National Geographic exhibit features work of University’s Zeb Hogan, star of Nat Geo WILD’s Monster Fish

Zeb Hogan mixes science, adventure and exploration in his quest to find, study and protect the world’s largest freshwater fish. A new National Geographic Museum exhibition, Monster Fish: In Search of the Last River Giants, features his work.

Hogan is an ecologist and has been a research assistant professor at the University of Nevada, Reno since 2006. He chronicles his travels as host of the Nat Geo WILD television show Monster Fish.

The University is an educational partner with National Geographic in the exhibition that opened March 26 at National Geographic’s Washington, D.C. headquarters and runs through Oct. 12.

“This fascinating exhibition is like a trip around the world with one of Nat Geo’s favorite explorers in search of bizarre and extraordinary species of freshwater fish,” said National Geographic’s Vice President of Exhibitions Kathryn Keane. “Zeb Hogan shows us that despite their size, these fish are an increasingly fragile link in some of the most important freshwater ecosystems on Earth.”

Hogan is also a National Geographic Fellow and faculty member in the College of Science’s biology department. In his travels he finds the world’s largest freshwater fish—megafish like six-foot trout in Mongolia, rare spear-tooth freshwater sharks, huge wolf fish and electric eels or 14-foot-long stingrays in Thailand. Nearly 20 of the fish he studies and profiles on the show will be featured in the 6,000-square-foot interactive exhibition.

“The University’s College of Science values scientific curiosity, discovery and ambition, and we encourage our students to see themselves as global citizens and our faculty to contribute solutions with global impact. Our educational partnership with National Geographic for this exhibit is an ideal fit with these values,” Jeff Thompson, dean of the College of Science, said. “This endeavor will inspire young people to pursue interests, degrees and careers in the environmental sciences and contribute to a better understanding of the fragile health of fresh-water ecosystems around the world.”

The exhibition will travel over the next five years to other museums around the United States. It aims to educate visitors through the use of photos, videos, animations, interactive exercises, sculpture and text.

“After spending the last 20 years studying these elusive fish, I’m gratified to see that they are now the subject of a large-scale museum exhibition,” Hogan said. “It’s my hope that this exhibition will reach millions of people and increase awareness and appreciation for these often misunderstood and, in many cases,
imperiled giants of the deep.”

With five impressive life-size sculptures (some as long as 20 feet), adrenaline-pumping video installations and hands-on learning exercises, Monster Fish is designed to appeal to a wide audience—from children and families to environmentalists and fishing enthusiasts. A gallery of aquariums with live fish will showcase healthy freshwater ecosystems from around the world.

“These are incredibly rare animals that most people would never have a chance to see or appreciate. This exhibit is a window into an underwater world that few of us have ever experienced,” Hogan said. “These animals can grow to over 20 feet in length, some living more than 100 years, and many are on the edge of extinction. The exhibition is the culmination of years of work by many people.”

As part of the exhibition opening, Hogan shared behind-the-scenes adventures and real “fish stories” in a National Geographic Live event the evening of March 26 and in a special student matinee that morning.

“Science is not our only tool for protecting these fish,” he said. “Education and outreach are crucial too, because in many places I visit, endangered species conservation is a brand new concept that must be introduced and made relevant.”

Hogan, who has a doctorate in ecology, has worked with nearly 100 scientists on the Monster Fish project, which spans six continents (all but Antarctica) and encompasses several of Earth’s most diverse freshwater ecosystems including World Heritage Sites, Ramsar Wetlands of International Importance and United Nations Environment Program Biodiversity Hotspots.

–Mike Wolterbeek ’02

LOOK ONLINE
To view videos of the exhibit visit: www.unr.edu/science/zeb-hogan

LEFT: Zeb Hogan, research assistant professor in the University’s College of Science, travels the globe studying and protecting the world’s largest freshwater fish. BOTTOM: Artists and sculptors prepare for the new National Geographic Museum exhibition. This big fish, the arapaima gigas, is one of the largest fish in South America.

Eric Rasmussen verifies first folios of Shakespeare

“It was a trip of misery to myth,” recounted Eric Rasmussen, Foundation Professor, chair of the University’s English Department and one of the world’s foremost experts on Shakespeare. His initial hesitancy to visit Saint-Omer, France, was overshadowed by the resulting worldwide media attention and excitement surrounding the discovery of a 17th century first folio of William Shakespeare.

