Faculty, staff and students gather for the White Coats for Black Lives demonstration at the UT Health Science Center campus in Memphis.

PHOTO BY NATALIE BREWER/UTHSC
Those fleeting moments of incandescence that sometimes—the oh-so-rare sometimes—catch fire and change everything is what we are celebrating in this issue of Tennessee Alumnus magazine. When those flashes, those sparks happen they can lead to a new invention, a new passion, a new class or a changed life.

One inventor says in this issue, “It doesn’t just happen.” Innovation comes, at times, through years of trial and error. Other times, the spark behind an innovation can come when faced with an enormous task that must be carried out by hand. However, when the frisson of an idea comes into being, it takes work to capture the spark and fan it into a burning fire of realization.

But all it takes is a spark, and UT has been part of that ignition point for so many faculty, students and alumni. In these pages, you’ll find just a few of your stories—for your stories are the stories of the University of Tennessee and part of our shared history. Whether the spark happened as you sat in a class or as you left with the kindling ready to catch fire, UT has played a role in your story, just as it has with those in these pages.

Long may your passion for this university and for your ideas burn bright.

Let us know your thoughts on this issue. Send us a letter at alumnus@tennessee.edu or reach out to us on social media. We can be found on Twitter @TNAlumnus, Facebook at Tennessee Alumnus and Instagram @tennesseealumnus.
Lighting the Way in Innovation

A spark – that moment when two objects collide to create a catalyst for brilliant illumination. This type of inspiring energy is an everyday occurrence at the University of Tennessee.

Among our core tenets is research and discovery. The UT System is one of four university systems with a prestigious management role of a U.S. Department of Energy national laboratory. Through UT-Battelle, the university has managed Oak Ridge National Laboratory for the U.S. Department of Energy since 2000 and this year received a five-year extension on our contract. It is a powerful partnership for the university and made even stronger through the Oak Ridge Institute at UT, which received a $20 million grant from the U.S. Department of Energy. The institute will develop scientists and engineers who will help solve some of the world’s most complex problems.

It’s one of many ways in which UT, through our 50,000 students and 400,000 alumni around the globe, is impacting and changing the world in small and large ways. It’s part of what excites me about our “Everywhere You Look, UT” mural campaign on barns, silos and building walls across Tennessee. Everywhere, UT is doing good and impacting lives.

(To learn more about the mural campaign or to suggest a location, https://everywhere.tennessee.edu/murals.)

As you peruse the pages of Tennessee Alumnus, I hope you are as inspired as I am about the great work occurring within our campuses and institutes.

Randy Boyd, Knoxville ’79
LETTERS TO THE EDITOR

Dear Editor,
Many thanks for the wonderful article on Chantek, UTC’s resident orangutan (Spring 2020). Lyn Miles’ work with him led to important insights on both human and ape language abilities and acquisition. This work remains a testament to the excellent research conducted at UTC. As a faculty member at UTK in the late 1970s and early 1980s, I sometimes brought anthropology students down to visit. Both Chantek and Lyn Miles were always wonderful hosts.

Fred H. Smith
Knoxville ‘70

FACEBOOK
Tammy Rodgers Jackson: “Doc is my favorite. He is an amazing vet. He has always been my vet and always will be.”
Linda Mullins: “A great vet. A good man.”

SELECTED COMMENTS from social media regarding “All Creatures Great and Small,” a story about Steven Scott, who is the veterinarian for The Elephant Sanctuary, in the Spring 2020 issue.

Donnette Kirk Kelly: “Wonderful man and veterinarian!!! Lewis and Perry County would be lost without him!!!”
Mildred Millie Miltner Pearce: “We love the Doc. Thanks for taking great care of our animals when we lived in Tennessee. But even called his office since I’ve lived in Florida and got advice from Dr. Scott. Thank you for your compassion.”
Minnie Wilhelm: “Great story ... great man!!!”
Tina Ozment: “Great man with a big heart!”
Jim W. Hensley: “Good man. Of course, being a Vol is just topping on the cake.”

SOCIAL MEDIA

TWITTER

FACEBOOK

Steven Scott
Technology Commercialization Impact from UT’s Research Enterprise

*Please note that the numbers in these graphics show impact of technology commercialization from UT’s research enterprise*
Ben Neale (Martin ’01, ’06, ’07) and his son Corban.
“Who dreams of owning a meat-processing facility? I mean, how weird is that?” Lauren Neale says as she recalls the hopes and aspirations her husband, Ben Neale, expressed during their courtship.

For Ben, he saw it as a natural progression of his career as well as a responsibility he felt.

“From the business perspective, there are a number of indicators that the cow and calf sector is due for consolidation. In short, I believe that will make lean times for producers in the days to come,” he says. “Owning a plant allows me to offer more marketing opportunities to myself and others in the local area to help capture the value of what we raise as that occurs.”
But he also knew there was a need in his community when the former owners of a meat-processing facility retired.

“Growing up there and having the ability, I felt somewhat obligated to fill the gap,” he says. “It’s like pumping septic tanks—very few people want to do it, but most everyone still needs it done.”

Turns out Ben’s dream—which actually includes managing a small-scale beef-supply chain all the way from calf to final product sales—isn’t really that far off the grid. Plenty of producers, across all sorts of commodities, seek to control their economic destinies through the production and sale of high-quality, locally grown commodities. And plenty of consumers are seeking to purchase such products.

The number of farmers and ranchers selling directly to consumers has skyrocketed in the last two decades.

The movement to buy locally produced food for its freshness and to reduce the food’s carbon footprint by cutting down on its “miles traveled” has traversed across the nation through all forms of media—especially social media—through mantras like “Buy local” and “Know your farmer.” From product source labelling at big-box groceries to more personal sales at farmers’ markets or through consumer-supported agriculture operations, people are seeking out locally produced products.

Rob Holland (Knoxville ’93, Martin ’91), director of the UT Center for Profitable Agriculture (CPA), says Tennessee was No. 1 in the nation in farmers’ market growth in 2014. The CPA—a partnership between the UT Institute of Agriculture (UTIA) and the Tennessee Farm Bureau Federation—assists Tennessee farmers in developing sustainable value-added agricultural enterprises, including direct-marketing enterprises.

In the Neales’ case, the product they market directly to consumers is beef from cattle raised on their 280-head operation in Giles County, Tennessee. Cattle is produced in all 95 counties in Tennessee, but unlike most of the state’s producers, the Neales harvest animals and process beef at their own facility. The couple purchased an existing custom-harvest facility in 2017 in Ben’s hometown of Lynnville just three years after they tied the knot and with the added responsibility of a growing family. Young son, Corban, is now 5, and his sisters Abigail and Elizabeth are 2 and 1, respectively. Ben mostly works the businesses, while Lauren handles the marketing. To make ends meet, they both juggle the children and jobs off the farm.

Their harvesting and processing facility is located next door to Ben’s childhood home, a small farm where he learned to haul hay by age 11. He also worked cattle at the local livestock sale barn until he left for college. Ben is a three-time graduate of UT Martin: ’01 with a B.S. in agriculture, ’06 with a Master of Agriculture in agricultural operations management and ’07 with an MBA.

Ben and Lauren named the “dream” operation Light Hill Premium Meats. It’s a facility that operates under USDA inspection, which means the Neales can sell their farm-raised beef processed in the facility as well as...
provide custom processing for other producers, who may then sell packaged products directly to consumers under their own labels.

Ben has worked in all facets of the beef industry. He’s been an age and source verification agent and a sales consultant for a large-scale processor, and he is now managing the reproduction cycles and nutrition of his own cattle. He says owning a processing facility allows him to ensure a quality product from start to finish.

“For me, for my process customers and for the consumers of our products, it’s about building trust,” he says. “People want the knowledge and security of a quality product, and by owning and operating Light Hill, we can supply that.”

When the Neales first opened their facility, they reached out to the CPA for guidance and a feasibility study, which, as it turned out, was difficult to model as there are so few USDA-certified facilities in the state. Holland says the CPA now looks to Light Hill Premium Meats to provide input and assistance as others consider direct meat marketing. The Neales sometimes provide educational tours to other entrepreneurs considering direct sales of beef.

Ben adds that the information from UT Extension had been instrumental in his continuing education about running the businesses, and he uses the extension publication *Improving Communications with Your Beef Processor* to ensure that customers understand the nuances of ordering custom-processed beef. For example, the amount of refrigerated beef that a 1,200-pound steer provides is more along the lines of 600 to 700 pounds of beef, depending on a number of variables. Of course, not all that beef is in the form of steak.

As for how the direct marketers, particularly those raising beef cattle, have fared since the beginning of the pandemic, Holland says business has been booming. “Many direct-from-the-farm meat marketers are referring to 2020 as their best marketing year ever. Marketing opportunities have been exceptional, and sales have continued to be strong,” Holland says.

