



TEXAS TECH UNIVERSITY

# Advisory

## FOR IMMEDIATE RELEASE

DATE: June 2, 2016

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### **Museum Hosting Exhibit Highlighting ‘Can-do’ American Spirit**

ReTooled is a collection of artwork highlighting the many facets of common tools.

**WHAT:** ReTooled, a traveling exhibit from [International Arts & Artists](#), is on display at the [Museum of Texas Tech University](#). The exhibit uses paintings, sculptures, photographs and other works of art to give life to inanimate tools like hammers, saws, axes and more. The artwork ranges from representing tools with reverence and highlighting the design purity to now-obsolete tools being shown in a distorted fashion.

Dozens of pieces of art are part of the exhibit, which consists of four sections: Objects of Beauty, Material Illusions, Instruments of Satire and Tolls: An Extension of Self. The artwork comes from the Hechinger Collection, the result of hardware company owner John Hechinger attempting to make his company headquarters less bare. He amassed dozens of pieces of tool-inspired 20<sup>th</sup>-century art.

**WHEN:** The exhibit is open now and runs through Aug. 24. The museum is open from 10 a.m. to 5 p.m. Tuesday through Saturday and 1-5 p.m. Sunday.

**WHERE:** Museum of Texas Tech University, 3301 4<sup>th</sup> St.

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# News Release

## **FOR IMMEDIATE RELEASE**

DATE: June 2, 2016

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### **Texas Tech Researcher Aiding in Study of Eagle Interaction with Wind Turbines**

The study will track golden eagle movement using solar-powered GPS transmitters to see how often they hunt or fly through area wind farms.

In the avian world, the eagle is known as the apex predator, meaning no other bird considers an eagle its prey. The eagle is on the top of the avian food chain.

But that doesn't mean they live without dangers, most of them manmade. There's one manmade danger in particular that Texas Tech University professor Clint Boal is working with several governmental agencies to discover ways to mitigate golden eagle deaths as much as possible.

With the push toward clean energy, West Texas and Eastern New Mexico have seen a tremendous growth in the popularity and construction of wind turbine farms. But those farms, while essential to ending the United States' dependency on fossil fuels, have created a danger for the golden eagle in the same areas.

"Wind energy development throughout the western U.S. is ongoing and rampant, and it is an important renewable energy source and we all recognize that," said Boal, a professor in the [Department of Natural Resources Management](#) in the [College of Agricultural Sciences & Natural Resources](#). "But it doesn't come without some ecological cost that can be either displacement of wildlife or the direct mortality of wildlife. If the species is really abundant, it may not be a substantive issue. But when you have a species that is not as abundant, has a long life span, and has low productivity, it does become an issue."

That's why the research Boal and his colleagues are performing is so important. Boal, a member of the United States Geological Survey's Cooperative Research Unit at Texas Tech, along with the U.S. Fish and Wildlife Service's Region 2 office and its Western Golden Eagle Team, are in the process of studying golden eagle movements and potential interactions with wind turbines.

They are doing this by capturing golden eagle chicks before they can fly and affixing lightweight GPS transmitters on their backs. The chicks are returned to the nest and their movements can then be tracked over the next several years.

“Because these are alpha birds, their distribution is such that they have a large territory and their primary cause of death that first year is starvation or accidents, just because they have to learn how to fly and hunt,” Boal said. “What happens when you start losing them through electrocution on power poles, flying into turbines or getting hit by cars on the highway when they are scavenging carcasses? It may have a population level effect and that is what the Fish and Wildlife Service is concerned about. Wind turbines are the most recent and potentially most dramatic of these.”

### **Protecting the eagle**

Golden eagles are not on the endangered or threatened species lists, but the species is protected under the Bald and Golden Eagle Protection Act. Boal said from the 1940s to the early 1960s, hundreds of golden eagles were killed, leading to them being added to the act in 1962. According to Boal, a golden eagle reaches full maturity in about five years and produces only one to two chicks per year, if any, when it reaches breeding age.

Although they occur at low densities, the golden eagle can be found throughout the western third of North America, from the western edge of the Great Plains to the Pacific Coast and from Alaska south to Mexico; a small population also is present in northeastern Canada.

But, Boal said, since the 1970s there has been no real assessment of the golden eagle population in Texas. Boal did some studies in the Texas Panhandle in 2005 and 2006, but the growth of wind turbines presented a new danger.

Boal said the last two winters he and other researchers have studied eagle habitats off the plains of Oklahoma and Texas and into Eastern New Mexico, examining both the birds that stay in the area year-round and those that migrate to the area every year. They’ve also examined some of the sites where golden eagles have nested since the 1970s, in the Trans Pecos region of Texas and, more closely, along the Caprock Escarpment.

Capturing a golden eagle is quite a process. Once an appropriate nest is located along the face of a cliff, a group of the researchers fan out across the bottom of the cliff. A climber descends from the top of the cliff above the nest and either captures it at the nest, or it flees the climber by jumping from the nest. Though it can’t yet fly, the young eagle can glide very well – up to a kilometer, Boal said – before reaching the ground.

There, the researchers capture the young eagle, put a hood over its head to keep it calm, affix the solar-powered GPS transmitter, tag the bird and take some blood samples for genetic analysis before the climber returns it to its nest.

Last year, Boal and the other researchers tagged and fitted six golden eagles in Eastern New Mexico, several of which migrated into the Texas Panhandle between Lubbock and Amarillo and into the Caprock. Another seven birds have been fitted and tagged this year so far.



“We’re able to track where they go, and see if they interact with wind turbine farms, if they fly through to hunt in those areas or do they avoid them altogether,” Boal said. “We hope to determine what the important features of the landscape they key in on, especially during that first year of life when they’re just learning how to be eagles, when they’re learning how to hunt?”

### **Protection through mitigation**

Boal admits that regardless of what the GPS trackers say about a golden eagle’s movements, not much can be done to change an eagle’s habits.

“An eagle’s going to go where an eagle wants to go,” Boal said.

So, the task for Boal and other researchers becomes ensuring eagle habitats and the landscape are as conducive as possible to ensure survival and reproduction while at the same time having mitigation policies in place for landowners who erect wind turbine farms that could endanger eagles.

One mitigation strategy could be to put wind turbines in areas, like a cotton field, where the prey eagles seek is scarce. It’s the native grasslands where prey like jackrabbits and cottontail rabbits are most abundant, and eagles may venture to hunt even if there are wind turbines present.

Because golden eagles are protected, the Fish and Wildlife Service has developed an incidental take permit system. That program allows energy companies to apply for an incidental take permit that protects these companies from liability if an eagle is struck by a wind turbine blade, which would be a violation of the Bald and Golden Eagle Protection Act.

This is where some of the data Boal and his team are collecting can be used to determine how many eagles are expected to be in an area and the potential for being killed if a wind energy center is placed in a certain area. But those incidental take permits usually span only about 5-10 years, and a condition of those permits is that for every eagle killed by a wind turbine, the energy company has to offset the loss by ensuring birth of a new eagle somewhere else or prevent an eagle in another location from dying from other causes.

Those methods to ensure eagle productivity could range from putting money into a mitigation bank fund to be used in some management action to a direct action by the energy company itself.

“There aren’t very many different ways to do mitigation yet that we have figured out, but there are some,” Boal said.

Ensuring the viability of the landscape for eagles to hunt and capture prey is an area of particular interest to Boal. One example of that, he said, is the encroachment of juniper all along the Caprock. Juniper thickets not only reduce the number of jackrabbits and

cottontails for eagles to capture, but also makes it difficult to capture the ones that are there by allowing the rabbits to hide in the thickets.

Boal said landowners are interested in reducing juniper because it degrades the quality of land for cattle grazing and also uses a large amount of water. Boal wants to find a way to estimate how many eagle chicks can be produced by restoring a certain amount of land to native grassland that eagles can hunt in.

“That’s a way where energy companies can say, ‘we want to put money into a mitigation bank to help the landowners do what they already want to do and that is controlling the juniper and mesquite encroachment,’” Boal said. “By doing that, the landowner wins because they receive financial assistance for improving the quality of range land for cattle. Eagles win because it provides a habitat for jackrabbits and cottontails, and it provides it in such a way that the landscape is more effective for foraging.”

In the long term, Boal said he would like to also study eagles’ food habits by putting remote cameras near eagle nests to see what kind of prey they bring back for their young. A better understanding of the diversity and proportions of different prey species used would help determine how to manage the landscape to ensure an adequate food supply for eagles to hunt.

“I think it’s a win-win for everybody involved,” Boal said. “You get clean energy through turbines and a good habitat for eagles, and it also benefits the cattle ranchers.”

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TEXAS TECH UNIVERSITY

# News Release

## **FOR IMMEDIATE RELEASE**

DATE: June 6, 2016

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### **East Entrance of Library to Undergo Renovations**

The Croslin Room, located on the east side of the library, will be under construction throughout the summer.

The east entrance of the [Texas Tech University Libraries](#), the side that shares the courtyard with the Student Union Building, will endure renovations in the Croslin Room throughout the summer. Construction begins at the end of May and is anticipated to be completed before classes begin this fall 2016.

Dean of Libraries Bella Gerlich said the renovations include leveling the sunken and fountain areas and removing partition walls in order to allow for more space.

During construction, the Croslin Room will remain accessible with limited seating on the north and south ends. In addition, Sam's Express will be open with normal summer hours.

Because of the limited area available during renovation, no events will be held in the Croslin Room during the summer.

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# News Release

## **FOR IMMEDIATE RELEASE**

DATE: June 6, 2016

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### **Texas Tech Women's Rodeo Team Headed to College National Finals Rodeo** Texas Tech qualified by winning the Southwest Region of the National Intercollegiate Rodeo Association.

Thanks to four team victories and numerous individual championships throughout the season, the Texas Tech University women's rodeo team captured the Southwest Region title to earn a berth at the Collegiate National Finals Rodeo beginning Saturday (June 11) in Casper, Wyoming.

Texas Tech won thanks to the accumulation of 2,542 points from the 10 rodeo competitions in the Southwest Region, easily outdistancing second-place Tarleton State University's 1,466 points. A total of 16 colleges and universities compete in the Southwest Region, which is considered the premier region for collegiate rodeo.

"This season has been an absolute blessing with both of our teams," Texas Tech rodeo coach Brent Hodges said. "We talked about goals at the beginning of the season and the ladies just knocked it out. To be in my first year as coach and have this opportunity is something I knew could happen with this group, and along with the other ladies and men's team members, they put in a lot of hours and work, challenged and supported each other and finished well."

This will be the eighth appearance in the College National Finals Rodeo for the Texas Tech women's team, which won the national title in 2012.

The Texas Tech women's rodeo team, part of the [College of Agricultural Sciences & Natural Resources](#), earned first place at the Frank Phillips College Rodeo, the Texas Tech Rodeo, the Howard College Rodeo and the Tarleton State Rodeo while finishing second at Eastern New Mexico and Sul Ross State. Texas Tech finished in the top five in all 10 rodeos, and three different competitors took all-around cowgirl honors at six of the 10 regional rodeos.

Kellie Collier, a sophomore from Hereford, was named the Southwest Region All-Around Cowgirl as well as champion barrel racer, and her ride earned Horse of the Year. She also was the Southwest Region fifth-place breakaway roper and is the 16<sup>th</sup>-ranked barrel racer in the Pro Rodeo Cowboy Association world standings.

Kynzie Rae McNeill, a sophomore from Hobbs, New Mexico, was named the Southwest Region Reserve All-Around Cowgirl and finished seventh in barrel racing and goat tying and 15<sup>th</sup> in breakaway roping.

Jessica Dunbar, a sophomore from Del Rio, finished fourth in the Southwest Region in barrel racing. Tamara Tunink, a senior from Fowler, Colorado, finished ninth in the Southwest Region in breakaway roping.

For more information on the Texas Tech women's and men's rodeo teams, visit its [website](#).

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# News Release

## FOR IMMEDIATE RELEASE

DATE: June 7, 2016

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### **Texas Tech Engineers Developing Wastewater Technology for Use in Space**

The group, along with partner Paragon Space Development Corporation, has constructed a way to efficiently and economically convert wastewater to drinking water.

One of the most critical factors in long-distance space travel involves an element that doesn't even exist in space, and, for the time being, might exist on only one other planet.

Water.

Without enough drinking water, any attempt at a mission to the moon, Mars or anywhere else outside of earth's orbit, is virtually impossible. Yet, it's not as if astronauts can just load up a few cases of bottled water to take with them. Shipping large quantities of water into space becomes astronomically expensive.

For space travel to work, wastewater has to be recycled into pure, consumable water. That means a system has to exist on any space vehicle that carries travelers that converts wastewater in all forms into drinking water.

"NASA needs to close the water cycle to about 99 percent recovery to really make it economical and be able to live in space for long periods," said Andrew Jackson, a professor and associate chairman of the [Department of Civil, Environmental and Construction Engineering](#) at the Texas Tech University [Whitacre College of Engineering](#). "If you're talking about a mission to Mars or a lunar mission, it gets vastly expensive to ship mass up there."

That's where Jackson and Audra Morse, the associate dean for undergraduate studies and a professor in civil engineering, have focused their research for most of the past decade, developing a system that effectively and efficiently eliminates waste products from water so it can be recycled into consumable drinking water.

Partnering with the [Paragon Space Development Corporation](#), their efforts received a boost recently when NASA awarded the group a Phase I Small Business Technology Transfer (STTR) award, totaling close to \$150,000 to develop the Integrated Water Recovery Assembly (IRA) that can take wastewater and recycle it by reducing the need to

pretreat wastewater with hazardous chemicals while eliminating the need for inefficient non-regenerable processes now in use.

“The big thing the award allows us to do is start working with Paragon to put a whole system together instead of looking at only one part of it and not being in control of what happens to the rest of it,” Jackson said. “We want to basically design the whole system and be able to deliver a package that does everything, from start to finish, and hopefully in the most sustainable and cheapest way possible. It lets the company and us start working together to see how we can maximize the attributes of both systems to work together.”

### **Two components**

The system being developed by Texas Tech and Paragon has two distinct parts, but the idea is to develop them as a package deal which would be beneficial to both parties if chosen for use by NASA. It also would transform water more efficiently and use very little energy in the process.

The part Jackson, Morse and the team at Texas Tech have developed deals with more of a biological approach where microbes are used to separate elements in the wastewater like carbon dioxide and nitrogen for use in other areas. By doing so, the purification process developed by Paragon, which converts the water into drinking-water quality, wouldn't have to work as hard and would use up fewer consumable materials in the process.

The system has to be self-sustaining, Jackson said, so astronauts are not spending significant amounts of time with this process that could take them away from performing other scientific duties.

“The combination of a strong waste stream, microgravity compatibility and the ability to have someone taking care of it is a unique set of circumstances,” Jackson said. “We're working toward something that fits those constraints.”

Texas Tech's research is far enough along that it is running a full-scale reactor to test the recycling process, and Jackson said the Johnson Space Center in Houston is keeping a close eye on those results. A new reactor also will be delivered to Texas Tech in the near future to conduct more tests. Eventually, Jackson said, those reactors will be sent to Houston to be put into an integrated test with the post processor developed by Paragon to be put through rigorous testing to examine the process and study its mechanical functionality.

If chosen, the reactor tested would be constructed out of flight-like materials similar to how it would be built on a space vehicle, but those materials are too expensive for the Texas Tech team to use on Earth. Jackson said there aren't many university research teams working on this kind of project and the ones that are focus mainly on reverse osmosis or forward osmosis technology.

“We are the only people I know who are doing bioreactor work for space habitation,” Jackson said. “We've been talking about a means to work together with Paragon for



awhile and when this award came up one of the calls was specifically for water processing. Since they've worked on it and we've worked on it, it was kind of a perfect combination to work together. It was a synergistic proposal."

### **Other uses**

The IRA has other uses outside of space travel that could end up being just as important and economically feasible.

Because the system is fairly compact it can be dropped into regions where a disaster or other factors have eliminated an area's source of drinking water. The IRA would be ideal for use in the aftermath of hurricanes to ensure a supply of drinking water after a wastewater treatment facility goes down or is damaged.

