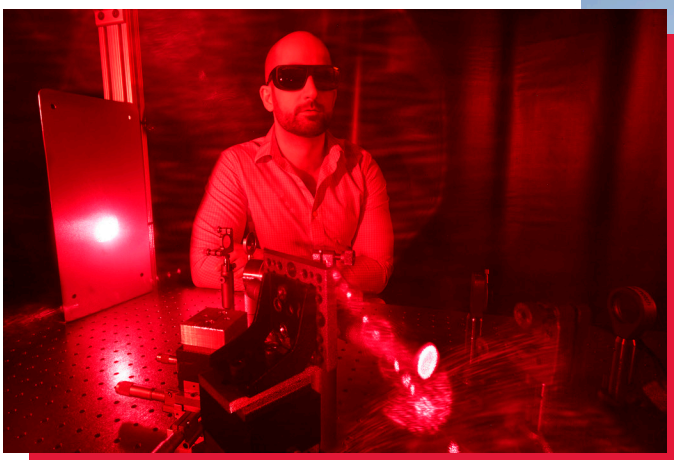
UNLV | COLLEGE OF SCIENCES



SPRING 2020

From the Dean

The COVID-19 crisis brought unprecedented challenges to the university during spring semester. I am proud of how the College of Sciences successfully transitioned 809 lecture and lab sections from in-person to remote instruction in approximately one week.

I also congratulate students on their resiliency as they adapted to remote instruction while simultaneously managing personal hardship. Faculty, staff, and students also have been gracious with their time and expertise and donation of supplies in support of the local public health effort.

We miss seeing everyone on campus and look forward to your return.

Dean Eric Chronister

Help Support College of Sciences Students

With the transition to remote instruction and rapid changes to the employment status of many of our students, supportive funding during this time is absolutely critical. If you are able, please consider supporting the Sciences Excellence & Opportunity Fund. Every gift is appreciated.

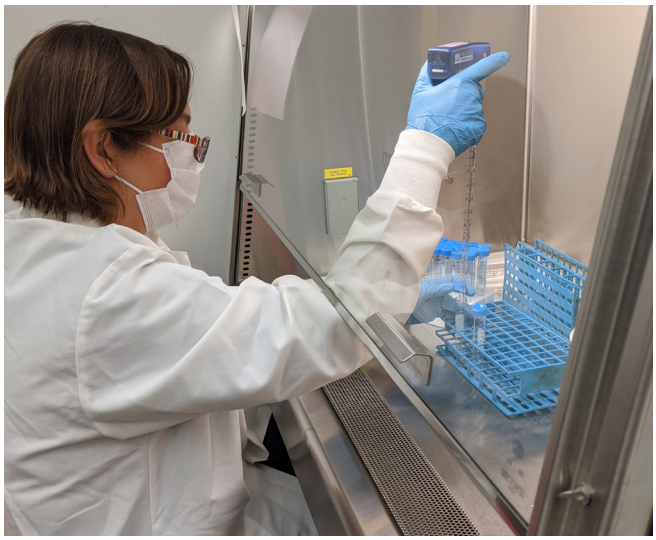
Students whose education has been affected financially by the COVID-19 pandemic will have the opportunity to apply for these funds to help them continue their education. Funds could go towards meals, books and lab supplies, laptop purchases or rentals, or other urgent student needs at this time.

Go to unlv.edu/sciences/support and select Make a Gift.

UNLV Professor Helps Make Key Coronavirus Test Kit Component

LIFE SCIENCES' HELEN WING AND COLLEAGUES ASSISTING SNHD WITH VIRAL TRANSPORT MEDIUM; OTHER FACULTY IN COLLEGE CONTRIBUTE PROTECTIVE EQUIPMENT.

UNLV College of Sciences faculty are stepping up to support the local health care community in its fight against the novel coronavirus pandemic. Throughout the college, faculty and staff are contributing to the cause by donating personal protective equipment from laboratories, and they're using their expertise to create a needed component for test collection kits.



Shoring Up Testing Supplies

UNLV scientists are assisting the Southern Nevada Public Health Laboratory by making viral transport medium – a crucial part of specimen collection kits needed to preserve coronavirus tests for transport from testing locations to processing labs. Life Sciences professor Helen Wing (pictured above) is overseeing the production of the kits, which frees up health officials to focus more time on testing and the overall response.