Even more interesting to Holland is that the demand seems to be local. “So far demographics seem to be
trending toward new, local customers, with producers selling directly from the farm or through off-farm market stands and farmers’ markets.”

The first day that Light Hill Premium Meats set up its pop-up sales spot along a highway near Columbia, the Neales sold out their inventory within three hours, without advance advertising or sales reservations or even signage. That day Lauren encountered a young mom in the grocery dumbfounded that she could not find ground beef. During the pandemic, hamburger had become the new toilet paper. So Lauren took the news of locally available beef to social media and developed some signage for a proper sales tent, while Ben ramped up processing so their neighbors would have the products they both wanted and needed.

Since then, Light Hill Premium Meats has taken more advance orders online, with near contactless deliveries at the pop-up tent. “We’ve done some online, web-based shipping sales,” Ben says, “but most of our customer base has been local.”

Charles Hord, executive vice president of the Tennessee Cattlemen’s Association and a 1996 UT Knoxville graduate majoring in ag business and economics, says beef shortages are related to processing capacity. “This is especially true for local producers.” When there
are reports of shortages or empty shelves in the stores, it’s because there’s been a disruption somewhere along the supply chain. In the case of COVID-19, that disruption has been at the large, national processing firms. Local producers have the beef on the hoof but few options to deliver product to the consumer.

Ben says the Light Hill facility now operates five to six days a week, with most of those days reserved for other beef producers. He generally fills orders for Light Hill Premium Meats by operating on weekends.

“We’re booked out through June of next year,” he says. “That’s never happened before.”

The Neales employ a nine-person crew to operate the plant on a schedule that allows everyone a living wage and family time.

Pandemic or no pandemic, the issue of meat availability at the local level is complicated. Hord says the pandemic has renewed discussions about supporting local processing. Talks across federal and state agencies have focused on legislation that will make custom processing more accessible. The difficulty, according to Hord, is the variability of inspection regulations from state to state.

“Everyone wants more access to local processors but not at the possible expense of food safety,” he says.

“And then there’s concern that the industry might overbuild. The ‘buy local, know your food’ trend has been around for a while and looks to continue, but there’s no guarantee of customer support. Local products are not generally less expensive that those found in supermarkets.”

The Neales agree.

“Right now, there’s a definite need for and some level of security in the availability of our beef,” Ben says. “Moving forward, though, some of our customers will return to large groceries because of convenience and often price.”

Still, he believes many will stay with the local producers with whom they have established relationships and who they trust to produce quality products.

Lauren believes COVID-19 has changed some perceptions. Patrons of Light Hill Premium Meats feel more secure with local food suppliers.

“Our customers feel good about supporting us through direct sales, and they know that we’re also supporting them with high-quality, local products,” she says.

Find Light Hill Meats online at lighthillpremiummeats.com. Find other Tennessee producers of beef and other commodities from vegetables, fruits, Christmas trees and more online at PickTNProducts.org, an online resource provided for producers and consumers by the Tennessee Department of Agriculture.
A 1 PERCENT IDEA

Mathematics Professor Works with Army Research Laboratory

BY JENNIFER SICKING | PHOTOS BY PATRICK MURPHY-RACEY

On a day in 2015, Vasileios Maroulas, UT Knoxville mathematics professor and expert in data science, called then-Ph.D. student Andrew Marchese into his office and handed him a CD of data from the U.S. Army Combat Capabilities Development Command’s Army Research Laboratory (ARL), asking him to begin untangling acoustical data.

It was an action that would change research for Maroulas.
As Marchese began investigating the data, he realized the strategies laid out in the graduate textbooks, which could walk students through time-series analysis or signal processing methods, were not enough to break apart the data and to detect patterns.

What they needed was a new model to examine the data—one that would allow flexibility.

Marchese (Knoxville ’17) began investigating different possibilities and recalled another UT Knoxville professor who in class had mentioned topology—math that allows geometric objects to be stretched, reshaped and changed—as a theory, a curiosity in the math world. But he had said some mathematicians were using it to unpack large data sets.

Marchese went to Maroulas with the beginning of an idea.

“I love that they come up with ideas,” Maroulas says about his graduate students. “I want my research lab to be a safe space for my mentees to learn how to make mistakes. They will be the ones who will minimize the real estate of the unknown in the future, and they need to courageously risk so that they successfully navigate the research ocean later. We learn a lot from failures, and 99 percent of the ideas don’t work out, but that 1 percent is really awesome.”

This idea, to combine topology with data analysis as other mathematicians were beginning to do, proved to fall into the 1 percent category.

“We started looking at it, and I said, ‘There is a hidden raw gem here; we just have to dig it out,’” Maroulas says.

Incorporating topology with data analysis allows mathematicians to take large, complex data sets and find clusters and then find connections between these clusters. As the clusters connect to one another, patterns in the data emerge, allowing mathematicians to detect the one area they need, to eliminate the other “noise” in the data set.

Marchese, now a data scientist for the New York Times, remembers it as an interesting time as he learned and used this new math with Maroulas’ mentorship.

“A lot of mathematics is pushing incrementally up in some sub field,” Marchese says. “There was so much new stuff to uncover. It was kind of like the Wild West in this field. There was so much unexplored and so much low-hanging fruit to go and prove. There were concepts and ideas that no one had explored yet because it was so brand new, especially with interactions with real data.”

For Maroulas, that proved to be a career turning point into interpreting data using what he now promotes as statistical topological data analysis. He has published findings in prestigious journals and presented in international scientific conferences.

“This method is good for not only signal processing,” he says. “The approach is very transformative and has found applications in materials science, chemistry, biology and other areas as well.”

One other area is in artificial intelligence.

Since 2017, the Army Research Office (ARO), an element of ARL, has funded Maroulas’ work, and in September 2019, ARL named Maroulas a senior research fellow. Soon a new project followed—unpacking electroencephalogram (EEG) data from soldiers pursuing a task with a goal of using the data to improve artificial intelligence.

In milliseconds, a soldier may have to decide if the person in the distance is friendly or an adversary.

“Who is a good decision maker under a stressful environment—and you have to make that decision in milliseconds?” Maroulas asks.

In his lab, Maroulas and his research group—consisting of postdoctoral, graduate and undergraduate students—develop algorithms to help the Army discover just that.

Untangling the brain wave activity from soldiers has an ultimate goal of improving artificial intelligence for the Army.

“The mathematical capabilities Professor Maroulas and his team developed will find important use at ARL—the potential to apply this framework in a wide variety of applications from rapid analysis of electroencephalography and electromyography data to categorization of explosive events and study of human-machine teams,” says Joseph
Myers, ARO program manager for this project. It’s not just graduate students who are getting to learn about statistical topological data analysis. During 2019, the Army funded Maroulas’ research group with a summer learning experience for an undergraduate UT Knoxville student and a student from Bearden High School in Knoxville to learn about the process.

“I was able to mentor really young minds taking the first footsteps of their careers of what the Army Research Lab’s problems may be and how you can use mathematics and statistics to solve these problems,” he says.

From quarterbacks making a Super Bowl winning pass to a receiver and a racecar driver navigating turns in which millisecond decisions can lead to a wreck to making decisions affecting millions during a pandemic, Maroulas sees many possibilities for his work.

“We see lots of domains where having to make the right decision is critical and has a broad impact,” he says. “This method is transformative. It doesn’t have to be used for this type of data we’re looking at with the Army. It’s beyond that.”

In it may be the future.

“Mathematics tends to be a stringent discipline to tackle, but it has always been the greatest language to solve problems from measuring the height of pyramids in antiquity to decoding secret messages during World War II to detecting patterns in complex data during the 21st century,” Maroulas says. “If you’re willing to become an expert in walking the research bridge between mathematics and the real world, then you can really do a lot with this career.”

Untangling the brain wave activity from soldiers has an ultimate goal of improving artificial intelligence for the Army.
A Recipe for Health

Class Prepares Doctors in the Kitchen

BY PEGGY REISSER
PHOTOS BY ALAN BURNS

Recipes provided by:

Medical students at the University of Tennessee Health Science Center are learning some of their most important lessons in the kitchen. Susan Warner and a team of instructors, registered dietitians and faculty are teaching future physicians about the vital connection between what people eat and how they feel. It’s a recipe they hope will not only benefit students but also those they will treat in the future.

“We are trying to train the trainers, who can then become leaders for better health across Tennessee and practicing role models of healthier lifestyles themselves,” Warner says.

