

▶ TOGETHER, WE ARE

# SHAPING THE FUTURE




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Some of these stories took place before the coronavirus pandemic began in March 2020. As a result, the subjects of those photos are not wearing masks or practicing social distancing.

An aerial photograph of a city skyline at sunset. The sky is a mix of blue and orange. The buildings are silhouetted against the bright light of the setting sun, with some windows glowing. In the foreground, there are several large, multi-story buildings. The overall scene is a mix of urban architecture and natural light. In the top right and bottom right corners, there are white geometric patterns consisting of overlapping triangles and squares.

“The University works with partners across the state to shape our collective future: government leaders, business owners, ag producers, healthcare professionals and citizens. Across urban and rural areas, from all walks of life and backgrounds, we come together to move our state forward.

Nebraskans understand the strength behind collective effort. And so does the University of Nebraska. From fighting infectious disease to developing our workforce, feeding a growing world to keeping our country safe, we’re making a difference. With your support, we can continue to create lasting impact — at home and across the world.”

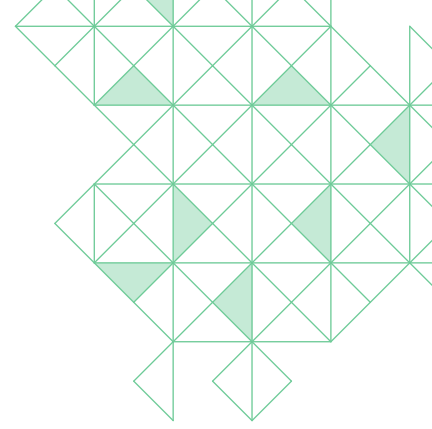
**Ted Carter**

UNIVERSITY OF NEBRASKA PRESIDENT



***MOVING  
NEBRASKA  
FORWARD***

# GROWING OUR STATE'S ECONOMY

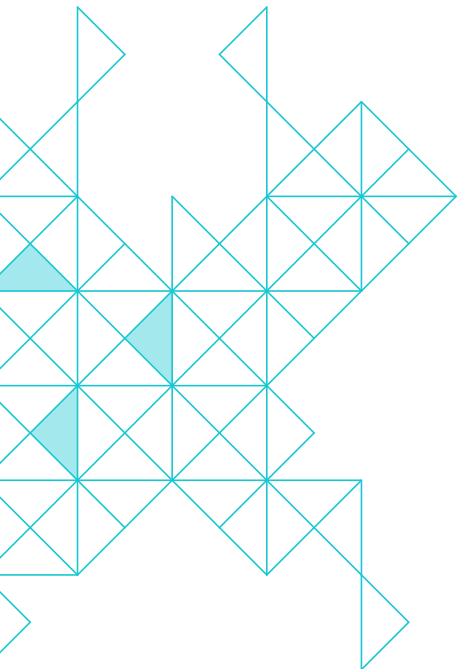


Our economy is only as strong as its contributors. The University of Nebraska educates thousands of current and future workers, playing a major role in the state's economic success and quality of life. And as one of the largest employers in our state, we're keeping our citizens and economy healthy.

When everyone is focused on how they can help, we thrive together.

\$7.00

*The University of Nebraska returns \$7 for every \$1 invested by the state of Nebraska.*





**Nora Arellano**  
NURSING  
UNIVERSITY OF NEBRASKA  
MEDICAL CENTER



## ▶▶▶ MEETING NURSING STUDENTS WHERE THEY ARE



As the “Baby Boomer” generation ages, the need for nursing care is expected to grow beyond levels our current healthcare system can handle. According to the U.S. Census Bureau, by 2050, the number of U.S. residents age 65 and older is expected to double from 2012 levels. Adding to the challenge, the American Association of Colleges of Nursing reports that nursing schools were forced to turn away more than 80,407 qualified applicants in 2019 due to insufficient faculty, clinical sites and classroom space.

The University of Nebraska Medical Center is facing this uphill climb with a full-force effort to bring more nurses into

UNMC’s strategy is Nora Arellano. “I saw UNMC had a nursing program in Norfolk,” she said. “I didn’t have to be hours away from my family to get a University of Nebraska education.”

Arellano is balancing her nursing career with caring for her two children, both under the age of 10.

Using UNMC’s vast instruction resources and modern facilities, students at each location receive the same education and interact with fellow students and faculty throughout the state. By graduation day, they’re more than prepared to join the workforce. Arellano turned her hands-on training into a job at Faith Regional Health Services in Norfolk.

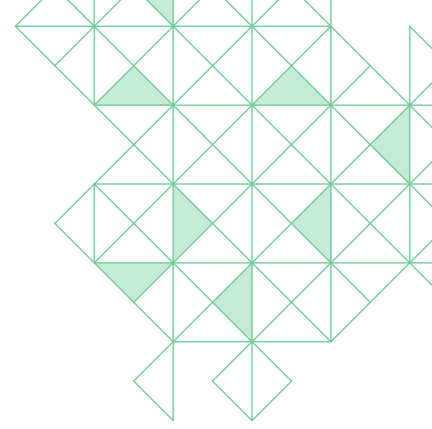
***“Going through the program with young kids was definitely tough. I don’t know if I would have been able to do it without my support system nearby.”***

— Nora Arellano, UNMC graduate

the fold. The key is to meet students where they are—in their lives and in their hometowns. One such student impacted by



