

# FOOD INNOVATION CENTER NEWSLETTER

| Winter 2019 |

Department of Food Science and Technology  
The Food Processing Center



UNIVERSITY OF NEBRASKA-LINCOLN

# Committed to collaboration and new ways of thinking



We had another exciting fall in the Department of Food Science and Technology, and I'm looking forward to the months ahead. We've been continuing to make additions and enhancements within our department. Hopefully, to promote continued advancements, faculty members in our department have been fortunate enough to be a part of a University of Nebraska–Lincoln (UNL) and Georgia Tech team to receive two planning grants. The grants, funded by the National Science Foundation, encourage our department to collaborate with other UNL and Georgia Tech engineering and science departments in discovery of common technological challenges within the food processing industry. We anticipate seeing how we can use these grants to help develop centers to foster the next generation of food manufacturing.

This semester, we got started on renovating the East Campus Dairy Store. The ice cream shop will be moving to the backside of the old extrusion pilot plant that was once used when The Food Processing Center was on East Campus. The revamped Dairy Store will overlook the Legacy Plaza green space on East Campus. By next summer, we hope to have the doors of the new store open to all of its loyal customers. Within the next year, we will also be moving the dairy processing equipment from East Campus to Innovation Campus. But don't worry, the relocated Dairy Store will still sell the same delicious ice cream you know and love.

We've been continuing to hire new and talented faculty. Dr. Terry Howell, Jr. joined the department in July and will hold the executive director role of overseeing The Food Processing Center. New assistant professor Jennifer Auchtung will be teaching in the food microbiology area and will also be playing a role in the Nebraska Food for Health Center. Her husband, Tommy Auchtung, has accepted a research assistant professor position as a gastrointestinal microbiologist. Together, they will strengthen research efforts on the importance of gastrointestinal health and how it relates to all of us. Faculty member Dr. Rossana Villa Rojas will be teaching in the food engineering and food processing area, particularly in support of the 3+1 program. Dr. Deniz Ciftci will help support food chemistry offerings. Dr. Jooyeoun Jung will be working in product development and teaching the department's capstone course. We also welcome Angela Ratikin, who will be the department's manager of teaching laboratories. She will be responsible for ordering lab supplies and working with graduate students who are serving as TAs in lab courses. And as the department's new office associate, Julie McManamey will oversee the graduate program files and records. I'm confident that these new faculty and staff members will work together diligently with other University of Nebraska personnel to support our students through their time in our department.



*"We're constantly striving to challenge ourselves and to provide healthy, safe and sustainable food to consumers in Nebraska and beyond."*



In addition to our faculty and staff hires, we are looking forward to fully utilizing our building's clinical space. Managed by the Nebraska Food Health Center, the space is now equipped to allow individuals inside and outside of UNL to conduct clinical food studies and trials. Specimens, samples and physical measurements will be gathered from participants. Analysis of collected data will help uncover new and beneficial links between food and consumer health.

We are in our fourth year of our 3+1 program, an international collaboration between our department and the College of Food Science and Engineering at the Northwest Agriculture and Forestry University (NWFU) in Yangling, China. Right now, we have 50 students from NWFU studying in Lincoln to complete their UNL degrees in May 2019. Once these students graduate, many of them will go on to graduate school or travel back to China to work in their desired fields. The success of this program will come in advancing food safety and quality around the world. Additionally, it exposes all of our students to new cultures and allows those in our department to collaborate with others on a global scale.

We're constantly striving to challenge ourselves and to provide healthy, safe and sustainable food to consumers in Nebraska and beyond. I'm excited to highlight some of the students, staff, services and research that are helping us do just that. I hope you enjoy this glimpse into what our department has been doing this fall.

Many thanks for your continuous support, which has helped us maintain a tradition of excellence within our program. Here's to another successful year!