Warner has been teaching a culinary medicine course with Joan Han, UTHSC associate professor of pediatrics-endocrinology, to medical students at UTHSC since 2016, using the Health meets Food curriculum governed by the Culinary Medicine Specialist Board. What started with a few medical students in the UTHSC College of Medicine has grown and trained more than 80 students through the years.

The goal of the program is to raise nutrition and culinary skills for the personal health and well-being of the medical students and to equip them to communicate nutrition principles to their patients.

RANCH DRESSING

This dressing can be used on salads or served as a dip with vegetables.

3/4 cup yogurt, Greek, low-fat
1/4 cup sour cream, low-fat
1/3 cup buttermilk
1 teaspoon apple cider vinegar
3/4 teaspoon sugar
1 1/2 teaspoons garlic powder
1 tablespoon parsley, dried
1 1/2 tablespoons chives, dried
1 teaspoon onion powder
1/4 teaspoon salt

PREPARATION:

Gather all ingredients and equipment.

In a large mixing bowl, combine all ingredients and mix well.

Refrigerate until ready to use.
Left to right, Annie Ameha, Chef Nancy Kistler, Tim Rayford, Chef Josh House, and Susan Warner Knoxville ’81, UTHSC ’85

Left to right, Kristina Lim, Mounica Konjeti, Chef Nancy Kistler and Navila Sharif participate in a Health meets Food class.

Chef Josh House demonstrates cutting techniques to UTHSC students.
WE ARE WHAT WE EAT

Warner believes a good diet is a prescription for good health. For the past several years, she has been working to spread the “Food is Health and Medicine” mantra to the UTHSC campus community.

A clinical pathologist, she is so passionate about the link between food and health that she became a certified culinary medicine specialist and a professional chef.

“I recognized a long time ago the link between nutrition and its impact on chronic disease,” says Warner, a clinical assistant professor in the department of medical education in the UTHSC College of Medicine. “Hippocrates said, ‘Let food be thy medicine and medicine be thy food.’ It’s something that we’ve known for thousands of years, that diet and good health or bad health are linked. Food has the power to make us healthier or to make us sick.”

It wasn’t until a 2013 trip to Tulane University for her husband’s medical school reunion that Warner discovered the culinary medicine program there. She felt it was a perfect marriage of medicine, nutrition and culinary skills and offered a potential tool for the doctor’s bag. The program was originally developed at the Goldring Center for Culinary Medicine at Tulane University under the direction of Timothy Harlan.

Known as “Dr. Gourmet,” Harlan is a practicing, board-certified internist and currently an associate professor of medicine at George Washington University. He directs what is now the stand-alone, nonprofit Health meets Food program at George Washington University.

After Warner completed her own culinary medicine specialist certification, she was introduced to Han, who directs the UT-Le Bonheur Pediatric Obesity Program and the Healthy Lifestyle Clinic at Le Bonheur Children’s Hospital in Memphis. Han was interested in bringing the

10 TIPS FOR HEALTHY EATING

1. Know the core nutrition principles: Eat more whole fruits and vegetables, whole grains and legumes. Consume healthy fats or unsaturated fats, primarily from plants or seafood. Saturated fats, primarily from animal sources, should be limited, and trans fats (foods like margarine, commercially prepared pastries and processed foods) kept to a minimum. Consume dairy in moderation. Limit added sugars, processed foods and salt.

2. Visualize the plate: Half your plate is fruits and vegetables, and the other half is divided between a healthy protein (seafood, lean meat, poultry, legumes or eggs) and whole grains like brown rice, farro, quinoa, corn or whole-wheat products.

3. Remember that small changes can make a big difference: Set a few goals that are meaningful to you and that you have the confidence to reach.

4. Mindfulness is important: Ask, “Am I really hungry or just bored, thirsty or eating because food is present?”

5. Portion control is key: Remember that we live in a supersized world of food in which what is called a normal portion has become equivalent to two to three servings.

6. Read the food ingredients lists and nutrition labels. Limit saturated fats, added sugars and sodium.

7. Take stock of your pantry: Make sure it is not filled with highly processed foods.

8. Grocery shop with a plan: It is best to shop the perimeter of the store, where the freshest whole foods are located. An exception would be the aisle with whole grains and legumes.

9. Choose less-processed food: Consume foods in a state closest to how they grow.

10. Don’t look for a quick fix: The road to better health is a journey to be enjoyed.
culinary medicine program to Memphis and obtained a license for UTHSC to use the program.

With three second-year medical students and Han’s team, Warner held the first series of eight classes in 2016 for 16 medical students in a donated kitchen in the Junior League of Memphis Community Resource Center. The students were so enthusiastic there was near-perfect attendance at all the classes. One student missed a class because he was undergoing surgery.

The following year, with some private funding, another teaching kitchen in the Memphis community was used to teach a second group of medical students, as well as a community series, in which the trained students and faculty taught community participants.

In 2018, the College of Medicine’s Department of Medical Education offered culinary medicine as an elective to fourth-year medical students. Classes have filled up quickly since, and there is usually a waiting list. They have been taught most recently in the Student-Alumni Center kitchen on the Memphis campus.

The National Academy of Sciences calls for medical students to have a minimum of 25 hours of nutrition education. Only 27 percent of medical schools in the United States meet this recommendation. UTHSC is one of them. The university is among approximately 50 medical schools across the country using the Health Meets Food curriculum. Students are held to academic standards and are equipped to volunteer in community programs that address health issues related to diet and food insecurity.

“What we’re trying to do with the medical students is more academic,” Warner says. “We’re trying to get them to take better care of themselves, but we are also trying to make them aware of evidence-based nutrition principles and how to talk to their patients.”

GOOD HEALTH, ONE DISH AT A TIME

Each class includes three components: Pre-class work, including a video and article review with a quiz; cooking in groups; and a case review and exercise led by faculty, along with a nutritional discussion and tasting of the recipes.

“We try to take easy-to-find, budget-friendly ingredients we know people like and use them in delicious recipes with healthier substitutions,” Warner says. “The recipes in this course are based on a Mediterranean diet, which is a whole-food, plant-forward way of eating recommended in the 2015-2020 Dietary Guidelines

OVEN FRIED CHICKEN TENDERS

A delicious and healthy alternative to traditional fried chicken. Storage instructions: Refrigerate and reheat in the oven. You can also freeze in a single layer on a cookie sheet and then transfer to a plastic storage bag to be ready to reheat for a quick snack.

1 cup breadcrumbs, whole wheat
3 tablespoons parmesan cheese, grated
1/4 teaspoon garlic powder
1/4 teaspoon thyme, dried
1/4 teaspoon Kosher salt
To taste black pepper, ground
2 large eggs, beaten
1 pound chicken breasts (about 2), boneless and skinless
Pinch cayenne pepper (optional)

PREPARATION:
Gather all ingredients and equipment. Preheat oven to 400°F (200°C).

Mix bread crumbs with the parmesan, garlic powder, thyme, salt, pepper, and cayenne.

Place eggs and bread crumb mixture in 2 separate shallow dishes.

Pat chicken dry and cut each chicken breast into “thumb sized” pieces.

Run the strips through the egg to coat it lightly and hold the chicken over the liquid to let any excess fall back into the bowl.

Lay the strips in the bread crumbs, turn it over and press it into the breading to evenly coat. Shake excess crumbs off chicken.

Place the chicken on a baking pan or baking rack and then place in oven. Bake for 10-15 minutes or until the internal temperature reaches 165°F (74°C).

UTHSC students Hannah Burnett and Renn Lovett participate in the Health meets Food class.
QUINOA:
- 2 teaspoons olive oil
- 2-3 each garlic, chopped
- 1/2 medium red onion, small dice
- 1 3/4 cups vegetable stock or water
- 1 each orange, zested and juiced
- 1 cup quinoa
- 1 cup chickpeas, drained, rinsed
- 1 each cucumber, washed, medium diced
- 1 medium tomato, medium diced
- 2 ounces feta cheese, crumbled
- 1 tablespoon dill, fresh, chopped
- To taste black pepper, ground

SHRIMP:
- 3/4 pound shrimp, raw, peeled, deveined
- 1/4 teaspoon Kosher salt
- 1/8 teaspoon black pepper, ground
- 1 each lemon, zested and juiced
- 1 teaspoon olive oil
- 1 ounce dry white wine

FOR SERVING:
- 2 heads bibb lettuce, washed

PREPARATION:
Gather all ingredients and equipment.

In a medium sized pot, heat over medium-high heat and add oil. Add the onion and garlic and sauté until onion becomes slightly translucent, about 1 minute.

Add the vegetable stock or water and orange juice and bring to a boil. Once boiling, add quinoa, reduce heat and cover. Cook quinoa for about 15 minutes or until all of the liquid has been absorbed.

Add chickpeas and place mixture into a medium bowl and set aside.