It also could be used, Jackson said, in forward military operations bases in remote areas where water is a big concern and trucking it becomes a security risk.

"Anything like that where you have a limited ability to resupply technology, upkeep or technical power and you want something that is very self-sustainable that produces potable water, it makes sense," Jackson said.

First things first, however, and that is getting this system ready for use in space, which means developing a system that is the most economically sustainable and efficient for use for whenever man tries again to reach for the stars.

"Our proposal is that ours is the most sustainable, consumes the least amount of consumables and produces products that can be reused for beneficial purposes," Jackson said. "It is self-sustaining. It is robust. We say ours has the lowest equivalent system mass. But that's what we have to prove."

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TEXAS TECH UNIVERSITY™

# News Release

## FOR IMMEDIATE RELEASE

DATE: June 9, 2016

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### **Texas Tech Researcher Using NSF Grant to Expand Ultrathin Film Study**

Greg McKenna hopes to discover how the thin film's properties change beyond the relationship to reduced glass transition temperatures seen in ultrathin films.

One of the great things about science is research projects or experiments can be conducted with no definitive expectation of what the exact outcome will bring as long as a strong, underlying set of hypotheses exists.

For Greg McKenna, a Horn Professor and John R. Bradford Chair in the Texas Tech University [Department of Chemical Engineering](#), ultrathin films present just such an opportunity for discovery. While extensive work has been done studying the glass transition temperatures of these films, little is known about how the mechanical properties such as modulus and yield strength change and to what extent.

Through a \$525,000 grant from the National Science Foundation, McKenna hopes to push the limits of these ultrathin films to investigate how the properties change, and potentially, how that change is different than what would be expected due to the changes in their glass transition temperatures at the nanometer size scale. The effects of making films from different types of molecules, or molecular architectures, also are being investigated.

“The problem is people have seen all these really different properties in ultrathin films, and most focus on the glass transition behavior,” McKenna said. “We want to find out what are the real mechanical properties doing when you actually get that thin in addition to just seeing changes in glass transition. We’re trying to work deep in the glassy state, which is where we use these materials. Hence, they are stiff and rigid, and the goal is to determine if and how the properties change differently than what people would expect if the changes were due to simply changing the glass transition.”

Ultrathin films are defined as those with a thickness of less than 100 nanometers, where a nanometer equals one billionth of a meter. McKenna said there is some evidence the properties of ultrathin films change differently than does the glass transition itself, but those results are extremely limited and, consequently, cannot be considered conclusive, thus the need for further research.

Using the Texas Tech University Nanobubble Inflation Method, an experimental technique for measuring the viscoelastic properties of ultrathin polymer films that McKenna helped

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develop, he and group also are examining the mechanical properties of other materials in the thin-film state, starting with selenium, a gray crystalline mineral with semiconducting properties. Because it has simple molecules that can form a chain, it exhibits some polymer-like properties.

Creating ultrathin films also means having something with a large amount of surface area. McKenna said there is more going on than just observing the surface-to-volume ratios of ultrathin films, but an important aspect of the problem of ultrathin films is there is a distinct lack of strong theories to explain their behavior. Thus much of the work is driven by experimental discovery that will one day lead to improved theories. Of interest also is computer simulations possess some of the same issues as the experiments and the theories, and that is an inadequate means of treating the surfaces.

“There is a lot of government funding into nanotechnology because the future of microelectronics is actually nanoelectronics,” McKenna said. “When you use polymers in these systems, the polymers, for example, are used for dielectrics that determine the insulating properties, and that affects the clock speed of the devices. If we’re going to use them, we have to know how they change, and that’s where we push forward in the future.”

As another example, ultrathin films are used to coat fiber optic cables, and a large portion of those cables run under the ocean. Knowing how they will react to the harsh conditions of such use is essential to ensuring their functionality.

One challenge to enlarging the scope of experimenting on novel materials in the ultrathin film state is the fact the thin films themselves are inherently available only in extremely small quantities. Spin coating and physical vapor deposition are ways to make very thin films. Polymer films are commonly made via spin coating, while small molecule compounds and elements such as selenium can be made into thin films by the physical vapor deposition process. The Texas Tech Nanobubble Inflation Method makes possible the investigation of the properties of such extremely small amounts of materials.

Of great interest is the observation from Mark Ediger at the University of Wisconsin, who has made ultradense glasses by physical vapor deposition methods and shown some of these materials exhibit properties similar to what one would expect from a material aged for millions of years. McKenna and his coworkers at Texas Tech have previously worked with a 20 million-year-old piece of amber, and he now plans to use the Ediger process to make ultradense glasses and test them with the Texas Tech Nanobubble Inflation Method to determine if they exhibit the same behavior as does the 20 million-year-old amber tested at the macroscopic size scale.

Because molecular relaxation times near to the glass transition increase exponentially with even small changes in temperature to a point where the material becomes unsuitable and would require large amounts of time. Taking amber that is 20 million years old allows McKenna to test the material’s behavior between its fictive temperature and its glass transition temperature.

“If we can measure the viscoelastic properties of ultradense glasses, we can ask the same questions that we’ve asked with the amber, but with a little better control,” McKenna said. “This is really fundamental work but the long-term consequences are important. We still



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can't describe the long-term behavior of polymers in the glassy state except empirically. This is essential to the development of advanced materials from those undersea cables to the latest high-performance composites used in modern aerospace technologies."

And that, in essence, is what the research is about – discovery. It is fundamental research that will eventually lead to technological advances that will be used by everyone from government entities to private enterprise, who will be looking for graduates like those from Texas Tech who have extensive experience in this area.

"I hope we find some answers to the fundamental questions about glass transition," McKenna said. "We have a hypothesis and want to test that hypothesis. I go into it and tell my students, 'I don't want you to find what I tell you I think you should find.' They have to find what the truth is, so that's why I'm reluctant to say what the outcome will be.

"The fundamental materials research, for sure, will lead to students getting their degrees and some publications, and possibly to other important insights into the physics of glasses. More importantly, the projects should make the students learn to think."

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# News Release

## **FOR IMMEDIATE RELEASE**

DATE: June 13, 2016

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### **Four Texas Tech Students Participate in Community Bank Case Study Competition**

The finance students were inspired to enter the competition after completing Scott Hein's course on management of financial institutions.

These days, the word "banking" usually conjures up an image of a large corporate entity with millions of dollars in assets spread out across the world.

But part of the fabric of a small community is its bank. Not only does the community bank help start and maintain local businesses but does so by focusing on the relationship between the lender and its customer.

It is that aspect that shone through for four Texas Tech University finance students who recently competed in the 2016 Community Bank Case Study Competition hosted by the Conference of State Bank Supervisors (CSBS).

The team of Chris Hresko, Jesse Kizewski, Eric Lamm and Sam Moore competed against 30 other teams from business schools across the country, conducting case studies to assess the impact of community banks' small business lending efforts as well as its management and financial performance.

"I learned a great deal about how community banks function," Kizewski said. "We looked at the regulations banks are required to follow, the relationship that is established between lender and borrower, the massive differences in separating community banks versus larger institutions and the different strategies a bank can take in its lending efforts. I learned how to interview, contact and communicate with upper management of a company and how to go about retrieving additional details or information respectfully."

The Texas Tech team formed after Hresko, Kizewski and Moore finished the Management of Financial Institutions class taught by Scott Hein, a professor and the Robert C. Brown chairman of finance in the [Rawls College of Business](#). Hein served as the team's faculty adviser and encouraged the students to enter the competition, which is just in its second year of existence.

“I was most pleased with the hard work the four team members put into this project,” Hein said. “I am convinced they learned a great deal in the process, some of which I don’t think they were fully able to convey given the time and space limitations of the competition.”

The Texas Tech team chose to analyze the practices and lending efforts of AIM Bank in Levelland, and by doing so was able to tap into the resources of two Rawls alumni in Jonathan Hill, president of the Lubbock branch, and AIM Bank officer Jeremy Ferrell. Kizewski said the group chose AIM Bank because they felt it had the greatest focus on small business lending efforts in comparison to other banks studied in class last fall.

After interviewing Hill and Ferrell about the bank’s lending efforts, the team contacted three borrowers from varied backgrounds to get an idea of how the bank operates with its customers. Also, the group examined the bank’s lending efforts by analyzing its Uniform Bank Performance Report, an analysis tool used to measure the impact that management and economic conditions have on a bank’s balance sheet.

From that research, the team compiled a 25-page paper on the material and a 10-minute video discussing their findings as well as the bank’s operations and their recommendations. Of the 23 teams that entered the competition, Texas Tech made it to the semifinals in its inaugural entry.

In the paper, the team found AIM bank’s focus on providing resources and guidance in its loans to small business customers increases the likelihood of success but its conservative approach also ensures the bank is protected. The bank also gives personally tailored assistance to its customers that provides a strategy for success, and that success is known throughout the community.

“This competition gave us a chance to look more in-depth at community banks,” Moore said. “It’s a rewarding experience to take what we’ve learned from our professors and see how actual banks incorporate it.

Each student on the team was awarded a \$500 scholarship by the [School of Banking](#) for its effort and initiative. Hresko, Kizewski and Moore each graduated in May, while Lamm is set to graduate in spring 2017.

Hein credited the work the students did with Hill and Ferrell as a key part of its success in the competition.

“I’m sure our team learned much more because Jonathan and Jeremy remembered when they were at a similar stage in their education and, as a result, they were most willing to share with the team beyond what would normally be expected,” Hein said.

Kizewski, who plans to enter law school in the future, said not only did the competition give him a greater understanding and appreciation of community banking, but also provided him with valuable insight he will take with him into the workforce. Lamm said it piqued his interest in banking.



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“Considering I did not have any true experiences within the banking industry before the competition, I am definitely more interested in the banking industry and have a greater desire to pursue this path after graduation and possibly look for part time positions within banking during the upcoming year before graduating,” Lamm said.

The personalized advice and relationship that community banks build with their customers is the key factor that sets them apart from larger banks, and that relationship is what Kizewski said had a big impact on him.

“Almost every community bank stresses relationship banking,” Kizewski said. “Sure, they may not have the technology the larger banks have, but they make up for it by being personally available. My view is community banks are extremely important to the local success of companies in their region as opposed to the success of national companies that have other sources of funding available to them.”

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# News Release

## **FOR IMMEDIATE RELEASE**

DATE: June 14, 2016

CONTACT: Aleesa Ross, [aleesa.ross@ttu.edu](mailto:aleesa.ross@ttu.edu)  
(806) 834-0348

### **Media & Communication Professor Awarded Grant to Study Water Scarcity Messaging**

The grant comes from the Cynthia and George Mitchell Foundation.

Coy Callison, associate dean of graduate programs in the Texas Tech University [College of Media & Communication](#), has been awarded a competitive sponsored research grant by the Cynthia and George Mitchell Foundation to conduct research focused on messaging related to the water scarcity-agriculture interface on the South Plains.

Callison, a professor of public relations, said he was inspired to pursue the grant on this research topic because water resources and water availability are areas of concern for people living in Texas.

“The population continues to grow in Texas while water availability does not,” Callison said. “If something is not done to better steward our available freshwater, there will have to be dramatic changes to the West Texas way of life. In fact, there will likely need to be dramatic change regardless.”

Agriculture supports the region financially and in some ways is the root of the culture in West Texas, Callison said.

“I want to be able to help farmers and other ag users sustain their business for generations to come, and to do that we need to work together to better understand not only that water scarcity is a threat, but also that there may be some practical actions that can be implemented to sustain the resource,” Callison said.

Agriculture, he said, accounts for the lion’s share of water use from the Ogallala Aquifer, the main aquifer on the South Plains, and he is excited to apply his previous research about source and message factors in persuasion to an area that can directly improve the lives of West Texans.

“Farmers and livestock producers can be credited, along with some others, with building this state,” Callison said. “Their tax money allows places like Texas Tech to exist. I like the idea of trying to help them and the rest of us who call West Texas home.”

The grant, for which Callison is the sole investigator, runs from June 1 to May 31, 2017. Recent doctoral graduate Matt VanDyke and another current graduate student will assist with the research.

Callison said he hopes to attract research collaborators from across campus and beyond the university to help investigate this topic.

The grant money will be used to fund a doctoral student for 2016-17 and also help fund the college's [Center for Communication Research](#) data collection systems.

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TEXAS TECH UNIVERSITY

# News Release

## FOR IMMEDIATE RELEASE

DATE: June 15, 2016

CONTACT: Heidi Toth, [heidi.toth@ttu.edu](mailto:heidi.toth@ttu.edu)

(806) 742-2136

### **Best Interest Initiative Adds Consumer Advocacy Organization as Partner**

The initiative, led by personal financial planning professor John Gilliam, will examine consumers' and advisers' perspectives on what "best interest" means according to a new rule affecting financial advisers.

A consumer rights advocacy organization is joining a Texas Tech University professor in his goal of determining what the federal government means in a new law that may change how financial planners interact with their clients.

John Gilliam, an associate professor of [personal financial planning](#) and director of the newly formed Best Interest Initiative, announced [Americans for Annuity Protection](#) (AAP) will be a strategic partner for the initiative. He worked with other financial services professionals to create the initiative after the U.S. Department of Labor approved the fiduciary rule, which requires financial planners to act in their clients' best interests. The rule does not define best interest, however, leaving advisers wondering how to give advice and be compensated fairly without violating the rule.

"The research will help the industry formulate and define 'best practices' and 'reasonable compensation' under these important new parameters on financial advisers and, in turn, guide adviser behavior," he said.

AAP, a nonprofit organization that advocates for consumers' rights to an effectively regulated annuity marketplace that encourages financial independence, is the second strategic partner for the initiative. The [Society of Financial Service Professionals](#) committed to the initiative in April.

"AAP believes the financial services industry and those who regulate it will be helped by a better understanding of what it means to the consumer to be advised in their best interest and what factors are important when determining reasonable compensation," said Paul Feldman, AAP chair and publisher of Insurance News Net Magazine. "Consumers are the most important stakeholder in a best interest standard and are better served if this intelligence comes from qualitative research rather than court precedents."

Further strengthening this partnership, the AAP announced Gilliam was joining the organization's board of directors after a unanimous vote. Feldman said Gilliam's expertise in insurance and personal risk management will be an asset to the board as it continues to help consumers protect their income and financial legacy with annuities.

Office of Communications and Marketing

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**CONTACT: John Gilliam, associate professor, Department of Personal Financial Planning, College of Human Sciences, Texas Tech University, [john.gilliam@ttu.edu](mailto:john.gilliam@ttu.edu) or Kim O'Brien, CEO, Americans for Annuity Protection, (480) 269-9483 or [kim@aapnow.org](mailto:kim@aapnow.org)**

# Expert Pitch

## FOR IMMEDIATE RELEASE

DATE: June 15, 2016

CONTACT: Glenys Young, [glenys.young@ttu.edu](mailto:glenys.young@ttu.edu)  
(806) 742-2136

### **Experts: Hillary Clinton's Political Success the Culmination of Historic Efforts**

Former first lady, United States senator and U.S. Secretary of State Hillary Clinton is on the cusp of being named the first female presidential nominee of a major American political party, a milestone expected to happen during the Democratic National Convention in late July. Shattering this particular glass ceiling is a major step forward for women, especially considering how recently American women were unable to participate in the political process, even by voting.

On June 18, 1873, social reformer and feminist Susan B. Anthony was convicted on a charge of illegally voting in the presidential election of 1872. One of nearly 50 women who tried to vote the previous November, Anthony stood out – and her trial became a national controversy that propelled the women's suffrage movement into the spotlight.

But even then, change was slow in coming. The 19th Amendment, which prohibits voting restrictions based on gender, was not ratified until 1920.

Texas Tech University has two experts available to discuss the historic role of women in American politics and the political implications of Clinton's historic selection. Seth C. McKee is an associate professor of political science with expertise in American political parties, campaigns and elections. Emily Skidmore is an assistant professor of history who specializes in women's history.

