



ICELAND

2024 Itinerary

Lodging Information:

July 31st–August 3rd Plaza Hotel by Center Hotels

August 3rd–August 7 The Greenhouse Hotel

August 7th–August 9th Grandi by Center Hotels

Welcome Letter

Welcome to Iceland!

I am delighted that you have chosen to travel with us and sorry I could not join you however, you will be in good hands. On behalf of the entire New Mexico Tech team, I extend a warm welcome to you and hope you enjoy the action-packed itinerary we have planned. Your hosts, Nelia, Bill, Nicole, Alex, and Fred have prepared some excellent presentations for you that I am sure you will truly enjoy and that I will sadly miss.

We have a busy itinerary planned and we want this trip to be as enjoyable as possible for you. We understand that you might not attend every excursion we have planned; we hope that you will also feel free to explore Iceland on your own. We do ask that you let us know if you will not be attending an activity so we don't think you're lost. Please take a moment to review this booklet and familiarize yourself with the itinerary. Keep in mind some things might change. Changes will be announced via the group message on What'sApp. Sandi can help you get added to that group if you aren't already.

Sandi Lucero is the trip coordinator and is happy to assist with anything you might need during the trip - please do not hesitate to reach out to her!

Sandi Lucero, 575-491-1574

We currently have the 2025 trips scheduled. One will be to Chile and the other will be rafting in the Grand Canyon. My team and I also are back on the road and hosting receptions for NMT alumni around the country. If you would like one in your area or have an idea for an alumni trip please let me know.

I am looking forward to seeing all the pictures and hearing all about your Iceland adventures!

Thank you,



Colleen Foster
Director, Office for Advancement and Alumni Relations

Wednesday July 31, 2024

Arrival Day



3:00 pm	Meet & Greet Social	Jörgensen Kitchen & Bar
5:25 pm	Bus departs for Lava Show	Front Entry
6:00 pm	Lava Show	Fiskislóð 73, 101 Reykjavík
8:30 pm	Alexander Gysi Lecture - A Journey to the Center of the Earth & Introduction to Icelandic William McIntosh Lecture - Volcanic Landforms & Volcano Introduction	Plaza Hotel

Reykjavík, on the coast of Iceland, is the country's capital and largest city. It's home to the National and Saga museums, tracing Iceland's Viking history. The striking concrete Hallgrímskirkja church and rotating Perlan glass dome offer sweeping views of the sea and nearby hills.

Approximately 122,853 people live in Reykjavík proper, but the greater Reykjavík area is home to over 60% of Iceland's population.

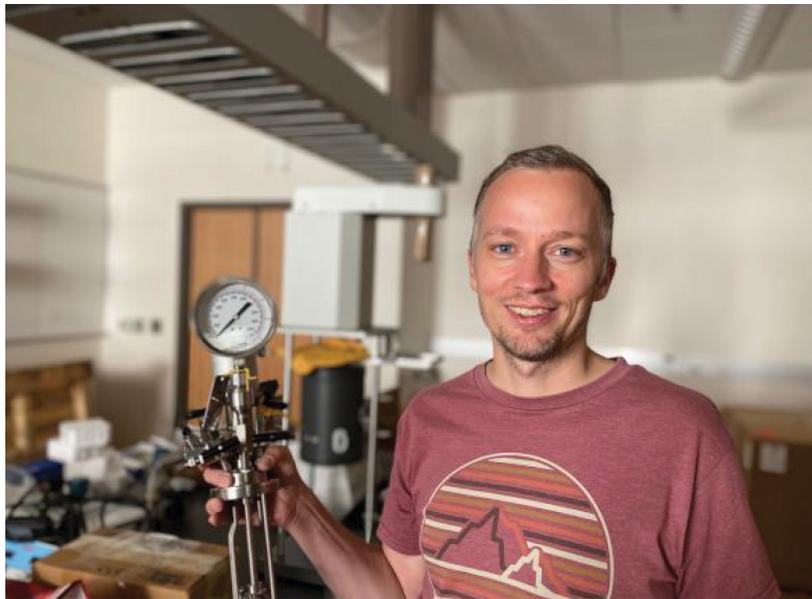
Weather in Reykjavík

The city experiences rather mild climates all year round. In the summertime, the temperature averages around 50°F, while in the wintertime it is around 32°F. It can get rainy and most days there is wind, so make sure you choose the right clothing, depending on the season.