# EDUCATING OUR WORKERS

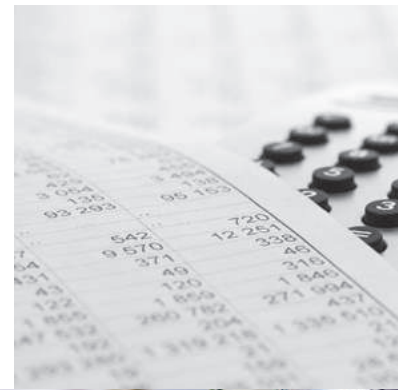
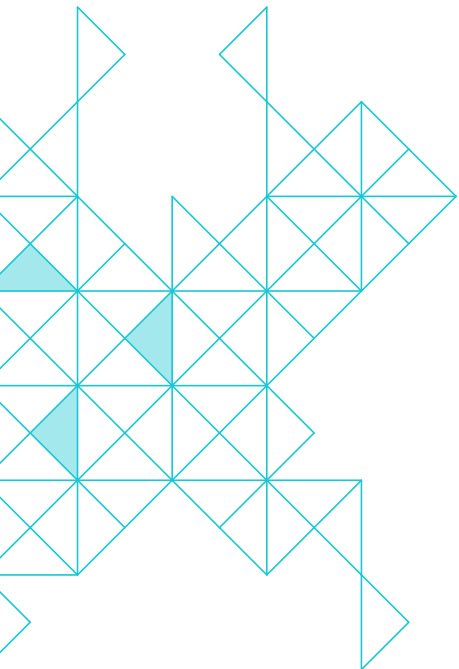


The key to strengthening Nebraska’s workforce is connecting it to our educational pipeline. We not only instruct future workers but encourage real, hands-on training from day one. When we invest in and support our students, they’re empowered to grow and return that investment into our state’s economy.

Find out how the University of Nebraska is fulfilling Nebraska’s workforce demand.

# 11,000

*NU graduates almost 11,000 students each year to fill Nebraska’s workforce.*







**Tianna Engen**  
INTERNSHIPS  
UNIVERSITY OF NEBRASKA  
AT KEARNEY



## ▶▶▶ PREPARING STUDENTS FOR THE REAL WORLD LONG BEFORE GRADUATION DAY



College internships are infinitely valuable, but many students lack the resources to get hands-on experience prior to their first jobs. The University of Nebraska at Kearney encourages business students to take internships to gain experience before getting their degree.

Tianna Engen was one of those students. Now a corporate accountant with The Buckle, a clothing retailer, the Kearney native didn't need to search for a job after college. Engen spent two years with The Buckle as an internal audit and finance intern while earning her degree in business administration with an accounting emphasis.

***“We can immediately plug these students in with one of our teams and they can begin to help advance the company on day one.”***

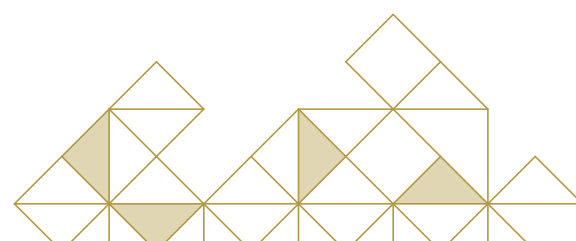
— Ryan Brown, recruiting specialist, The Buckle

UNK's focus on practical experience for well-rounded learning is a proven recipe for creating in-demand employees.

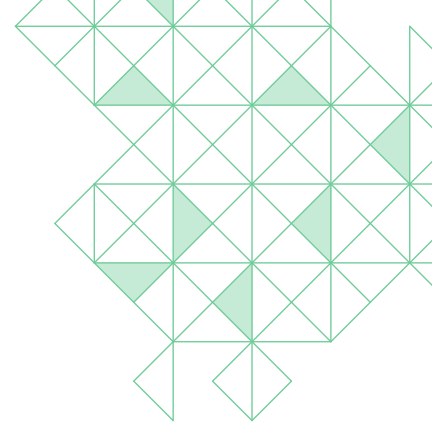
“There are many great programs at UNK that train students to be successful once they leave the university,” said Ryan Brown, a recruiting specialist for The Buckle. “We can immediately plug these students in with one of our teams, and they can begin to help advance the company on day one.”

“Because of that internship, I could start a step ahead of an entry-level spot, making me very marketable to businesses,” said Engen, who is currently pursuing a master of business administration.

We understand that there's only so much learning that can happen in a classroom. And by pushing students to explore their strengths through internships, they gain the confidence and practical skills that companies want. This kind of mindset helps the state continue to meet its workforce needs now and well into the future.



# KEEPING OUR COUNTRY SAFE

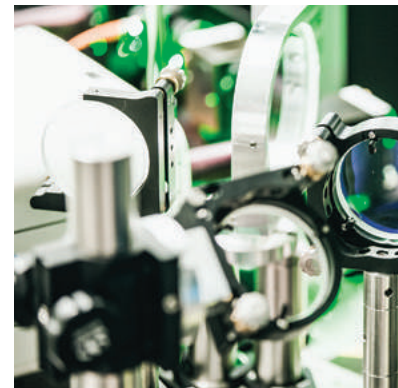
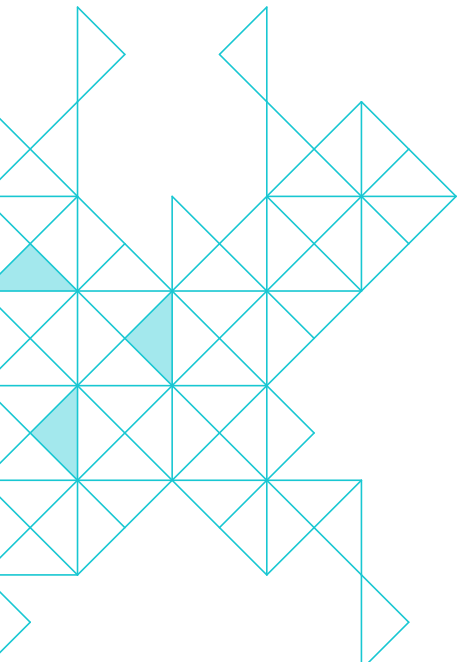


The battle against terror calls for a diversity of thoughts, skills and backgrounds. In addition to our National Strategic Research Institute, a leading institution for research and development to combat weapons of mass destruction, the University of Nebraska is expanding our efforts through unique counterterrorism studies. With attacks becoming increasingly sophisticated, we're determined to stay one step ahead.