#### **Expert**

Seth C. McKee, associate professor, [Department of Political Science](#), (806) 834-1880 or [sc.mckee@ttu.edu](mailto:sc.mckee@ttu.edu)

#### **Talking points**

- After making history with the nomination and subsequent election (and then re-election) of the first African-American president, the Democratic Party has now nominated the first woman in the history of major party politics in the United States.
- Just as the country has generally trended in a more democratic direction, meaning not the party, but the expansion of suffrage and the influence voters have in determining major party presidential nominees, the Democratic Party has come to look more and more like its rank-and-file voters. Indeed, it seemed only a matter of time before the demographically diverse Democratic Party would favor an African-American candidate (the racial group most supportive of the party) and then a woman (the gender more supportive of the party) to run for the highest office in the U.S.

- Hillary Clinton is an interesting choice for a woman to finally be a major party nominee since she has tremendous political experience and a remarkably large share of detractors.
- Hillary and Bill Clinton are two inseparable political figures.

### Quotes

- “This achievement is a strong reflection of the mass electorate that supports the Democratic Party since it is demographically diverse both racially and with respect to gender, with more women generally favoring Democrats over Republicans since the 1980s.”
- “To some extent, Hillary Clinton’s unpopularity with such a large portion of the electorate stems from her many years in the public eye and the various controversies that have surrounded her because of certain actions (e.g., Benghazi) and indirectly because of her husband’s personal indiscretions.”
- “Bill Clinton’s political success amidst scandal launched Hillary’s political career. Hillary endured the personal embarrassment of a cheating husband but also used her association with a successful president to win a U.S. Senate seat in New York. From there she sought the largest electoral prize but came up short against the charismatic change agent in then-Illinois Sen. Barack Obama in 2008. Obama made her Secretary of State, and almost everyone expected Clinton to attempt to succeed him as president. In 2016, despite the controversy surrounding her, it is more likely than not that a majority of voters, most of whom are women, will make Hillary Clinton the nation’s first female president. But like Obama, given the changes to the American electorate, in the near future America will elect more minority candidates to the White House. And perhaps someday, even a black female president will reside at 1600 Pennsylvania Ave.”

### Expert

Emily Skidmore, assistant professor, [Department of History](#), (806) 742-3744 or [emily.skidmore@ttu.edu](mailto:emily.skidmore@ttu.edu)

### Talking points

- The history of women fighting for access into politics is almost as old as the United States itself.
- Any advance made by women in politics has been the result of sustained grassroots activism.
- It’s no accident that our first female presidential nominee of a major national party is a former first lady.

### Quotes

- “For much of our nation’s history, women have been barred from political participation. However, this ban has always been contested. For example, in 1776, when John Adams was in Philadelphia participating in the Continental Congress, Abigail Adams wrote to him, encouraging her husband to take seriously the rhetoric of the American Revolution about equality and freedom and argued that it should apply to women as well. However, John Adams shared the dominant mindset that women were unfit for politics, responding to his wife, ‘As to your extraordinary Code of Laws, I cannot but laugh.’ This comment reflects the fact that men did not take women seriously as political actors in the early

history of the United States. Any shift in that mindset can be credited to the sustained activism of women.”

- “Often progress is discussed as natural in American history, but this perspective ignores the hard work and dedication of activists that have preceded all legislative victories that have allowed women access to the full range of citizenship rights and duties, whether that be the right to vote, the right to sit on a jury or the right to retain ownership of property after marriage. None of these rights were afforded to women by the Constitution in 1776, and the establishments of these rights came only after thousands of women organized and demanded to be treated as full citizens.”
- “Throughout the 1850s, there were women’s rights conventions held throughout the country. The movement was stymied during the Civil War and suffered from factions in the late 1860s and 1870s (many white female activists like Elizabeth Cady Stanton were upset when black men were afforded the right to vote after the Civil War before white women). However, activists carried on and began to narrow their focus increasingly on gaining the right to vote but were fought tooth and nail. Female activists were arrested — Susan B. Anthony in 1872 for trying to vote and many more would be arrested in the 1910s as women picketed the White House, calling for Woodrow Wilson to pass a suffrage amendment.”
- “Alice Paul, for example, was arrested in June 1917 for picketing outside the White House and was sentenced to seven months in jail. The conditions inside the prison were atrocious, and she initiated a hunger strike in protest. This hunger strike, along with the continued picket lines outside the White House, ensured the issue of women’s suffrage would continue in the press and that Woodrow Wilson would continue to feel pressured into action. Thus, in January 1918, with the U.S. mired in World War I, he deemed women’s suffrage necessary as a ‘war measure,’ and he urged congressional action. Despite this urging, Congress dragged its feet, causing female activists to redouble their efforts, some of them chaining themselves to fences outside the White House, while others burned banners with Wilson’s quotes about democracy on them. It was not until June 1919 that Congress passed the 19th Amendment. And again, this passage was not simply due to the natural progress of American society; Congress was forced into action by the courageous activism of generations of women.”
- “Many people have been critical of Hillary Clinton for not ‘earning’ her seat and instead have credited the fact that she was first lady. However, this perspective ignores the structural inequalities which have made it difficult for women to enter politics. Earning the right to vote was simply one step to full political equality – and keep in mind that the 19th Amendment did not enfranchise all women; black women in the South, for example, were effectively barred from voting due to Jim Crow laws until the Voting Rights Act was passed in 1964. Well into the mid-20th century, women were still underrepresented in colleges and the careers men traditionally utilized as stepping stones into politics. Female candidates battled against the perception their sex made them less qualified than their male counterparts, even if they possessed the same credentials. Additionally, getting elected into office, especially at the state or national level, requires a great deal of capital, and female candidates have had less access to established political networks. For all these reasons, even 96 years after women earned the right to vote, women remain grossly underrepresented in local, state and national government. Women make up only 19.3 percent of the U.S. House and 20 percent of the Senate. Given the structural problems

that limit women's access to higher office, it's no accident Hillary Clinton is our first female nominee for president. Her connections to her husband no doubt have aided in her ability to maneuver in a political system still run by men.”

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# Expert Pitch

## FOR IMMEDIATE RELEASE

DATE: June 16, 2016

CONTACT: Glenys Young, [glenys.young@ttu.edu](mailto:glenys.young@ttu.edu)  
(806) 742-2136

## Texas Tech Expert Can Discuss Zika Virus After Confirmed Lubbock County Case

### Pitch

Zika virus, primarily transmitted by mosquitoes, was first discovered in Uganda in 1947. For decades, it was known as a short-lived, relatively mild illness with no long-lasting effects. That all changed in September when Brazilian doctors noticed a 1,400 percent spike in congenital brain deformities in a part of Brazil that experienced a Zika outbreak months earlier.

The first case of Zika virus in the United States was confirmed in early February in Dallas, when that city's health officials reported a man infected a partner during sex. Brazilian scientists then announced they had found live strains of the virus in the urine and saliva of infected individuals.

On Thursday (June 16), the City of Lubbock Health Department announced a case of travel-related Zika virus has been confirmed in a Lubbock County resident. So far, no mosquitoes have tested positive for the disease.

Steven M. Presley, a professor of immunotoxicology in [The Institute of Environmental and Human Health](#) at Texas Tech University, focuses on the risks and threats associated with biological pathogens with the goal of developing and fielding preventative measures against vector-borne infectious and zoonotic diseases. He runs a lab within the institute that collects and studies mosquitos for West Nile virus, St. Louis encephalitis virus and Chikungunya. Presley earned his bachelor's degree in animal science with a master's and doctorate in medical/veterinary entomology. He also is the chairman of the publications committee and on the science and technology committee of the American Mosquito Control Association, and serves as the regional director of the south central U.S. for the Society for Vector Ecology.

### Expert

Steven M. Presley, professor, The Institute of Environmental and Human Health, (806) 885-0236 or [steve.presley@ttu.edu](mailto:steve.presley@ttu.edu)

### Talking points

- Unlike with West Nile virus, which requires an animal (bird) host to amplify the virus between mosquitoes and humans, Zika virus can amplify in humans. This makes the transmission cycle much faster.
- Only one in five people infected with Zika virus shows symptoms. Because those are similar to the symptoms of influenza, many people who show symptoms are never properly diagnosed, which makes the disease difficult to track.

- The mosquitoes that transmit Zika are *Aedes aegypti* and *Aedes albopictus*. They are day-biting, human-loving and have biologies and behaviors different from many of the species that vector West Nile virus and St. Louis encephalitis virus.
- Little is known about Zika, especially the full spectrum of the mosquito transmission and hosts dynamics.
- Mosquitoes from the Lubbock area will be screened for Zika virus as *Aedes aegypti* and *Aedes albopictus* activity increases.
- Mosquito treatment spraying often occurs overnight when other species are active. Cooler overnight air allows the spray to settle into the grass, and warmer air in the daytime carries spray away, making it ineffective at treating for *Aedes* mosquitoes.

### Quotes

- “Because there’s not an intermediate amplifying host and only one in five people are symptomatic with Zika virus, the transmission cycle is sped up, and amplifying hosts may not be recognized. You have these amplifying hosts out there promulgating the virus and mosquitoes are feeding and biting somebody else without you ever knowing it’s occurring in the area.”
- “Probably the fetuses and newborns with microcephaly are the most tragic outcome of the disease, but they’re finding more and more information on neurological involvement in Brazil in adults and not just infants.”
- “Whether Zika virus has shifted or drifted in its antigenic properties, we really don’t know with the current outbreak that’s going on. There’s something that’s caused it to be much more widespread, whether it’s increased mosquito numbers, environmental factors that may influence more mosquitoes being infected with it or more mosquitoes in an area.”
- “We could potentially have a person who is asymptomatic but infective, circulating enough virus that mosquitoes could pick it up. We’re a university town. We’ve got a lot of people coming and going from foreign places where they might become infected and bring the virus back. It’s going to require a lot of vigilance this coming spring and summer.”
- “*Aedes aegypti* and *albopictus* are container breeders: Vases at cemeteries, toys in the backyard, garbage – a Styrofoam coffee cup thrown in the alley. Just a little bit of water can produce a lot of those mosquitoes, while the typical West Nile and St. Louis encephalitis vectors are pond, puddle, standing water, established water breeders.”

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# News Release

## **FOR IMMEDIATE RELEASE**

DATE: June 16, 2016

CONTACT: George Watson, [george.watson@ttu.edu](mailto:george.watson@ttu.edu)  
(806) 742-2136

**Texas Tech Law Student to be Featured on ‘American Ninja Warrior’**  
Brian Burkhardt’s episode on the NBC show is scheduled to air June 20.

[\(Brian Burkhardt’s audition video\)](#)

Someday, maybe, Brian Burkhardt will have a television commercial touting him as “The Law Ninja.”

As for now, however, the second-year student in the Texas Tech University [School of Law](#) hasn’t quite figured out how his upcoming appearance on the NBC television show “American Ninja Warrior” will fit into his law career. It was a struggle just to fit the training for the show into his class schedule.

“At the beginning of the school year it was very difficult to train with how swamped I was with my studies,” said Burkhardt, a native of San Antonio. “After a month or so I figured out how to manage my time better. I work out every other day for about three hours rock climbing, swinging from the weight racks in the Crossfit area and doing pull-ups.”

The episode of the show featuring Burkhardt is scheduled to air on June 20, and he did share that he will appear on more than one episode but could not provide any further details due to contractual limitations.

Burkhardt, who played football and ran track in high school, got hooked on the show as a teenager. He tried out for season seven of the show and was not selected, but he was chosen for season eight.

He submitted the video application in January and competed on the show in Oklahoma City mid-May and in the days leading up to the airing of his episode. His application was chosen from more than 50,000. He has been in “ninja training” for two years, utilizing mostly obstacle-course gymnasiums in his hometown.

“The type of muscle groups that are needed for the show are very different than football, so the transition took a few months,” Burkhardt said.

Burkhardt, who earned his bachelor's degree in business administration from the University of Texas-San Antonio, said training for the show has done more than just keep him in shape.

“The experience was incredible, but the most valuable thing I learned during this past year was not the discipline of having to train consistently,” Burkhardt said. “It was how important physical activity is to alleviate stress and to just have fun. I haven't figured out how to combine Ninja Warrior and the law, so at the moment it's just a fun hobby.”

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# News Release

## **FOR IMMEDIATE RELEASE**

DATE: June 17, 2016

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(806) 742-2136

### **Texas Tech Meat Judging Coach Earns American Meat Science Association Honor** Mark Miller will be recognized at the AMSA conference in San Angelo.

In sports parlance, Mark Miller is the Bill Belichick of meat judging. His teams win. A lot.

That tradition of success for the Texas Tech University San Antonio Stock Show and Rodeo Distinguished Chair in meat science and professor in the [Department of Animal and Food Sciences](#) will be recognized later this month when Miller is awarded the 2016 Intercollegiate Meat Judging Meritorious Service Award by the American Meat Science Association (AMSA).

Sponsored by the Food Safety Net Services and Agri-West International, the award recognizes effort and success on two separate fronts in meat science – coaching winning judging teams while also conducting noteworthy research. He will be presented the award at the AMSA’s 69<sup>th</sup> Reciprocal Meat Conference June 21 in San Angelo.

“I am very honored and humbled by the selection of this most prestigious award from the American Meat Science Association,” Miller said. “I am very thankful for all of the support of the San Antonio Stock Show and Rodeo and all of the coaches, students, judges and their families, industry, faculty, staff and administration who have helped to make this award possible for the Texas Tech family.”

Miller, who earned his bachelor’s and master’s degrees at Texas Tech and was a member of the [Texas Tech Meat Judging Team](#) as a student, has taught and coached at Texas Tech since 1990. In that time, he has coached 11 national championship teams at Texas Tech and has sent 110 former students to coach multiple judging teams at the 4-H, Future Farmers of America (FFA), Division A or Senior Division levels.

Five of his former students have coached 10 or more meat judging teams – Gretchen Mafi (Angelo State University and Oklahoma State University), Dale Woerner (Colorado State University), Keith Underwood (South Dakota State University), Clint Alexander (Garden City Community College) and Tim Tatsch (Hondo High School FFA).

“Through meat judging, Dr. Miller has positively impacted the lives of many students over the years,” said Michael Orth, dean of the Department of Animal and Food Sciences. “The

experiential learning and development that takes place while being on a team are hard to replicate in a classroom. What has been the most impressive to me is meeting many of his former students and seeing not only how successful they have become in their careers but also their exemplary character.”

But Miller’s reach doesn’t stop at meat judging. Through his research into muscle biology and food safety, Miller has played a key role in helping underdeveloped areas of the world deal with hunger and food supply.

Miller and other researchers have ongoing studies in several Latin American countries to improve the safety of meat being imported into the United States while also conducting research through carcass data, food safety samples and consumer studies in Australia, New Zealand, Poland, France, Japan and Korea.

To date, Miller has conducted or assisted with research projects totaling more than \$36 million resulting in more than 200 referred journal articles, 15 books or book chapters, 320 technical articles, 342 abstracts and two U.S. patents.

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TEXAS TECH UNIVERSITY

# Advisory

## FOR IMMEDIATE RELEASE

DATE: June 21, 2016

CONTACT: Kristen Barton, [kristen.j.barton@ttu.edu](mailto:kristen.j.barton@ttu.edu)  
(806) 742-2136

### **Climate Science Center Hosts Talk on Climate and Disease**

The talk will focus on research by the National Center for Atmospheric Research's application laboratory.

**WHAT:** The Texas Tech University [Climate Science Center](#) is hosting a talk about the research of Andrew Monaghan with the National Center for Atmospheric Research. The Weather, Climate and Health Program at the national center researches environmental health and vector-borne diseases and issues.

The presentation will focus on climate variability and change in distribution of mosquitoes, which transmit viruses. These viruses include dengue fever, chikungunya, the Zika virus and yellow fever.

**WHEN:** Noon Thursday (June 23)

**WHERE:** Holden Hall Room 127

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**CONTACT: Jennifer Vanos, faculty associate, Climate Science Center, Texas Tech University** (806) 834-3319 or [jennifer.vanos@ttu.edu](mailto:jennifer.vanos@ttu.edu)



# News Release

## FOR IMMEDIATE RELEASE

DATE: June 22, 2016

CONTACT: K'Leigh Sims, [kleigh.sims@ttu.edu](mailto:kleigh.sims@ttu.edu)  
(806) 742-2136

**Lubbock's Scott Malouf Makes Camp Burkhart Possible with Generous Donation**  
Hosted by Texas Tech's Burkhart Center for Autism Education and Research, the camp is for elementary-, middle- and high school-age students with autism spectrum disorder.