Best wishes,

**Curtis L. Weller, Ph.D., P.E.**

*Professor and Head, Department of Food Science and Technology  
Director, The Food Processing Center*

# Introducing Undergraduate Student Kaylee Weakly



Growing up, Kaylee Weakly wasn't aware of the complexity and importance of food science. When walking through grocery stores, she knew all food products came from somewhere, but didn't think much about it. However, it wasn't until she walked into an entry level nutrition class that her passion for food science began. In the class, Kaylee learned about Plumpy'nut, a peanut-based paste sent to under-developed nations to help their malnourished civilians maintain a healthy weight. Kaylee said she was intrigued by the product and the affect it could have on the world. That class prompted her to further her education within the food science field, get involved and make her mark within the department.

Kaylee currently serves as the president of the Food Science Club, a club that gives students a further glimpse into the field, including touring various food processing plants in Kansas City and Omaha. This, she said, has allowed her to serve as a mentor and leader for younger students. She has had the opportunity to further her food science studies while interning in different food science plants, including being the Product Development Intern at ConAgra. There,

she experimented with sunflower seed flavors and assisted in making the seeds water soluble. However, her food experiments didn't stop at her internship. During her food science labs, she also experimented making taffy and turkey casings. Her passion for food science led her to study abroad in New Zealand in winter 2018. There, she got to visit sheep and deer farms while learning more about her field. These opportunities have led her to seek out a career in food research and development or food safety. It's these engaging opportunities, challenging experiments, and involved faculty within the department that make Kaylee feel part of something special.

Her desire to educate others and make an impact in and outside of the classroom has been strong from day one. Outside of the food science department, Kaylee is involved with Teammates, a mentorship program, and Phi Sigma Pi, one of UNL's honors fraternities. Throughout her time in the Food Innovation Center, she said the engaging opportunities, challenging experiments, and involved faculty have make Kaylee feel like she's part of something special.



## *Serving Over 100 Years of Tradition*

It all started on East Campus in 1917: student employment opportunities, sweet and savory dairy products and a warm welcome to all university visitors. Come celebrate over 100 years of tradition with our signature flavor Scarlet and Cream—available in a dish, cone, sundae or shake. The Dairy Store is proud of the rich history and remarkable memories we've made with UNL's students, faculty and alumni over the years. We are humbled to be a part of such a great community. Come in today and get a scoop of our homemade ice cream, and build on the legacy of your UNL Dairy Store.

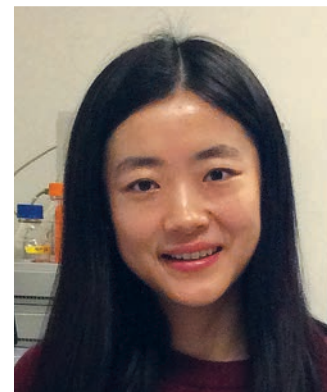
[dairystore.unl.edu](http://dairystore.unl.edu) | Department of Food Science and Technology | The Food Processing Center  
Located at 38th & Holdrege on East Campus | 402.472.2828 | [marketplace.unl.edu/dairystore](http://marketplace.unl.edu/dairystore)

## Introducing Graduate Student Junsi Yang

When Junsi Yang came to America from Beijing, China, she was passionate on furthering her education and learning more about her department. “In China, there is a need for better food science education,” Junsi said. This is what prompted her to apply to graduate programs that had advanced facilities and more hands-on experiences for students in this field. However, she said she encountered challenges when it came to perfecting her English. Junsi started to preview and review the lecture notes of her classes each night. This, she said, allowed her to further excel within her department. With the patience of her professors and her drive to succeed in the classroom, Junsi said she is confident being part of the UNL Department of Food Science and Technology.

Junsi, a second year Ph.D. student, is studying lipid chemistry and processing. She spends her days researching particle formation and delivery systems by using supercritical carbon dioxide. Junsi studies bioactives, like fish oil and peppermint essential oil, and loads them into hollow solid micro- and nanoparticles with high loading capacity and no expelling, investigates their physical and chemical properties after particle formation, and further assesses how they perform *in vitro* and *in vivo*. Her steady research and ever-growing knowledge

within her field has allowed her to mature academically, Junsi said. Within the Food Innovation Center, she has learned to critically think, ask for help and research independently. Together, Junsi and her advisor, Dr. Ozan Ciftci, collaborate on experiments, analyze results and ensure that Junsi is working to her fullest potential.