Dr. Alexander P. Gysi

I currently have a dual appointment as an Economic Geologist in the New Mexico Bureau of Geology and Mineral Resources and as an Associate Professor in the department of Earth & Environmental Science at New Mexico Tech. I am the head of the Ore Deposits and Critical Minerals Research group and Experimental Laboratory in the Bureau. I also maintain the MINES thermodynamic database for simulating ore-forming processes and fluid-rock interaction. My main research interests include: 1) hydrothermal ore-forming processes and crustal metasomatism, 2) critical mineral deposits and geochemistry of rare earth elements (REE), 3) petrology of pegmatites, carbonatites, and (per)alkaline rocks, and 4) thermodynamic modeling of fluid-rock equilibria.



I have a M.Sc. in Mineralogy and Petrology from ETH Zurich in Switzerland. My thesis topic was on the petrology of mantle pyroxenites from the Beni Bousera massif in Morocco. I then moved to Reykjavik to complete a Ph.D. in Geochemistry at the University of Iceland where I had the opportunity to participate in the Carbfix project between 2007 and 2011. This pilot project aimed at injecting CO₂ from a geothermal power plant into geologic rock formations. For my dissertation, I carried out experimental and thermodynamic modeling work to assess the mineral carbonation potential in basaltic rocks. In 2011, I moved to Montreal, Canada where my journey began in studying critical minerals and ore-forming processes as a Postdoctoral Fellow at McGill University. For my Postdoc I had the opportunity to work on the world-class Strange Lake REE-Zr-Nb deposit in Canada to study alteration and the role of hydrothermal processes for REE transport and deposition in peralkaline granitic systems. I also started designing new hydrothermal and calorimetric experiments to study the properties of critical minerals in the lab and building a thermodynamic database to simulate hydrothermal processes in ore deposits. From 2014 to 2020, I was an Assistant Professor in Litho-geochemistry at Colorado School of Mines before moving to NMT in Summer 2020.

Thursday Aug 1, 2024

Reykjanes Tour



7:00 am	Breakfast	TBD
8:00 am	Bus departs for Krýsuvík	Front Entry
9:00 am	Explore Krýsuvík	Krýsuvík
10:00 am	Bus departs for Grindavik	TBD
10:30 am	Explore Grindavik	Grindavik
11:30 am	Bus departs for restaurants	TBD
11:45 am	Group lunch	TBD
1:00 pm	Bus departs for the Blue Lagoon	TBD
1:30 pm	Explore & soak in the Blue Lagoon	Blue Lagoon
4:00 pm	Bus departs for Svartsengi	TBD
4:15 pm	Explore Svartsengi	Svartsengi
5:45 pm	Bus departs for Reykjavík	TBD
7:30pm	Dinner	On your own
9:00 pm	Nicole Hurtig Lecture– Hot Gasses and Streaming Springs: Insights into the Earth’s Kitchen	Plaza Hotel

Nicole Hurtig

Nicole Hurtig is an assistant professor in geochemistry in the Department of Earth and Environmental Science at New Mexico Tech (NMT). Her research focuses on hydro/geothermal fluids, ore deposits, CO₂ sequestration, trace metal systematics in petroleum systems and metal transport in hydrothermal fluids.