Lubbock's Scott Malouf, owner of Drest by Scott Malouf, visited Texas Tech University's [Burkhart Center for Autism Education and Research](#) Wednesday (June 22) to visit the center's Camp Burkhart and to tour the building. Malouf funds the camp each year and serves on its advisory board. It is for elementary-, middle- and high school-age students with autism spectrum disorder (ASD) and provides structured enrichment opportunities while increasing competency in social interaction for those on the spectrum.

"This camp would not be possible if it weren't for Mr. Malouf's generous donation," said Janice Magness, co-director of the Burkhart Center and director of the center's [Transition Academy](#). "At this camp we teach children of all ages different skills just like we do at the Transition Academy. We also have our own students stepping up to be leaders for our campers to assist them while they are here."

From vocational trainings to fitness, nutrition, social skills, art and more, the Burkhart Camp serves as a recruitment opportunity as the campers are able to experience what it would be like for them if they attended the Transition Academy at the Burkhart Center. The camp is fully funded by Malouf's donation, so it does not create any expenses for campers and their families.

"How can you say no to this?" Malouf said. "I've known the Burkharts for a long time, and this is such a special thing. The more I learn about the things going on at the Burkhart Center, it is just so impactful with what they are doing here for students with autism. In business, you get requests to help many causes, but you never really know how the donations help, but this is an area that looks at the human potential and we are just seeing great progress among these students while they are here at the camp and at the center. It something so fun to support."

From the beginning to the end of the weeklong day camp, Magness said they are able to see such a difference in the students. She said putting together students who have the same types of skills and abilities gives each of them strength and confidence because they know there are others just like them.

One student, Angel Coso, who is in the Transition Academy, said the other students here are his family when he is away from his mother and sister.

“Whenever we hear the reports of what is going on at the Burkhart Center, I just want to cry,” said Jere Lynn Burkhart, founder of the Burkhart Center with her husband Jim. “To see these kids changing and grow into adults who are getting jobs in the real world when at first they can’t even look you in the eye, speak or much less have a social interaction when they begin here at the Burkhart Center, it’s just amazing to see what all they can do after learning and training here at the center.”

Magness hopes this camp will continue to grow each year as the number of students at the center increases. Camp Burkhart dedicates a week to each of the three school ages. Last week, it welcomed middle school students; this week is for high school students; and on July 18-22, it will welcome 30 elementary students ages 4-11.

The Burkhart Center is dedicated to helping people with autism spectrum disorder and their families live full lives. The center offers education for teachers, research opportunities and events and resources for the ASD community. The Transition Academy is geared to providing students with a successful transition of people with ASD into higher education, vocation or other settings and to teach life, job and social skills. [Project CASE](#), federally funded by the Texas Council for Developmental Disabilities, helps students ages 18-25 who are interested in furthering their education beyond high school and exploring different career paths to meaningful employment.

For more information about the Burkhart Center, a part of Texas Tech’s [College of Education](#), and the camp visit its [website](#).

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**CONTACT: Janice Magness, co-director of the Burkhart Center for Autism Education and Research and director of the Transition Academy, Texas Tech University, (806) 742-4561 or [janice.magness@ttu.edu](mailto:janice.magness@ttu.edu)**



# News Release

## **FOR IMMEDIATE RELEASE**

DATE: June 22, 2016

CONTACT: George Watson, [george.watson@ttu.edu](mailto:george.watson@ttu.edu)  
(806) 742-2136

### **Texas Tech's National Wind Institute Debris Impact Facility Gains Accreditation from A2LA**

The accreditation comes after a thorough review of the quality management system and competence of the NWI and the Debris Impact Facility.

The [National Wind Institute's Debris Impact Facility](#) (DIF) at Texas Tech University has received its ISO/IEC 17025 accreditation from the American Association for Laboratory Accreditation (A2LA).

The internationally recognized accreditation comes after a thorough assessment of the quality management system, the traceability of measurements and calibrations to national standards, and the competence of the National Wind Institute's Debris Impact Facility.

Larry Tanner, manager of the DIF and a research assistant professor for the National Wind Institute (NWI), said the facility now is accredited as an ISO/IEC 17-25 laboratory that provides impact testing services for national and international clients.

"We have been competing with the larger laboratories for many years, and this accreditation puts us onto a level playing field," Tanner said. "As an internationally accredited laboratory, clients can comfortably test their products at the Debris Impact Facility laboratory knowing their product tests will be in strict accordance with all national and international guidelines and standards."

The DIF promotes public safety and welfare and helps lower losses incurred due to weather hazards and their effects. The DIF performs debris impact tests on storm shelters, shelter components and building materials in order to develop the safest, most impact-resistant materials to better protect individuals.

"This accreditation is fruition of tremendous forward thinking, planning and diligence of DIF management and staff, including Larry Tanner, Tammy Pitzer and professor Ernie Kiesling, over a long period of time," said Daan Liang, interim director of the National Wind Institute. "It represents a major milestone in Texas Tech University's more than four decades of wind-related research and development efforts and will further strengthen our partnership with industry on technology transfer and commercialization, a key goal in NWI's Strategic Plan."

The A2LA evaluated the DIF on its quality management system, the validity and appropriateness of test methods, the traceability of measurements and calibrations to national standards, the suitability, calibration and maintenance of test equipment, the assurance of test and calibration data laboratory and the competence of the DIF laboratory to perform specific tests related to weather hazards.

The A2LA accreditation demonstrates ability of the DIF to manage and perform the activities defined by its A2LA Scope of Accreditation.

“The Debris Impact Facility continues to play an important role in establishing Texas Tech’s reputation as an international leader in wind storm research and wind storm damage mitigation,” said Guy Loneragan, Texas Tech’s interim vice president for research. “This accreditation reflects the superior research and testing done at the facility and by our outstanding faculty.”

The A2LA is a nonprofit, nongovernmental membership society that is internationally recognized as an independent accreditation body in the United States. It offers a wide range of laboratory-related accreditation services and training available to any type of organization, private or governmental, based on an internationally accepted competency criteria.

“Accreditation is regarded as one of the key benchmarks for measuring the quality of an organization,” the A2LA said. “Accreditation gives our testing facility an unbiased, credible and reputable compliance standard to uphold to assure the highest quality for our clients.”

#### **ABOUT A2LA**

A2LA is the largest U.S.-based, multi-discipline accreditation body with more than 35 years of experience providing internationally recognized accreditation services and quality training. A2LA’s world-class accreditation services encompass testing and calibration laboratories, medical testing laboratories, inspection bodies, proficiency testing providers, reference material producers and product certification bodies. Organizations are accredited to international standards and field-specific requirements developed with government and industry collaboration. A2LA also offers a wide variety of both public and private on-site training programs to complement the various accreditation programs.

Find Texas Tech news, experts and story ideas at [Texas Tech Today Media Resources](#) or follow us on [Twitter](#).

**CONTACT: Larry Tanner, manager, Debris Impact Facility, Texas Tech University,** (806) 834-2320 or [larry.tanner@ttu.edu](mailto:larry.tanner@ttu.edu)



TEXAS TECH UNIVERSITY

# News Release

## FOR IMMEDIATE RELEASE

DATE: June 22, 2016

CONTACT: Heidi Toth, [heidi.toth@ttu.edu](mailto:heidi.toth@ttu.edu)

(806) 742-2136

**MEDIA:** Atmospheric scientist Brian Ancell will be available at 1:30 p.m. Friday for interviews. The exhibit will be open and available to reporters and photographers at this time. For a visit outside that availability, contact Erika Gomez at (806) 834-3578. Reporters who cannot attend can download high-resolution photos and audio and video clips [here](#).

### **Wonder Where Wind Comes From? Interactive Exhibit Opening at Museum**

How Weather Works invites visitors to learn how weather patterns are formed and examine how human activity affects weather.

For everyone who wonders why Lubbock is so windy in the spring, how it can be shorts weather in February and parka weather in March or what causes tornadoes, hurricanes and blizzards to hit where they do, come to the [Museum of Texas Tech University](#). Visitors will find these answers and more in a fun, interactive new exhibit that explains how weather begins and how it all works.

Hint: It all starts with the sun and the rotation of the Earth.

How Weather Works: Understanding Our Place Between the Sun and a Storm opens Sunday (June 26) and allows visitors of all ages to start at the sun, create atmospheric pressure, explore the Earth's spin and the jet stream and learn about the many powerful aspects of storms such as tornadoes, haboobs, hail and lightning. The exhibit includes a section on how chaos, or altering one or many components of the atmosphere, can affect weather.

The exhibit showcases research led by Brian Ancell, an assistant professor in the [Department of Geosciences](#), [Atmospheric Science Group](#), who received an Early CAREER grant from the National Science Foundation. In addition to educator resource kits for local teachers and weather summer camps for middle school-age children, he coordinated with the museum to create this exhibit, which brings weather down to eye level and highlights how human activity can affect weather patterns.

“The driving research focuses on inadvertent weather modification, or how human activities such as irrigation, wind farms and urban heat islands can change the weather non-locally, or far away from the source,” Ancell said.

The exhibit is split into two sections. The first covers the basic atmospheric principles that create weather, starting from the sun and the rotation of the Earth and ending with small-

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scale weather features like thunderstorms. Visitors will get to stand between the Earth and the sun and take temperature readings with an infrared gun, then learn how the uneven heating of the tilted Earth creates atmospheric pressure, which then creates wind. They also will explore the Coriolis Effect, which explains how the Earth's rotation leads to the jet stream and how weather systems work.

Visitors then move into a simulated immersive storm experience and learn about the formation of tornadoes, thunder, lightning, hail and dust storms, with a weather alert broadcast in the background and motion-activated thunderstorm above.

The second part of the exhibit discusses chaos and inadvertent weather modification, which is the focus of Ancell's research. Visitors will use a Plinko board representing the Texas-Louisiana coastline to show how minute variations can alter the path of pucks representing hurricanes.

This section also looks at how wind turbines remove energy from the atmosphere and how this affects the wind patterns. It will be updated throughout the duration of the exhibit as Ancell continues his research.

“Chaos is the reason why small changes to the atmosphere, such as those resulting from irrigation or wind farms, can grow to be large, modifying larger scale weather features well away from the changes in the first place,” Ancell said.

The museum, located at 3301 4<sup>th</sup> St., is open from 10 a.m. to 5 p.m. Tuesday through Saturday and 1-5 p.m. Sunday. Admission is free. In addition, the museum is hosting a weather panel at 6 p.m. Friday in the Helen DeVitt Jones auditorium – entry is through the west doors. Ancell, local meteorologist Matt Ernst and Justin Weaver from the National Weather Service will discuss weather patterns and answer questions.

Find Texas Tech news, experts and story ideas at [Texas Tech Today Media Resources](#) or follow us on [Twitter](#).

**CONTACT: Brian Ancell, assistant professor, Department of Geosciences, College of Arts & Sciences, Texas Tech University, (806) 834-3143 or [brian.ancell@ttu.edu](mailto:brian.ancell@ttu.edu) or Andrew Gedeon, exhibits manager, Museum of Texas Tech University, (806) 834-5956 or [andrew.t.gedeon@ttu.edu](mailto:andrew.t.gedeon@ttu.edu)**



TEXAS TECH UNIVERSITY

# News Release

## FOR IMMEDIATE RELEASE

DATE: June 23, 2016

CONTACT: Glenys Young, [glenys.young@ttu.edu](mailto:glenys.young@ttu.edu)  
(806) 742-2136

### **A Million Edits Made to World's Open Map, Program Founded by Texas Tech** The YouthMappers network includes 27 universities in 11 countries.

An interactive, editable global mapping program founded by Texas Tech University has reached a big milestone only seven months after its creation. More than 1 million changes have been made recently to the world's free, editable public map, OpenStreetMap (OSM), by university students worldwide, who have united to create and use open spatial data to directly address development challenges for some of the world's most impoverished countries.

The YouthMappers network of chapters organizes a global community of learners and scholars to work locally and exchange collaboratively to create resilient communities. Thus far, 27 universities in 11 countries have joined the effort. The program seeks to not just build maps, but to build mappers, supporting universities and colleges to offer meaningful global learning experiences; create geospatial data where it is needed most; build a socially engaged citizenry; enhance long-term scientific capacity throughout the world; and foster youth exchange and leadership.

"You can visualize the problems and visualize the solutions with mapping. If we can then do it using collaborative technologies, it can bring us together to address the development issues around the world that are among the most pressing on our planet," said project director Patricia Solís, a research associate professor of geography in the Texas Tech [Department of Geosciences](#). "But most importantly, the learning potential for making real connections to other places and other students is profound. Youth Mappers not only builds maps — we also build mappers."

The United States Agency for International Development (USAID) generously supports this program through a grant from the U.S. Global Development Lab's GeoCenter. Founding partners are Texas Tech, George Washington University and West Virginia University. Inaugural chapters have been formed at:

- University of Cape Coast, Ghana
- University of Pretoria, South Africa
- University of Panama
- University of Malawi
- Royal University of Bhutan
- Tribhuvan University, Nepal
- Butisema University, Uganda

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- Universidad de La Guajira, Colombia
- Khulna University, Bangladesh
- Dhaka Univeristy, Bangladesh
- University of Nairobi, Kenya
- Universidad Nacional de Colombia
- Universidad de Los Andes, Colombia
- Uganda Christian University, Mbale Campus
- Kansas State University
- University of Central Florida
- College of William & Mary
- George Mason University
- New York University
- Clemson University
- California University of Pennsylvania
- State University of New York at Geneseo
- State University of New York at Fredonia
- Cornell University

Capitalizing on web-based open geospatial technologies, the program seeks to cultivate a generation of young leaders to unite and exchange on open and shared platforms, in order to create resilient communities and to define their world by mapping it together.

YouthMappers enlists and supports the talents of the world's university faculty and students to expressly link supply and demand for knowledge. It addresses specific needs for geographic information to specific development objectives in targeted countries, creating new, quality, localized geospatial data in unmapped places of the world where USAID works to end extreme poverty. YouthMappers leverages academic community involvement to synergize with and fill a unique niche among a growing set of actors related to volunteer humanitarian or crisis mapping, and to expand action to address longer term and chronic development.

The million edits contributed to improving food security in Bangladesh, health and disease prevention in Mozambique and disaster preparation and assistance in Ecuador. In Asia, students mapped water bodies and fish ponds as well as roads and buildings to directly support Feed the Future agricultural programs in the Khulna region of Bangladesh. In Africa, malaria prevention and control remains a major U.S. foreign assistance objective and critical for ending preventable child and maternal deaths for populations suffering extreme poverty. Once remote mapping for these districts is complete, USAID and Peace Corps volunteers along with their counterparts on the ground will add local knowledge. Data will improve the efficiency and reach of 2016 spraying campaigns for malaria prevention.

In Latin America, Ecuador has suffered threats of volcanic eruption as well as earthquakes. In August 2015, the nation declared a state of emergency after Mount Cotopaxi shot ash seven miles into the air. The volcano has continued spewing ash and steam, causing continued concern for those living in vulnerable areas nearby. USAID's



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Office of Foreign Disaster Assistance is helping to increase the amount of OSM open spatial data for the region, since many highly populated areas are nearby, including the nation's capital, Quito. YouthMappers were focused on generating road and building data for disaster planning and evacuation but then shifted to join others in the OSM community to map the areas of the country affected by the April earthquake, where the maps were immediately put to use by the humanitarian and relief agencies to assist victims of the natural disaster.

All new data created by YouthMappers is open and accessible to the public using the OpenStreetMap platform and tools to ensure it is freely available for the greater public good, particularly local populations planning for the welfare and vitality of their own communities. Open spatial data created will be used in meaningful research and analysis to directly address specific international development challenges. Students gain new skills and also can use this data in their own research in a great variety of studies on issues that lend themselves to be visualized through mapping.