“I received a call from a Saint-Omer librarian a week before I traveled to London for a meeting to plan the British Library exhibit around the 400th anniversary of Shakespeare’s death,” Rasmussen explained. “I didn’t want to leave London; most of these calls or inquires amount to nothing, but the Saint-Omer library also has a Gutenberg Bible. It takes someone with enough knowledge and interest to do some research, so I thought I better check it out.”

It was librarians at the public library in northern France, particularly the director of the medieval and early modern collection, Rémy Gordinnier, who took interest in a book with no title page and no marks on the binding. They decided to contact Rasmussen to make the final connection.

“It took almost no time at all to know that I was looking at an original Shakespeare folio.” Before this discovery, it was believed that just 232 of Shakespeare’s 800 first folios still existed.

Rasmussen will now focus on curating the British Library Shakespeare exhibition, which marks the 400th anniversary of Shakespeare’s death in April 2016. It will run from April through September 2016.

He has written and edited 50 scholarly books, the majority of which are about Shakespeare. He weighed in on the recent claims about the 1602 quarto edition of Thomas Kyd’s play, The Spanish Tragedy, which was partially written by Shakespeare, and then moderated a scholarly duel on the authorship of Double Falsehood.

At the University, Rasmussen has garnered numerous grants and fellowships, including the University’s highest award for teaching excellence, the F. Donald Tibbitts Distinguished Teacher Award. He also received the top teaching award for the entire Nevada System of Higher Education, the Regents’ Teaching Award, and was selected last year as a Foundation Professor.

–Natalie Savidge, ’04

Foundation Professor Eric Rasmussen is one of the world’s preeminent experts on Shakespeare’s life, writing and language.
Military Support Alliance pledges $300,000 to new Veteran and Military Center

During a Veterans Day ceremony honoring student, staff and faculty veterans, the Nevada Military Support Alliance presented a $300,000 gift to support the creation of the new Veteran and Military Center on the University campus. Veterans will be able to connect with other veterans in the new center, which will be located on the third level of the William N. Pennington Student Achievement Center, now under construction and scheduled to open in 2016.

“The Nevada Military Support Alliance Veterans and Military Center will be an outstanding place for veterans on our campus,” said Terina Caserto ’04 (counseling and educational psychology), director of the Veteran Services Office at the University. “This gift demonstrates the University’s continued support of our service men and women on campus.”

The University – named for the second year in a row as a top military-friendly school by the Military Advanced Education journal – has seen its veteran support services grow in the last few years. Three years ago, the University received the Veterans Integration to Academic Leadership (VITAL) grant from the Veterans’ Health Administration. The grant provides funding for a mental health clinician on the campus to work with veteran students to improve retention and graduation. The University serves about 500 student veterans with the Post 9/11 GI Bill, and a new VetSMART network provides an outreach program for students, faculty and staff to help them better adapt and succeed in college.

“This is an important gift, as it supports development of our new Veteran and Military Center, and it underscores the appreciation of our community and nation for those who have served,” said University President Marc Johnson.

–Natalie Savidge, ’04

Prepared to push the boundaries of what was once thought impossible

At its Winter Commencement ceremony Dec. 6 at Lawlor Events Center, the University conferred 1,475 degrees and certificates: 1,094 bachelor’s degrees and 381 advanced degrees (master’s and doctoral degrees).

“If there is a message for you to carry away this morning, it’s this: you never know what’s around the corner,” University President Marc Johnson said. “Four years ago we had no idea drones and electric cars would be in the University’s future. Four years from now, who knows?”

“I do know one thing for certain,” Johnson said. “Four years from now, you will be the ones who will be pushing the boundaries of what was once thought impossible.

“Graduates of our University carry with them the unmistakable knowledge that the mistakes of the past don’t have to be repeated; that compassion and humanity and understanding will be carried forward into tomorrow and will define your everyday lives, no matter your profession. Now, you are all prepared to meet the next big challenge. Especially in a world where when opportunity knocks, you’d better be ready to answer.”

–Nicole Shearer ’03

Nearly 1,500 degrees were conferred during the University’s 2014 Winter Commencement.
New partnership to advance brain research

University specialists in the field of neuroscience are working with Renown Health to bring new research capabilities to northern Nevada. The research group, led by Professor of Psychology Michael Webster, has purchased equipment that augments the existing 3T magnetic resonance imaging technology at Renown Health for studies of human brain function.

A standard MRI scan can produce anatomical images which reveal the physical structure of the brain. The new equipment will allow the same technology to be used to measure patterns of neural activity in the brain, and is known as functional MRI (fMRI).

“fMRI can be used to measure which parts of the brain are activated when we look at a picture or try to remember an event,” Webster said. “fMRI has revolutionized the field of neuroscience and has led to many new discoveries about how the brain works and how it is affected by injury or disease. However, until now, this technology has not been available in northern Nevada.”