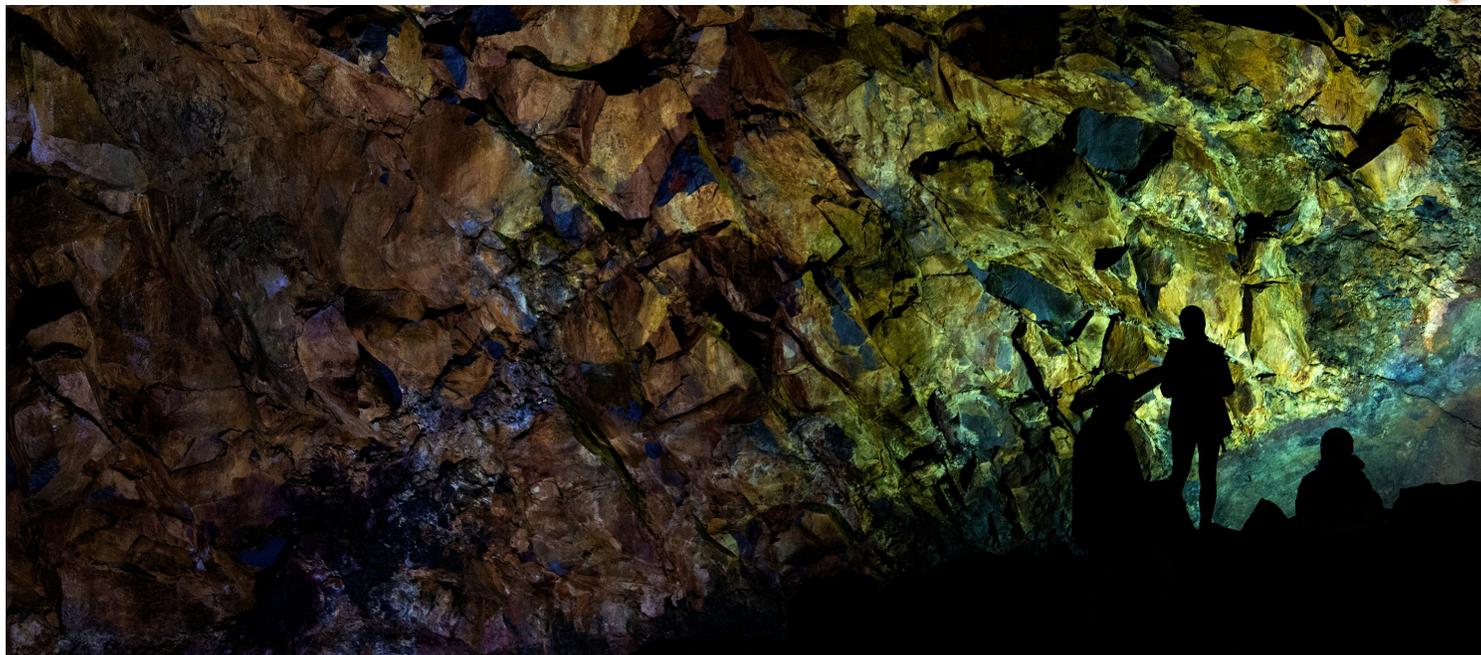
She graduated with a MSc degree in Petrology and Geochemistry from ETH Zurich in 2008, where she worked on MVT-type Pb-Zn and U-Mo-F mineralization. Prior to starting her PhD, she worked as a field geologist in Australia in U Exploration, as a geochemist in Iceland working on geothermal waters and as a geologist working on groundwater mapping and safety in Switzerland.



She received her PhD degree in 2014 from McGill University. Her dissertation focused on metal solubility in vapor-like fluids and active geothermal systems. Thereafter, she was a Postdoctoral Fellow with the AIRIE Program at Colorado State University for four years working on the Re-Os geochronometer applied to hydrocarbons with applications to petroleum systems. Prior to starting her position at NMT in 2020, Nicole was a research assistant professor at Colorado School of Mines.

Friday Aug 2, 2024

Museum Tour/Whale Watching



7:00 am – 8:30 am	Breakfast	TBD
8:50 am	Bus departs	Front Entry
9:00 am	Saga Museum	Saga Museum
10:30 am	Bus departs	TBD
10:45 am	Árbær Open Air Museum	Árbær Open Air Museum
12:15 pm	Bus departs for hotel	TBD
12:30 pm	Lunch & Free Time	On your own
3:00 pm	Nelia Dunbar Lecture – Iceland Birthplace of Tephrochronology	Plaza Hotel
4:30 pm	Bus departs for Whale Watching Boat Tour	Front Entry
5:00 pm	Whale Watching Boat Tour	Port
8:00 am	Dinner	On your own

Dr. Nelia Dunbar

With a background in geochemistry, Dr. Nelia Dunbar recently retired as the director of the New Mexico Bureau of Geology and Mineral Resources, where she now holds emeritus status.

She completed a B.A. summa cum laude, in geology at Mount Holyoke College (1983) and then went on to a Ph.D. in geochemistry at New Mexico Tech (1989).