UNLV alumnus Michael Picker, who received his doctorate in biological sciences in 2018, is a former student of Wing's and current microbiology supervisor at the public health laboratory. He realized that the component was in short supply. He received guidance for creating it from the national Centers for Disease Control and Prevention and reached out to Wing to see if she would be willing to help.

Wing jumped at the opportunity, as did fellow sciences professors Boo Shan Tseng, Eduardo Robleto, Brian Hedlund, and Ernesto Abel-Santos; and lab technicians and students Monika Karney, Holly Martin, Shrikant Bhute, Chandler Hassan, Amber Consul, Lara Turello, Naomi Okada, Isis Roman, and Tatiana Ermi.

Wing and colleagues have already produced more than 2,000 vials of viral transport medium for use, with thousands more in production.

Continued on Page 3

Key Coronavirus Test Kit Component Continued

The public health lab will verify and approve each lot and coordinate distribution throughout Southern Nevada according to need.

This strategy frees up the Southern Nevada Health District and local hospitals to run tests as opposed to diverting resources to make the component.

"On a practical level, this is a chance for our team to use our scientific training and skills in the COVID-19 response, and to put UNLV's research infrastructure and facilities to use to help our beloved Las Vegas community in this time of need," Wing said.

She added, "Since I arrived at UNLV, I have educated and mentored countless numbers of students who have gone on to be doctors or to work in public health labs. This is my tribute to all of them, many of whom are on the front lines right now."

Aude Picard from the School of Lifes Sciences prepares gloves to be donated to Sunrise Hospital.

Donating Crucial Equipment

Faculty throughout the College of Sciences have also donated protective equipment from their labs to the local medical community:

- Simon Jowitt (geoscience) donated surgical and N95 masks to a local hospital in March.
- Boo Shan Tseng (life sciences) donated gloves to the Cystic Fibrosis Center of Southern Nevada and to Sunrise Hospital.
- Aude Picard (life sciences) donated gloves to Sunrise Hospital.
- Pamela Burnley (geoscience) donated face shields, booties and gloves to Sunrise Hospital.
- Ernesto Abel-Santos (chemistry and biochemistry) donated gloves and disinfectants to the UNLV Student Health Center and the Las Vegas Metropolitan Police Department.
- Laurel Raftery (life sciences) donated gloves to the UNLV Student Health Center.
- The College of Sciences dean's office donated 500 masks to the UNLV Student Health Center.
- Systems in the department of physics and astronomy that are idle have been contributing computer processing time to Folding@Home coronavirus simulations.
- Brenda Buck and Rod Metcalf (geoscience) donated protective equipment that included a powered air-purifying respirator, reusable respirators, half mask and full mask protection with numerous particulate filters, full body protective suits, booties, goggles, and N95 and N100 masks.

"Donating was the very least we could do to try and help our community, and especially help our medical colleagues try to protect themselves while dealing with this pandemic," Buck said. "Through other colleagues, I knew what was going on in Italy, and I couldn't imagine having to be a medical practitioner trying to help patients without being able to protect themselves. The exhaustion, the fear, that they have to deal with every day is just unbelievable. The very least we could do was try to give them everything we have to ease that burden even if just by a tiny bit. This was a no-brainer and we donated our materials as soon as we possibly could. I only wish we had even more to give."

Rock Stars

PAIR OF GEOSCIENCE PROFESSORS AT THE FOREFRONT OF UNLV'S CONTRIBUTIONS TO MARS EXPLORATION, BUT PLENTY MORE ACADEMICS ARE INVOVLED IN THE RED PLANET.

When the Mars 2020 mission launches this summer, the rover will travel more than 100 million through space to reach Earth's nearest neighbor. For two UNLV geoscientists, Mars is far more immediate – tangible, even. They're part of a community of researchers at UNLV sharing their expertise with one another and the global scientific community to advance our understanding of the Red Planet.