Once Junsi is finished with her program, she'd like to continue researching as a postdoc and help mentor undergraduate students for their future study and career. Spending the past four years studying and continuing her education with students of other backgrounds has been one of the major takeaways of being part of her department. Junsi believes the people within the Food Innovation Center have been a huge advantage to studying in Nebraska. Everyone within the food science field has given Junsi a sense of home and belonging. No matter the class, or experiment, Junsi has been able to come together with students of all backgrounds to help one another learn.

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## Japanese Visit

### Purdue recognizes Nielsen for teaching, mentorship

The relationship between two food science departments located on opposite sides of the world is helping create strength, knowledge and collaboration. In September, the University of Nebraska–Lincoln's Department of Food Science and Technology hosted a seminar for the Japanese prefecture of Shizuoka. Professor Terry Howell said the seminar strengthened relationships and helped the Japanese visitors better understand Nebraska's department. In the past, various Nebraska departments have visited Japan to reinforce international ties and create partnerships. However, this was the first time the university's Japanese connections visited the Cornhusker State.

The daylong meeting drew about 60 people, including Shizuoka's vice governor, students from Shizuoka University, members of Nebraska's Department of Economic Development and Nebraska faculty and staff.

The meeting was beneficial for the Shizuoka visitors, who learned how Nebraska's food science department works and similarities that the departments share. Nebraska faculty and staff, meanwhile, learned about Shizuoka's food-processing outreach capabilities within their business-development center.

After the meeting, Terry said the future relationship between Nebraska and Shizuoka University is promising. While Nebraska and Japan currently have a partnership through the Kewpie Corporation, the meeting may inspire more business partnerships between the two. And though there are differences between the two departments, Terry said these meetings are important for continuing to build relationships and to open minds to new opportunities with other countries.





## 3+1 Program

As the 3+1 Program continues at the University of Nebraska–Lincoln’s Department of Food Science and Technology, Curt Weller said the future of the program looks bright.

The program is an international collaboration between Nebraska and Northwest Agriculture and Forestry University (NWAUFU) in Yangling, China. Students enrolled in the program have the opportunity to learn from faculty in both departments. During the first two years, NWAUFU students are taught English in their country. In the third year, Nebraska faculty travel to China to teach those students. In the fourth year, NWAUFU students travel to Nebraska to finish up their degrees. Next semester, students from Nebraska’s department will have the opportunity to travel to Yangling. There, they will learn more about their field while being exposed to the Chinese culture.

The program started as the brainchild of former Nebraska Chancellor Harvey Perlman, former NWAUFU President Sun Qixin and current Nebraska Chancellor Ronnie Green. The collaboration between the two departments allows students to learn with acclaimed food science professors in top-of-the-line facilities and

use their knowledge and skills in a new environment. Various members of Nebraska’s food science department—including Mei Lu, Dongjin Park, Rossana Villa Rojas and Heather Hallen-Adams—have taken part in this collaboration, helping to ensure that students from NWAUFU are adjusting to Nebraska’s department. Hallen-Adams recently got back from teaching practical applications to students at NWAUFU.

One way students from both departments are using their skills is by investigating and researching the various food safety, processing and production practices within the United States and China. All of this gives students a new perspective. “The more people know about other people, the more likely the barriers that have been created by perceptions will be brought down,” Weller said. “Once you know somebody and the issues they face, the more sensitive you become to working with them while addressing problems.”



## Congratulations to the Graduates

### **Bachelor of Science**

Cody Brown  
Rebecca Conn  
Christine Darden  
Elliott Fullner  
Sarah Herzinger  
Madeline Kramp  
Thanh Le  
Sue Mae Lee  
Erica Lewis  
Irwin Panguripan  
Alexis Rienks  
Yijun Zhang

### **Master of Science**

Rehab Aldahask  
CarlyRain Adams  
Steven Kaiser  
Car Reen Kok  
Hollman Motta Romero  
Sabrina Vasquez