Toss the peeled and deveined shrimp with lemon juice and zest, salt and pepper.

In a medium-sized sauté pan, heat oil over medium high heat. Remove shrimp from marinade and add to pan. Cook, stirring occasionally, until shrimp is almost cooked through, about 3 minutes.

Remove shrimp from pan, set aside. Deglaze pan by adding the white wine and scraping the bottom of pan and cook until most of the wine evaporates, about 2 minutes.

In a small bowl, pour liquid over shrimp and set aside.

Fluff the quinoa and chickpeas mixture with a fork. Toss in the cucumber, tomato, fresh herbs, orange zest, feta cheese, salt and pepper into a large bowl.

Add the shrimp to the mixture and toss together.

Use a leaf of lettuce to wrap 1 ounce of shrimp and 1/3 cup of quinoa. Repeat.

Serve warm or cold.
academic leader for training future health-care providers across the state. That's why I'm passionate about it, and I think we can make a huge impact for better health for the community and Tennessee.”

COCONUT PECAN DATE ROLLS
Storage instructions: Store in an airtight container for up to 1 week. These can also be frozen.

1 3/4 cups dates, pitted (about 14 each)
1/2 cup pecans, chopped
3/4 cup coconut, shredded, unsweetened

PREPARATION:
Gather all ingredients and equipment.

In a food processor or blender, blend together dates, pecans, and half of the coconut until mixture forms a paste.

Shape into 17 balls, about 1 tablespoon each, and roll in the remaining coconut.

EXPLORE OUR VOLUNTEER HOME
Chattanooga’s Rising Rock

Alumna Finds Future in Class

BY SHAWN RYAN | PHOTOS BY ANGELA FOSTER

Even before she came to college, Marielle Echavez enjoyed making videos. Nothing too serious, though. “They were more silly videos,” she says.

“I liked playing with the camera. “When I came to college, I didn’t really know what I was pursuing, but I knew I liked creating and using the camera.”

It only took one semester in the Rising Rock course to cement her career decision: videographer.

“By the time I was done with my first semester with Rising Rock, I was proud enough to say that I could call myself a videographer,” says Echavez, who graduated in May with a degree in communications and minor in psychology.

In Rising Rock, students are journalists, developing video stories about the Chattanooga area. Working as a team, students develop skills in writing, videography, photography and graphic design. Basically, they make short documentaries about subjects that interest them. Their work can be found at risingrock.net.

For Echavez, her love of making videos nested perfectly with Rising Rock. While honing her videography skills, though, she also improved her skills at writing and photography, both of which she had already done as a writer and photographer for the Echo, UTC’s student-run newspaper.

“Billy Weeks, UTC lecturer and Rising Rock advisor, describes Echavez as quiet with a power in her presence.

“In my opinion, she is a great editor and a born leader. I have found that other students will follow her just by seeing her example.

“Marielle also is a strong storyteller,” he says. “I tell the students of Rising Rock: If you want to do well in this class, you should work hard, always meet deadlines and, above all, care about your subjects. If you read or watch one of Marielle’s stories, above all she cares. I love seeing this in her work.”

Among the subjects Echavez tackled in her three semesters in Rising Rock were pieces on aerial dancers—those who twirl on silk “ropes” far above the floor—and Chattanoogans who helped in the design of the new coin minted for the space program.

“I was able to learn a lot more on my own and get comfortable on my own and be more independent on what I wanted to create,” Echavez says.

Weeks has no doubt that she will excel in journalism.

“I truly believe she will have a great career telling important stories. It would not surprise me if her work gets national attention someday.”

Echavez understands there may not be jobs standing there and waiting for her now that she’s graduated, but she knows the skills she learned at UTC will be involved in whatever direction her career takes.

It’s a pretty simple equation for her, she says. She likes talking to people and hearing their stories.

“One thing I guess I noticed about myself is I like conversation,” she explains. “I really enjoy just having conversations and learning more about whoever I’m interviewing.”
Billy Weeks, UT Chattanooga lecturer, and Marielle Echavez, Chattanooga ‘20, show off the Rising Rock website with stories by UTC students.
“There’s got to be a better way to do this,” Shawn Butler muttered to himself as he hand sprayed cover crops with herbicides to prepare the field for cotton planting.

Butler (Martin ’14, Knoxville ’16, ’19) knew there had to be a more efficient way to terminate strips of living-cover crop than the single-nozzle boom sprayer he was given. Butler, then an employee of the West Tennessee AgResearch and Education Center, worked on a trial herbicide experiment in 2013 that was designed to destroy cover crops planted between cash-crop seasons for weed suppression, and when the first round of trial herbicides proved ineffective, he was left to respray hundreds of rows of cover crop, each 300 feet in length, by hand in the middle of February’s 35-degree temperatures.

Cover crops help maintain healthy soil during the offseason by keeping the soil saturated and locked with nutrients. When terminated, cover crops act as an organic mulch to suppress weeds and reduce herbicide usage, but the process of terminating those cover crops can be difficult, as Butler learned spraying the fields.

After finishing spraying the fields, Butler started researching ways people managed cover crops in the past and came across the roller crimper. The solid metal steel cylinder with blades fixed around the cylinder allows the machine to pinch the plants stems when making contact with the ground, cutting off the flow of water and nutrients. But the solid cylinder alone just temporarily lays the plants down and is not able to adapt to the changes in terrain.

Butler thought it would work better if he adapted it. “Why don’t I just take this roller-crimper, slice it into a
bunch of sections, and then I can roller crimp this cover crop in these strips instead of a spray killing it?”

The idea stayed just that until a class at UT Martin in 2014 changed everything.

Butler, along with his friends Austin Scott (Martin ’14) and Daniel Wiggins (Martin ’15), were students in Paula Gale’s soil and water conservation course when Gale gave her students the option of taking a final or competing in the College of Agriculture and Applied Sciences entrepreneurial pitch competition for an A. Butler described his idea to his friends, and the trio formed a business model to present in place of studying.

Butler’s flex roller-crimper is designed as individual drums, allowing each crimper to pivot and meet the ground individually, ultimately killing the cover crop, no matter the terrain, in a time- and cost-efficient manner.

“Why don’t I just take this roller-crimper, slice it into a bunch of sections, and then I can roller crimp this cover crop in these strips instead of a spray killing it?” he asks.

“You need some type of unit that is more flexible ... and there just hasn’t been a lot of good options out there,” Butler says. “It would be a tremendous honor in itself to develop a product that solves a problem with adoption of a sustainable practice.”

When the students first presented at the ag innovation competition, Gale says they did a good job.

“I had looked at the competition as an opportunity
Patent design plans for the flex roller-crimper.
to give them some public speaking experience and some teamwork experience, and they got both of those and more,” she says. “They learned more than anything I could have taught them. You have to learn by doing.”

They won UT Martin’s ag innovation contest but also continued to compete in regional and national competitions, winning enough prize money to begin a formal business called FarmSpec, or Farm Specific Technology. From competing in UT System contests like the Boyd Venture Challenge, sponsored by UT President Randy Boyd, to national contests such as the Farm Bureau Rural Entrepreneurship Challenge and the Howard Buffett Ag Innovation Contest, FarmSpec began making a name for itself in agriculture.

However, Butler, Wiggins and Scott were each pursuing individual careers in agriculture. While Wiggins and Scott still hold equity in the flex roller-crimper, they recognize that it was originally Butler’s creation and allowed him to continue marketing the product as he desired.

“Shawn had the idea, ... but I think all of us combined together troubleshot it and made the idea into something,” Wiggins says. “I knew it was a good idea, and I knew there wasn’t anything on the market, but I didn’t think we could have a company and a product that one day (he) will be able to sell ... . I just think from the standpoint of seeing them in use and knowing that I was a part of that, from an ‘easy A’ contest at UT Martin, would be the coolest thing.”

Butler partnered with the UT Research Foundation to begin the patenting process while still a UT Martin student in 2014 with the hopes of seeing it manufactured to help farmers incorporate organic farming practices in a cost-efficient manner. After graduation, he continued working toward his goal while earning his master’s (’16) and doctoral (’19) degrees in agronomy at the UT Institute of Agriculture Herbert College of Agriculture.

“One of my bucket-list items was always to get a patent,” Butler says. “Initially I was like, ‘If I can just make a dollar off of this, I’ll feel great.’ Literally,
The Spark Innovation Center offers startup companies:

• Unique access to quality laboratory space
• Tailored business counseling and mentoring
• Opportunities to collaborate with UT and ORNL
• Key connections to help the companies succeed

Current clients include:

» Eonix
» Sky Nano
» Qubit Engineering
» Chem Chip
» American Nanotechnologies
» Neptune Fluid Flow Systems

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when I signed the license over to the UT Research Foundation, they sent me a dollar in the mail along with 60 other documents that I had to sign, but I got my dollar bill. I was happy at that point."

