



Food Science News

Department of Food Science

Department Head Update

Dear Friends of Food Science,

Greetings from Happy Valley!

I came into work on Sunday afternoon just before classes began on August 22. Walking across campus that day was the first time the University seemed “back” and “normal” to me. It was a nice day, the students, who had just returned to campus, were out and about and there was an energy in the air that had been missing since March of 2020. It felt good!

As you can read in the following newsletter, the Department has been a busy place since we last wrote you in May.

For the last several years we have been trying to promote and encourage undergraduate research opportunities. To that end, during this past summer the REEU program brought students from several universities to the Department to conduct food microbiology-related research. In addition, for the second year in a row the Department **Summer Research Scholars** program supported 4 students for a 12-week, full time research experience. This program, facilitated by the generosity of donors, allows students to take a deep dive into a research project and get a feel for what it would be like to go to graduate school. The program has been well received by both students and faculty and we plan to continue and grow the program.

We welcomed some new faces to the Department over the summer. [Ms. Jodi Butler](#) joined as the new Financial Assistant in July and [Ms. Jessica \(Schumacher\) Kara](#) accepted the role of Quality Assurance manager for the Creamery in late August. In addition, [Dr. Yi Zhang](#) joined the faculty as an Assistant Professor of Food Science with a focus on macromolecules in foods at the start of the fall semester.

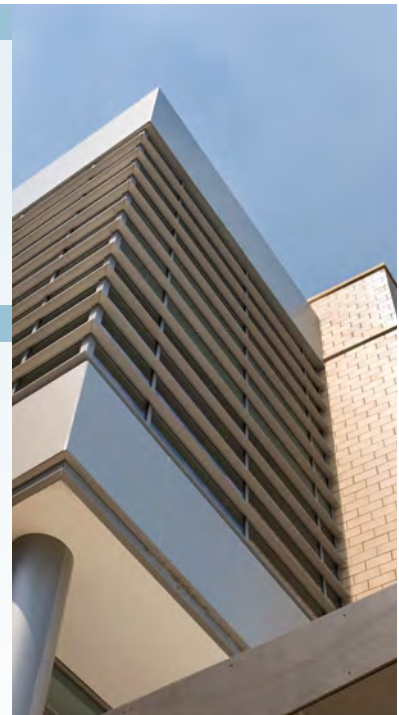
On October 1 we held the Food Science Tailgate and Annual Food Industry Group Meeting. It was truly wonderful to see alumni, students and friends of the Department interact during our first tailgate since fall of 2019. A hearty “thank you” to [Tom Dimick](#) and the Food Science Club who did a tremendous job with the logistics of the event. Though we know it’s fun to tailgate outside, the cold and rainy weather made our indoor tailgate very attractive!

I would be remiss if I didn’t congratulate [Dr. Chris Sigler](#) who received the **College of Agricultural Science Alumni Society Excellence in Academic Advising** award AND the **Community of Advising Excellence Award** from the College of Agricultural Sciences. Since joining the Department Chris has assumed the role of academic adviser for all undergraduate majors in Food Science. Chris has become an invaluable resource and did a tremendous job guiding our students through the turbulence of the last two years.

I hope you are all well and that you have a wonderful Thanksgiving holiday.

As always, *Stay Calm, Stay Safe and Stay Healthy.*

Bob Roberts, Professor and Head



Inside this issue

[Berkey Creamery Products Nab Top Awards at National Products Contest.....2](#)

[Research Team Gets CDC Grant to Strengthen Infectious Disease Surveillance.....2](#)

[Microbiologists get Grant to Study Biofilms Guarding Foodborne Pathogen Listeria..... 3](#)

[2022 REEU Program.....3](#)

[College of Ag Sciences Students Taste Greek Cuisine and Culture on Trip.....4](#)

[Sigler Wins Awards for Academic Advising Excellence from College of Ag Sciences.....5](#)

[Faculty Profile: Dr Yi Zhang.....6](#)

[Staff Profiles.....6](#)

[Summer Undergraduate Class 2022.....7](#)

[MS and PhD Graduates Summer 2022.....7](#)

Special Points of Interest

- Welcome new Graduate Students
- Honors and Awards
- Annual Tailgate Highlights
- Upcoming Events

Berkey Creamery Products Nab Top Awards at National Dairy Products Contest

While the Penn State Berkey Creamery has been famous for its ice cream for decades, it is now gaining national recognition for other dairy products, as well.

At this year's World Dairy Expo Championship Dairy Product Contest, the creamery earned two first-place awards for its butter pecan ice cream and black raspberry frozen yogurt. It also brought home a third-place trophy in the sharp cheddar category. Last year — the creamery's first time entering the contest — [it won first place for its chocolate milk](#).

[Tom Davis](#), Berkey Creamery manager, said the honors are a true testament to the high quality of its products beyond just ice cream.