The new equipment was purchased through the University’s Center for Integrative Neuroscience with part of a $10 million competitive National Institutes of Health grant and is based at Renown Regional Medical Center in Reno. The grant was awarded to Webster and his team in 2012 to establish a Center of Biomedical Research and Excellence and to further enhance neuroscience research on campus. By joining forces with Renown’s existing MRI facility, the University can now mount fMRI research for a fraction of the cost required to build a facility from scratch.

The fMRI facility was key in recruiting Fang Jiang as a new assistant professor in the Brain and Cognitive Science group within the University’s Department of Psychology. Jiang uses fMRI to study individuals with vision or hearing impairments to understand how the brain compensates for the loss of a sense. She comes to the University with a prestigious grant award from the National Institutes of Health that supports rising research stars.

The partnership is representative of a new era of collaboration between the University and Renown Health, which recently formalized an affiliation agreement with a number of initiatives, including a joint Chair of Pediatrics.

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“The installment of this equipment also complements recent initiatives in neuroscience education at the University,” said Executive Vice President and Provost Kevin Carman. “The University has a rapidly expanding interdisciplinary undergraduate degree program in neuroscience—with more than 300 students currently majoring in the degree—and a new interdisciplinary Ph.D. program in neuroscience.”

—Natalie Savidge, ’04

Peavine Hall takes shape

Last fall, more than 230 prospective students took time from their campus tour to sign the last beam before it was lifted into place, completing the steel infrastructure of Peavine Hall. The traditional “topping off” ceremony marked an important construction milestone for the University’s new residence hall scheduled to open in August 2015.

“We wanted to make prospective students feel welcome before they’re even students of the University,” Associate Vice President and Dean of Students Jerry Marczynski said.

Construction of the five-story residence hall on Sierra Street responds both to the University’s growing enrollment as well as the growing demand for on-campus housing, especially for incoming freshmen. Peavine Hall will be home to nearly 400 students in two- and four-person rooms.
Antarctic ice shelf and sea interface temperatures recorded for first time

For the first time, scientists have continuously recorded temperatures at the bottom of an Antarctic ice shelf where warmer sea water threatens to erode the massive ice which, if it collapses and glacial melting occurs, could cause a three-meter rise in ocean levels around the world.

“This is the first time we can see the changes in the melting of these enormous ice shelves daily and at millimeter accuracy,” said Scott Tyler, Foundation Professor of geosciences in the geography department and a hydrologist in the University’s College of Science. “This is critical for detecting the changes that may be occurring due to climate change.”

Tyler and his research team dropped a 3/4-mile-long fiber optic cable through the Ross Ice Shelf and into the frigid sea waters below. The armored cable, when combined with a laser, acts as a thermometer. It recorded temperatures every meter along its length every two to four hours, continuously for 14 months. The change in temperature at the sea and ice interface indicates the thickness of the icepack as warm wind-driven waters eat away at the bottom of the ice shelf.

“The ice shelves serve as the ‘corks’ holding the large glaciers of west Antarctica from sliding into the ocean and raising the sea level,” he said.

After nearly three years of preparation, implementation and data gathering from one of the harshest environments on earth, Tyler is pleased with the data gathered from the fiber optic cable that is encased in 200 meters of sea ice and hanging 600 meters to the bottom of the ocean.

“The system can give the world relevant data on sea and ice temperatures for tracking climate change and its effect on the glacial ice surrounding the continent,” Tyler said. “We do show warming of the shelf seasonally, but it is only the first year of data. It will probably take a few years to get a more continuous picture and we are proposing to expand our monitoring network to do just that.”

—Mike Wolterbeek ’02

Emma Sepúlveda receives White House appointment to national board

President Barack Obama has appointed Emma Sepúlveda Pulvirenti ’76 (Spanish), ’78 M.A., Foundation Professor in Foreign Language and Literature and director of the Latino Research Center, to the 12-member J. William Fulbright Foreign Scholarship Board, which selects students, scholars, teachers and others from the United States and abroad to participate in Fulbright exchanges, an international educational exchange program for grantees to study, teach or conduct research.

“It’s a wonderful honor to be nominated to the Fulbright Commission by President Obama,” Sepúlveda said. “I am grateful to be among so many great leaders and take this appointment seriously; the Fulbright Program is one near and dear to my heart.”