But he still wants more.

“It would mean the world to (manufacture) a physical piece of equipment that helps a grower’s efficiency and profitability,” he says.

Butler, now a cotton development specialist for PhytoGen in Central and Southeast Georgia, received the patent for the flex roller-crimper in October of 2019 and says none of it would have been possible without the UT Martin innovation contest created by Todd Winters and Gale encouraging him to compete.

“Without generating a platform for potential entrepreneurs at UT Martin, (FarmSpec) would have never happened. I am very thankful for UT Martin,” Butler says.

While Butler is the patent holder, all three men said it would be special to see the flex roller-crimper in use after all of their hard work.

“It’s good to just see something that you helped build be put to use and see other people gaining something from it,” Scott says. “It’s just that feeling of accomplishment that I can change something about the industry I work in every day for the better. So, seeing somebody else benefit from an idea that I helped develop would be awesome.”

“I’d be tickled to death to see them in any field in West Tennessee as I drive by,” Wiggins says.

Butler is still considering how to manufacture and distribute or license the flex roller-crimper and best market it to farmers looking for innovative techniques to implement on their farms.

While it may have taken seven years, two partners and three degrees, Butler found a better way.
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Responding to the Call

MTAS Leads Innovative Approach for Fire Departments

BY STEVEN CROSS | PHOTOS PROVIDED BY IPS

Most fire-service leaders feel that their department is meeting customers’ expectations. How do they know for sure? When was the last time, if ever, they asked customers these two questions: “What are your expectations of your fire department?” and “How well are we meeting your expectations?”

Fire department strategic planning is a required component of earning fire department accreditation through the Center for Public Safety Excellence. The UT Municipal Technical Advisory Service (MTAS) developed a customer-driven strategic planning process that provides a framework for MTAS consultants to lead fire departments through planning their department’s ideal future. Utilizing MTAS’s customer-driven strategic planning model will save municipalities across the state tens of thousands of public dollars by not having to hire a consulting firm to lead strategic planning processes or revisions. The fire departments of Johnson City, Mount Pleasant and Murfreesboro have been the first departments to complete this process.

Mark Foulks, Murfreesboro Fire Rescue Department fire chief, said the planning process provided insight into the needs of its customers.

“Much of the feedback obtained was somewhat predictable. However, we did receive some significant surprises, particularly as it relates to the service priorities of our external customers,” Foulks says. “Our citizens clearly communicated to us that emergency medical service delivery was just as, if not more, important to them than fire suppression for our department.”

His team used that feedback to develop goals and objectives for his department to implement.

“The process, developed by MTAS, has been invaluable to our department,” he says.
MTAS fire management consultants customize the process’ components to meet each municipality’s needs and expectations. This customization allows the department to capture its unique information to see the department’s DNA in the plan.

From interviewing the department’s leadership team to internal job satisfaction surveys, the project’s beginning informs the development of the external customer survey. The external survey is taken to the streets through meetings with civic groups, faith-based organizations, shoppers on the street, lunch-and-learn meetings as well as on department websites.

Department teams—with cross sections of rank, seniority and background as well as finance and human resources members—then meet to develop the strategic plan. The work session is part training and part sleeves-rolled-up workshop.

MTAS fire consultants guide participants in individual and group activities to identify their personal and consensus departmental values, vision and mission. The team identifies departmental challenges, opportunities, weaknesses and strengths along with critical issues that could create gaps in service to customers. The team then develops specific, measurable, achievable, relevant and time-bound goals to address each critical issue.

Strategic planning is a continual process. The plan must be communicated to every member of the team. The department must consider its strategic plan a living document, one that is referenced regularly to assist in decision making, budget preparation and capital equipment purchases. It is recommended to thoroughly review and revise the strategic plan annually and repeat the entire strategic planning process every five years.
EMILY CAPADALIS LOVE IS USING HER PASSION FOR THE UT SYSTEM as she represents the 400,000 alumni as UT Alumni Association president. What may seem like an impossible job to many is easy for Capadalis Love, who considers everyone affiliated with UT as family.

Those community values were introduced to her at a young age, as the Memphis native grew up with her mother, grandmother and two siblings. Capadalis Love’s life centered on the Greek Orthodox Church and a neighborhood where family and tradition were part of everyday life.

Having a college education was a priority her mother made clear to her three children, and Capadalis Love followed in her brother’s footsteps by attending UT Knoxville.

“Seeing the culture of traditions at UT Knoxville made it feel like home,” she says about her collegiate experience.

Throughout her career, which included nonprofit work and financial services, Capadalis Love used lessons from her mother to get involved in the local community.

“She taught us to give back by taking us with her to deliver a meal to someone sick or volunteer us for something at church,” Capadalis Love says about her mother.

The work in the Memphis community led her to connections with fellow alumni from the UT System, and that passion and feeling of family began to resurface. She was encouraged to get involved with a UTAA women’s program, and she never looked back.

“I grew up with a strong sense of family, and being part of the UTAA has given me another extended family,” she says. “I am blessed to work alongside a group of amazing alumni that inspire and motivate me to want to give back to our university.”

As Capadalis Love serves as president, she wants to encourage alumni to be part of the family and give back to the university.

“The sky is the limit on how you can be involved—join a local alumni chapter, sign up to be a UT Promise student mentor, be an advocate for UT or give to something you were passionate about as a student,” she says on ways alumni can remain engaged with the university.

In addition to giving back, Capadalis Love is passionate about alumni sharing the stories from their campuses. Her excitement sparks as she talks about the research and innovation emerging from the campuses, the experiences and opportunities for students and the overall impact UT is having on people everywhere.

“There is so much good happening on all of our campuses, not only for our students but within the state of Tennessee and on a global level,” she explains, “and as alumni, we have to share those stories with prospective students, neighbors, community leaders and family.”

There is no doubt that Capadalis Love will build a legacy of enthusiasm, excitement and, like her last name, love for the University of Tennessee. Her year will be filled with alumni engagements, and while it may look different this year, she hopes to welcome alumni to the family.

The University of Tennessee Alumni Association represents and serves the 400,000 alumni across the UT System. It is a central organization that provides different ways for alumni to engage with their alma mater through events, learning, career services, travel and legislative advocacy. 📚
The COVID-19 pandemic left many students without housing and community that they’d been expecting for the spring semester. Each of the University of Tennessee campuses saw the needs of its students and utilized emergency funds, and then alumni and donors stepped in to help students.

At UT Chattanooga, the Denise and Tim Downey Student Emergency Fund was created in 2019 to provide limited emergency help for UTC students experiencing monetary hardship. Almost $96,000 came in through donations to assist students with rent, utility payments and grocery money.

Anticipating the needs of their students, the UT Health Science Center developed the UTHSC COVID-19 Response Fund. It has generated more than $35,000 since its creation in March.

UTHSC also has the Nursing Student Emergency Support Fund. Created in 2017, it has generated close to $6,500 in gifts and pledges and specifically helps students in the nursing program.

The UT Knoxville’s Student Emergency Fund was established in the early days of COVID-19 and has garnered support from Vols around the nation and the world. By late May, more than $372,000 in donations helped students who did not meet criteria for federal aid.

“The Student Emergency Fund assisted my husband, five children and me while my part-time job was furloughed. The money helped us pay for household expenses like food and utilities,” says sophomore Jennifer Ware.

UT Martin focused on a specific group of students that university leaders knew would need support. The Displaced Student Workers Fund provided more than $38,000 in assistance to UTM student workers during the pandemic.

“I gave to the UTM Displaced Student Worker Fund because, as someone who depended on an on-campus job for the entirety of my undergraduate career, I know how vital that income is as a student and couldn’t imagine being in this unique situation that COVID-19 has created,” says Dalis Lampkin (Martin ‘19), donor and Young Alumni Council member.

Jordan Reynolds, a senior, was one of displaced student workers assisted at UT Martin.

“Please know that, even though you may never see the direct impact your gift had on a student’s life, it does not mean that you did not make a difference,” he says.

“Because of you, a student did not miss a meal; because of you, a student did not miss a car payment or insurance payment; because of you, a student did not have to lose their apartment; because of you, a water, electric and/or internet bill was paid. Again, thank you so much for all that you have been able to give.”

The Institute of Agriculture knew that, during this financially difficult time, affording pet care could become burdensome. The Small Animal Assisted Care Fund generated more than $162,000 in assistance for furry friends in need of medical attention.

“We’re glad to help those having difficulties taking care of their pets during these difficult times,” says Joan and Steve (Knoxville ’77) Cohn.