"We are very proud of our ice cream and the fact that our butter pecan received top honors in its category," Davis said. "But it's also immensely gratifying to be recognized for our frozen yogurt and sharp cheddar cheese this year, in addition to our chocolate milk last year, proving we're more than ice cream. It's a testimony to our dedicated employees who craft and manufacture these products."

The contest, sponsored annually by the Wisconsin Dairy Products Association, is unique as the only contest in North America that includes all types of dairy products. Cheese, butter, yogurt, ice cream, cottage cheese, fluid milk, whipping cream, sour cream and whey processors can all be entered. Top manufacturers from across the continent, such as Land O'Lakes and Cabot Creamery Cooperative, enter regularly.

A culmination of team effort

Davis credits many variables for the Creamery's success. For example, while many companies produce ice cream that is between 10% and 12% butterfat, the ice cream from the creamery is 14%, giving it a creamier texture. Additionally, recipes and processes are constantly evaluated and tweaked to improve the products on a continuous basis. [Full Article... \(Penn State News\)](#)



Bob Rosenberry (left) and Terry Grove (center) hold up this year's winning products while Bill Kurtz (right) holds up last year's award-winning chocolate milk. Credit: Penn State.

Research Team Gets CDC Grant to Strengthen Infectious Disease Surveillance



Taejung Chung, a doctoral degree student in the Department of Food Science, is part of the research team. Credit: Penn State.

The U.S. Centers for Disease Control and Prevention has funded a \$750,000 grant for research by a team of Penn State scientists to strengthen infectious disease surveillance, detection and preparedness by developing an accessible bioinformatics platform and tools for utilization by the CDC's Laboratory Response Network.

The Laboratory Response Network is a linked system of labs across the country that rapidly responds to biological and chemical threats and public health emergencies. The Penn State team will provide the network with an accessible software platform and tools for whole-genome sequencing data analyses and interpretation of results, according to team principal investigator [Jasna Kovac](#), assistant professor of food science.

Genomics approaches can be leveraged for the detection of known and novel infectious agents, including emerging infectious disease pathogens, explained Kovac, who also is the Lester Earl and Veronica Casida Career Development Professor of Food Safety in the [College of Agricultural Sciences](#).

"In this project, our team is partnering with the CDC to assess machine learning-based approaches for the detection of potential novel pathogens," she said. "We will evaluate the performance of multiple machine learning-based pathogen-prediction models. The performance of these models will be assessed on a set of Bacilli genomes that we whole-genome sequenced over the past year." [Full Article... \(Penn State News\)](#)

Microbiologists get Grant to Study Biofilms Guarding Foodborne Pathogen Listeria

Microbiologists in Penn State's [College of Agricultural Sciences](#) have received a \$605,000 grant from the U.S. Department of Agriculture to study how microbial biofilms protect *Listeria monocytogenes*, the bacterium that causes the deadly foodborne illness listeriosis.

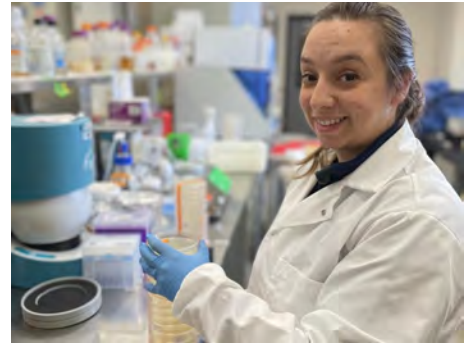
[Jasna Kovac](#) Lester Earl and Veronica Casida Career Development Professor of Food Safety, along with [Luke LaBorde](#), professor of food science, will use the funding from USDA's National Institute of Food and Agriculture to conduct research on the interactions between microorganisms found in fruit-packing environments and *Listeria monocytogenes*.

"We will study the ability of environmental microorganisms to form robust biofilms together with *L. monocytogenes* and how these biofilms may protect *L. monocytogenes* from the antimicrobial activity of sanitizers," said Kovac, assistant professor of food science. "The data generated in this project will help improve the cleaning and sanitizing used in the fresh produce industry to better control *L. monocytogenes* and support the production of safe food."

Listeria and other microorganisms found in the natural environment, such as soil, can be introduced unintentionally into food-processing facilities with raw foods such as fruit. The research is needed, Kovac explained, because once introduced into the food-processing environment, *Listeria* and many other environmental microorganisms can grow on surfaces into microbial layers called biofilms.

"Microorganisms enclosed in a biofilm produce slimy substances that protect them from the antimicrobial activity of sanitizing chemicals by slowing down their penetration into the core of a biofilm," Kovac said. "Biofilm formation can therefore result in reduced efficacy of antimicrobial sanitizers used to inactivate *Listeria*. This project will investigate the interactions between microorganisms found in fruit-packing environments and *L. monocytogenes*."