Find out how we're using academic research to create actionable data for the Department of Defense.

# 350

*Over 350 faculty, researchers and students are involved in Department of Defense research that keeps our country safe.*





**Gina Ligon**  
NATIONAL DEFENSE  
UNIVERSITY OF NEBRASKA AT OMAHA



## ▶▶▶ APPLYING BUSINESS-WORLD KNOW-HOW TO NATIONAL DEFENSE



The U.S. Department of Defense (DoD) maintains data on the world's most dangerous individuals, including those involved in ISIS, Al-Qaeda, the Taliban and the Haqqani network. Now, with support from a \$200,000 contract from the DoD, students at the University of Nebraska at Omaha can collect and update that data for our nation's defense efforts.

The person heading up this research may be unexpected. Dr. Gina Ligon, an associate professor of management, operates out of UNO's College of Business Administration and has a Ph.D. in industrial and organizational psychology. She's published over 60 peer-reviewed pieces on innovation

"The methods we use are similar to how you might look at a conventional, for-profit company's senior leadership," Dr. Ligon said. "It's a Maverick approach to researching violent groups. We know leadership and organizational structure are linked to performance, so why not draw on those ideas to help inform strategic, national security decisions?"

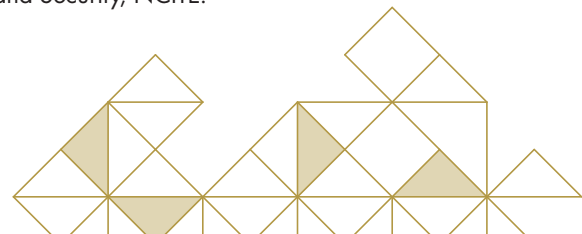
Like a corporation, terrorism group leadership and organizational sophistication changes over time. This project will reveal the structural characteristics of how terrorists organize themselves and draw on a variety of records, creating actionable data on a leader's decision-making style, influence, education and other "job-related" information.

The federal contract for this project was competitively won, and UNO's talent was no small factor in gaining the DoD's support. And, to build on that initial success and leadership, UNO recently won a \$35 million grant to lead a national counterterrorism Center of Excellence for the Department of Homeland Security, NCITE.

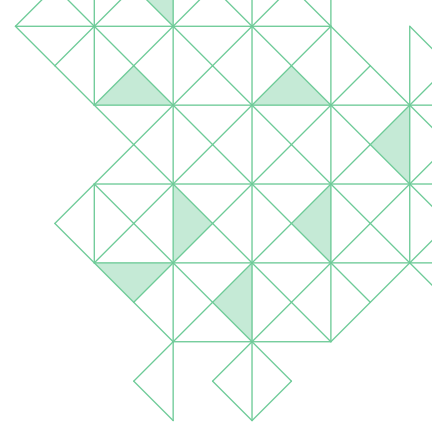
***"We know leadership and organizational structure are linked to performance, so why not draw on those ideas to help inform strategic, national security decisions?"***

— Dr. Gina Ligon, NCITE director

and leadership and believes UNO's approach makes them unique.



# HELPING FARMERS DO MORE GOOD

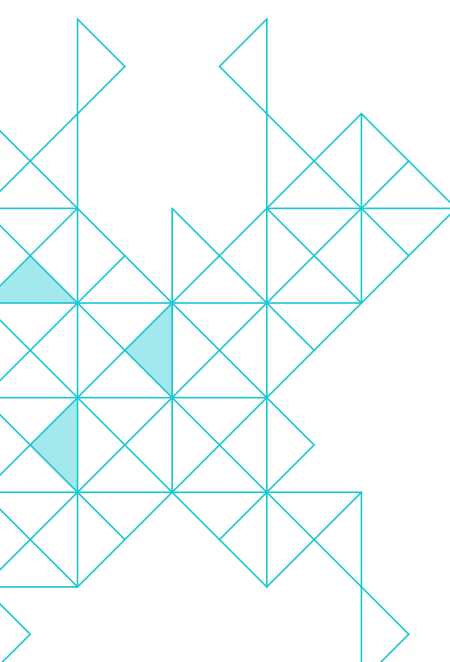


Agriculture is Nebraska's number one industry. One in four jobs are related to agriculture, and the industry generates around \$25 billion annually for the state's economy. University of Nebraska personnel in research and Extension are working with our state's producers to keep stride with their needs. From controlling pests to animal nutrition and genetics, we help them to be more productive and profitable.

Find out how we're growing the future of farming.

# 75%

*NU works with over 75% of Nebraska's 45,900 farmers and ranchers to boost productivity.*





**Stacy Adams**  
AGRICULTURAL PRODUCTIVITY  
UNIVERSITY OF NEBRASKA-LINCOLN



## ▶▶▶ *THE FUTURE OF BEER IS BREWING RIGHT HERE IN NEBRASKA*



Come August in Nebraska, you can find 25-foot tall trellises heavy with lush greenery that’s dotted with freshly sprouted hops. You’ll also find Stacy Adams studying the quality of the green, pine cone-like blooms.