### **About YouthMappers**

This initiative was formally launched in November on Capitol Hill as part of National Geography Awareness Week, and the network was inaugurated in February. New chapters of students are still being formed and are welcome to join the network. Find more information about YouthMappers [here](#) and profiles of each chapter [here](#).

Find Texas Tech news, experts and story ideas at [Texas Tech Today Media Resources](#) or follow us on [Twitter](#).

**CONTACT: Patricia Solís, research associate professor of geography, Department of Geosciences, College of Arts & Sciences, Texas Tech University, (806) 834-7738 or [patricia.solis@ttu.edu](mailto:patricia.solis@ttu.edu)**



# News Release

## **FOR IMMEDIATE RELEASE**

DATE: June 24, 2016

CONTACT: K'Leigh Sims, [kleigh.sims@ttu.edu](mailto:kleigh.sims@ttu.edu)  
(806) 742-2136

### **Fit 4 Fun Kid's Triathlon Open for Registration** Rec Sports prepares for fun summer events for children.

Registration is open for the Fit 4 Fun Kid's Triathlon hosted by Texas Tech University's [Rec Sports](#). Beginning at 7:30 a.m. July 16, kids will test their endurance at the Robert H. Ewalt Student Recreation Center, located on Main Street just east of Indiana Avenue.

This event begins with a swim at the leisure pool, transitioning into a bike ride and ends with a run around the recreation center. Age groups will compete in different distances.

Seven- to 10-year-olds will swim 100 yards, bike 2.4 miles and run one mile, and 11- to 14-year-olds will swim 200 yards, bike 3.2 miles and run 1.5 miles. Participants and their families will get free access to the leisure pool after the triathlon until 2 p.m.

Rec Sports will host a free preparation workshop for participants from 6 to 7 p.m. July 11 at the recreation center.

Registration is \$20 for the first child and \$15 for each additional child from the same family. Packet pickup will be from 4 to 8 p.m. July 15 with last-chance registration available at the Fit/Well office inside the recreation center. All participants must pick up numbers and packets on July 15. There will be no race-day packet pickup available.

Participants can register [online](#), mail the registration form or submit through the Fit/Well office at the recreation center. For more information about the Fit 4 Fun Kid's Triathlon and preparation tips visit the triathlon [webpage](#) or contact the Fit/Well office at (806) 742-3828.

The Fit 4 Fun Kid's Triathlon is sponsored by the [Covenant Body Mind Initiative](#) and the Covenant Health System.

Find Texas Tech news, experts and story ideas at [Texas Tech Today Media Resources](#) or follow us on [Twitter](#).

**CONTACT: Betty Blanton, associate director, Fit/Well and Outdoor Pursuits, Rec Sports, Texas Tech University, (806) 742-3828 or [betty.blanton@ttu.edu](mailto:betty.blanton@ttu.edu).**



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# News Release

## **FOR IMMEDIATE RELEASE**

DATE: June 27, 2016

CONTACT: George Watson, [george.watson@ttu.edu](mailto:george.watson@ttu.edu)  
(806) 742-2136

### **Southwest Collections/Special Collections Library Hosting College Baseball Hall of Fame Display**

The exhibit will feature items donated by various college baseball players and coaches.

The [National College Baseball Hall of Fame](#) will host its annual Night of Champions ceremony on Saturday (July 2) at the Overton Hotel and Conference Center. Each year the best players and coaches from the season are recognized, and a new class is inducted into the College Baseball Hall of Fame.

Part of the induction includes the past and present players and coaches giving oral histories and providing memorabilia to the exhibit. The [Southwest Collection/Special Collections Library](#) at Texas Tech University is the repository for the National College Baseball Hall of Fame. This yearly exhibit displays memorabilia and donations such as lockers, cleats, gloves, bats, a Hall of Fame poster and other items of interest from various college baseball players and coaches representing the history of the game.

Inductees for the 2016 class include former University of Texas coach Augie Garrido, former University of Houston player Tom Paciorek and former Florida State University standout J.D. Drew.

The items will be on display at Southwest Collections through August.

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**CONTACT: Tai Kreidler, librarian, Southwest Collections/Special Collections Library, Texas Tech University, (806) 742-3749 or [tai.kreidler@ttu.edu](mailto:tai.kreidler@ttu.edu)**



TEXAS TECH UNIVERSITY

# News Release

## FOR IMMEDIATE RELEASE

DATE: June 27, 2016

CONTACT: Glenys Young, [glenys.young@ttu.edu](mailto:glenys.young@ttu.edu)  
(806) 742-2136

Courtesy graphic from NASA attached.

Photographs of Tom Maccarone available upon request.

[Video: Tom Maccarone discusses his research.](#)

### **Texas Tech Physicist Contributed to Discovery of Unnoticed Black Hole**

Tom Maccarone proposed searching for radio waves instead of X-rays.

A Texas Tech University faculty member can take credit for the idea that led to NASA's newest discovery.

Astronomers have combined data from NASA's Chandra X-ray Observatory, the Hubble Space Telescope and the National Science Foundation's (NSF) Karl G. Jansky Very Large Array (VLA) to conclude that a peculiar source of radio waves is a binary star system containing a low-mass star and a black hole. This identification suggests there may be a vast number of black holes in our Galaxy that have gone unnoticed until now.

"The approach is to look for the faintest accreting black holes from their radio emission," said Tom Maccarone, an associate professor in the Texas Tech [Department of Physics](#). "I came up with the idea when a result came forward showing that as the rate at which a black hole sucks in gas decreases, the radio emission gets fainter more slowly than the X-ray emission. People usually look for these things in X-rays, but when they are accreting at extremely low rates, like this object, they are actually easier to find from the radio emission. I pointed this out, and wrote a paper discussing the prospects for doing this with future radio telescope facilities. It turned out that we got lucky, and there happen to be more accreting black holes than we thought, and our group was able to find this object with current facilities."

For about two decades, astronomers have known about an object called VLA J213002.08+120904 (VLA J2130+12 for short). Although it is close to the line of sight to the globular cluster M15, most astronomers had thought this source, which is bright in radio waves, was probably a distant galaxy.

Thanks to recent distance measurements with an international network of radio telescopes, including the European Very Long Baseline Interferometry Network (EVN) telescopes, the NSF's Green Bank Telescope and Arecibo Observatory, astronomers realized that VLA J2130+12 is at a distance of 7,200 light years, showing that instead it is well within our own Milky Way galaxy and about five times closer than M15. A deep image from

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Chandra reveals it can only be giving off a very small amount of X-rays, while recent VLA data indicates the source remains bright in radio waves.

This new study indicates VLA J2130+12 is a black hole a few times the mass of our sun that is very slowly pulling in material from a companion star. At this paltry feeding rate, VLA J2130+12 was not previously flagged as a black hole since it lacks some of the telltale signs that black holes in binaries typically display.

“Usually, we find black holes when they are pulling in lots of material. Before falling into the black hole this material gets very hot and emits brightly in X-rays,” said Bailey Tetarenko of the University of Alberta, Canada, who led the study. “This one is so quiet that it’s practically a stealth black hole.”

This is the first time a black hole binary system outside of a globular cluster has been initially discovered while it is in such a quiet state.

Hubble observations identified VLA J2130+12 with a star having only about one-tenth to one-fifth the mass of the sun. The observed radio brightness and the limit on the X-ray brightness from Chandra allowed the researchers to rule out other possible interpretations, such as an ultra-cool dwarf star, a neutron star or a white dwarf pulling material away from a companion star.

Because this study only covered a very small patch of sky, the implication is that there should be many of these quiet black holes around the Milky Way. The estimates are tens of thousands to millions of these black holes could exist within our galaxy – that’s anywhere between three times and thousands of times as many as previous studies have suggested.

“Unless we were incredibly lucky to find one source like this in a small patch of the sky, there must be many more of these black hole binaries in our galaxy than we used to think,” said co-author Arash Bahramian, also of the University of Alberta.

There are other implications of finding that VLA J2130+12 is relatively near to us.

“Some of these undiscovered black holes could be closer to the Earth than we previously thought,” said Robin Arnason, a co-author from Western University, Canada. “However there’s no need to worry as even these black holes would still be many light years away from Earth.”

Sensitive radio and X-ray surveys covering large regions of the sky will need to be performed to uncover more of this missing population.

If, like many others, this black hole was formed in the plane of the Milky Way’s disk, it would have needed a large kick at birth to launch it to its current position about 3,000 light years above the plane of the galaxy.



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These results appear in a [paper](#) in The Astrophysical Journal. NASA's Marshall Space Flight Center in Huntsville, Alabama, manages the Chandra program for NASA's Science Mission Directorate in Washington. The Smithsonian Astrophysical Observatory in Cambridge, Massachusetts, controls Chandra's science and flight operations.

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TEXAS TECH UNIVERSITY

# News Release

## FOR IMMEDIATE RELEASE

DATE: June 28, 2016

CONTACT: Sarah Connell, [sarah.n.connell@ttu.edu](mailto:sarah.n.connell@ttu.edu)

(806) 742-2136

### University Libraries Hosting Texas STEM Librarians Conference

The annual event, which brings together STEM librarians from around the region, will take place July 21-22 at Texas Tech.

Texas Tech University Libraries will host the [Texas STEM Librarians Conference](#) on July 21-22. The annual conference, which began in 2011, brings together Science, Technology, Engineering and Mathematics (STEM) librarians from around the region to attend professional presentations, collaborate with regional colleagues and learn about current trends in STEM publications and technology.

Bella Karr Gerlich, dean of [University Libraries](#), said hosting the conference is a part of the libraries' mission.

“Congruent with this year’s conference theme, ‘Planting Diverse STEM Seeds,’ the University Libraries is a cultivator of interdisciplinary collaboration, learning and community discussion ranging from lessons of the past to today’s trending topics,” Gerlich said. “Being part of this opportunity where librarians, researchers, administrators, faculty and community professionals can both learn from each other and with each other is a big part of the libraries’ purpose.”

This year’s conference will include a reception at the [Bayer Museum of Agriculture](#) as well as a discussion panel of academic and library community members, including [Patricia DeLucia](#), associate vice president for research; Joni Blake, executive director of the Greater Western Library Alliance; and Kristi Park, executive director of Texas Digital Library.

Conference attendance is open to all STEM-related disciplines, including administrators, faculty, students and community. Registration is \$70 and will be open until July 7, with a \$10 late registration fee added until July 14. Registration includes a reception, tour of museum, lunch and parking for conference. Registration and additional information is available at the conference [website](#).

Find Texas Tech news, experts and story ideas at [Texas Tech Today Media Resources](#) or follow us on [Twitter](#).

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# Expert Pitch

## FOR IMMEDIATE RELEASE

DATE: June 29, 2016

CONTACT: George Watson, [george.watson@ttu.edu](mailto:george.watson@ttu.edu)  
(806) 742-2136

## Engineer Available to Discuss Technological Advances in Fireworks Safety

### Pitch

As the Fourth of July approaches, adults and children alike are crowding fireworks stands hoping to find the one that will, literally, give them the biggest bang for their buck. And while safety in handling fireworks continues to be a priority for all involved, one Texas Tech University researcher has worked extensively from a technological standpoint to help make fireworks safer and just as spectacular. Michelle Pantoya, the J.W. Wright Regents Chair and professor in the Texas Tech [Department of Mechanical Engineering](#), is an expert in energetic materials and combustion and has performed extensive research toward technological advances in fireworks.

### Expert

Michelle Pantoya, professor and J.W. Wright Regents Chair in the Department of Mechanical Engineering, (806) 834-3733, (806) 438-8671 or [michelle.pantoya@ttu.edu](mailto:michelle.pantoya@ttu.edu)

### Talking Points

- The combustion lab at Texas Tech studies the combustion of aluminum fuel. This powder has a protective oxide shell, keeping it safe to handle and mix with oxidizers. Otherwise, aluminum is pyrophoric (it will ignite as soon as it is exposed to air). Aluminum burning makes the brightest stars in fireworks.
- Many fireworks include small amounts of powder to desensitize the formulation and stray electrostatic ignition, like the charge build up from your body. Texas Tech has helped advance that technology.
- The formulations for fireworks have advanced so far that the beauty of the fireworks – color, timing, dispersions – can be easily controlled.
- Fireworks that sat on the shelf for a year 10 years ago were duds. Today, Texas Tech has developed ways to stabilize powder and keep it from aging and degrading.

### Quotes

- “Most explosions at plants are triggered by a stray spark. But adding a small amount of highly conductive powder to a formulation acts like a lightning rod, channeling all the electric energy through the powder, thus preventing the pyrotechnic from igniting unintentionally.”
- “We can keep the reds, whites and blues separated and tailored to go off on demand to light up the sky in ways that just couldn’t happen 10 years ago.”

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- “Old fireworks work as good as new ones due to protective coatings on particles that prevent them from gradually oxidizing in air over time.”

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# Advisory

**FOR IMMEDIATE RELEASE**

DATE: June 29, 2016

CONTACT: Glenys Young, [glenys.young@ttu.edu](mailto:glenys.young@ttu.edu)  
(806) 742-2136

**Special Announcement from Texas Tech Opera Theatre**

More information will be released during a news conference at 11 a.m. Thursday.

**WHAT:** Special announcement from the Texas Tech University [College of Visual & Performing Arts](#) during a news conference featuring comments from Chancellor Robert Duncan and Gerald Dolter, director of [Texas Tech Opera Theatre](#) and Lubbock Moonlight Musicals.

**WHEN:** 11 a.m. Thursday (June 30)

**WHERE:** McKenzie-Merket Alumni Center, 17<sup>th</sup> Street and University Avenue on the Texas Tech campus

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**CONTACT:** Glenys Young, senior editor, Office of Communications & Marketing, Texas Tech University (806) 834-3079 or [glenys.young@ttu.edu](mailto:glenys.young@ttu.edu)



TEXAS TECH UNIVERSITY

# News Release

## FOR IMMEDIATE RELEASE

DATE: June 30, 2016

CONTACT: Glenys Young, [glenys.young@ttu.edu](mailto:glenys.young@ttu.edu)  
(806) 742-2136

### **David Gaschen to Star in Texas Tech Opera Theatre's 'Phantom of the Opera'**

The Texas Tech alumnus will reprise the title role  
he has played more than 1,300 times worldwide.

Texas Tech University's Opera Theatre, in cooperation with Moonlight Broadway Productions, will present one of the greatest musicals of the past 50 years, Andrew Lloyd Webber's "The Phantom of the Opera," this fall.

The production will star Broadway veteran, Texas Tech alumnus and Lubbock native David Gaschen as the Phantom. He will be surrounded by the vocal and stage talents of [Texas Tech Opera Theatre](#) students, many of whom have national singing credits.

"I am beyond excited to return to Lubbock to perform as the Phantom in 'The Phantom of the Opera,'" Gaschen said. "I have waited for this moment for 20 long years and now the time has come. I am so proud to be from Lubbock and an alumnus of Texas Tech. A big thank-you to Texas Tech for giving me this incredible opportunity."

Performances are scheduled for 7:30 p.m. Nov. 18-22 and Nov. 25-26, and 2 p.m. Nov. 20, 26-27 in the Lubbock Memorial Civic Center Theatre.

The production will coincide with the Junior League of Lubbock's annual Holiday Happening.

"The Phantom of the Opera" will feature some of Lubbock's artistic leaders: Gerald Dolter, director of Texas Tech Opera Theatre and [Lubbock Moonlight Musicals](#), will stage the show; Maestro David Cho of the [Lubbock Symphony Orchestra](#) will conduct; and Yvonne Racz-Key, artistic director of [Ballet Lubbock](#), will choreograph. Set and lighting design will be handled by Timothy Walsh of Texas Tech Opera Theatre. Costumes will be designed and executed by Curtains Up Costumes of Sigourney, Iowa. Sound design will be managed by Moonlight Broadway veteran Brooks Willig of Western Audio. The [Texas Tech Symphony Orchestra](#) will play from the pit.

"The stars have aligned in Lubbock," Dolter said. "This production has been in the works for more than two years. It will be the most significant musical theater work ever presented on the South Plains.