Sepúlveda has been a Foundation Professor at the University since 2004, and will continue in this role as she fulfills her duties with the Fulbright Board. She is a two-time winner of the International Latino Book Award and the author of more than 25 books, including works of poetry, fiction, non-fiction, photography, literary criticism and textbooks. Sepúlveda received a bachelor’s and master’s degree in Latin American Literature from the University and a doctorate from the University of California, Davis.

—Natalie Savidge, ’04
University joins national UTeach expansion

The University is one of five research institutions selected to join a national network of universities in the expansion of the UTeach science, technology, engineering and math teacher preparation program.

A National Math and Science Initiative, UTeach recruits college students studying STEM subjects into secondary teaching careers. It enables them to receive both degrees in their majors and teaching certifications without additional time or cost, preparing them with a field-intensive curriculum, and promoting retention through induction support and ongoing professional development.

“UTeach is a best practice for meeting this critical shortage and has been highly successful at increasing math and science education graduates at universities in 16 states throughout the United States,” said Kenneth Coll, dean of the University’s College of Education. “As the first to implement this model in our region, we will specifically and collaboratively work with Nevada school districts in identifying and encouraging their graduates to pursue careers in secondary education.”

The University’s UTeach program will be called NevadaTeach and will involve the colleges of education, engineering and science.

The UTeach Expansion Program was created in 2007 in partnership with the UTeach Institute at the University of Texas at Austin to address the pressing need for a greater number of highly qualified STEM teachers. Universities were selected to participate in the program through a competitive process, and eligibility was limited to schools classified by the Carnegie Foundation for the Advancement of Teaching as having “high” or “very high” research activity.

The national program expansion was made possible by a $22.5 million grant from the Howard Hughes Medical Institute. Each university will receive $1.45 million during a five-year grant period to support implementation costs of the program.

–Nicole Shearer ’03

University News

LOOK ONLINE
For more information about UTeach visit uteach-institute.org

The National Math and Science Initiative selected the University to join 43 universities as part of an expansion of its science, technology, engineering and math teacher preparation program.

University joins national UTeach expansion

KRISTIN KRAMER, civil engineering major, was a project manager and member of the women’s endurance team for the University’s 2014 national champion concrete canoe team. Teams competed for the highest score, a composite of three races, canoe aesthetics, a technical paper and an oral presentation. Kramer was part of the two-person University team that won the oral presentation. Later in 2014, Kramer and fellow engineering students were selected as grand-prize winners of the American Society of Civil Engineers Student Chapter Music Video Contest. Kramer starred in the video parody of Taylor Swift’s song “Shake It Off” that shows how engineers use the University’s renowned Earthquake Engineering Lab to design safer bridges and buildings. Kramer recently took the helm as the University’s ASCE Student Chapter President.

JUAN LOPEZ, Reynolds School of Journalism alumnus and current MBA student, brought the 2015 TEDxUniversityofNevada audience to its feet with the story of his personal challenges with stuttering. He presented his experience as a metaphor, encouraging everyone to find and accept “their stutter.” Lopez joined the TEDx cast of speakers after winning the Nevada Student Speaker Competition. A “pay-it-forward kind-of-man,” Lopez has a knack for helping people overcome excuses and barriers. As an undergraduate student, Lopez won the Henry Albert Senior Public Service Award and was the managing editor and editor-in-chief for The Nevada Sagebrush, a reading and math tutor, an online media manager for a local realty company and marketing coordinator for a health and fitness center. He now runs his own online marketing business, serves as national director of planning and marketing for Nu Alpha Kappa Fraternity, Inc., and is a National Physique Committee competitor.

MARGARITA “MAGGIE” SALAS CRESPO, a senior anthropology major from Las Vegas, was invited by the Mexican government in October 2014 as part of a group of 42 “Dreamers” who traveled to Mexico City for a cultural and educational program organized by the Mexican Embassy and Mexico’s Ministry of Foreign Affairs. The young people selected engaged in conversations about the importance of the bi-national relationship between Mexico and the United States. Crespo was brought to the United States by her parents when she was 10. She is a member of the University’s Latino Student Advisory Board and a 2015 scholarship recipient recognized by the United States Hispanic Leadership Institute.
Engineering students shine at Disney

Three engineering students from Nevada made it to the finals of the Walt Disney Imaginations Design Competition where they spent one week in January in a competition with five other finalist universities at the Walt Disney Imagineering headquarters in Glendale, Calif.

“I wondered if going backstage was going to ruin the magic,” team member Gabbi Bachand said. “Was it going to change how I felt about the company? Was I going to see something I wish I hadn’t? And the answer to all of these was a resounding ‘no.’ Disney is as magical backstage as it is in the parks, and I hold even more respect and admiration for the company knowing how effectively they operate.”