### **Ph.D.**

Fatima Alessa  
Paridhi Gulati  
Katherine Ivens  
Hatem Kittana  
Cameron Murphy  
An Tien Nguyen  
Eric Oliver  
Rachana Poudel  
Luis Sabillon Galeas  
Ali Ubeyitogullari

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## Awards and Recognition

### Faculty

#### **DR. HEATHER HALLEN-ADAMS**

Tanner Award – Most downloaded paper:  
“Food Fish Identification from DNA Extraction  
Through Sequence Analysis”

#### **DR. AMANDA RAMER-TAIT**

Promoted to Associate Professor and granted Tenure

#### **DR. STEVE TAYLOR**

John H. Silliker Distinguished Lecture

### Students

#### **ALI UBHEYTOGULLAR**

Honored Student Award, AOCS

#### **KELSEY BIGNELL**

Best Poster, Undergraduate Research Fair, CASNR

#### **THANH LE**

Section of Merit, IFT – Food Science Club Fronging Award

#### **JUNSI YANG**

Best Poster Lipid Oxidation Division, Oil Chemists Society

## Food Processing Center Industry Workshops

In the rapidly changing and competitive food industry, it is critical for employees to keep their skills and knowledge current. The University of Nebraska's Food Processing Center offers a broad range of relevant, on-site and distance education seminar, workshops and certification programs that focus on informational topics that can impact your business everyday.

Already, the Food Processing Center offers numerous trainings and seminars fit for your needs, including:

- Extrusion Workshop
- Food Allergy Research and Resource Program Training
- Food Microbiology Workshop
- Food Processing Management
- FSPCA (Food Safety Preventative Controls Alliance) Preventative Controls for Human Food Course

However, more upcoming hands-on trainings and workshops will be added to this ever-growing list. One workshop that will be offered will focus on the science of beer production. As craft breweries and local pubs continue to pop-up around the Lincoln community, the workshop is designed to educate and improve the beverage and learn how to create new offerings. A certification course for animal food will soon be offered, too. Many of these workshops and trainings can be offered offsite.

If a company can't find what they're looking for, the Food Processing Center organizes customized workshops or specific trainings for them. Additionally, companies can even rent out the conference rooms within the building. To learn more about the offered workshops, trainings and other offerings, check out the website. The Food Processing Center is devoted to helping companies and people within the industry succeed. With these offerings, hopefully they can do just that.

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## Food Innovation Center Rental Space

A few empty spaces for start-ups or established businesses are available for leasing on the fourth floor of the Food Innovation Center. The spaces have potential to hold a small pilot plant, a wet chemistry lab or offices. Any build-out costs would fall on the renter.

Several wet lab spaces, collectively known as the Biotech Connector, are already built out on the fourth floor. The Biotech Connector provides incubation and acceleration services to bioscience start-ups and high-growth biotech and research-based businesses. Specifically, the facility offers wet-lab space and utilities to develop commercial proof-of-concept prototypes and is managed by Invest Nebraska.

Limited space remains available on the fourth floor to those interested in creating a partnership with the University of Nebraska-Lincoln. For more information on leasing options at the Food Innovation Center, visit <https://innovate.unl.edu/food-innovation-center>.







# Professional Development Opportunities

Providing the opportunity for employees to learn new skills and update their knowledge is critical for any company to remain viable in the marketplace. The Food Processing Center provides companies with a variety of unique educational and training opportunities so your company can continue to be successful. Each program is designed specifically for the food manufacturing industry. Information is presented by industry and academic faculty experts. For complete information on each event visit [fpc.unl.edu](http://fpc.unl.edu)

In addition to the selections below, The Food Processing Center can work with your company to customize learning experiences for your employees. Many workshops can also be presented on-site at your location. To discuss this option please contact Event Manager, Jill Gifford at [jgifford1@unl.edu](mailto:jgifford1@unl.edu) or 402-472-2819.