Dunbar has worked for the Bureau since 1992, focusing on geochemistry of volcanic rocks, particularly volcanic ashes and other explosive eruptions, mainly in New Mexico and Antarctica. She also received funding from NSF for an electron microprobe in 1996, which she managed until 2016.



Her professional interests include research on a wide range of topics broadly focused on volcanic and igneous processes, in New Mexico and elsewhere. These include studies of volcanic eruption processes, geochemical evolution of magmas, chronology and chemistry of volcanic ashes, fluid migration within magmas and geochemical alteration caused by fluids that interact with volcanic rocks. Dunbar has also spent 23 field seasons in Antarctica, working on NSF-funded projects, all related to Antarctic volcanism, and interactions between volcanism, ice, and climate. In addition to New Mexico and Antarctica, she has worked in Tibet, Peru, Ethiopia, Bolivia, Ecuador, all on projects related to volcanism. Dunbar is an adjunct faculty member at the department of Earth and Environmental Sciences, taught graduate classes on electron microprobe analysis, advised graduate students and served on student committees, and is involved in outreach activities for New Mexico teachers and students. She recently received honorary membership in, and a distinguished service award from, the Association of American State Geologists (AASG), is a GSA Fellow, received the New Mexico Tech Distinguished Research Award in 2021, and is a member of Phi Beta Kappa and Sigma Xi.

Saturday Aug 3, 2024

Vik Tour



6:30 am	Bring luggage to lobby	Front Entry
7:00 am	Breakfast	TBD
8:15 am	Bus departs for LAVA Centre	Front Entry
10:00 am	LAVA Centre Tour	Drive to LAVA Centre
11:15 am	Bus Departs for Skógafoss	TBD
12:00 pm	Explore Skógafoss Waterfall	Drive to Skógafoss
12:45 pm	Group lunch	Hotel Skógafoss
2:00 pm	Bus departs for Hálsanefshellir Cave	TBD
2:45 pm	Explore Hálsanefshellir Cave	Hálsanefshellir Cave
3:15 pm	Bus departs for Dyrhólaey	TBD
3:45 pm	Explore Dyrhólaey	Dyrhólaey
6:00 pm	Group dinner	Hotel Dyrhólaey
7:30 pm	Bus departs Hveragerdi	TBD
9:30 pm	Check into Hotel	Greenhouse Hotel



Sunday Aug 4, 2024

Golden Circle Tour



7:30 am – 8:15 am	Breakfast	TBD
8:15 am – 8:20 am	Bus departs for Thingvellir National Park	Front Entry
9:00 am	Tour Thingvellir National Park	Thingvellir National Park
11:00 am	Bus departs to Laugarvatn	TBD
11:30 am	Tour Laugarvatn & Geysir	Laugarvatn
12:30 pm	Bus departs for Gullfoss Falls	TBD
1:30 pm	Group lunch	TBD
2:30 pm	Explore Gullfoss Waterfall	Gullfoss Waterfall
4:30 pm	Bus departs for Friðheimar	TBD
5:00 pm	Explore Friðheimar	Friðheimar
6:30 pm	Group dinner	Friðheimar