More than 3,200 donors gave more than $704,000 across the system by mid-July towards these student emergency funds.

To make a contribution to these funds or others, visit utfi.org/giving.
TO YOU, THIS IS THE TASTIEST PART OF YOUR TAILGATE.

TO US, IT’S A WHOLE LOT MORE!

In the UT Department of Food Science, we’re developing new approaches to improve the safety and quality of your food. Through our partnership with Sweetwater Valley Farm, we’re also preparing students for leadership positions in the food industry, academia, and government with opportunities for experiential learning, and we’re better able to fulfill our land-grant mission of teaching, research, and outreach. Your purchase of All Vol Cheese supports education and research opportunities for our students.

Learn more at tiny.utk.edu/allvolcheese.
Six Faculty and Staff Recognized with 2020 President’s Awards

From transforming the way UT approaches diversity and inclusion to championing biomedical research, recipients of the 2020 President’s Awards embody excellence throughout the UT System. Richard Robinson (UT Martin), Robert Williams (UTHSC), Karen Armsey (UTIA), Ashlie Czyz (UT System) and Davis Rash (UT Martin) received this year’s awards.

Minimizing Biased-Based Policing in Law Enforcement

The UT Law Enforcement Innovation Center (LEIC) developed a training program to minimize biased-based policing in the law-enforcement community. The program rolled out beginning with campus law-enforcement agencies across the UT System this fall. The training also is offered to law-enforcement agencies across Tennessee and the nation. The UT Institute for Public Service, through LEIC, provides first-class training to local, regional and national law enforcement in areas such as homeland security, forensic science, command and leadership, cybercrime and many others.

The Oak Ridge Institute at THE UNIVERSITY OF TENNESSEE

U.S. Department of Energy Awards ORI $20 Million

The U.S. Department of Energy awarded $20 million to the Oak Ridge Institute at UT to expand the university’s partnership with the Oak Ridge National Laboratory (ORNL) to train the next generation of American scientists and engineers.

“The Oak Ridge Institute will be a pipeline for a new supply of American-trained scientists and engineers, which our country sorely needs in this competitive world. It will also combine the resources and experience of the nation’s largest science and energy laboratory and a major research university,” U.S. Sen. Lamar Alexander (R-Tenn.) says. “Already, the UT-Oak Ridge partnership has 250 joint faculty, five joint institutes and 250 PhD students in jointly administered energy and data programs. With such a strong foundation and such strong current leadership, I am betting that, during the next 80 years, the Oak Ridge Corridor brand and the Oak Ridge Institute will be recognized as one of the most important science and engineering alliances in the world.”

In the five-year program, students will be recruited and enrolled in UT Knoxville and ORNL’s joint graduate programs.

“We are thankful to the Department of Energy for its support of this program that will deliver a top-tier interdisciplinary workforce talent in emerging fields for industry, government and academia,” UT President Randy Boyd says. “This is the first step in establishing ORI as a force to change our state and nation.”

Board of Trustees Approves 0 Percent Tuition Increase

During the annual meeting of the UT Board of Trustees, trustees approved a $2.5 billion operating budget for fiscal 2020-21 that includes no increase in tuition for students at all of the campuses—a first in UT’s history—and follows a record four years of increases at or below Tennessee Higher Education Commission’s recommendations. Not increasing tuition this year was important, even though the university’s budget is tight for the coming fiscal year, UT President Randy Boyd says.

“We think it’s important for our families and the state of Tennessee,” he says. “It’s the right thing.”
Alumni, University Supports Students

Although students weren’t able to finish their semester on campus due to the coronavirus pandemic, notable alumni and supporters made sure they felt the Volunteer spirit through VFL Class Crash, a series of surprise, online class drop-ins. Legendary quarterback Peyton Manning kicked off the campaign. In addition, faculty and staff made calls to all 29,000 students by the end of the semester to check in on them to see how they were doing. In the early days of COVID-19, a concerted effort was made to gather support for students affected by the crisis through the Student Emergency Fund, which has garnered more than $372,000 for students in need. Last, since in-person spring commencement ceremonies had to be cancelled, UT Knoxville sent a little bit of Rocky Top home to its 4,625 newest graduates—a graduation box filled with a mortarboard, orange and white 2020 tassel, a poster of the university’s seal, a letter from Chancellor Donde Plowman and several alumni gifts.

Faculty, Students, Class Garner Accolades

Several honors rolled in for UT Knoxville this spring and summer. UT-ORNL Governor’s Chair for Advanced Manufacturing Suresh Babu was nominated by President Donald Trump to serve a six-year term on the National Science Board; UT Knoxville was designated a Bee Campus USA, a national effort among universities to raise awareness about the importance of pollinators and provide new and improved habitats for them; five students were named 2020-21 Goldwater Scholars, ranking UT Knoxville first in the country for the prestigious award; and Dolly Parton’s America, a podcast based on a history class called Dolly’s America: From Sevierville to the World, received a Peabody Award. It also was named the top podcast of 2019 by Forbes.

Leadership Changes

Frank Cuevas, who has been serving as UT Knoxville’s interim vice chancellor for student life since January, took on the role permanently in May. In July, Doug Blaze, dean emeritus for the College of Law, agreed to serve as dean on an interim basis until the position is filled. Deborah Crawford, vice president of research, innovation and economic impact at George Mason University, was named vice chancellor for research and began her tenure in August.

A Dolly Parton podcast—based on a UT Knoxville history class—received a Peabody Award.

IMAGE BY CHRISTINE DE CARVALHO
Inducted into International Hall of Fame

Lyn Miles, a longtime anthropology professor at UT Chattanooga, has been selected as part of the inaugural group of 10 inductees into the international Interspecies Communication Hall of Fame. At UTC, Miles worked for nine years with Chantek the orangutan, eventually teaching him more than 150 words—the vocabulary of a 2- or 3-year-old child—in American Sign Language for the Deaf. It was the first time someone had tried—and succeeded—in teaching an orangutan to sign. Miles says UTC and its partners were key participants in the research that led to her induction into the hall of fame.

Researching Drug Hoped to Cure COVID-19

The prescription drug hydroxychloroquine has been in the news in recent months, thanks to the COVID-19 global pandemic. Since the drug has been beneficial in fighting off other viral illnesses, there was some thought that it could also combat the virus. But a researcher who spent his undergraduate years at UT Chattanooga says the drug isn’t the cure for the virus. Matthew Pullen, who received a degree in molecular biology from UTC in 2007, and his fellow researchers documented their findings, which were published in the prestigious New England Journal of Medicine.

Nursing Programs Receive High Marks

From bachelor’s to doctoral degrees, the UT Chattanooga School of Nursing programs just earned a 10-year accreditation by the national Commission on Collegiate Nursing Education (CCNE). The commission said UTC Nursing met all four accreditation standards. Three involve program quality: assessing mission and governance; institutional commitment and resources; and curriculum and teaching-learning practices. The fourth standard, program effectiveness, involves assessment and achievement of program outcomes. See additional content online.

Computer Consortium Created

With the help of a National Science Foundation grant, three Tennessee universities are teaming up to advance collaborative computing research in Middle Tennessee. Researchers from UT Chattanooga, Middle Tennessee State University and Tennessee Technological University are joining forces to create the Middle Tennessee Cyberinfrastructure Alignment Consortium. Using each university’s unique expertise in computer and cyber systems, the consortium will combine those strengths in joint projects, said Anthony Skjellum, director of the SimCenter at UTC.

Psychology Professor Recognized

Alexandra Zelin, assistant professor of psychology at UT Chattanooga, was recently awarded the American Psychology Association Mary Roth Walsh Teaching the Psychology of Women award. Zelin was recognized specifically for her success teaching the Psychology of Women course at UTC. When she teaches, Zelin says she’s careful “to ensure that all women feel represented in the material.”
UT Martin’s four-year graduation rate has increased 10.8 percent since proposing Soar in Four, the tuition model that encourages students to take at least 15 hours per semester to graduate in four years. The “Soar in Four” tuition program began in the fall 2016 semester and saw its first four-year graduating class May 2.

**Animal Science Graduate Rebuilds Horse Skeleton**

Savannah Metheny, a 2020 UT Martin animal science graduate, rebuilt a 17-hand tall, fully articulated equine skeleton named Ron to use as a teaching model in animal science courses. With the help of her mentor, Diana Watson, veterinary sciences lecturer, Metheny disassembled, cleaned and reconstructed the skeleton. Through creative measures, his roughly 200 bones are held together with high-tensile wire, fishing line, glue, epoxy, threaded rods, a little bit of tape and, according to Watson, a few prayers. Metheny will attend the Virginia-Maryland College of Veterinary Medicine in the fall.