Adams, associate professor of practice in agronomy and horticulture at UNL, is leading the Nebraska Hops project. Launched in 2016 with a grant from the Nebraska Department of Agriculture, Adams and his team are testing the viability of eight hop varieties at five locations statewide. Why the interest in hops? It helps Nebraska producers generate a different kind of green—profit.

***Craft brewing in Nebraska directly impacts nearly 9,000 jobs and more than \$235 million in wages—for a total economic impact of \$465 million.***

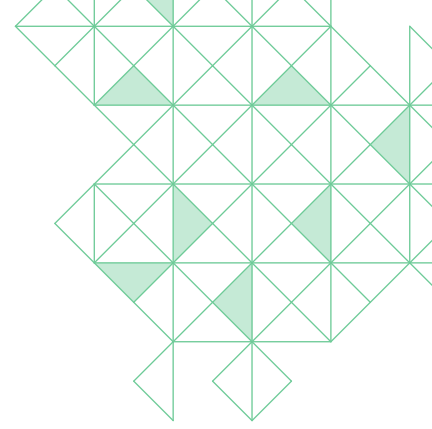
Hops are the star ingredient in brews like IPAs and pilsners, giving beers a distinctive bitter flavor and flowery aroma.

By 2020, an estimated additional 11,500 acres of hops will be needed to meet the demands of the microbrewing industry.

Thanks to the country’s taste for craft beers, hops are a high-value commodity with major profit potential for Nebraska producers. And best of all, our soil and moisture conditions are promising for hop growth—putting Nebraska in a strong position to meet industry demand. In Nebraska alone, breweries have increased from 11 in 2006 to 42 in 2016, according to the Omaha World Herald. Nebraska-grown breweries like Zipline Brewing Co., Kinkaidier Brewing Co., Lucky Bucket Brewing Co. and others have successfully planted roots in the state, becoming a new source of tax revenue. In 2016, the Nebraska craft brewing industry generated more than \$80 million in state and local taxes. Craft brewing in Nebraska directly impacts nearly 9,000 jobs and more than \$235 million in wages—for a total economic impact of \$465 million.



# CREATING A TECH REVOLUTION

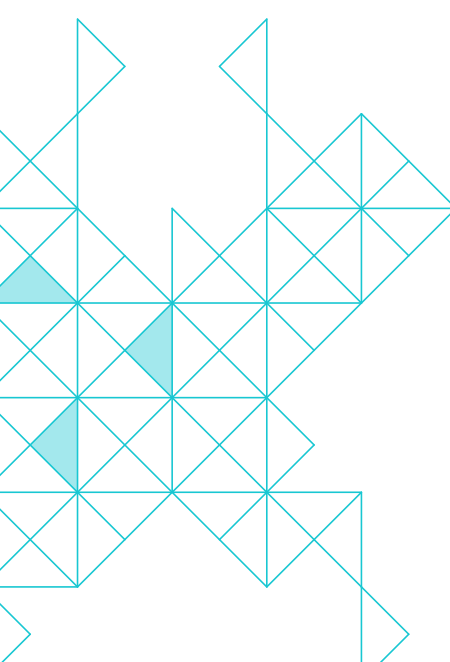


In an increasingly digitized world, the demand for IT and tech skills is at an all-time high and still growing in a variety of industries, from medicine to agriculture to marketing. With an estimated 34,000 annual Nebraska job openings in STEM fields, future workers need to sharpen their skills, build robust portfolios and have a solid educational foundation. Through hands-on opportunities, our students' biggest concern isn't how to get a job after graduation—it's choosing between an abundance of offers.

Find out how the University of Nebraska is training students to lead the tech revolution.

# 34,000

*In the years ahead, Nebraska will have 34,000 annual openings in high-skill, high-demand, high-wage jobs like engineering and software development.*





**Dr. Robin Gandhi**  
CYBERSECURITY  
UNIVERSITY OF NEBRASKA AT OMAHA



## ▶▶▶ ARMING COMPANIES AGAINST CYBER ATTACKS



Dr. Robin Gandhi knows he’s putting companies in a tough position when it comes to recruiting. As an associate professor of cybersecurity, he sees how many students are graduating with the skills companies near and far want. But by the time graduation rolls around, most of those candidates have already been hired. That’s because UNO’s cybersecurity program is like few others. It’s one of just 20 other institutions designated by the National Security Agency (NSA) as a Center for Academic Excellence in Cyber Operations. It’s not easy for universities to meet the rigorous criteria for the honor, but UNO made it happen.

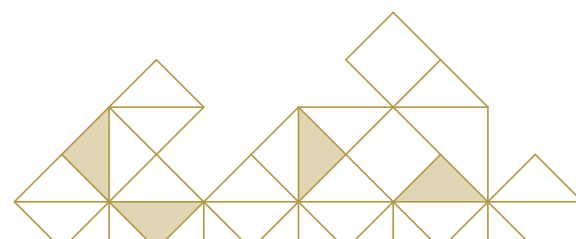
*“We’re very much on top of what it takes to produce a good cyber security professional, and we build that into our curriculum.”*

— Dr. Robin Gandhi, associate professor of cybersecurity, UNO

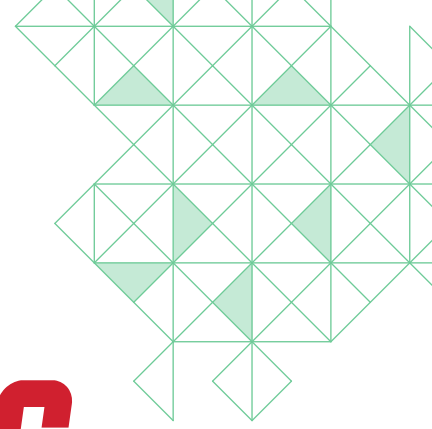
rate of seven percent. In 2017, the median pay for information security analysts was over \$95,000, representing a great career opportunity for students willing to compete for these jobs. Jobs in cybersecurity are what Nebraska deems H3 jobs—high wage, high skill, high demand—and are critical for state growth.