Fred Phillips

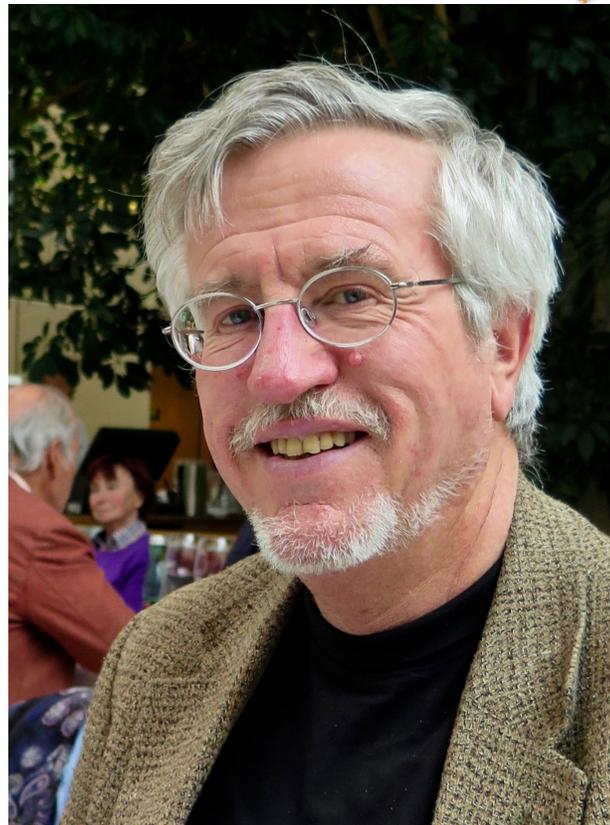
Fred M. Phillips is Professor Emeritus of Hydrology in the Earth & Environmental Science Department at New Mexico Tech. He received undergraduate degrees in History and Earth Science from the University of California at Santa Cruz. He obtained M.S. and Ph.D. degrees in Hydrology from the University of Arizona. He has been on the faculty of New Mexico Tech since 1981. He is the lead author of "Reining in the Rio Grande: Land, Water, and People," an environmental history of the Rio Grande in New Mexico.

Synopsis of Talk

Iceland is the only European country that had its origin at a known point in time. It was discovered about 870 AD by Viking sailors blown off course. There were no indigenous inhabitants and it was settled by families from Scandinavia acting on their own. There was no imposed authority and they had the opportunity to establish their own society as they saw fit. The result was startling. For three hundred years they existed on an isolated, icy, windswept island as the only democracy in the European cultural sphere.

They also had the opportunity to write down their own history and the sagas are the result of that self-reflection. They fall into two categories: the *Elder Edda*, a collection of ancient mythological verse, and the prose sagas, which are mostly semi-historical accounts of the settlement of Iceland and events during its first three hundred years. What do these tales tell us about ancient Icelandic society? What were their preoccupations and what were their values? I will make a brief attempt to answer these questions.

We will examine two of these documents. The first is the *Saga of the Völsungs*, the tale of Sigurd, the greatest warrior of the ancient, semi-mythological world of the Norse, his exploits, his battles, his loves, and ultimately, his tragic death. It is written in alliterative heroic couplets. The second is *The Burning of Njal*, the greatest law-giver of historical Iceland, a man who eschewed violence but was nevertheless burned to death in his own house, along with his entire family, by a vengeful mob. This tale is written in spare, terse prose. Together, they provide a window into the cultural foundations upon which the ancient Icelanders built and the society they constructed on those foundations.



Monday Aug 5, 2024

Hekla-Landmannalaugar Tour

7:30 am – 8:15 am	Breakfast	TBD
8:15 am – 8:20 am	Bus departs for Landmannalegar	Front Entry
10:00 am	Explore Landmannalegar -Take a dip in a geothermal pool	Landmannalegar
12:30 pm	Group lunch	TBD
2:00 pm	Bus departs for Hekla	TBD
3:00 pm	Explore Hekla	Hekla
4:00 pm	Bus departs for Sigöldugljúfur	TBD
4:30 pm	Explore Sigöldugljúfur	Sigöldugljúfur
5:30 pm	Bus departs for Frostastaðavatn	TBD
6:00 pm	Explore Frostastadavatn and Strútur Mini Volcano	Frostastaðavatn
7:00 pm	Dinner	On your own
8:30 pm	Bus departs for hotel	TBD



Bill McIntosh

Bill McIntosh is a retired geochronologist, volcanologist, and educator. From 1991 through 2017, he had a split position with the New Mexico Bureau of Geology and the Department of Earth and Environmental Sciences at New Mexico Tech. Together with Matt Heizler and others, McIntosh obtained funding and set up the New Mexico Geochronology Research Laboratory, which began operations in 1992 and is still thriving.



McIntosh's research and teaching both centered around geochronology and volcanoes.

Two major research focuses were the history of supervolcano volcanism, particularly in the southwestern US, and using the record of volcano-ice interactions in Antarctica to estimate elevation of past ice sheets.

His research brought him to Antarctica for 32 field seasons since 1977, and he plans to return this November to complete a project on Mt. Waesche, a remote volcano in West Antarctica. He will work with a team to drill through the ice sheet and obtain samples from the flank of the volcano to assess formerly lower ice levels caused by an ice sheet collapse 120,000 years ago. Other research projects include using argon geochronology to determine timing of cave formation.

