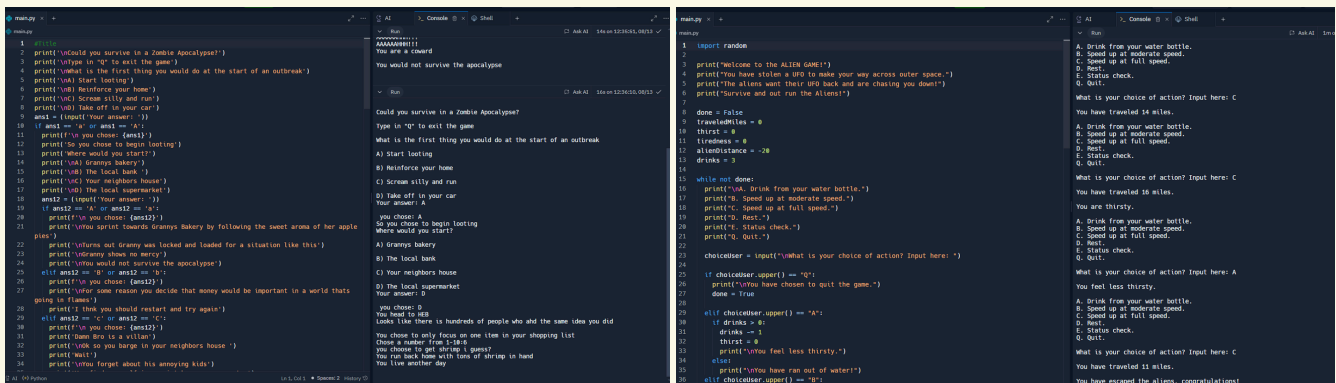
This Python boot camp takes students through the basics of coding in bite sized morning and afternoon virtual sessions through Zoom. Hitting the ground running, we dove into data types, syntax, and simple functions after getting to know each other with ice breakers. Each day built upon the previous, equipping students to eventually take on a final project.

During the one-hour break between morning and afternoon class, students could come hang out with the staff and get extra help. Many students found common ground with each other during these lunch social sessions and hopefully made some lasting friendships. These lunch sessions also allowed for further discussion of coding topics and inspired some amazing questions from students. Arin Joshi, a rising 9th grader “really enjoyed working with the instructors and students of this academy. [He] liked working on fun projects like games and other stuff with [his] newfound friends.” He declared it was “all in all a great experience!”

The final project made use of user input, if statements, and for loops to create either a personality quiz or an alien escape game. Students really let their creativity shine in these projects creating quizzes about zombie apocalypse survival, what dog breed suits you, and even which Ryan Gosling character you are. The games made you track fuel, food, and exhaustion as you ran away from hostile aliens each with their own unique spin. Sometimes you could attack the aliens for some extra get away time and in one game you were a thief being pursued by galactic peacekeepers. Students got the opportunity to experience coding in a tangible way through the project and learn how it can not only be useful in their lives, but fun!

Rising 11th grader Elise Garza explained, “The GeoFORCE 2024 Virtual Academy completely redefined my thoughts about coding. The instructors and the other students were all very supportive and uplifting, helping me try and succeed at something I'd been afraid to try for a long time. Through the Academy, I have discovered a new passion that I plan to keep exploring!”

The Virtual Academy is a space for GeoFORCE to continually innovate remote learning by offering students a new subject each year. We are looking forward to seeing what fascinating lessons next summer brings.



Screenshots of codes of the final projects for the GeoFORCE 2024 Virtual Academy.

IMPORTANT DATES

Here are a list of dates to keep in mind for **August** and **September**:

AUGUST						
Sun	Mon	Tues	Wed	Thur	Fri	Sat
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31

SEPTEMBER						
Sun	Mon	Tues	Wed	Thur	Fri	Sat
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30					

Virtual

Math & Science Institute

Alumni

Transition-to-College

GeoFORCE Staff

ALL ALUMNI: Check your email for socials happening this Fall!

July 28th-Aug 3rd

Math & Science Institute

July 29th - Aug 3rd

Virtual Academy

August 26

First Day of Class
at UT Austin

September 5

GeoFORCE Longhorns Social

September 11

ExxonMobil Alumni Event @ UT

September 16

Virtual Resume Workshop

September 19

How to Apply to College? Info Session

**September
23 - 25**

GSA Conference

Oral Session - Strategies and Best
Practices in the Development and
Execution of Youth Outreach Programs

STAY CONNECTED WITH GEOFORCE THIS FALL!

Make sure you don't miss out on any of the events going on this fall, applications, internship opportunities, or events!



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