It's common for travelers to pocket a rock as a memento from their destination. The Mars Perseverence rover isn't far off from its human counterparts in that regard (except it doesn't need a passport or tickets to get there). After it lands on Mars in February 2021, the rover will collect and store rock samples from the 30-mile-wide Jezero Crater for return to Earth on a future mission.

Elisabeth 'Libby' Hausreth, left, and Arya Udry, are both working with NASA to help better understand Mars.

Elisabeth "Libby" Hausrath, an associate professor of geoscience at UNLV, is on the team that will direct the rover's collection efforts. She was chosen by NASA as one of just 10 scientists who will help select and cache Martian rock, soil, and related samples.

"I was so excited when I got the call — I jumped up and down," Hausrath said. "I've been working on Mars data for a long time and have applied several times before. I couldn't believe I had been accepted."

It was another Mars mission, the Mars Rover Exploration mission that launched in 2003, that first expanded Hausrath's research into the interactions between rocks and water beyond our own planet. At the time, she was researching aqueous geochemistry as a doctoral student at Penn State University. When the Opportunity rover sent back evidence of past water on Mars, the data resembled the type Hausrath was collecting on Earth.

She and her advisor co-wrote a proposal that caught NASA's attention. The agency not only funded the rest of Hausrath's doctoral research into water/rock interactions and the implications for the geological history of Mars, but also then welcomed her as a postdoctoral fellow at the Johnson Space Center.

"On Earth, those interactions are important to study for lots of environmental reasons," Hausrath said. "We need clean drinking water, and we depend on the soil for all of our food. In terms of studying Mars, water is essential for terrestrial life. If we look at environments that at one time had liquid water, then they also have the potential for past life."

In fact, that's one of the return sample team's top priorities: to collect rocks that could contain past biosignatures.

"If there was life on Mars, there is evidence that we could see in labs back on Earth," she said. "We also want samples that help us more broadly understand Mars, its past climate, and the internal magmatic processes that formed the planet's igneous rock."

Hausrath had a hand in shaping those very criteria. She served on the Returned Sample Science Board, which provided scientific input into the design and implementation of the Mars 2020 rover mission.

Continued on Page 5

Rock Stars Continued

In preparation for the mission's launch in July or August, the return sample team has run simulations of multiple collection sites.

"We're shown an environment on Earth and we talk about what rocks we see, what potential they have for biosignatures, and where we would sample," she said.

Team members will be on hand in Florida for the launch and then ready to spring into action once the rover starts sending data.

Until those cached rocks return to Earth — they're slated for a 2031 mission — scientists must work with the material they have: Martian meteorites. Arya Udry, an assistant professor of geoscience at UNLV, studies Martian meteorites to better understand the planet's magmatic processes and the evolution of the Martian interior.

As a child growing up in France, Udry dreamed of becoming an astronaut. When people told her she couldn't do that, she turned to geology instead

"At 15, I decided I wanted to work on Martian meteorites," Udry said. "I'd be able to actually touch Mars. (Now) I have pieces of Mars in my office, and I get to study them every day. How much more exciting does it get?"

According to NASA, more than 50,000 meteorites have been found on Earth; 99.8 percent come from asteroids. The remaining 0.2 percent is approximately an even split between Martian and lunar meteorites. Government-funded expeditions and for-profit hunters search for meteorites in deserts ranging from Africa to Antarctica. Udry borrows meteorites from NASA or the Smithsonian or buys them from reputable dealers.

UNLV currently has 24 Martian meteorites.

"What's exciting is that our meteorites likely all come from the same location on Mars," she said. "We don't know exactly where that location is, but we know they come from the same volcanic system, so in this way we can study them as a suite of rocks in the same way you would terrestrial rocks."

Udry analyzes the chemistry and structure of nakhlites and chassignites, two distinct but similar Martian rock types, to better understand their composition and location in the Martian crust. She recently earned a grant that funded a laser ablation system, which allows her to measure elements and isotopes in the meteorites in even smaller concentrations.

Like Hausrath, Udry is eager for data from the Mars 2020 rover, so she can continue her research into the puzzling presence of felsic rocks on Mars. On Earth, these rocks result from tectonic activity, which doesn't occur on Mars.

"One of our big questions is: How similar is Mars to Earth? The more meteorites and rover data we have, the more we can tell how diverse the different types of rocks on both planets may be."