McIntosh's teaching work provided courses and seminars in geochronology and volcanism, and he served as primary advisor or committee member for numerous MS and PhD students at New Mexico Tech and UNM. In his role as co-director of the New Mexico Geochronology Research Laboratory, McIntosh made it a priority to make high quality $^{40}\text{Ar}/^{39}\text{Ar}$ geochronology available and affordable to students from other universities, particularly those working on geological projects in southwestern USA and Antarctica.

Tuesday Aug 6, 2024

Wednesday Island of Heimaey



7:00 am – 7:45 am	Breakfast	TBD
7:45 am	Bus departs to ferry	Port
8:15 am	Heimaey Island free time	Heimaey Island
5:00 pm	Ferry departs to Hveragerði	Port
7:00 pm	Dinner	On your own
8:30 pm	Fred Phillips Lecture Icelandic History and Sagas	TBD



Wednesday Aug 7, 2024

Travel Day & Power Plant

7:00 am - 9:00 am	Breakfast	TBD
9:00 am - 9:30 am	Bring luggage down to lobby	Front entry
9:30 am - 12:00 pm	Free time/River Soak	
12:00 pm	Lunch	On your own
1:00 pm	Bus departs for Orka náttúrunnar Geothermal Plant	Front Entry
2:30 pm	Orka Geothermal Exhibition Tour	Orka náttúrunnar Geothermal Plant
4:00 pm	Bus departs for hotel	Bus Departs for Hotel
6:00 pm	Dinner	On your own
8:30 pm	William McIntosh Lecture - Volcano-Ice Interactions Alexander Gysi Lecture - Icelandic Geothermal Energy: A source of Renewable Energy	Plaza Hotel

ORKA NÁTTÚRUNNAR POWER PLANT

The power plant offers educational tours and presentations about sustainable energy as part of its Geothermal Energy Exhibition.

This geothermal plant is only a short drive away from the Hengill geothermal area. It is located in Nesjavellir which is a natural geothermal area near the Hengill volcano. Serving the Greater Reykjavík Area, this power plant is all about sustainability. The geothermal energy generated from this power station is used to provide homes in Iceland with hot water in the most sustainable manner. While you are there, you may also notice how different the warm shower may smell. The Nesjavellir geothermal power station is located in the southwestern part of Iceland. Situated in the Hengill area, this power station sits on an active volcanic ridge.



Thursday Aug 8, 2024

Free Day or Host Tours

Vaugh Property



7:00 am

Breakfast
Free day or Host Tours

Breakfast Area
TBD

5:00 pm

Cocktail hour

Jørgensen Kitchen & Bar

6:00 pm

Group Farewell Dinner

Jørgensen Kitchen & Bar



Friday Aug 9, 2024

Departure Day

7:00 am – 8:00 am

Breakfast

TBD

8:00 am

Airport departure times will be sent via WhatsApp

THANK YOU!





SAVE THE DATE



October 16 -20, 2024

For more information contact Sandi Lucero at sandi.lucero@nmt.edu or 575-835-5618



Alumni Receptions and Events 2024

August

San Jose, CA – August 15
Corrales, NM – August 17
Palisade, CO – August 24
Washington, D.C. – TBD
Maryland – TBD

September

Ridgecrest, CA – September 7
The Dan López President's Golf Tournament – September 12-13
SPE-New Orleans, LA – September 23
Midland, TX – September 26

October

Boise, ID – TBD
49ers Socorro, NM – October 16-20

November - TBA

Austin, TX
San Antonio, TX

December - TBA

Christmas on the Pecos, NM

Raft the Grand Canyon!
June 15-June 21, 2025

QR Code For More Information

Guide: Mike Timmons (Director and State Geologist, Bureau of Geology)

Join experienced river guide, geologist, and Grand Canyon enthusiast Mike Timmons for an unforgettable journey in deep time as we explore the geology, biology, and history of the Grand Canyon. Experience the Colorado River through a world-class whitewater adventure and explore amazing side canyons, streams, and waterfalls. Each night camping along the river brings new wonders through a star-studded night sky flanked by canyon walls. Enjoy delicious food and make new friends on this memorable journey. NMT participants may choose to drive to Marble Canyon, Arizona, or fly to Las Vegas, Nevada, before the trip. Additional fees may be incurred depending on your starting point for the trip.