**UT Martin Exceeds Captain’s Challenge Goal**

UT Martin exceeded its $325,000 fundraising goal for the sixth annual Captain’s Challenge one-day fundraiser in less than 24 hours on June 3. By the end of the day, more than $401,000 was donated to UT Martin by alumni, faculty, staff, students and the community.

UT Martin partnered with the Tennessee Higher Education Commission and Tennessee Emergency Management Agency to create more than 1,300 3D printed face shields for Tennessee COVID-19 relief aid. Many health-care providers in West Tennessee, including the West Tennessee Healthcare Volunteer Hospital in Martin and the Reelfoot Rural Ministries nonprofit organization, purchased the shields to protect medical personnel in the region. The printers were operated by faculty, staff and students who all agreed it was rewarding knowing that they made a difference for Tennessee medical professionals fighting COVID-19.
The UT Health Science Center is managing the operations of an alternate-care COVID-19 hospital that will be used if the number of those infected exceeds available hospital beds in Memphis and the region. The 401-bed hospital is in the former Commercial Appeal building in the Memphis Medical District near UTHSC. It is designed for less-acute-care COVID-19 patients, those who might need oxygen but do not need the higher-level care that hospitals provide. The alternate-care hospital is intended to ease the burden on hospitals in the event of a surge in COVID-19 cases. Richard Walker, chair of emergency medicine, is the chief executive officer, and Amik Sodhi, interim chief, division of pulmonary, critical care and sleep medicine, is the chief medical officer.

‘Why Aren’t We All Mad?’

The UTHSC College of Medicine hosted a roundtable discussion in June titled, “Why Aren’t We All Mad? A Dialogue on Structural Racism in the Health Care System.” More than 400 joined the Zoom dialogue, the first in a series to better understand the role of the college to make necessary changes to improve a system of structural racism that has created inequities in health care. Altha Stewart, senior associate dean for Community Health Engagement, was the moderator. Others participating were Executive Dean Scott Strome; College of Pharmacy Dean Marie Chisholm-Burns; David Schwartz, director of the Center for Health Equity in Radiation Oncology; Claudette Shephard, incoming interim chair of Obstetrics and Gynecology; Rabbi Micah Greenstein from Temple Israel in Memphis; Memphis Police Director Michael Rallings; and Memphis community activist Charlie Caswell.

UTHSC Graduates 793 Virtually

UTHSC presented degrees to 793 new health-care professionals during virtual commencement exercises this year. Graduates included 121 from the College of Dentistry, 30 from the College of Graduate Health Sciences, 243 from the College of Health Professions, 158 from the College of Medicine, 86 from the College of Nursing and 155 from the College of Pharmacy. In addition to its virtual ceremony, the College of Dentistry also held a commissioning ceremony in May for its graduates who are members of the armed forces.

Police Department Accredited

The UTHSC Campus Police Department recently received accreditation through the Tennessee Law Enforcement Accreditation (TLEA) program. The accreditation is awarded to law-enforcement agencies that have provided exemplary service to their communities. It is the third accreditation and fifth consecutive honor earned recently by the Campus Police Department. The department is also accredited by the Commission on Accreditation for Law Enforcement Agencies and the International Association of Campus Law Enforcement Administrators.
UTIA Faculty Receive Recognition for Outstanding Service

From their devotion to public gardening programs and beef-cattle production education to the development of production systems, UTIA faculty garnered national recognition for their outstanding contributions. Among them, Susan Hamilton (Knoxville ’80, ’95), now retired director of the UT Gardens and associate professor of plant sciences, received the Award of Merit from the American Public Gardens Association. David Kirkpatrick (Knoxville ’71), retired professor of animal science, was honored by the Beef Improvement Federation for a career of service to the industry, and Al Womac (Knoxville ’81, ’83 and ’88), professor of biosystems engineering, was named a Fellow of the American Society of Agricultural and Biological Engineers. For her statewide service, Karen Armsey, the director of the Institute’s Human-Animal Bond in Tennessee (HABIT) outreach program in the College of Veterinary Medicine, was honored with the 2020 UT President’s ‘Connect’ Award.

Still Here, Still Serving

Did you bring an animal to the UT Veterinary Hospital for emergency service this summer? Attend a UTIA virtual field day? View some of the hundreds of hours of educational videos or attend “Zoominars” and online learning experiences developed to continue the institute’s land-grant mission? Thousands did, including the more than 500 who preregistered for the first Virtual Milan No-Till Field Day. Many of the educational opportunities are still available online. Search utia.tennessee.edu for more information. If you need further affirmation that UTIA is still working to provide Real. Life. Solutions.—or if you just need some additional confirmation that the coronavirus can’t keep us down—check out the series of YouTube videos UTIA produced to lift the spirits of employees and clients. Online at the UTIA YouTube Channel, the three videos feature employees from across the state reiterating the uplifting message, “We’re Here for You.”

Additional content available online.

4-H Poised for Next Era

With the coronavirus preventing physical camps and 4-H Congress, Tennessee’s 4-H’ers were served some disappointments in 2020, but 4-H leaders and agents across the state worked hard to provide quality distance programming. None worked harder than Justin Crowe, who was recently appointed the new director and statewide program leader for Tennessee 4-H. Crowe is a familiar face to the program, having served with 4-H in Davidson County, engaging urban youth in hands-on learning experiences for five years. For the past 12 years, however, Crowe has served in the statewide 4-H Youth Development Office, receiving more than $5.2 million in funding to support Tennessee 4-H youth programs over the course of his career. As the new leader of the statewide program, Crowe is positioned to launch a new era of service to the state’s youth. The 4-H club enrollment in Tennessee is the largest in the country, with more than 168,000 participants and a 4-H program in every county. “Learning by doing” through hands-on activities and community involvement empowers 4-H’ers to develop and strengthen life skills. To learn more about 4-H Youth Development in Tennessee, visit 4h.tennessee.edu.

Justin Crowe

Susan Hamilton

Karen Armsey

PHOTO BY MICHELE WILSON

David Kirkpatrick

PHOTO BY MICHELE WILSON

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CTAS Produces COVID-19 Safety Recommendations for Jails

In light of the COVID-19 outbreak and concerns for inmates and staff at Tennessee jails, the president of the Tennessee Sheriff’s Association requested from Jim Hart, a jail management consultant from County Technical Assistance Service (CTAS), a document of recommendations.

Hart collaborated with the Tennessee Corrections Institute to develop Back to Normal: Considerations for Returning Jails to Pre-COVID-19 Operations.

Montgomery County Sheriff John Fuson, who serves as president of the Tennessee Sheriff’s Association, wanted something for sheriffs to consult as they started to move back to normal jail operations. Because of the COVID-19 outbreak and actions taken by courts, jails and law enforcement, state jails saw a reduction of almost 9,600 inmates from Feb. 29 through May 6.

Upon completion of the document, it was given to the state sheriff’s association for distribution across the state, to the Tennessee Corrections Institute to share with jail administrators and was posted to the CTAS website.

Since the release of the document, it’s been shared and used by a number of groups around the country:
- The Pennsylvania Commissioner of Corrections
- Miami-Dade Corrections
- Orange County (Orlando) Corrections
- Arizona Insurance Pool
- American Jail Association
- National Jail Leadership Command Academy
- National Institute for Jail Operations
- National Institute of Corrections
- Colorado Jail Association

Naifeh Center Program Moves Online for First Time

For the first time in the 20-year history of the Tennessee Government Management Institute (TGMI), the program was all virtual this year.

TGMI, a program operated by the Naifeh Center for Effective Leadership in partnership with the Tennessee Department of Human Resources, is a course for mid-level managers within state government to sharpen their leadership skills. It’s held each spring for two non-consecutive weeks.

Due to the onset of COVID-19 forcing employees to work from home and many businesses to shut down, the Naifeh Center quickly shifted TGMI to an all-online format this year.

CIS Benefits State Manufacturers During COVID-19

The UT Center for Industrial Services (CIS) will receive federal Coronavirus Aid, Relief, and Economic Security (CARES) Act funding to expand services to manufacturers. CIS will contact more than 1,500 manufacturers across the state to gather information on COVID-19’s impact on operations, workforce, sales and needs.

CIS will help companies identify their technical assistance needs resulting from the COVID-19 pandemic and will use CARES funding to provide these services to a limited number of manufacturers at no cost to them. Potential services include back-to-work safety planning, supply-chain risk mitigation, workforce systems, process improvement and other areas that address specific company needs.

“Manufacturing is more important than ever during these challenging times. We’re fortunate to have the opportunity to help manufacturers adopt proven business solutions and keep their workforce safe,” says CIS Executive Director Paul Jennings.