To give them an edge in the competitive field, UNO emphasizes hands-on experience for students. Nowhere is that more apparent than a capstone course where students work with an assigned local business to assess a system or piece of equipment the company wants reviewed. The cybersecurity field is incredibly fluid and highly competitive, but thanks to support for UNO’s program, Dr. Gandhi can continue to enjoy seeing many of his students accept job offers from local companies before graduation day.

Through 2026, the U.S. Bureau of Labor Statistics projects the job outlook for information security analysts, an occupation in the field, to grow 28 percent—much faster than the average



# EDUCATING OUR YOUNGEST CITIZENS

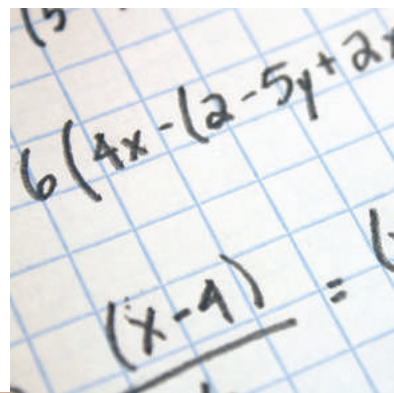
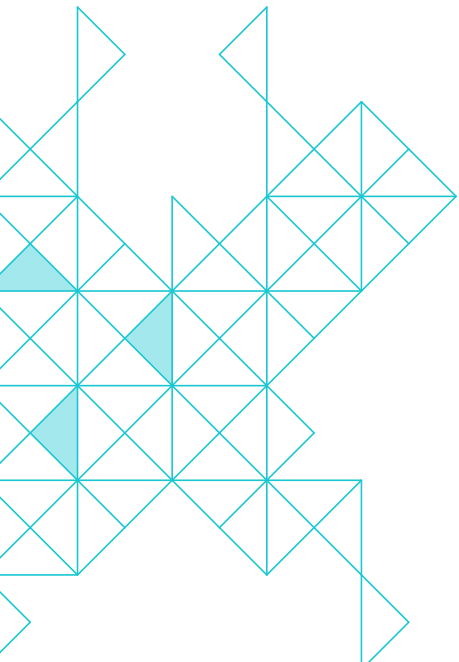


Our ability to grow and support a skilled, early-childhood workforce in Nebraska directly impacts the future competitiveness and well-being of our state. The University of Nebraska certifies one out of two Nebraska public school superintendents, educates two out of three Omaha area educators, and trains 40% of new Lincoln Public Schools teachers. As we instruct the next generation of educators to support the next generation of Nebraskans, we must identify new ways to prepare them for their careers.

Find out how we're supporting students from one classroom to another.

# 40%

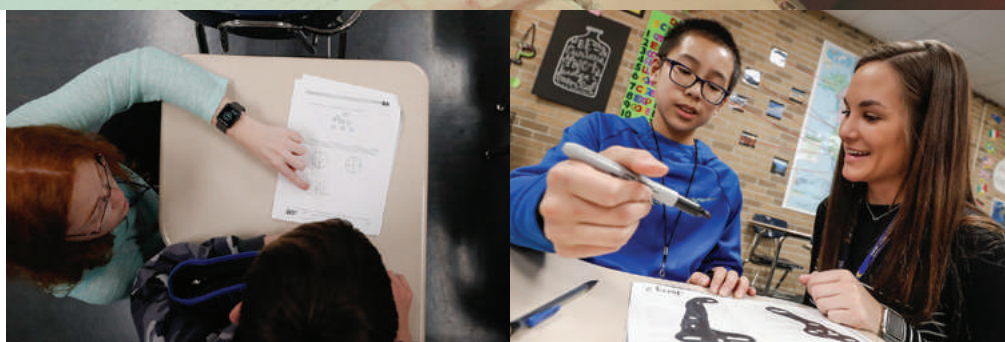
*Over 40% of all K-12 teachers in Nebraska are educated at the University of Nebraska.*







**Amy Nebesniak**  
K-12 EDUCATION  
UNIVERSITY OF NEBRASKA  
AT KEARNEY



## ▶▶▶ **BRINGING CLASSROOMS TOGETHER** **TO SOLVE AN EDUCATION PUZZLE**



The after-school scene at Horizon Middle School in Kearney is abuzz with energy: young students finishing homework, their teachers bouncing around to answer questions—and now, an additional group of college students to lighten the load.

This troupe of tutors comes courtesy of the University of Nebraska at Kearney. They're students themselves, all enrolled in professor Amy Nebesniak's Math 430 course. They have dreams of careers in elementary, middle school or math education, and these study sessions are part of their own training.

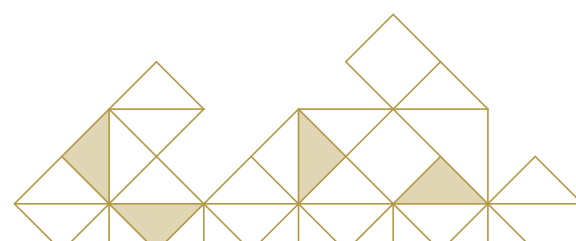
*“It’s helping my students become better teachers and, at the same time, giving these middle school students more people to answer their questions.”*

— Dr. Amy Nebesniak, associate professor, Department of Mathematics and Statistics, UNK