The Imagineers were intrigued with the project presented by the student team of Bachand, Andrew McNeilly and Nolan Nicholson.

“The Nevada team put a lot of work into preparing for this visit, and it’s been fun to see the excitement on their faces as the work pays off in a week of surprises,” said Jonathan Friday, Walt Disney Imagineering associate creative producer. “Nolan, Gabrielle and Andrew have risen to the challenge with fresh perspective and enthusiasm.”

For this year’s Imaginations design competition, students were given the challenge to take what Disney does best and apply it to transportation within a major city. The Nevada team created a hypothetical Disney transportation experience based in Chicago’s subway system. As finalists, the three earned internship interviews and were subsequently awarded internships to work with Walt Disney Imagineering Research and Development this summer. Guests would be able to “travel” into classic literature plots including a sci-fi space mission, a far-away jungle expedition, a deep ocean dive and a historic Chicago adventure with corresponding themed destinations within the downtown area.

–Mike Wolterbeek ’02

Hiding in plain sight: GPS may detect elusive dark matter

The everyday use of a GPS device might be to find your way around town or even navigate a hiking trail, but the GPS might be a tool in directly detecting and measuring dark matter, so far an elusive but ubiquitous form of matter responsible for the formation of galaxies.

Andrei Derevianko, a College of Science professor who teaches quantum physics, and his colleague Maxim Pospelov of the University of Victoria and the Perimeter Institute for Theoretical Physics in Canada, have proposed a method for a dark-matter search with GPS satellites and other atomic clock networks that compares times from the clocks and looks for discrepancies. Their paper on the topic was published in the peer-reviewed scientific journal Nature Physics.

“Despite solid observational evidence for the existence of dark matter, its nature remains a mystery,” Derevianko said. “Some research programs in particle physics assume that dark matter is composed of heavy-particle-like matter. This assumption may not hold true and significant interest exists for alternatives.”

Only five percent of mass and energy in the universe in the form of ordinary matter can be explained. There is evidence that dark energy is about 68 percent of the mystery mass and energy. The remaining 27 percent is generally acknowledged to be dark matter, even though it is not visible and eludes direct detection and measurement.

“Our research pursues the idea that dark matter may be organized as a large gas-like collection of topological defects or energy cracks,” Derevianko said. “We propose to detect the defects, the dark matter, as they sweep through us with a network of sensitive atomic clocks. The idea is, where the clocks go out of synchronization, we would know that dark matter, the topological defect, has passed by. In fact, we envision using the GPS constellation as the largest human-built dark-matter detector.”

–Mike Wolterbeek ’02
Rave reviews for 2015 TEDxUniversityofNevada

Twenty passionate speakers took the stage Jan. 23 as part of this year’s TEDxUniversityofNevada. The independent TEDx event, hosted by The College of Business Online Executive MBA, boasted six published authors and two recording artists.

“Each person who took the stage offered incredibly personal insight creating a definitive mood and sentiment with our audience,” said Bret Simmons, associate professor in The College of Business and TEDxUniversityofNevada event organizer.

“That’s one of the elements that’s so great about this type of event. A speaker’s passion is transparent, and passionate speakers, regardless of the topic, resonate not only with the event-day audience but also with online viewers once the videos are posted.”

–Nicole Shearer ’03

3D scans of Ichthyosaur fossils created with Smithsonian

Professor Paula Noble and undergraduate geology and geological engineering student Paige dePolo are part of an ongoing research collaboration with the Smithsonian Institution’s Museum of Natural History to scan Nevada’s state fossils. Their work, using terrestrial LiDAR, Artec 3D light scanners and photogrammetry technology, will contribute to an upcoming Smithsonian exhibit in Washington, D.C.

Last year, Noble and dePolo assisted the Smithsonian team at the Berlin Ichthyosaur State Park near Gabbs, Nev., where nine adult Ichthyosaur specimens are preserved in the rock within the quarry.

Since that initial trip, and in conjunction with the Desert Research Institute and the University’s Nevada Seismological Laboratory, Noble and dePolo have returned to the park to scan the quarry using terrestrial LiDAR. They also traveled to the Nevada State Museum in Las Vegas with Smithsonian Ichthyosaur expert Neil Kelley to do smaller-scale photogrammetry and hand-held 3D scanning of the fossils in a controlled environment.

Photogrammetry takes a series of high-resolution pictures at different angles, which can be stitched together.

–Annie Conway, Class of 2015

LOOK ONLINE
Visit tedxuniversityofnevada.org to view the talks.