"Texas Tech Opera Theatre is producing the event with the assistance of Moonlight Broadway. Through such productions as 'Les Miserables,' 'Mary Poppins' and Disney's

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‘Beauty and the Beast,’ Moonlight Broadway has proven professional musical theater can be produced locally. Texas Tech is happy to have Moonlight Broadway assisting with ‘Phantom.’”

The Phantom of the Opera is presented through exclusive arrangement with R & H Theatricals. The title sponsor is Lubbock National Bank.

Tickets for “The Phantom of the Opera” may be purchased in person at the Texas Tech Student Union Building Ticket Office, by calling (806) 770-2000 or [online](#).

Moonlight Broadway subscribers can purchase advance tickets with a pre-sale code July 11–31. Tickets will go on sale to the general public Aug. 1. Prices range from \$43.50-\$100. A service charge is included.

For more information about “The Phantom of the Opera” visit the Texas Tech School of Music [website](#). Find more information about Moonlight Broadway [here](#).

Find Texas Tech news, experts and story ideas at [Texas Tech Today Media Resources](#) or follow us on [Twitter](#).

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TEXAS TECH UNIVERSITY

# News Release

## FOR IMMEDIATE RELEASE

DATE: June 30, 2016

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### **Graduate School Honors Theses and Dissertations for Math, Social Science, Engineering**

The first place winners will be nominated for the annual Council of Graduate Schools competition.

Texas Tech University's Graduate School recognized work displayed in students' theses and dissertations for the annual 2016 awards, funded in part by the Helen Jones Foundation.

The first-place dissertation award winners will be entered into the Council of Graduate School's annual CGS/ProQuest Distinguished Dissertation Award competition, which honors the dissertations that represent original work and significant contributions to the discipline being considered for the year. Students are nominated by their faculty representatives.

#### **Math, Physical Sciences and Engineering**

- 1<sup>st</sup> place master's thesis – Travis Hall in the [Department of Electrical and Computer Engineering](#)
- 2<sup>nd</sup> place master's thesis – Joseph Drake in the [Department of Natural Resources Management](#)
- 1<sup>st</sup> place doctoral dissertation – Jie Ding in the [Department of Civil, Environmental and Construction Engineering](#)
- 2<sup>nd</sup> place doctoral dissertation – Alaa Darabseh in the [Department of Computer Science](#)

#### **Social Sciences**

- 1<sup>st</sup> place master's thesis – Girsea Martinez in the [Department of Sociology, Anthropology and Social Work](#)
- 2<sup>nd</sup> place master's thesis – Kenna Neitch in the [Department of English](#)
- 1<sup>st</sup> place doctoral dissertation – Sungwon Chung in the [Department of Educational Psychology and Leadership](#)
- 2<sup>nd</sup> place doctoral dissertation – Paulina Velez-Gomez in the [Department of Human Development and Family Studies](#)

The Graduate School recognizes theses and dissertations of mathematics, physical sciences, engineering and social sciences in even numbered years, and biological life sciences, humanities and fine arts in odd years.

Office of Communications and Marketing

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For more information on the awards contact Donna Rogers, manager of scholarship/fellowship and alumni/donor relations at [donna.rogers@ttu.edu](mailto:donna.rogers@ttu.edu).

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# Web Only

## **Department of Design Hosts Competition at Local Retailer** Winning designs were displayed at Malouf's fine clothing store. By Sarah Connell

The advanced flat pattern course in the [Department of Design](#) at Texas Tech University, with help from local retailer Malouf's, allowed sophomores to experience a world outside the classroom. Students taking the course competed for a chance to have original work-themed women's sportswear displayed throughout Malouf's clothing store in Lubbock following the spring semester. Within the course and competition Lyndsie Frost, a Texas Tech alumna and head buyer of ready to wear and jewelry at Malouf's, mentored the students.

Selected apparel design and manufacturing students Kennedy Cox, Breana Martinez, Raegan McGuire, Beatriz Machado, Angela Williams, Bonnie Weiler and Jessica Ozoude worked with Malouf's brands Tory Burch, Lafayette 148, Kate Spade, Rag & Bone, AMS Pure and One State, respectively. The best of show was awarded to Martinez, who also received a certificate from Malouf's.

"The competition pushes them to create excellent work in the areas of design, flat pattern making, sketching, and construction," Rachel Anderson, assistant professor of apparel design and manufacturing in the [College of Human Sciences](#), said. "It allows them to use these basic skills to create original designs for a specific purpose, as well as provides exposure to the inner workings of the fashion industry."

After college, most students will either go into business for themselves or for a company like the ones for which they designed. Exposing students to the industry lets them learn how to present design to a group of buyers to sell their line of clothing and process of job interviews, Anderson said.

Frost and Mercedes Kennedy, director of visual merchandising for Malouf's, judged each presentation each student's research of the brand, its target customers, appropriateness of design, trend forecasting and construction.

Frost said she additionally looked for whether the design would fit the line they are representing and her store. Being there from beginning to the end allowed Frost to see how much each presentation evolved. She also reviewed each presentation individually and helped students to enhance their techniques. The competition was comparable to "Project Runway," the design TV show on Lifetime.

"Hosting the competition at Malouf's allowed students to experience something they don't see every day," Frost said. This was something that has been added to the class since Frost was a fashion major.

Martinez, who is pursuing Haute Couture, designs used for red carpet or museums, said she and the other students learned what it is like for a buyer to stock a store with styles, brands and items geared toward their target customers using their recurring customers as a tool in choosing.

“This whole process really has inspired me to pursue design after school,” Martinez said.

Students had to keep in mind how the brands cut and shape their clothes. Stitching, overall fit, fabric content and color story were a few of many factors students to which students adjusted when creating their clothing line. Even before starting students were required to research their chosen brand. Students also created a trend report which included the history of the brand, design aesthetic, desired trends, customer demographic, and which season, fall or spring line, they would create for.

They also had to forecast what trends and color schemes would become popular. Since most of what Malouf’s carries is high-end fashion, students were asked to pick a favorite apparel of their fashion week.

Frost said a few of her customers wanted to purchase the students’ clothing, which she said is exciting to watch high-end customers desiring designs from the students. She hopes to continue helping with competition and help it to grow to not just yearly, but semesterly.



# Web Only

## **Personal Financial Planning Academy Introduces Teens to Investing**

High school students from throughout the country visited Texas Tech to learn about finances.

By Kristen Barton

Most teenagers use summer vacation to stay as far away from school and homework as possible, but last week almost 40 teenagers traveled to Texas Tech University to learn more about financial planning.

With projects around the [College of Human Sciences](#) building and teenagers seen taking notes in lecture halls, the inaugural [Financial Planning Academy](#) was deemed a success by organizers and participants alike.

The organizers, including faculty members from the [Department of Personal Financial Planning](#), started preparing for the academy in January and continued until the camp. Assistant professor Christopher Browning, director of the camp, said he got the idea from a program at another university, and he knew he could bring it to Texas Tech.

“It’s a great opportunity to expose young people to important financial planning concepts, regardless of what they want to do in college or professionally,” Browning said. “It will benefit them, but it’ll also expose them to really great degree programs and opportunities.”

He and PFP professor Deena Katz worked with the Charles Schwab Foundation for funding, and Browning made his idea a reality and brought 39 teenagers to Texas Tech to learn about financial planning.

Browning had many goals for the camp, the first being to teach teenagers financial concepts that will benefit them for the rest of their lives. The second goal was to recruit students to Texas Tech.

“The goal is to recruit students who are interested in financial planning into our program and to grow this profession,” Browning said. “The growth of the profession is a product of more students in degree programs; that’s another huge goal we have for the academy.”

Tanner Castle, a student adviser for the week, said the students came from throughout the country and have shown an interest in financial planning.

The students were split into teams at the beginning of the week, Castle said. Each team made its own firm and was given an imaginary client and case study. From there, the students had to come together to help the client reach its goals.

“As student advisers, we weren’t allowed to give them any answers so we let them learn about all this and then find those answers on their own as a group,” Castle said. “That’s what they did all week. On Friday they all presented their plans as they would to their clients to a panel of judges, who judged them based on their presentation.”

The students also competed in other competitions throughout the week, all of which factored into their final score. The campers built a virtual office space for their firm using Legos. There also was a social media challenge so the students could learn about marketing.

All of these competitions factored into the grand prize: \$500 for each student on the winning team, Castle said.

In addition to planning with their groups, students heard from industry professionals on retirement, investing, credit, student loans and more. While the students are still in high school, Castle said the speakers explained the topics so as to make them relevant to their age group.

Brayden Lambrecht, a 17-year-old student from Castle Rock, Colorado, said he and his friends drove about 10 hours to attend this camp after an internship sparked his interest in financial planning.

“I did an internship as a freshman in high school at a financial planning firm and liked it, and Texas Tech has probably the best financial planning school in the country,” Lambrecht said. “When I saw they had their inaugural academy, me and my other two friends applied and we’re all here now. I really wanted to seek out what they had to teach.”

Lambrecht said he is looking at financial planning as a career even more seriously now than he was before, and the academy made him interested in Texas Tech.

Throughout the week the students learned several lessons in finances, but Lambrecht said the one he got the most out of was retirement planning, because it is never too early to start.

Even if he decides not to pursue financial planning as a career, Lambrecht said retirement planning is still a skill he needs and is glad he got to learn it at the academy.

Besides learning about money, the students also worked together and learned teamwork and leadership skills throughout the week.

“We’re all from really diverse areas; there are kids who were younger, older, athletes, not athletes, from different states,” Lambrecht said. “We’re just kind of thrown together in a melting pot and come together, set aside differences and really work together for the betterment of the group. It was not necessarily easy, but I am better for it.”

Ben Slyker, a 15-year-old from Lubbock, said it was exciting to see the Texas Tech campus while here, because it’s like a separate city from Lubbock. Those attending the camp also got to visit Jones AT&T stadium and swim at [Student Recreation Center](#).



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The teenagers stayed in Gordon Hall for the week, which Slyker said he has wanted to do for a long time and cannot wait to do it again.

Amidst the intense curriculum, Slyker said having the Texas Tech student assistants kept the camp fun.

“The student helpers and friends helped relieve our stress about winning the competition,” he said. “They helped me appreciate the strategy behind the decisions we made.”

Slyker said the camp is more advanced than what he has learned about financial management in school, and he would attend the camp again. The camp balanced learning tough subjects with fun experiences for those who attended.

“If you have an interest in managing money and investing, I think this camp is a really great thing,” he said. “It really gave us a chance to experience what a career in financial planning is like. It was pretty intense.”



# Web Only

## **Prioritizing Publishing: Group Aims to Help Women Faculty in Research**

The Women Faculty Writing Program, the second of its kind in the nation, provides support, accountability, skills and sanctioned time for writing.

By Heidi Toth

For three hours a week, the only consistent sound in room 119, Doak Hall, is 80 fingers tapping on keyboards. Every now and then someone coughs. No dings announcing a new email or ring of a phone call can be heard. Social media, checking email and phones are strictly verboten.

It's the perfect balance of camaraderie and individual focus for these eight women professors, all of whom are hard at work on their research. Publishing is a must for every academic; it's also the only part of their job description that isn't on a semester schedule with grades, exams and deadlines built in. As such, despite its importance, research often is the first thing that slides when the semester gets busy.

For the professors in the [Women Faculty Writing Program](#) (WFWP) at Texas Tech University, which just finished its first year of existence, these three hours of research time are sacrosanct. It's on the calendar, they set goals and hold each other accountable, and attendance is mandatory if they want to continue in the program. Most, though, don't need to be convinced of its importance. They want to be there.

"Academia is still very male-centric," said Caroline Bishop, co-founder of the program and an assistant professor in classical and modern languages and literature. "Before I did this group in Indiana, I'd never been around so many academic women of all departments and all ranks. I was just blown away by how supportive they were of each other's success. We should all be in it together.

"I think that's the feeling I enjoyed most about the group there and why I wanted to bring it here."

### **Filling a need**

Texas Tech reaching Tier One research status from the Carnegie Foundation in February amplified the need for professors to have time set aside just for research, said Elizabeth Sharp, an associate professor of [human development and family studies](#) and co-founder of the program. This is true for all academics. Professors are evaluated – and promoted – according to how much they publish, yet teaching, grading, interacting with students and doing service work within their departments generally require more immediate demands on professors' time, leaving research to squeeze into the gaps.

This is an even more common problem for women in academia, Bishop said. A recent study showed male professors, on average, spend an hour more a week on research than

their female peers. Women spend an hour more a week on service and half an hour more on teaching.

“It’s not because women are working less, it’s because women are given more service work to do,” she said. “Women do disproportionately more of that than male academics do.”

That led into the second set of statistics that showed Bishop how critical setting aside time for research is. As universities throughout the country hire entry-level professors, the new hires are split almost evenly – 50.5 percent of entry-level professorships go to women.

However, the number of women professors with tenure make up only 43 percent of tenured faculty, and at the highest level of promotion, women make up less than a third.

“There’s a real problem keeping and promoting women,” Bishop said.

Many attribute that in part to the lack of dedicated time to research. It’s not just in the United States either. Kathryn Hollingsworth, a visiting law professor from the United Kingdom, said she has much the same experience as her American counterparts.

“Increasingly it is difficult for us to carve out time for writing, and it is always research that is the thing that ‘gives’ because, although important, it is usually not urgent,” she said. “Yet it is the aspect of our job on which we are judged and promoted. The WFWP allows us to prioritize our writing. It also helps combat the isolation of academic writing and to encourage and enthuse each other.

“Going to the group was the most productive time of my leave period.”

Deidre Popovich, an assistant professor of marketing in the [Rawls College of Business](#), agreed. She’s a first-year professor who has done online writing groups before, but found the face-to-face meetings increased her productivity and accountability. She learned how to be a more effective researcher through participation in the writing program, she said.

Erin Collopy, chairwoman of the [Department of Classical and Modern Languages and Literature](#) (CMLL), said she’s been in groups that allowed professors to discuss their research, but it wasn’t dedicated time for actually getting work done. She also was more likely to skip that group if some other duty came up, which is common in administration. That wasn’t true with this group, she said.

### **Getting started**

Bishop brought the idea from Indiana University Bloomington, where she was a visiting assistant professor in 2014-15. She was a part of a women’s writing group there and found she benefitted from attending.

“It really was amazing,” Bishop said. “It was my favorite thing about being there.”

When she started at Texas Tech in fall 2015, she met Sharp, who is chair of the [President’s Gender Equity Council](#). Sharp liked the idea and approached Kathy Gillis, director of the [University Writing Center](#), and associate director Kristin Messuri as well as Charlotte



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Dunham, director of the [Women's Studies Program](#). They also coordinated with Juan Munoz, senior vice president for [Institutional Diversity Equity and Community Engagement](#), and two months later the WFWP was accepting applications.

The membership pool is built into the name; the group is open to women faculty members at Texas Tech with the goal of encouraging the members to write articles and book chapters, apply for fellowships and grants and submit papers to academic conferences. In the fall 17 women joined; for the spring semester all 17 returned and a few others applied as well.

The women come from all ranks, although Sharp said they give preference to women with tenure-track appointments. The application also asks about the research each professor is doing and what she believes she will gain from membership in the group. It also emphasizes that this group is supportive, not competitive.

The women come from a range of disciplines, including law, education, marketing, journalism, anthropology, languages and literature. Bishop studies Greek and Latin languages with a special emphasis on Roman philosopher Cicero, while Sharp studies gender and family ideologies with a feminist framing. Some do quantitative, data-heavy research for which they rely on multiple co-authors; others in the humanities focus more on qualitative, individual analyses. The professors don't always have much in common besides their gender and career.

For three hours a week, though, they come together to share ideas, set goals and write. The professors are divided into three groups, all of which meet at a set time once a week. Bishop said in the fall they divided professors by discipline, putting science researchers in one group and humanities in another. However, they realized each group missed out on valuable insights from people who think, study and research in different ways, so since then they divided professors based on when they were available to meet.

The first half-hour is a group chat based on an article they've all read, which usually relates to the research and writing process. They also set individual writing goals for the day and write them on a white board. After the pleasantries and discussion, each faculty member opens her laptop and does research for two and a half hours.