CIS is receiving CARES Act funding because of its longstanding partnership with the NIST Manufacturing Extension Partnership.

The Tennessee Government Management Institute went all virtual for the first time in its 20-year history.
Welcome to the UT Family

THE FIELD OF STUDY

When CONLAN BURBRINK toured UT Knoxville’s campus, he was treated the same as an athlete, walking into Neyland Stadium and onto Shields-Watkins Field. But his interest lay not in what happens on that field but in the field itself. Little did he know all that he would accomplish from the minute his feet hit the turf to when he graduated in May 2020.

As a plant-sciences major, Burbrink says his transition from his home in Cincinnati, Ohio, to Knoxville was eye-opening. He had never stepped foot in a stadium as big as Neyland, and according to him, there is nothing else like it.

During his first semester in Knoxville, he landed a job with UT athletics as a groundskeeper tending to the soccer and softball fields. Burbrink credits his professors and bosses for the skills and knowledge acquired in the classroom and out. According to Burbrink, applying what he learned in the classroom onto the field was “a unique aspect that a lot of places don’t offer.”

His learning included internships with Orlando City Soccer Club and the 2019 Cricket World Cup in England and Wales. He also tended to the field for the 2020 Super Bowl, working 122 hours that week to ensure the field was safe and maintained for the players. Burbrink says seeing how professional groundskeepers handled such a stressful situation made for a unique experience.

“The Super Bowl made me realize I love the industry I am in, and I wouldn’t have had that opportunity if I weren’t at UT,” says Burbrink.

Burbrink is attending graduate school this fall. He hopes to conduct and publish research pertaining to various fields’ effects on game outcomes.

A CITIZEN OF THE WORLD

For UT Health Science Center May 2020 graduate DANIEL BLANCO, the level of collaboration
he encountered during his academic career has allowed him to succeed as a global liaison specialist at St. Jude Children’s Research Hospital.

When pursuing his Ph.D. in biomedical sciences, Blanco wanted to study at a university that had affiliations and relationships with local hospitals to provide him with the best educational experience he could have.

Prior to studying at UTHSC, Blanco worked in a fellowship at Mayo Clinic and discovered how biomedical research can provide him with opportunities to make differences in people’s lives.

To Blanco, a sense of collaboration is involved in everything he accomplishes. “Science is a field without borders,” he says.

Science has the power to change and save lives. That, Blanco says, is what he wants to be a part of.

St. Jude has launched St. Jude Global, a worldwide program designed to research improvements in the survival rates of children with cancer and other diseases.

Blanco is working with fellow researchers across the world to make cancer information and education accessible to the patients and their families.

Blanco says he always felt the need to do work that would allow him to contribute to a global impact. Working at St. Jude’s is allowing him to do just that.

“I see myself as a citizen of the world,” he says.

STOPPING THE SPREAD

For UT Chattanooga graduate ROSA CANTU, the COVID-19 pandemic has increased her determination to help others.

In 2018, Cantu graduated from UTC with a bachelor’s degree in psychology and immediately pursued a master’s in public health, graduating with the first cohort in May.

Before the pandemic, Cantu worked for a nonprofit, but due to the financial stress of
COVID-19, her job was eliminated.

“Thankfully, my freshly minted master’s in public health degree was quite helpful in opening doors to opportunities for employment,” Cantu says.

Cantu quickly found a job with the Hamilton County Health Department, working in the health sciences division with data management that corresponds with COVID-19 testing. Then, in July, she began working at UTC as the COVID-19 contact tracing coordinator.

“I hope to create a lasting positive impact on our campus by curtailing the spread of this horrible virus,” she says.

Her job will include working with contract tracers to track the spread of the virus on campus and to notify those who have been in contact with people who have tested positive for the virus.

Cantu hopes to obtain a doctorate degree in public health and, eventually, to create policy in matters of health safety.

As an undergraduate on UTC’s campus, Cantu volunteered and built relationships with the surrounding community.

With her new job, she is continuing to build relationships while ensuring the public-health safety of those in the community.

**FOLLOWING THE PASSION**

**DEVIN MAJORS**

walked onto UT Martin’s campus as a political science major with the intention of being a lawyer—a dream since he was 10.

In the fall, Majors will attend law school at UT Knoxville.

When Majors moved from his hometown of Nashville to Martin, he was surprised by the small, close-knit community. He joined campus organizations and became an activist in the Martin community.

“In order to succeed, you have to get out of your comfort zone,” he says.

While at UT Martin, Majors served two terms as the student government association president. Majors describes this experience as being stressful at times.
due to the responsibilities he held and the people dependent on him. Yet Majors took honor in being the main advocate for students.

“A lot of people struggle finding a passion, and for me, the light shined on the path I needed to take,” Majors says.

Majors decided on UT College of Law for several reasons, but the main one is the college’s Center for Advocacy and Dispute Resolution.

“I want to defend people who can’t defend themselves,” he says.

INTERNET FOR ALL

UT Knoxville graduate and Fulbright scholar GEGHIE ALAYNA DAVIS is learning new ways of using marketing and graphic-design skills to educate and inform people on the benefits of accessible internet.

Davis, an East Tennessee native from Union County, is the first in the county to graduate from UT Knoxville’s graphic design program. She also understands how the lack of internet access hampers education. Growing up, it was difficult for her to find accessible internet where she lives.

Now she hopes to lower the number of households in rural areas without internet so people can have more access to information and education. To do that, through the Fulbright program, she plans to research efforts the United Kingdom has taken to expand internet services to rural areas. Due to COVID-19, her studies at Northumbria University in Newcastle upon Tyne, England, have been postponed for the summer.

“If everything is good, I’ll go Sept. 7,” she says.

In the pause between her May graduation and leaving for the UK, Davis has been interning with RCN Technology, a Knoxville company, as a multimedia graphic designer. After her Fulbright studies, she wants to develop a graphics campaign about the importance of internet for small communities.

“The biggest achievement you can have is helping others and being an influence,” she says.
Back to School

In this historical moment, education continues, albeit a little differently. Even with masks in place and sitting apart, ideas can be exchanged and knowledge shared. For at the University of Tennessee, we find a way forward. We continue. We change lives through education—even if it is behind a mask or a computer monitor.

PHOTOS BY:
• UTC-ANGELA FOSTER
• UTK-STEVEN BRIDGES
• UTM-STEVEN MANTILLA
When Peter Tsai was told he should win the Nobel Prize, he laughed.

“I already won the ‘No Belly’ prize,” he says.

After all, coming out of two years of retirement to work long hours on one of his inventions caused him to lose 10 pounds.

Tsai, a former UT Knoxville materials science professor, developed the microfiber materials used in the respirator known as N95, which became the letter and numeral voiced across the world this spring. N means non-resistant to oil, and 95 means 95 percent effective. N95 masks fit tightly to the face and block most particles.

In 1992, Tsai invented corona-charging technology to use an electrical field to charge materials, giving them a higher efficiency. By charging the microfibers, the particle-filtering efficiency improved 10 times. Through the UT Research Foundation, it was licensed to companies and has been used to make the media for a new respirator issued in 1995. Since then he continued to work on improving methods, eventually developing a water-charging method in 2018 that increased the respirator’s efficiency by 20 percent from the uncharged method.

“It doesn’t just happen,” Tsai says about advances in science and technology. “Edison failed 1,006 times before he invented the light bulb.”

Originally made for construction workers, who use it to keep from breathing in dirt and dust during construction, the N95 respirator also proved effective in the medical realm, with its charged materials helping to capture moist droplets. In 1996, the Centers for Disease Control and Prevention (CDC) recommended the respirator for airborne diseases.

The CDC recommended the N95 again in 2003 during the Severe Acute Respiratory Syndrome outbreak, in 2007 for the bird flu, in 2009 for the swine flu and in 2013 for Middle East respiratory syndrome (MERS). None of those outbreaks reached the pandemic level of COVID-19.

With a severe shortage of respirators and masks this spring, doctors and other scientists turned to Tsai, asking about the possibility of sterilizing the respirators to reuse them. But how could they maintain the microfibers’ electrical charge essential for trapping droplets?

Tsai came out of retirement and, with his 35 years of experience, went back to work on his creation.

Alcohol caused the materials to lose their charge. Some temperatures caused the mask to warp. But eventually he found that 70 degrees Celsius (158 degrees Fahrenheit) allowed the mask to keep its charge and not lose it shape. Virologists at the CDC found that temperature for 60 minutes killed the COVID-19 virus.

For Tsai, it was a way he could help fight against the virus.

“The invention is not special,” he says. “It’s just a special time. I’ll have this memory for the rest of my life that I helped the different communities.”

Peter Tsai is a retired UT Knoxville materials science professor and inventor.
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