## **Food Microbiology Workshop**

March 19–21, 2019

## **Better Process Control School for Acidified Foods**

April 1–2, 2019

## **FSPCA for Human Food**

May 7–8, 2019

## **Extrusion Workshop**

June 18–20, 2019

## **FSPCA for Animal Food**

June 25–26, 2019

## **Environmental Monitoring Workshop**

July 9–10, 2019

## **Better Process Control School**

September 17–19, 2019

## **Food Processing Management Certificate Online Program**

Ongoing

## **Recipe to Reality Seminars**

January 26, 2019

March 30, 2019

June 1, 2019

August 16, 2019

October 12, 2019

# Introducing Five New Faculty Members



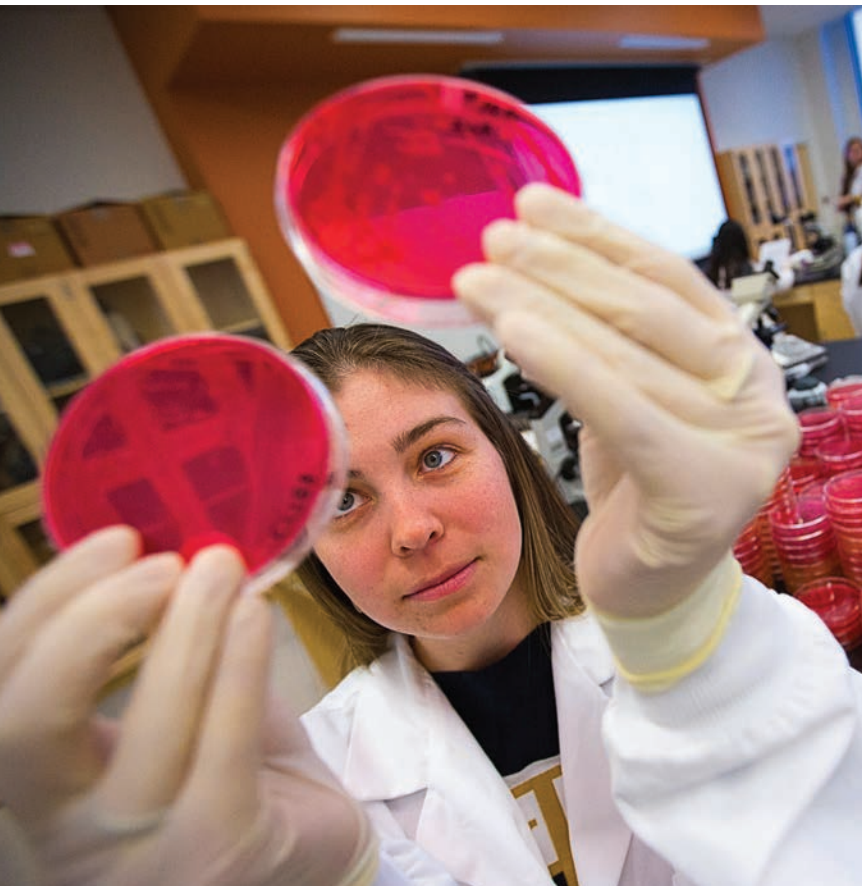
**Thomas Auchtung**  
*Research  
Assistant Professor*

Auchtung studies gastrointestinal microbes and their contribution to health and disease. He is particularly interested in microbial diversity and the roles played by understudied groups of microorganisms with which humans interact. Auchtung received his bachelors degree in microbiology from Michigan State University, his doctorate in microbial ecology from Harvard University, and postdoctoral training at Michigan State University and Baylor College of Medicine.



**Deniz Ciftci**  
*Assistant Professor  
of Practice*

Ciftci's expertise is in bioresource and food engineering. Her main responsibility is teaching grad/undergraduate courses in food chemistry/advanced food analysis for the 3+1 program. Her research interests include value-added processing of food and agro-industrial by-products to obtain bionanomaterials and chemicals. Ciftci received her bachelors and masters degrees in food engineering from University of Gaziantep in Turkey and her doctorate in bioresource and food engineering from the University of Alberta in Canada. She worked as a post-doctoral researcher in the Department of Food Science and Technology at the University of Nebraska-Lincoln.



## Support those with a hunger for learning.

Young and intelligent with an insatiable appetite for knowledge, the students in the Food Science and Technology program are working hard to improve all things related to food. Your donation will help them receive the scholarships they need to make it happen. Make a gift that feeds young minds.