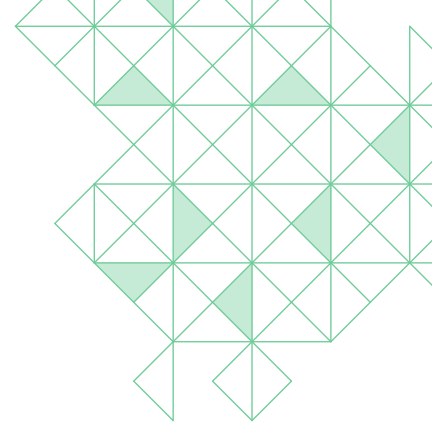
“I noticed that pre-service teachers just didn’t have enough confidence in seeing where a student is struggling and

how to ask the questions to help them,” said Nebesniak, associate mathematics and statistics professor at UNK. Practicum and student teaching trains future educators in planning lessons and leading a classroom, but the opportunity to work with young learners one-on-one is strengthening Nebesniak’s students’ skills. They get to apply techniques learned at UNK in a real-world classroom and learn to adapt those skills on the fly to better connect with students.

Not only does this collaboration benefit UNK students, but it makes life easier for the Horizon Middle School teachers, too. Kids can’t learn without asking questions, and if there aren’t enough helpers to answer those questions, learning stalls. By adding a few helpful hands to the classroom, they’re ensuring a brighter future for students and the state’s next generation of educators.



# BATTLING A DEADLY DISEASE

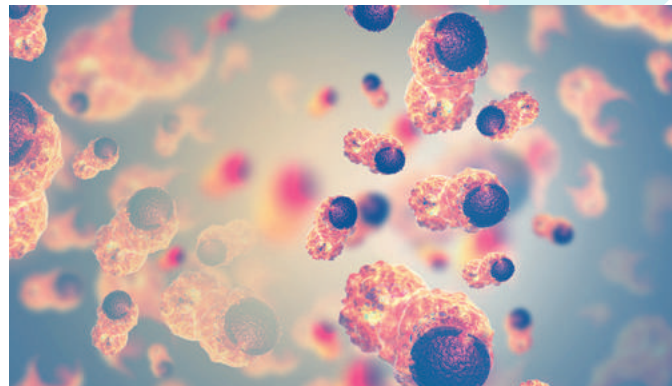
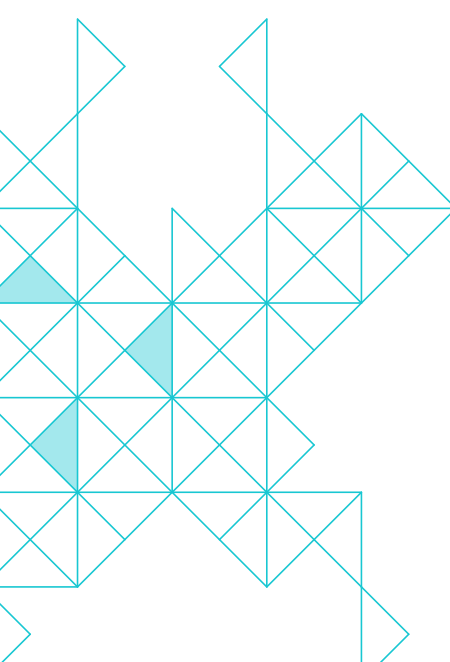


Over 10,000 cases of cancer were diagnosed in Nebraska in 2020, according to the American Cancer Society—with UNMC treating over half of them. By harnessing the most advanced biomedical and technological tools available, we are increasingly identifying the drivers behind cancer, but it still persists as one of the most complex and challenging diseases we've ever known. Rigorous research efforts are imperative to its defeat.

Find out how the University of Nebraska is taking on one of the most elusive forms of cancer.

# 33%

*One in three Nebraskans will be diagnosed with cancer in their lifetime and can be treated at the world-class Buffett Cancer Center.*





**Christina Hoy**  
PANCREATIC CANCER RESEARCH  
UNIVERSITY OF NEBRASKA  
MEDICAL CENTER



## ▶▶▶ **BRINGING HOPE TO FAMILIES WITH HISTORY OF PANCREATIC CANCER**



For too long, pancreatic cancer has been a mystery. It has no early detection or screening method. A diagnosis of pancreatic cancer is devastating. The disease has a five-year survival rate of less than nine percent. And for people with a family history of pancreatic cancer, the lack of detection options leaves them feeling unsure about their own future health. “People who have lost a family member to pancreatic cancer are highly motivated to change the trajectory of this disease, so this is very important to them. They couldn’t do a lot to help or save their family member,” said Christina Hoy, D.N.P., coordinator of a new study at the University of Nebraska Medical Center.

*“If this is just one drop in the bucket to change how it impacts people and their prognosis, I am incredibly proud to be here and doing this.”*

— Christina Hoy, D.N.P., Eppley Institute, UNMC

Hoy and her fellow researchers are conducting a study for those with a higher-than-average risk to develop pancreatic cancer, including those with a family history. Every six months,

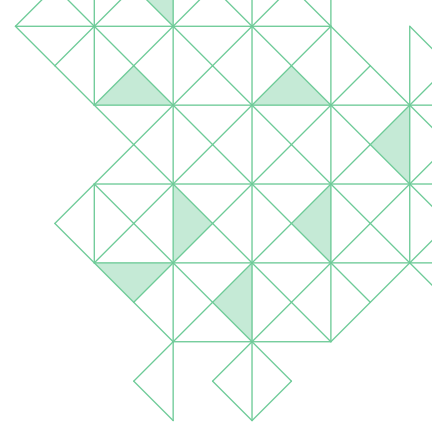
study participants come in to answer questions and undergo blood draws. While there is still no screening for pancreatic cancer, UNMC scientists are hoping this research could lead to a screen for clinical and blood markers of the disease someday.