When Udry and Hausrath have a Mars question that extends beyond their respective fields of expertise, they consult with one another and their fellow geoscience colleagues.

"I'm the volcanic rock expert, and Libby is an expert in low-temperature surface processes, so we collaborate," Udry says. "The fact we all study something different about Mars is great. It enables us to study Mars as a whole and better understand the planet."

Original full story published at unlv.edu/news

Other College of Sciences faculty are also contributing to the body of research on the Red Planet.

- **Chris Adcock, assistant research professor of geochemistry, studies phosphate mobility and transport on Mars.**
- **Aude Picard, assistant research professor in life sciences, researches microbial iron sulfide minerals as biosignatures for life on Mars.**
- **Oliver Tschauner, research professor of geoscience, has studied the possibility of water on Mars.**

Diet Makes a Difference in Fight Against Hospital-Acquired Infection

STUDY SHOWS PROMISE FOR ROLE OF A HIGH-CARB, LOW-PROTEIN, AND LOW-FAT DIET IN FIGHTING *C. DIFF* INFECTIONS.

Popular diets low in carbs and high in fat and protein might be good for the waistline, but a new UNLV study shows that just the opposite may help to alleviate the hospital-acquired infection *Clostridioides difficile*.

In a study published in *mSystems*, an open access journal of the American Society for Microbiology, UNLV scientists found that an interaction between antibiotic use and a high-fat/high-protein diet exacerbate *C. diff* infections in mice. Conversely, they found that a high-carbohydrate diet – which was correspondingly low in fat and protein – nearly eliminated symptoms.

Shutterstock

C. diff, an intestinal infection designated as an urgent threat by the U.S. Centers for Disease Control and Prevention, is often acquired when antibiotics have wiped out the "good" bacteria in the gut. Hundreds of thousands of people are diagnosed with *C. diff* infections each year and more than 10,000 die.

"Every day, we are learning more about the human microbiome and its importance in human health," said Brian Hedlund, a UNLV microbiologist and study co-author. "The gut microbiome is strongly affected by diet, but the *C. diff* research community hasn't come to a consensus yet on the effects of diet on its risk or severity. Our study helps address this by testing several diets with very different macronutrient content. That is, the balance of dietary carbohydrate, protein, and fat were very different."

Though studies suggest dietary protein exacerbates *C. diff*, there's little or no existing research exploring the interaction of a high-fat/high-protein diet with the infection. Hedlund and study co-author Ernesto Abel-Santos, a UNLV biochemist, caution that the study was conducted using an animal model, and more work is underway to begin to establish a link between these diets and infections in people.

"Extreme diets are becoming very popular but we do not know the long-term effects on human health and specifically on the health of the human gut flora," Abel-Santos said. "We have to look at humans to see if it correlates."

Recent studies suggest that because antibiotics kill bacterial species indiscriminately, the medications decimate populations of organisms that compete for amino acids, leaving *C. diff* free to propagate.

But Hedlund said the story is even more complex. "It's clear that it's not just a numbers game," he said. The new work suggests that diet may promote microbial groups that can be protective, even after antibiotics. For an infection to flourish, he said, "you might need this combination of wiping out *C. diff* competitors with antibiotics and then a diet that promotes overgrowth and disease."

The new study raised other questions as well. For example: The high-carb diet, which was protective against *C. diff* infection, gave rise to the least diverse community of microbes.

"Lots of papers say that a lower microbial diversity is always a bad thing, but in this case, it had the best disease outcome," said Abel-Santos. However, he cautions that a high-carb diet could lead to animals becoming asymptomatic carriers that can disseminate the infection to susceptible subjects.

The Abel-Santos lab has been working with *C. diff* for 12 years with the goal of developing compounds that could prevent infections from this bacterium. The Hedlund lab has been working with *C. diff* for five years, focusing on the role of diet in infection. This collaboration was supported by a grant from the National Institutes of Health.

Publication Details

"A High-Fat/High-Protein, Atkins-Type Diet Exacerbates *Clostridioides (Clostridium) Difficile* Infection in Mice, Whereas a High-Carbohydrate Diet Protects" appeared Feb. 11 in *mSystems*, a journal of the American Society for Microbiology.