What that research looks like depends on the professor. Sharp said the program members, called fellows, sometimes use the time to read or analyze their data or organize their information. Bishop used the time to hone her application for a Loeb Classical Library Fellowship, a program administered by Harvard University. She received the fellowship and will spend the next year at St. Louis University, which has the Vatican Library's archive on microfilm, finishing a book titled "Cicero's Intellectual Politics."

The other fellows celebrated when Bishop received the fellowship, as they did for each accomplishment, be it the completion of daily goals or one of the many external results. In the first seven months of the writing program, members collectively published 20 peer-reviewed journal articles and submitted 25 additional articles, applied for four national

fellowships, submitted one book proposal and started three more, received a national research award, submitted and received a grant and submitted or wrote dozens more conference papers, book chapters and other publications.

While some of this would have happened without the writing program, participants said having the sanctioned time, structure and accountability made a huge difference. It was particularly helpful for first-year professors who were creating new curricula and getting used to a new place.

“I think everyone has a tough time in their first year in a new job, and I had an extra tough time because another faculty member in my department left unexpectedly,” Bishop said, adding much of his work ended up on her desk. “It would have been really easy to just get swallowed up in the service and the teaching and the stress. Having that dedicated time for research was so helpful for me.”

### **Creating a woman-only space**

Worrying about publishing and making time for research is an experience every academic shares, and all of the participants in the WFWP have leaned on their peers, both female and male, for assistance from time to time. But for Sharp and Bishop, making this a woman-only space was critical to its mission.

“The larger issue is inequities still exist,” Sharp said. “We’re embedded in a system that continues to highlight ‘male’ as the normative – consider our language, e.g. freshman, bachelor’s degree, mankind, etc.”

For some participants, allowing only women was a hard sell. Collopy initially was turned off by the gender divide. She felt that way because she wants to believe academics live in a post-gendered world – “we’re all feminists, right?” – and because as chair, she knew plenty of male faculty members would benefit from such a group.

She joined anyway after encouraging Bishop to start the program, and her hesitation disappeared.

“The CMLL faculty is equally divided between men and women, but that is not the case for many other departments across campus, and our upper administration is primarily male,” Collopy said. “Women also are socialized to be caretakers, so they often spend more time on teaching and service than men do. Having the organized time to meet and making the meeting a priority allows female faculty to carve out time for research.”

For others, being among women was the biggest selling point. Popovich liked how open they could be in talking about issues that were specific to women on campus.

“I think women have fundamentally different experiences in academia,” she said. “It’s nice to have faculty who are in similar situations to talk about some of the aspects that are unique to women. Whether we want to admit it or not, female faculty have different challenges than their male counterparts. It is nice to be in a collaborative, kind, judgment-free group where we can talk about these issues and try to figure out ways to proactively handle them.”



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It also allowed for networking among professors of different ranks and fields. The fellows discussed opportunities to collaborate with each other, feedback on different types of research and even non-academic subjects they had in common. Bishop said a number of women who had children coordinated to get additional child care options in Lubbock. It also took women, especially those working toward tenure, out of their offices to do their research.

“Research tends to be very individualized,” Sharp said. “What I think is so important about this is we’ve created a community of women scholars from throughout campus.”

Although the group isn’t for everyone – some professors organize, research and motivate themselves without problems – it has its place for many people, Sharp said. She has tenure, is well-established in her field and has half a dozen different research projects, and she found going to the WFWP helpful.

“We all have considerable demands on our time, and our work is frequently interrupted,” Sharp said. “Most of us receive emails non-stop, and we know faculty members spend considerable time answering emails, but our research demands attention too. The writing program helps us prioritize research.”

Women professors interested in participating in the fall semester can apply [online](#) by Wednesday (June 15).



# Web Only

## **Professor Inspires Women in Engineering**

Rattikorn Hewett discusses diversity in STEM on National Women in Engineering Day.  
By Kristen Barton

[Rattikorn Hewett](#) is leading the [Texas Tech University Computer Science department](#) as department chair, years after she was the only woman to graduate from her undergraduate mathematics department in Australia. Now, she is helping women in engineering succeed.

Hewett said in her time in school in Australia, women would rarely go into science, technology, engineering or math (STEM). Instead, women commonly went into arts, education and nursing.

“In my class of over a hundred students in the math department, we started off with two women majoring in pure mathematics,” Hewett said, “but in the end I was the woman who completed the degree with this major.”

Since then, women in STEM have come a long way, she said.

National Women in Engineering Day adds awareness to a lack of diversity in engineering, Hewett said, but the issue requires more than just a day with some booths giving out information. The topic needs deeper focus and to spotlight women succeeding in engineering.

“People need to understand why we want to increase females in engineering; it’s not just because there are too few, but because women add something to the product,” she said. “I believe women and men do not think the same way, and being diverse is a great thing.”

Specifically in computer science, Hewett said diversity is badly needed. Schools everywhere are trying to increase women in engineering, and Texas Tech is no exception. Hewett said according to studies, there are many reasons women shy away from computer science.

“Women are interested in doing something that impacts the world, we care that what we do matters,” she said. “In computer science, the product is the code, so to correct that it means I have to start talking about the application more to recruit students to computer science.”

Another study says female students shift away from computer science because the majority of students are male, Hewett said, which is intimidating for female students.

A lot of computer science students are shy and introverted, she said. So when a male student likes to brag it is intimidating for female students. Studies show women are often better coders than men, but they do not say so or talk about it.

According to the study, one way to change this is to teach faculty members to encourage students who can be intimidating to talk offline, she said.

“The solution is simple, but you have to do it,” Hewett said. “And not just one person needs to do it. There has to be more.”

Recruitment and retention of women in engineering is the starting point, she said. There is a “nerd” label associated with computer science that can cause people from a young age to shy away from the field.

“When kids are at a young age, you always buy dolls for girls and trucks for the boys, so if you grow up liking trucks you like engineering,” Hewett said. “If you switch the toy, things might change.”

Sometimes we relate gender to professions in culture, so if parents are aware of that, things might change, she said.

In college, Hewett said, she had to work twice as hard as her male counterparts. If she worked with a male on a project, and if there was any doubt on who contributed, her professor would err to her male partner.

Now at Texas Tech, her research and projects are always attributed to her and benefits the university. Hewett studies cybersecurity and big data.

Hewett also said she is not intimidated by the men she works with now and tries to help students feel confident.

“The experience taught me to be self-reliant; I work to prove myself and I do not complain,” she said. “Instead of jumping to the conclusion someone is prejudiced against me, I examine the issue and then I try to prove myself.”

This is the method she teaches her students so they can also be self-reliant and prove themselves, Hewett said. Often she sees female students who are not confident in their abilities.

When she sees one of these students in her class, Hewett tries to motivate them to achieve more than they have planned. The future for women in STEM is bright.

Deepti Bhatia, a graduate student studying software engineering, is a graduate advisee for Hewett, who has provided her support since coming to the U.S., she said.

“She has been my major source of support, no matter what I do,” Bhatia said. “My journey wouldn’t have been this smooth if it wasn’t for her.”

Hewett’s struggle to where she is today is inspiring, Bhatia said. This motivated her to work harder.



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“Women in STEM should now help each other more,” she said. “Too often they try competing among themselves; I don’t know why.”

Through Hewett’s work with Engineering Women of Computer Science and the [Society of Women Engineers](#), Bhatia said Hewett always encourages students to participate so they can feel comfortable and secure in their department.

“I think most of the times, people who have had to go through a lot of hurdles understand what others have to go through, and Dr. Hewett is one such person,” Bhatia said. “And I can say this on behalf of all the female students in our department: it feels awesome to have a mentor, guide, motherly figure and such a knowledgeable person at the position of the department chair. It influences us to aim higher in life.”



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## **Remembering the Past: Trail Ride Takes Participants into Texas History**

The National Ranching Heritage Center recently completed its second trail ride, a chance for ranchers and ranch enthusiasts to share company, experience history and ride.

By Heidi Toth

Gerald Nobles spends many of his days on a horse. The rancher from Brady rides to push cattle, watch out for problems in his herd and keep an eye on his land.

Spending more time riding his horse around a ranch doesn't seem like the way he'd choose to spend a weekend away.

"Most ranchers get a lot of horseback riding, so to go out and ride a horse on a trail ride is normally not a thing you would do," he said. "But when there are people you don't see very often and you're leisurely riding through beautiful country, listening to the history of that country, it makes it worthwhile.

"It's a different kind of ride."

That's exactly what compelled him to participate in the 2016 trail ride, which the [National Ranching Heritage Center \(NRHC\)](#) at Texas Tech University sponsored. The ride, which was May 13-15 at Collins Creek Ranch north of Albany, took almost 40 participants through Collins Creek and Lambshead ranches and [Fort Griffin Historical Site](#).

Since many of the riders were ranchers and members of the executive council of the Ranching Heritage Association (RHA) Board of Directors, they went to school together, worked together or at least knew of each other. The trail ride was an opportunity for them to share their appreciation of the NRHC with their friends, not to mention a chance to go outside and play.

"It's almost like summer camp for adults," said Robert Tidwell, curator of historic collections at the NRHC.

### **A day on the trail**

Riders got to the Collins Creek Ranch Friday afternoon, then saddled their horses and rode to the historic Fort Griffin, which includes a mess hall, barracks, officer's quarters and a well. Re-enactors gave life to how the town of Fort Griffin would have looked in its heyday in the mid-1800s – streets filled with buffalo hunters, gamblers, saloon girls, ranchers, clerks, outlaws and soldiers, all contributing to the town's reputation as one of the West's five wildest towns.

After barbecue on Friday night, everyone went to bed in preparation for what Tidwell called the "from dusk 'til dawn" day. Riders ate breakfast, saddled their horses and hit the

trail, traveling all over Collins Creek Ranch and some of Lambshead Ranch, stopping every now and then at some historically significant place or particularly beautiful view. They weren't in a hurry, moving through the land slowly, enjoying the scenery, talking to each other and taking a lunch break followed by a siesta.

"The part I really liked was whenever we had a stop and people were just chitchatting with one another, especially when we stopped for lunch on Saturday," Tidwell said. "You get to hear all of these people swap stories and tell these tales of adventures and misadventures from their youth."

That camaraderie, as well as learning the history of the land they were on, was one of the highlights of the weekend for Tony Spears, president of the RHA and a rancher from Gonzales, though he then admitted the whole weekend was a highlight. The two ranches through which they rode were "just stacked with history" from the Comanche Indians centuries ago to the present. The group stopped at Camp Cooper at the Clear Fork of the Brazos River; the camp was the last duty station for U.S. Army Col. Robert E. Lee before he became general of the Confederate army.

The trail riders also stopped at an old cemetery where most of the Reynolds and Matthews families are buried. These families were two of the most prominent Texas ranching families in the 1800s, and their stories are told in the book "Interwoven," by Sallie Reynolds Matthews.

"Those two ranches are just spattered with historical markers, and it just reeks with history," Spears said.

Learning the history also was the best part for Betsy Bellah, a rancher who grew up in the area around Fort Griffin and one of the few women who went on the ride. She enjoyed the scenery from a horse-drawn wagon and said the trip was a chance to resurrect old lessons from her seventh-grade Texas history class.

"I loved hearing about the history and seeing where these events took place," she said. "It was beautiful. The wildflowers were absolutely gorgeous."

After a long day on the range, they returned to Collins Creek Ranch for a night of dinner, dancing and music from the Randy Brown Band. Dinner was excellent, Tidwell said – freshly slaughtered steaks cooked by gourmet chuckwagon cooks.

"It's a trail ride," he said. "You have to have steak for your evening meal."

### **Building up the mission of the NRHC**

Three years ago Spears, a rancher from Gonzales, organized the first trail ride as a fundraiser after a round of budget cuts. That remains one reason for the event, but the bigger purpose is to raise awareness and increase excitement about the NRHC and its mission of promoting the history of ranching and the livestock industry today.

"We feel like we're a gem on the campus of Texas Tech University, and some people don't even know we're there," he said.



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The NRHC is known for the windmill that drivers on Marsha Sharp Freeway can see and the historic buildings that fill the 19-acre historic park. It has a rustic feel to it, and walking through on a windy day can make visitors feel they're in a dusty, Old West town. That is the experience, Spears said, but the NRHC is much bigger, including a museum with artifacts, photographs and western paintings.

"I tell everybody we're a bunch of ranchers who are very passionate about the history and heritage of ranching in Texas, but with an artsy-fartsy side," he said. "We appreciate western fine art, and we have got a bunch of that."

Both Bellah and Nobles talked about the influence ranching had on their lives. Nobles grew up on a ranch and knew from a young age that he wanted to follow in his father's and grandfather's careers and become a rancher.

"I was very proud of the heritage I received," he said, adding both of the trail ride and the industry: "When you get older you learn to appreciate some of the things that went on ahead of you that created things the way they are."

Bellah said the NRHC is a way to inform people how significant ranching is in Texas and the region and the importance of knowing its history.

"I want people to experience the National Ranching Heritage Center, to learn how precious history is and the importance to the future of where food comes from," she said. "It's just very dear to my heart."

To become a member of the RHA, go [here](#).



# Web Only

## Researchers Complete Study of Southeastern Tornado Development

Three atmospheric science researchers participated in the VORTEX-SE project earlier this year to learn more about tornado development in the Southeast.

By Cara Vandergriff

In order to improve our understanding of how tornadoes develop, travel and intensify in the southeastern United States, three Texas Tech University researchers participated this spring in the Verification of the Origin of Rotation in Tornadoes Experiment-Southeast (VORTEX-SE), a two-month study investigating tornado activity in the Central and Southern Plains regions.

[Chris Weiss](#), a Texas Tech associate professor of [atmospheric science](#) specializing in severe storm dynamics and tornadogenesis, said the intention of the VORTEX-SE study was to explore how landscape and the near-storm environment in the southeastern region contribute to tornado development.

“The project was a success all around in terms of our Texas Tech component,” Weiss said. “We had two or three big storm events occur that we were able to gather some useful samples from, so I think we were definitely able to meet the criteria for the project in a number of ways.”

The VORTEX-SE investigation was mandated by the U.S. Congress after several significant tornado events occurred in the Southeast, prompting an interest in how specific types of tornado systems develop in the region’s unique terrain. In addition to Weiss, [Eric Bruning](#), associate professor of atmospheric sciences specializing in storm electrification, and [Johannes Dahl](#), assistant professor of atmospheric science specializing in convective storm dynamics and supercells and tornadoes, also were involved in the study, along with doctoral students Vanna Chmielewski and Aaron Hill.

Because factors such as temperature, humidity, wind and lightning can contribute to tornado development, the VORTEX-SE researchers set out to identify which specific features serve as precursors to tornadoes as well as to better understand how downdrafts from southeastern thunderstorms differ from those in other locations.

By using observational platforms developed at Texas Tech, such as StickNet probes, lightning mapping array stations and weather balloon vehicles, the researchers measured a number of factors important in determining the development of tornadoes.

“We were able to deploy quite a few observation facilities spanning out over 100 miles, which we used to capture events we couldn’t normally measure with targeted observations,” Weiss said. “We were able to gather a significant pre-tornadic sample ahead

of one large event, as well as gathering some data from another group of rotating storms a few weeks later.”

The project, which was sponsored by the National Oceanic and Atmospheric Administration and organized by the National Severe Storms Laboratory, aims to use its results to further explore a number of tornado-related issues, including how to improve the accuracy of tornado warnings.

“We learned quite a bit, especially considering this project marked the first time anyone has carried out a coordinated field project on tornadoes in this part of the country,” Weiss said. “What we’ve gathered does seem to suggest the terrain of this area has an impact on storm development, but we need a much more robust sample to make confident conclusions. We have a much better feel for the lay of the land now, so if we’re lucky enough to continue our research next year we hope to be able to incorporate many new aspects we learned this year.”

Weiss said the group has been recommended for funding to continue its research in 2017, saying the experience gained in this year’s study laid a strong foundation for more specific research in the future.