“So, we’re not detecting pancreatic cancer early in participants who are enrolled in this specific study. But the goal is to come up with a blood test we can draw in the future,” said Hoy. The study is part of UNMC’s ongoing fight against pancreatic cancer.

UNMC is already nationally known for its pancreatic cancer research. It’s now ramping up its effort, creating what scientists call a “center of excellence,” recruiting more faculty and allocating more resources. Hoy reports that UNMC is now part of a collaborative effort with multiple cancer centers around the U.S. attempting to develop an early detection method.



# CREATING A HEALTHIER STATE

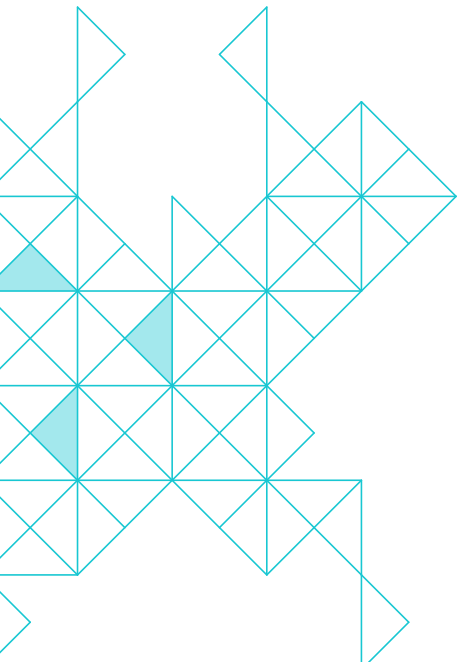


In healthcare, there's never a shortage of need for revolutionary treatments. We must continually challenge ourselves to outdo yesterday's accomplishments, and that's the exact mentality University of Nebraska researchers take on across the entire system. Our researchers and graduate students are finding the answers to age-old medical questions.

Find out how we're making strides in stroke treatment.

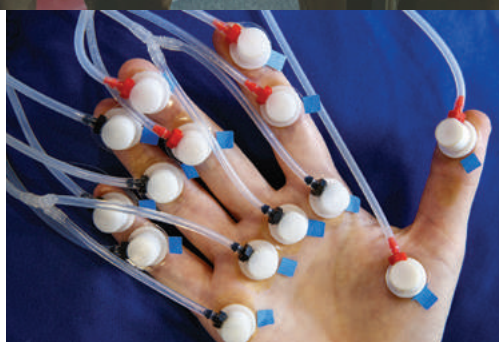


*NU conducts research that makes Nebraskans happier, healthier and more productive.*





**Steven Barlow**  
 MEDICAL RESEARCH  
 UNIVERSITY OF NEBRASKA-LINCOLN



## ▶▶▶ RESEARCHERS MAKE SOME NOISE WITH A SILENT STROKE TOOL



Every 40 seconds, someone in the U.S. will suffer a stroke. At the University of Nebraska–Lincoln, Steven Barlow’s research team is developing solutions for front-line treatment after a stroke. It’s all a question of blood flow.

One of the most common strokes is termed “ischemic stroke.” It obstructs blood flow to the brain, depriving it of the oxygen it needs to survive. Ischemic stroke is the leading cause of long-term disability and fifth-leading cause of death in the U.S. “They have this phrase in the stroke literature, ‘time is brain.’ Every minute, you lose approximately two million neurons and 14 billion synapses as the stroke evolves,” said Barlow.

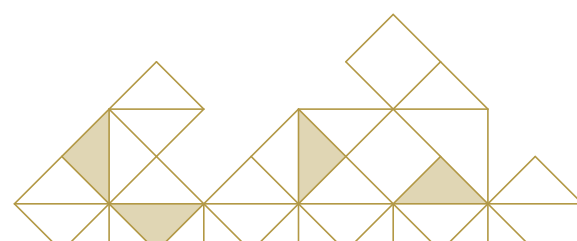
Using brain imaging, Barlow and his colleagues have found that their technology can increase brain blood flow up to

*It’s hard to overstate the impact this could have.*

20 percent. In animal studies, it forced the brain to reroute blood supply to affected areas to protect the cells.

There’s a headband that stretches across the wearer’s forehead, plus a spattering of white capsules stuck to their hands. Pressurized air is pumped through tubes into the capsules, which creates blood-flow stimulus to the brain. As complicated as it looks, the treatment is non-invasive and operationally silent. It’s a novel solution for a hectic emergency room, not the least because it could accelerate patient recovery.

There is still much to accomplish before this treatment can be made available to the masses, but it will be a game-changer for acute stroke care—one that is long overdue. Ischemic stroke accounts for 87 percent of all strokes, according to the American Stroke Association, and is the leading cause of long-term disability and fifth-leading cause of death in the United States.



# COMBATING THE CORONAVIRUS PANDEMIC



**Dr. Andre Kalil**  
COVID-19  
UNIVERSITY OF NEBRASKA  
MEDICAL CENTER

## LEADING A CLINICAL TRIAL FOR A COVID-19 TREATMENT

In December of 2020, the U.S. record for hospitalized COVID-19 patients soared past its record from April to an all-time high of over 100,000. Vaccines are beginning to make their way to citizens around the world, but it's still critical to manage the health of patients currently in healthcare systems.

Enter the University of Nebraska Medical Center and Dr. Andre Kalil, an internal medicine professor and infectious diseases physician. Kalil led the first National Institutes of Health trial to evaluate experimental COVID-19 treatments, focusing on the anti-viral drug remdesivir.

In February of 2020, UNMC saw COVID-19 moving quickly through European countries. They started making plans to prepare for a potential epidemic here — and when the virus began affecting patients in the U.S., they already had plans to start a clinical trial. At that time, there were no proven and effective treatments for COVID-19—so the opportunity to test remdesivir was important.