New Study Links Geologic Features of Las Vegas' Frenchman Mountain with Grand Canyon

LAS VEGAS VALLEY ROCK LAYER MATCHES THAT OF A FAMOUS INTERVAL OF ROCKS AT THE GRAND CANYON; FINDINGS REPORTED IN THE JOURNAL *GEOLOGY*.

Rock formations are significant for geologists, and formation names help keep track of time and events in Earth history. A new name – Frenchman Mountain Dolostone – has been added to a key interval of rocks in the Grand Canyon.

Frenchman Mountain is a large mountain on the east side of the Las Vegas Valley. Many locals mistakenly call it Sunrise Mountain (which is actually the name of the lower peak behind nearby Nellis Air Force Base). Even though Frenchman Mountain is 60 miles from the mouth of the Grand Canyon, an important connection exists between these two geologic features, and geologists have now formally linked them together.

In a study published in the May 2020 edition of the journal *Geology*, a team of geologists from several western universities and museums, including a researcher from UNLV, have redefined a famous interval of rocks in the Grand Canyon – the Tonto Group – by adding to it the name Frenchman Mountain Dolostone.

Exposure of the Frenchman Mountain Dolostone at 50-mile Creek in eastern Grand Canyon, with a member of the team of geologists who recently added this formation to the lexicon of Grand Canyon strata. (Photo by Steve Rowland)

Steve Rowland, an emeritus professor of geology at UNLV and a co-author of the paper, and former graduate student Slava Korolev proposed the name Frenchman Mountain Dolostone several years ago. They traced this Cambrian-age layer of rocks from one mountain range to another across the Lake Mead region and deep into the Grand Canyon.

"We've known for a long time that Frenchman Mountain was dragged westward several tens of miles from the Grand Canyon region when this part of North America was pulled apart about 15 million years ago," Rowland said. "So we weren't surprised to discover that our dolostone layer is correlative with part of the Tonto Group. The surprise is that the interval within the Tonto Group where it belongs has never been formally named, so now it has a proper name."

The research paper now redefines the Tonto Group to include layers above and below that were poorly understood. The Sixtymile Formation is added to the bottom and the Frenchman Mountain Dolostone to the top, and it also adds new radiometric dating.

According to Rowland, the new dates have global ramifications because the new age of 508 to 497 million years old for most of the Tonto Group is much younger than previously thought. This indicates that seas flooded North America very quickly in the Cambrian Period. The new Tonto Group dating has also recalibrated the international Cambrian timescale by adding a key location where the time of extinctions and appearances of fossil groups is precisely and accurately dated.

Continued on Page 9

The Outsized Influence of Ocean Temperatures on Central American Climate

Tourists today spend thousands of dollars to explore and enjoy the lush and thriving rainforests of Guatemala.

It's hard to believe the landscape ever looked any different. But according to new research by UNLV climate scientists, the locations where those jungles exist today likely looked very different less than 9,000 years ago – a blink of an eye by geologic standards.

"We often think of ecosystems as being unchangeable — that a tropical rainforest is there, and has always been there," said Matthew Lachniet, professor and chair of the geoscience department at UNLV. "But that's not true. Any ecosystem responds to climate changes."

Matthew Lachniet completes field work underground in Rey Marcos Cave, Guatemala. (Photo Courtesy of Amos Winter, Indiana State University)

In a study published today in the journal *Nature Communications*, Lachniet and colleagues at Indiana State University, the University of Venice, and other institutions examined the rainfall history of Central America over the last 11,000 years. The results provide context for the development of tropical rainforest ecosystems in the region, and long-sought answers to what has been controlling rainfall in Central America for several millennia.

"Our results suggest that the rainforest as we know it today must have responded to those climate changes, and must be less than 9,000 years old in terms of its functioning and its structure, because the region was too dry before then to sustain it," Lachniet said.

Stalagmite specimens gathered from a tourist cave in Cobán, Guatemala, provided this insight and other historical data about the climate history of the region.