“We will take the knowledge we gained this year and use it to learn even more next year,” Weiss said. “We want to explore specific environmental features that we’ve found could potentially interact with developing storm systems to produce tornadoes.”

In terms of experience, Weiss said, the Texas Tech team began the VORTEX-SE project with next to none in the southeastern area. However, after directly observing and measuring three major storm events throughout the duration of the study, the researchers are hopeful they’ll have even greater success next year.

“This was a foundation-building year for us,” Weiss said, “and we have a lot of new knowledge now that will help us make next season even better.”



# Web Only

## **Sport Management Students Finish Runner Up at College Sport Research Conference**

Team's presentation was a solution to student-athlete compensation situation.  
By Sarah Connell

A team of graduate students in the [Sport Management Program](#) at Texas Tech University placed second at the 2016 [College Sport Research Institute Conference](#). The national conference was held in late April in Columbia, South Carolina.

The team of Zach Chavez, Angelica Garcia, Hannah Limmer and Kris Lane Plunkett, along with faculty members Calvin Nite and Adam Cohen in the [Department of Kinesiology and Sport Management](#) was one of seven teams that competed and presented on the issue of collegiate student athlete compensation. The University of New Mexico placed first at the competition.

Each year, teams from throughout the United States attend the conference and compete in graduate-level student case competitions. Students present on current issues in college sports to a panel of judges consisting of sport professionals, experts, and professors.

Texas Tech proposed to provide athletic scholarships that are more accessible and more stable. Having the scholarships offered on a multi-year basis will allow more of a guarantee than before. Also, it will prevent any scholarship loss in the event of a devastating injury and the inability to perform the rest of the season. The scholarships will be tethered to health insurance allowing athletes' coverage until they turn 26.

“We want the scholarships to help stabilize the athletes' financial situations rather than them being business transactions between players and their coaches, like they are commonly treated in the NCAA today.” said Limmer

The team also discussed being an athlete requires a large amount of dedication, leaving sparse time for other activities such as finding a job. The solution will allow athletes to be endorsed by companies who want athletes to represent their brand. This could aide in giving Division I athletes more access to branding their own image and showcasing their previous successes.

Texas Tech has recognized the Olympic Free Market Model and the relationship it had to the NCAA's amateur label they give to the student athletes. This demonstrates the free market would allow athletes to eventually become entrepreneurs. At the moment, there is a bylaw preventing college athletes from operating their own business. Recognizing this model will allow athletes to sell jerseys, autographs and pictures while keeping the money rather than having all funds dispensed to the NCAA.

“We believe the greatest part about our solution was the simplicity of it, and how easy it would be to actually implement within the NCAA in the near future,” Limmer said.

The panel of judges based scores on quality of the case content, presentation delivery, and ability to respond to proposed questions.

Besides the competition, the conference hosted several discussions and oral presentations as well as Joe Nocera as the keynote speaker. Nocera is a sport business columnist for The New York Times as well as an author and writer for multiple publications. Additionally, participants spoke to other authors and journalists who wrote on the topic of the research. Limmer said it was amazing to hear their opinions on the various subjects in person in their own voices.

Plunkett, a team member, spoke on how the conference showed the importance of this line of work. He said the experience allowed the team to see that once in the field of work they could find solutions to problems and ways to make a difference in the industry.

By allowing “an opportunity to network with people whom we might not have had a chance to meet otherwise,” Plunkett said they created a place that was, “rich with information of our field.”

Though Texas Tech has competed well at this conference before, they had never placed until this year.

“This group of students upheld the legacy of previous students by working very hard and competing well,” Nite said.

Having gone before as a graduate student, Nite knew what this convention allows the students to experience. He knew participating would create exposure on the national level for Texas Tech’s Kinesiology and Sport Management department.

The team was self-selected after mentioning the student case completion. He said that they lost only by a split decision and the team was very close to winning.

The team spoke highly about how each individual represented Texas Tech University along with the sport management program and are planning to compete again next year.



# Web Only

## **Texas Tech Hosts Summer Programs and Camps**

From the start of June to the end of August there is a wide variety of camps and programs for students and youth.

By Sarah Connell

With the start of summer, departments at [Texas Tech University](https://www.ttu.edu) will hosts programs and camps for youth and students on its campus. With camps from almost every department there is a wide variety to choose from. From academics to sports, and on or off campus, Texas Tech provides an opportunity to learn, play and grow this season.

Texas Tech University's camps and programs:

### [Division of Institutional Diversity, Equity & Community Engagement:](#)

- [Office of Community Engagement](#) ([community.oce@ttu.edu](mailto:community.oce@ttu.edu))
  - [RaiderLife](#)
    - Session I: June 19-24
    - Session II: June 26-July 1
    - 11-12 grades
    - Residential living, participants will have housing provided.
  - [Texas Tech University Outdoor Summer Science Academy](#)
    - June 29 – July 3
    - 7-9 grades
  - [Back to School Fiesta](#)
    - 9 a.m. to noon Aug. 13
    - K-12 grades
- [University Interscholastic League \(UIL\)](#) ([b.gonzalez@ttu.edu](mailto:b.gonzalez@ttu.edu))
  - [Summer Theatre & Technical Camp](#)
    - July 5-17
    - 8-12 grades
    - Residential and commuter living
  - [Summer Congress, Speech & Debate Camp](#)
    - July 10-16
    - 8-12 grades
    - Residential and commuter living
  - [Summer Math & Science Camp](#)
    - July 12-16
    - 8-12 grades
    - Residential and commuter living
- Applications for all campers are due June 15

- [The Institute for the Development and Enrichment of Advanced Learners \(IDEAL\)](#) ([ike.flores@ttu.edu](mailto:ike.flores@ttu.edu))
  - [Texas Tech Sports Media Camp](#)
    - June 26-July 1
    - 9-12 grades
  - [Science: It's a Girl Thing](#)
    - Session I: June 5-9
      - 5-6 grades
    - Session II: June 12-16
      - 7-8 grades
    - Session III: June 12-16
      - 9-12 grades
    - Partnered with STEM-CORE
  - [Minecraft Camp](#) – Innovative Coding
    - July 10-15
    - 6-12 grades
  - [Run On the Wind](#)
    - July 10-14
    - 6-8 grades
  - [Generation TECH: Fuel the Future](#)
    - July 10-15
    - 9-12 grades
  - [Shake Hands with Your Future](#)
    - Session I: July 17-21
      - 4-7 grades
    - Session II: July 24-28
      - 8-12 grades
  - All camps are residential living.
- [Texas Tech Chess Program](#) ([texastechchess@ttu.edu](mailto:texastechchess@ttu.edu))
  - [Camp I](#): June 20-24
    - Registration closes on June 17
  - [Camp II](#): Aug. 16-19
    - Registration closes on Aug. 12
  - Both camps for ages 7-18

[Museum of Texas Tech University](#) ([museum.education@ttu.edu](mailto:museum.education@ttu.edu)) or (806-742-2432):

- [Arts and Crafts Camp](#)
  - June 7-9
  - Ages 4-6
- [Wizard Camp](#)
  - June 7-9
  - Ages 7-9
- [Superhero Camp](#)
  - June 14-16
  - Ages 7-9
- [Wizard Camp](#)



## TEXAS TECH UNIVERSITY

- June 14-16
- Ages 7-9
- [Music Camp](#)
  - June 21-23
  - Ages 4-6
- [Weather Camp](#)
  - June 21-24
  - Ages 11-14
- [Mythology Camp](#)
  - July 12-14
  - Ages 10-12
- [World Discovery Camp](#)
  - July 19-21
  - Ages 4-6
- [Murder Mystery Camp](#)
  - July 19-21
  - Ages 10-12
- [Arts, Crafts and Science STEM Camp](#)
  - July 26-28
  - Ages 4-6
- Register for all camps [here](#).

### [College of Human Sciences:](#)

- [Department of Hospitality and Retail Management](#)
  - [Chef Camp \(chef.camp@ttu.edu\)](#)
    - June 27-July 1
    - Ages 13-16
  - [Fashion Camp 2016 \(fashion.camp@ttu.edu\)](#)
    - Glue Glitter and Glamour:
      - June 27- July 1
      - Ages 8-12
    - Tau Rho Mu:
      - June 27-July 1
      - Ages 13-16
  - All camps are residential living.

### [College of Visual and Performing Arts:](#)

- [School of Art](#)
  - [2016 Summer Discovery Art Program \(kevin.chua@ttu.edu\)](#)
    - Session I:
      - June 13-17
      - Middle school students
      - Commuter
    - Session II:

- June 20-24
  - High school students
  - Residential
- Scholarships will be available for participants
- [School of Music](#)
  - [All-State choir Camp \(choircamp@ttu.edu\)](mailto:choircamp@ttu.edu)
    - June 21-25
    - 9-12 grades
    - Residential living
  - [Texas Tech University Band & Orchestra Camp \(boc@ttu.edu\)](mailto:boc@ttu.edu)
    - July 10-16
    - 6-12 grades
    - Residential and commuter living
    - Scholarships are available
  - [Texas Tech Mariachi Camp \(music.tango@ttu.edu\)](mailto:music.tango@ttu.edu)
    - June 13-17
    - 9-12 grades
    - Residential and commuter living
  - TTU Tango Camp
    - June 13-17
    - 9-12 grades
    - Lubbock students only

[College of Arts & Sciences:](#)

- [Department of Kinesiology and Sport Management \(jeff.key@ttu.edu\)](mailto:jeff.key@ttu.edu)
  - [Camp Champion](#)
    - June 13-16
    - Ages 5-11
    - Register [here](#).
- [Department of Mathematics & Statistics:](#)
  - [TexPrep – Lubbock](#)
    - Lubbock's pre-freshman engineering program
    - May 31-July 15
    - 6-12 grades

[STEM Center for Outreach, Research & Education \(STEM-CORE\):](#)

- [TTU/LISD Middle School STEM Challenge \(stem-core@ttu.edu\)](mailto:stem-core@ttu.edu)
  - June 6-10
  - Competition of hovercraft building

[Whitacre College of Engineering:](#)

- [eGIRL: Engineering: Get Into Real Learning \(jamie.l.perez@ttu.edu\)](mailto:jamie.l.perez@ttu.edu)
  - June 19-24
  - Junior and senior girls
  - Residential



## TEXAS TECH UNIVERSITY

- [Explore Engineering](#) ([jamie.l.perez@ttu.edu](mailto:jamie.l.perez@ttu.edu))
  - July 25-29
  - 10-12 grades

### Recreational Sports:

- [Summer Youth Sports Camp 2016](#) ([brett.d.jackson@ttu.edu](mailto:brett.d.jackson@ttu.edu))
  - Session I:
    - June 6-17
  - Session II:
    - June 20- July 1
  - Session III:
    - July 11-22
    - Ages 7-14
  - Senior Camp
    - July 25-29
    - Ages 12-15
- [Youth Learn-to-Swim](#) (806-742-1339)
  - Classes:
    - Parent and Me
      - Ages 6 months-3 years
    - Aqua Tots
      - Ages 3-5
    - Intro to Water Skills (Level 1)
    - Fundamental Aquatic Skills (Level 2)
    - Stroke Development (Level 3)
    - Stroke Improvement (Level 4)
    - Stroke Refinement (Level 5)
    - Swimming & Skill Proficiency (Level 6)
    - Descriptions for each class [here](#).
    - Register online for swim classes [here](#).
  - Private Lessons also are available with a certified Red Cross instructor.
    - Register [here](#).
- [Lunar Lope Fun Run 2016](#) (806-742-3351)
  - June 19
  - Fun Run participants allowed are Texas Tech recreation members and community
  - Lunar Lope sponsored by Michael King, P.C.
- [2016 Fit 4 Fun Kid's Triathlon](#) (806-742-3351)
  - July 16
  - Ages 7-10:
    - Activities include 100-yard swim, 2.4-mile bike ride and 1-mile run.
  - For ages 11-14:

- Activities include 200-yard swim, 3.2-mile bike ride and 1.5-mile run.
- Triathlon sponsored by Body Mind Initiative and Covenant Health System.

[Red Raider Camp \(RRC\) \(redraidercamp@ttu.edu\)](mailto:redraidercamp@ttu.edu):

- Session I:
  - July 31-Aug. 2
- Session II:
  - Aug. 4-6
- Session III:
  - August 8-10
- Open to incoming college freshman and transfer students
- Residential living in Brownwood, TX.



# Web Only

## **Texas Tech Researchers Awarded for Contributions to Scientific Breakthrough**

Several researchers from the Department of Physics have been awarded for their participation in a project resulting in the first direct detection of gravitational waves.

By Cara Vandergriff

Three months after the announcement that gravitational waves had been directly detected for the first time, confirming Einstein's 1915 general theory of relativity and rewarding a scientific effort decades in the making, Russian entrepreneur and philanthropist Yuri Milner pledged to award \$3 million to the international team of researchers credited with the discovery.

The team of scientists responsible for the detection of this groundbreaking evidence, also known as the Laser Interferometer Gravitational-wave Observatory (LIGO) Scientific Collaboration, is made up of more than 1,000 scientists from around the world, including several researchers from Texas Tech University.

Texas Tech Professor [Benjamin Owen](#), assistant professor [Alessandra Corsi](#) and postdoctoral researchers Santiago Caride, Robert Coyne and Ra Inta are among the scientists who will share \$2 million of the award, with \$1 million being split among the experiment's three leaders: Ronald P. Drever and Kip. S. Thorne of the California Institute of Technology, and Rainer Weiss of the Massachusetts Institute of Technology.

Owen, Corsi, Caride, Coyne and Inta, all researchers in the [Department of Physics](#), contributed to the ongoing study of gravitational waves by helping author LIGO's research article published in the academic journal Physical Review Letters in addition to other individual contributions.

Inta analyzes data from the LIGO observatories and helped initiate the automated alert system that notifies partner observatories about potential events detected by the LIGO team.

"I look at data from the LIGO observatories to make sure it makes sense and to flag potential issues of data quality," Inta said. "What I mostly do is search for gravitational waves from the densest stars known: neutron stars. We expect rotating neutron stars to give out a continuous pure gravitational-wave tone. The signal is tiny, but it's on all of the time, so we can average out the signal over a long time."

Caride, who works in the same LIGO subgroup as Inta, also focuses on the search for continuous waves, which may be produced by pulsars or other rapidly rotating neutron stars.

“I’ve done some work on understanding and mitigating sources of noise in the detectors,” Caride said. “Most of what I did was help ensure the quality of experimental data.”

Coyne contributed to the discovery by developing data analysis tools to detect gravitational waves from other events that also are sources of electromagnetic radiation.

“This particular discovery was the merger of two black holes, and we don’t expect events like that to emit light,” Coyne said. “However, I’m looking forward to future events like this that include at least one neutron star in place of a black hole. Those sorts of events are the cornerstone of the work I do with LIGO.”

Owen, who has spent 20 years working to more efficiently search for signals, had a major role in developing the data analysis algorithms used to detect the gravitational waves.

“My first article in grad school set up the technique to search for these signals efficiently using calculations of what they should look like, and we’ve been refining that technique over the years,” Owen said. “It’s great to see it finally come to fruition – and with such a monster signal. It’s already told us that general relativity is doing great, and we expect plenty more in the coming years.”

Corsi contributed to the discovery by studying the interface of gravitational-wave physics and astronomy, which led her to help in enabling sky searches for electromagnetic counterparts to invisible gravitational waves.

“For this particular event, I was part of a team effort aimed at searching for associated electromagnetic emission,” Corsi said. “As soon as signals from systems containing at least one neutron star are detected by LIGO, joint electromagnetic and gravitational wave observations will unravel the properties of matter under the most extreme conditions. Indeed, this discovery marks the beginning of a new era: the era of gravitational-wave astronomy.”

With the help of these Texas Tech researchers, LIGO made a significant discovery that both confirms a 100-year-old theory and represents the beginning of a new field of astronomy and fundamental physics.

“We’re all still so excited about the first detection,” Inta said. “The announcement is really the tip of an iceberg that has been decades in the making. The LIGO detectors are simply an incredible feat of engineering, and the awards received generally acknowledge that this is the first step on the road of a whole new scientific odyssey.”