What's Included?

- An active adventure – be prepared for the physical nature of the trip
- 187 river miles on our motorized rafts
- Helicopter ride from Whitmore Wash to Bar 10 Ranch on Day 7
- Return flight to Las Vegas or Marble Canyon
- Experienced river guides
- Side hikes to scenic vistas, hidden waterfalls, and more
- Two dry bags and a camp chair
- A tent, cot, pillow, sleeping bag, and sheet
- Daily meals prepared in our camp kitchen
- Snacks, water, electrolyte replenishment drinks, sodas
- Arizona River Runners insulated cup

2025 Motor Trip
Cost per person **\$3,775**

QR Code Make Reservations

NEW MEXICO TECH
SCIENCE • ENGINEERING • RESEARCH UNIVERSITY

SAVE THE DATES
Vistas and Volcanoes Alumni Trip - San Pedro de Atacama, Northern Chile

Led by: *Dr. William X. Chavez, Jr. (Class of 1977)*
Professor of Geological Engineering and Economic Geologist

January 25 – February 2, 2025

Sample Itinerary below:
Cost: \$2,300-\$2,500 per person
This trip will be limited to 14 people.

Jan 25:
Assemble at CJC Calama airport, northern Chile; Sprinter minibus transport to San Pedro de Atacama. Evening Reception with Safety & Logistics Meeting

Jan 26:
Breakfast included. Morning field trip to Valle de Arcoiris; evening Star Party

Jan 27:
Afternoon Valle de la Luna (hiking at various stops)

Jan 28:
Lagunas Altiplanicas: Miscanti and Miniques (short hike, photography) and afternoon Laguna Chaxa (photography, flamingos, short hike). Lunch included.

Jan 29:
Very early start to Geisers del Tatio; breakfast included

Jan 30:
Morning Vallecito. Breakfast included

Jan 31:
Lagunas Andinas and Monjes de la Pacana. Breakfast and lunch included.

Feb 1:
Free Day; Farewell Dinner/lunch included.

Feb 2:
Departure day - morning transfer to CJC Calama airport

Questions? Please contact Sandi Lucero at sandi.lucero@nmt.edu or 575-835-5618

Alumni and Friends
Vistas and Volcanoes

NEW MEXICO TECH
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The Bright Star Scholars Program

The Bright Star Scholars Program provides NMT students with valuable real-world experience through employment at the Bureau of Geology and mentorship by Bureau scientists and staff. Bright Star Scholars participate in a range of research and career development projects. To date, support from NMT alumni has funded eleven Bright Star students. Last year's Bright Star Scholars studied carbonatites in the Lemitar Mountains, investigated the geochemistry of water in Crownpoint and Alamo, and mapped the structure of the San Marcial Basin.

About Me

I grew up in a small town in New Mexico and for as long as I can remember, I've wanted to follow in my grandfather's footsteps and become a geologist. During my time at NMT, I have been fortunate enough to have undergraduate research opportunities that further solidified that geology is the path for me.

Kyle Gallant
CLASS OF 2022
GEOLOGY



Why I Chose NMT

During my junior year a recruiter from NMT visited my high school; this was the first time I really started to think about where I wanted to go to college. After I learned about the highly regarded reputation of the NMT geology program, I decided if I was going to be a geologist, why not attend the best program in the state?

Why Support for Undergraduate Research is Important

Undergraduate research is essential for giving students like me the opportunity to participate in hands-on work in science and engineering. It can be a thrilling experience to have the chance to explore questions that have never before been answered. Involving students in early research opportunities benefits both the students and science in general.

About My Project

The Bright Star Program has allowed me to study the San Marcial Basin by using variations in earth gravity. The goal of this research was to gain a better understanding of the basin as a whole, as well as to answer questions about structural complexities that existed. Before this study, little was known about the basin, and many questions had never been addressed before.



LEARN MORE ABOUT KYLE



DONATE HERE

Meet The Advancement & Alumni Relations Team



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