Researchers found:

- Solar radiation, or insolation, is widely known to control rainfall amounts in the tropics. Guatemalan cave records, however, tell a different story for the Central American region of the tropics.
- In Central America, rainfall was weak 11,000 years ago, strengthened to modern levels at 9,000 years ago, and showed only a very weak decrease to today, unlike the history of insolation.
- When ice sheets from the last Ice Age melted mostly away — about 9,000 to 7,000 years ago — temperature rose and Central American rainfall responded in turn.
- The Central America rainfall record has the same time evolution as ocean and land temperatures over the last 11,000 years; therefore, ocean surface temperatures were more important than the sun's rays in driving rainfall in the region.

"We found that as the oceans warm up, rainfall increases over Central America," Lachniet said.

The team also found that the rainfall variations over the last 3,000 years, during which time the famed Maya civilization reached its maximum urban development and subsequent collapse, were relatively small compared to the total range of rainfall variation captured by the cave deposits.

Lachniet and collaborators spent several days completing field work underground in Rey Marcos Cave, Guatemala for this research, which is a subterranean wonder of stalactites, stalagmites, and a disappearing river.

According to Lachniet, the next phase of the team's research in the region will continue to examine the impacts of climate on the Maya civilization throughout its history. In previous research, Lachniet and an international team of researchers used stalagmite specimens to link the rise and fall of ancient Mesoamerican civilizations to changing rainfall.

Publication Details

"Initiation of a stable convective hydroclimatic regime in Central America at ~9000 years BP" appeared in the Feb. 5 issue of *Nature Communications*.

Sciences Student Earns National Goldwater Scholarship

For the second straight year, a College of Sciences student has earned the Barry Goldwater Scholarship, the nation's premier undergraduate award in mathematics, natural sciences, and engineering.

Honors College student Alvaro Carbonero is one of just 396 scholarship recipients chosen from a field of competitors nominated by colleges and universities nationwide. The scholarships provide up to $7,500 per year and cover the cost of tuition, fees, books, and other expenses. More than 1,300 college sophomores and juniors from 461 colleges were nominated for the scholarship this year.

"The Goldwater Scholarship is the gold standard for undergraduate research in STEM disciplines," said Andrew Hanson, Dean of the Honors College. "I am extremely proud of Ava and Alvaro and all of their hard work that led to being recognized for the award."

Carbonero is an Honors College senior majoring in mathematics with a 3.94 GPA. He balances his time between classes, researching combinatorics for his Honor thesis, and serving as a mathematics tutor. Last summer, Carbonero completed an eight-week grant-funded research experience on discrete geometry at Lafayette College.

At the age of 18, Carbonero moved from Lima, Peru to Las Vegas to start a new life in the U.S. and to attend UNLV. After graduating in 2021, he plans to pursue a doctoral degree in the field of pure mathematics and intends to become a researcher, educator, and mentor for minority students pursuing careers in academia.

"To me, being recognized by the Goldwater Foundation with this award means that my dream of becoming a world-class mathematician is not that crazy after all," said Carbonero. "If I had to thank one person, it would be my math professor and mentor Dr. Michelle Robinette. Without her, I would be nowhere close to where I am today."

"The success of our undergraduates with the Goldwater awards in recent years is an exciting sign of the increasing significance of undergraduate research at UNLV," said Hanson.

Named for the late U.S. Sen. Barry Goldwater, the federally endowed scholarship program seeks students majoring in natural sciences, mathematics, and engineering who demonstrate a strong commitment to research and great potential for significant contributions to their chosen field.

Original full story published at unlv.edu/news

New Study Links Geologic Features of Las Vegas' Frenchman Mountain with Grand Canyon Continued

"It's a rare privilege to be able to add a new formation name to the geology of the Grand Canyon. That hasn't happened for a long time," Rowland said.

The research team includes investigators from Boise State University, University of New Mexico, Utah State University, UNLV, Denver Museum of Nature and Science, and the Museum of Northern Arizona.

The team of scientists is now looking to new technologies to more precisely date the rock layers, including a meter-by-meter study of how carbon-isotope values changed over time. The team is working to characterize and date layers above and below key fossil layers throughout the succession in the Grand Canyon and all across the western United States.