*This is the first clinical trial launched in the U.S. to evaluate an experimental treatment for COVID-19.*

UNMC is uniquely qualified to lead the remdesivir study. The Medical Center has one of only a few biocontainment units in the country, which housed Ebola patients in 2014 and is housing COVID-19 patients today. They are now in their third phase of the trial, testing remdesivir in combination with a medication used to treat multiple sclerosis.

While studies are ongoing, the U.S. Food and Drug Administration recently approved remdesivir for treatment of COVID-19.

# MAKING A DIFFERENCE



Who trains more than half of Nebraska's doctors, dentists and nurses?



Who educates 50% of Nebraska's doctors practicing in rural areas?



Who produces more than 80% of Nebraska's dentists practicing in rural Nebraska?



Who treats the 1 in 3 Nebraskans who will be diagnosed with cancer in their lifetime?



Who educates over 40% of all Nebraska teachers?



Who conducts research that makes Nebraskans happier, healthier and more productive?



Who certifies 1 out of 2 Nebraska public school superintendents?



Who provides a college degree to 1 in 7 working Nebraskans?



Who graduates almost 11,000 students each year to fill Nebraska's workforce?



Who empowers 140,000 Nebraska 4-H kids with skills they need in life?



Who works with nearly 75% of Nebraska farmers and ranchers to boost crop and animal productivity?



Who generates employee and student volunteer time worth nearly \$74 million to area communities?



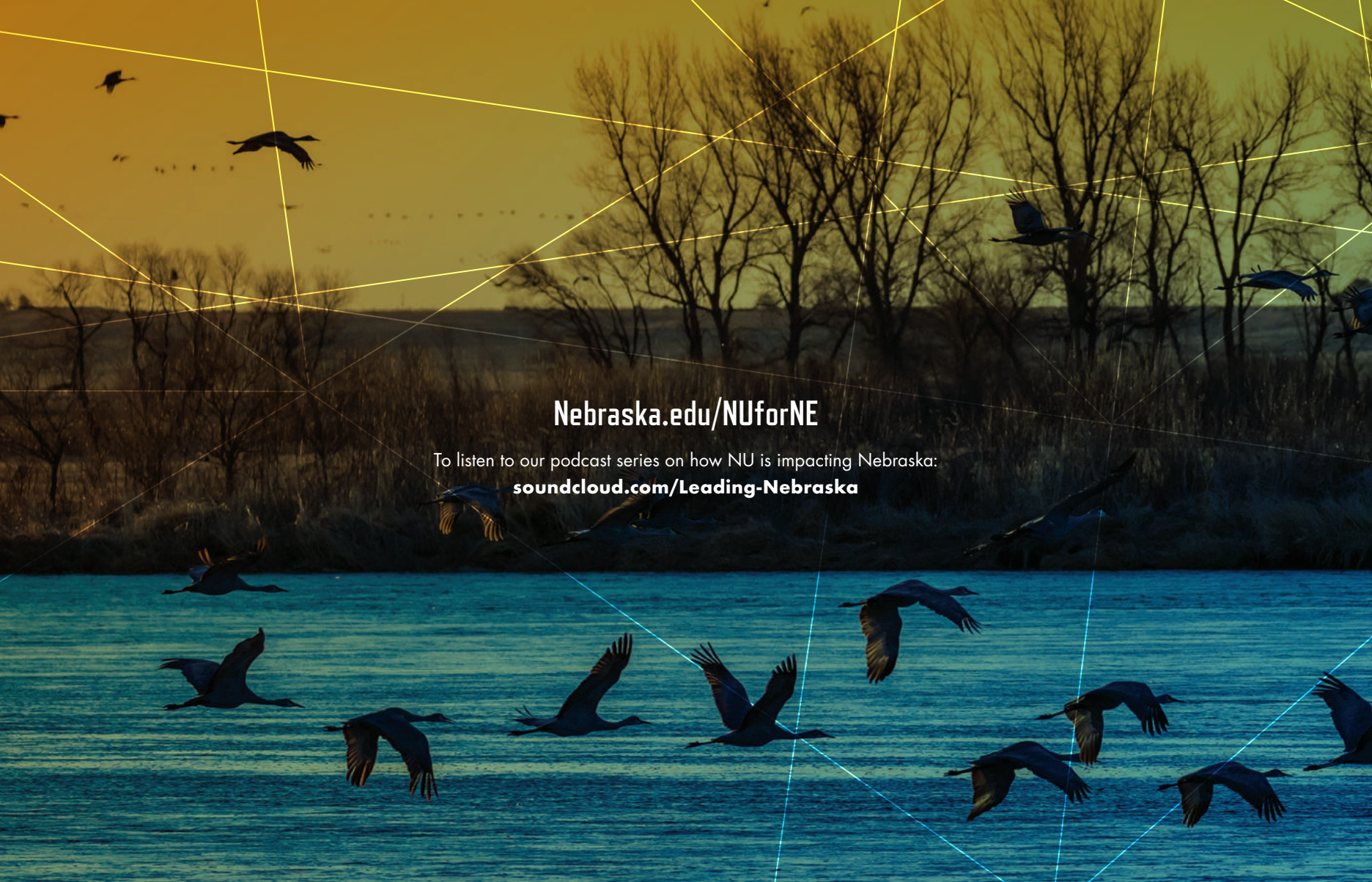
Who returns \$7 to Nebraska for every \$1 invested?

▶▶▶ NU does.

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To listen to our podcast series on how NU is impacting Nebraska:  
[soundcloud.com/Leading-Nebraska](https://soundcloud.com/Leading-Nebraska)