Contact Doug Carr at  
[doug.carr@nufoundation.org](mailto:doug.carr@nufoundation.org) or  
402-458-1160 or give online at  
[nufoundation.org/foodscience](http://nufoundation.org/foodscience).



**Jennifer Auchtung**  
*Assistant Professor*

Auchtung studies how the bacteria that are normally present inside our intestinal tracts (GI microbiome) help to promote health and limit disease. The main focus of her research is how these bacteria limit susceptibility to infection with intestinal pathogens. Specifically, she is investigating how protection from infection is lost during antibiotic treatment and how it might be restored through therapies that target the GI microbiome. Auchtung received her bachelors degree in microbiology from Michigan State University and her doctorate in microbiology/molecular genetics from the Massachusetts Institute of Technology. She completed post-doctoral training at Michigan State University in the Departments of Crop and Soil Science and Microbiology and Molecular Genetics.



**Jooyeoun Jung**  
*Assistant Professor  
of Practice*

Jung's expertise is in food processing. Her main responsibility is teaching food product development for the 3+1 program. Her research interest focuses on the multidisciplinary approaches for value-added, sustainable food product and packaging development and optimization of processing conditions and application of the advanced food processing technology. She received her B.E. and M.E. degrees in food science and technology from Seoul National University of Technology in South Korea and her Ph.D. in food science and technology from Oregon State University. Before joining UNL, she did a postdoc and served as a research assistant professor in Food Science and Technology at Oregon State University.



**Terry Howell**  
*Executive Director of The  
Food Processing Center*

Terry Howell is the executive director of The Food Processing Center. The Center provides a broad set of consulting and services to the food industry, from helping start-ups navigate regulations and gaining market access, to providing access to multiple pilot plants for product testing to multi-national corporations. The Center provides product development support, sensory testing, microbiological testing (including process validation services), a number of workshops to serve the food industry, and access to groundbreaking research capabilities in the Department

of Food Science and Technology at UNL. Prior to joining the University of Nebraska, Howell was Senior Manager of Product Development at McKee Foods Corporation. In that position, Howell managed the daily operations of a group of food scientists and technicians whose primary tasks were to develop, test, and launch new products for the company's different brands. That team also responded to requests for troubleshooting help from manufacturing plants, evaluated and implemented process improvement opportunities, and explored new ingredients to improve existing products. Howell also participated on teams charged with strategic planning and company growth with regard to all new product ideas. Howell is a past-president of the American Society of Agricultural and Biological Engineers.



## WINTER 2019

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Chancellor,  
University of Nebraska–Lincoln  
**RONNIE GREEN**

NU Vice President and  
Harlan Vice Chancellor,  
Institute of Agriculture and  
Natural Resources  
**MIKE BOEHM**

Department Head,  
Department of Food Science  
and Technology, and Director  
of The Food Processing Center  
**CURTIS WELLER**



## Help Us Carry the Legacy of Dr. Glenn Froning into the Future.

Emeritus Professor Glenn Froning spent decades making a positive impact on food science at the University of Nebraska–Lincoln. In January 2017, Dr. Froning passed away after 30 years of inspiring students and colleagues. Since an endowed fund was established in January 2018 to honor Dr. Froning, more than \$20,000 has been raised, thanks to donations from his family, friends and NU alumni.

The fund only needs \$10,000 to achieve full endowment status and give Dr. Froning a permanent legacy in the department through the establishment of an annual scholarship.

To donate to the Dr. Glenn Froning and Family Food Science & Technology Scholarship Fund, go to [nufoundation.org/froning](http://nufoundation.org/froning), or contact Doug Carr at the University of Nebraska Foundation at [doug.carr@nufoundation.org](mailto:doug.carr@nufoundation.org) or 402-458-1160.



## LET US KNOW WHAT YOU THINK!

We'd love to hear from you! For any feedback or story contributions you'd like to see in future issues, email us at **FOODSCI@UNL.EDU**.



**IN OUR GRIT, OUR GLORY.**