Rowland says this work will help to refine the precise timing of unconformities and depositional episodes, and test hypotheses about how marine flooding episodes relate to global biologic, tectonic, and ocean/atmosphere changes.

Publication Details

"Redefining the Tonto Group of Grand Canyon and recalibrating the Cambrian time scale" appeared in the May 2020 issue of *Geology*.

Celebrating Outstanding 2020 UNLV Graduates

The Class of 2020 has a story to tell.

In a spring that was abruptly upended by the COVID-19 pandemic, uncertainty dominated daily life for us all – in our work, our health, and certainly our education.

As the university transitioned to remote learning after Spring Break, many weren't sure what to expect. But in true UNLV spirit, faculty and students pulled together to shift quickly – and successfully – to remote instruction.

While there may have been some bumps along the road, the Class of 2020 persevered, balancing the new stresses of daily life on their fight to the finish line. And though Spring 2020 Commencement won't happen as scheduled on May 16, UNLV's newest graduates have plenty to celebrate.

More than 3,100 students will join the ranks of UNLV alumni this spring, each one proving that when faced with adversity, Rebels find a way to make it happen.

The Class of 2020 hails from 36 states and 49 foreign countries, many are the first in their family to graduate from college, and well over half – 63 percent – are from ethnically diverse backgrounds. This year's class ranges in age from 19 to 80, with an average age of 27. Since 1964, UNLV has awarded more than 146,000 degrees.

An enduring UNLV commencement tradition is for the president to honor a select group of outstanding graduates who exemplify the academic, research, and community impact of the graduating class. Though the 2020 Spring Commencement is postponed until a later date, the tradition continues.

This spring's honorees, include future foreign policy experts; scientists seeking solutions to devastating diseases; an accounting major with a national championship under her belt; an artist using her immense talent to counter stigma and discrimination; engineers tackling artificial intelligence and unlocking the potential of humanoid robots; and a public health professional exploring how to help individuals with HIV live healthy lives.

HOLLY ANNE MARTIN

Ph.D. in Biological Sciences

Holly Anne Martin is a teacher, mentor, and community servant, but above all, an advocate for science.

In 2015, Holly returned to UNLV to continue her education after earning a master's degree from the university in 2010, and teaching for three years at Gillette College in Wyoming. She graduates as a Rebel once more this year with a Ph.D. in biology, and an impressive 3.87 GPA.

As a doctoral student at UNLV, Holly's research brought a spotlight to bacterial genetics on campus, and her preliminary work on mutagenesis set a foundation for a new frontier in UNLV professor Eduardo Robleto's lab, one that examines the role of a factor involved in DNA repair in infections caused by Staphylococcus aureus. The microbial pathogen causes 2 million hard-to-treat infections each year in the U.S., and burdens the country's health system with a cost of $65 billion.

Holly's research, therefore, has significant implications for human health.

She's authored eight high-impact research papers on DNA repair and mutagenesis in Bacillus subtilis, a closely related cousin of Staphylococcus aureus. Since 2008, her work has also been recognized through 16 awards and prizes, including the 2019-2020 President's UNLV Foundation Graduate Research Fellowship and the Wolzinger Family Research Scholarship.

In addition to excelling as a scientist, Holly served as the president of the UNLV Student Chapter of the American Society for

Continued on page 12

Awards, Recognition, and Recent Grants

COLLEGE OF SCIENCES AWARDS

Distinguished Classified Staff Award
Rychelle Tomlin, College of Sciences

Distinguished Professional Staff Award
Martha Schumacher, College of Sciences

Distinguished Researcher Award
Balakrishnan Naduvalath, Chemistry and Biochemistry

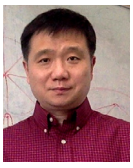
Distinguished Teaching Award
Wanda Taylor, Geoscience

Distinguished Service Award
Helen Wing, Life Sciences

NEVADA SYSTEM OF HIGHER EDUCATION REGENTS AWARDS

Regents' Rising Researcher Award
Ashkan Salamat, Physics and Astronomy

UNLV FACULTY AND STAFF AWARDS



Distinguished Professor Award
Bing Zhang, Physics and Astronomy

Barrick Distinguished Scholar Award
Brian Hedlund, Life Sciences

Barrick Scholar Award
Shichun Huang, Geoscience

Alex G. and Faye Spanos Distinguished Teaching Award
Gabriel Judkins, Geoscience

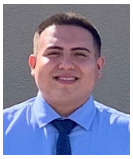
CSUN Faculty Achievement Award
Kathleen Robins, Chemistry and Biochemistry

UNLV Academic Advisor Award (Graduate)
Eduardo Robleto, Life Sciences

UNLV Outsanding New Advisor
Kevin McVay, College of Sciences Advising Center

UNLV STUDENT AWARDS

President's UNLV Foundation Graduate Research Fellowship
Cindy Kha, Life Sciences — Kelly Tseng



UNLV Student Service Award
Francisco Valenzuela, Life Sciences

Lance and Elena Calvert Award for Undergraduate Research
Alex Newsom, Geoscience

UNLV Outstanding STEM Thesis Award
Rachel Rahib, Geoscience — Arya Udry

Continued on Page 12

Awards, Recognition, and Recent Grants Continued

UNLV Outstanding STEM Dissertation Award
Joshua Sackett, Life Sciences; Advisors: Brian Hedlund and Duane Moser

UNLV Outstanding Graduate Student Teaching Award
Bhagya De Silva, Chemistry and Biochemistry — Ron Gary

RECENT GRANTS

Boo Shan Tseng, Life Sciences
Project: "OprF in *Pseudomonas aeruginosa* biofilm formation"
Agency: NIH/NV-INBRE
Amount: $223,000

Cory Rusinek, Chemistry and Biochemistry
Project: "Detection of Clinically Relevant Analytes and Assessment of Oxidative Stress with All-Diamond Microfiber Electrodes"
Agency: NIH/NV-INBRE
Amount: $223,000

Celebrating Outstanding 2020 UNLV Graduates Continued

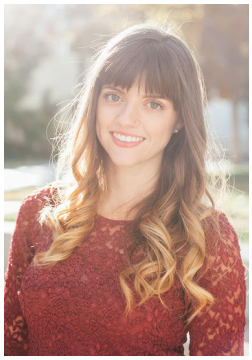
Microbiology in 2017. In this role, she directed community outreach activities to promote the field of microbiology in the Las Vegas community, hosting the club's first-ever career event to expose students to science careers outside of academia.

"I cannot think of any better science advocate for UNLV than Holly," Robleto said. "She has been a proactive member of the institution and a driving force for the College of Sciences. She continues to impact the Las Vegas community through UNLV resources, and continually finds ways to help others."

Even before the world was thrown into a tailspin amid the COVID-19 pandemic, master's student Lara Turello was on the front lines of another health crisis.

LARA TURELLO

M.S. in Biochemistry



After contemplating undergraduate work that focused on microbiology, Turello turned her attention in graduate school to *C. diff*, a pathogen that causes serious hospital-borne illness affecting nearly 500,000 Americans each year.

And she was a pioneer.

Working with Nevada Institute of Personalized Medicine Prof. Ernesto Abel-Santos, Lara focused on working with vegetative bacteria, a new frontier for the lab. She carved her own path – teaching herself how to identify and troubleshoot various aspects, and developing all the techniques she required for her project. Nominators called her work "exciting" and said it's pointing scientists toward "a novel mechanism for antibiotic resistance that we had not envisioned before." In 2017, she was honored by Sen. Jacky Rosen with a Nevada Women in STEM award. She's also a past recipient of the Wolzinger Family Research Scholarship.

What's more, the state-of-the art research techniques she developed for her *C. diff* project have come in handy for her current work with COVID-19.

As stay-at-home orders paralyzed the nation, Lara juggled additional research on her completed *C.diff* experiments while enthusiastically volunteering to help prepare collection tubes for COVID-19 testing kits. Lara, along with other UNLV faculty and students, are currently preparing over 5,000 tubes per week to send to the Southern Nevada Health District.

That's not all: Lara has also volunteered to train University Medical Center personnel in the use of robotic pipetting to increase the output of COVID-19 testing.

It's no wonder that Lara, who graduated this spring with a master's degree in biochemistry, is doing so with a perfect 4.0 GPA.

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