Graduate student [Laura Rolon](#) is working on four project objectives: isolate environmental microbiota and determine their resistance to sanitizers; characterize genomes of environmental isolates using whole-genome sequencing; characterize biofilm formation ability of bacterial families and *Listeria monocytogenes* in single- and in multi-family assemblages; and characterize the effect of microbial assemblages on the tolerance of *Listeria monocytogenes* to sanitizer treatment. [Full Article... \(Penn State News\)](#)



*Laura Rolon, Ph.D. Student in Food Science, part of the research team studying how microbial biofilms protect *Listeria Monocytogenes*.*

2022 REEU Summer Program



REEU Students and Faculty participating in the 2022 Summer REEU program

Students from two REEU programs funded by United States Department of Agriculture (USDA) and the National Science Foundation (NSF) participated in the 2022 REEU Summer Program at Penn State to gain experience in food microbiology research.

Participating faculty included, [Edward Dudley](#), [Jasna Kovac](#), [Josephine Wee](#), [Darrell Cockburn](#), and [Jonathan Campbell](#).

College of Ag Sciences Students Taste Greek Cuisine and Culture on Trip

Students in Penn State's [College of Agricultural Sciences](#) explored Greece's rich culture — and its food — while studying abroad in Thessaloniki, Greece, this summer.

Providing this opportunity to Penn State students was important to [Chris Sigler](#), assistant teaching professor and academic adviser in the [Department of Food Science](#). His goal was to help his food science students expand their experiences outside the classroom and create networking opportunities.

"I believe that when students look back on their college careers, they should feel that those classes broadened their experience and understanding of what they are studying," Sigler said.

With support from the college's Undergraduate Education and [Ag Sciences Global](#) offices, Sigler worked with Helen Yarenis, study abroad coordinator for Perrotis College — part of the American Farm School in Thessaloniki — to allow Penn State students to earn credit while taking part in a six-week study abroad program hosted by Perrotis.

Students could take two courses — "Mediterranean Diet" or "Greek Wine Business" — or participate in an internship or research. They also studied Greek culture and language and visited historical sites, such as Mount Olympus and the Parthenon, and traditional sites, including a mussel farm and a cherry festival. And, of course, they learned how to make traditional Greek food.

Lauren Wolf, a second-year food science major, opted for the Mediterranean Diet course. She said going on excursions and field trips throughout Greece allowed her to gain hands-on experience.

One of the most interesting things Wolf learned during her trip abroad, she said, was how important the agriculture industry is in Greece. Additionally, she learned about the health benefits of seafood and its role in the Mediterranean diet.

She also found that her time abroad allowed her to connect with fellow Penn Staters and meet students from other universities, which helped her to be more open to new experiences.

"Studying abroad helped grow my independence through traveling to Greece," Wolf said. "Also, I feel it's helped me become more outgoing and connect with others."

Catarina Rodrigues, a third-year food science major, is interested in product development and chose to do research at Perrotis that focuses on the product development of gluten-free and dairy-free snacks. She and her partner baked foods and analyzed their water activity, colors, textures and other characteristics.

"People would come for taste tests and tell us their favorite samples," Rodrigues said. "I just remember feeling so excited at that moment, just doing something that was food science-related, which restored my confidence in choosing my major."

The experience also enabled them to meet food science majors from other universities, including Ohio State, Purdue, University of Illinois Urbana-Champaign, Texas A&M and Virginia Tech.

"They now get to learn what it is like to meet other food scientists — because food science is a very small field — and they have the opportunity to start networking and collaborating with other students from different universities, who might be students they end up working with in the field in the future," said Sigler.

Sigler plans to work with Perrotis College to expand the program. He also plans to lead a small group of students back to Perrotis as part of an embedded spring course, Food Science 460: International Food Production. ketja@psu.edu or by visiting agsci.psu.edu/students/study-abroad. ([Penn State News](#))



Students in Penn State's College of Agricultural Sciences studied abroad in Greece over the summer. Standing, from left, are Katrina Liu, Sarah Wick, Catarina Rodrigues and Benelli Risser. Kneeling, from left, are June LaRegina and Lauren Wolf. Credit: Contributed photo. All Rights Reserved.

Sigler Wins Awards for Academic Advising Excellence from College of Ag Sciences

[Chris Sigler](#), assistant teaching professor and academic adviser in the [Department of Food Science](#), recently received both the 2022 Excellence in Academic Advising Award and the 2021-22 Community of Advising Excellence Award from Penn State's [College of Agricultural Sciences](#).

Sponsored by the college's alumni society, the Excellence in Academic Advising Award recognizes faculty members and staff for overall effectiveness in student advising, individual student goal setting and career planning, and personal counseling. Candidates are recommended by faculty, students, administrators and alumni.

The Community of Advising Excellence Award recognizes individuals who have shown qualities associated with outstanding academic advising for students in the college.

Sigler, assistant teaching professor, has been the academic adviser for the 150 students in the food science major since December 2017. In this time, he has transformed the advising system in the department, according to John Coupland, food science professor and undergraduate program coordinator, who nominated him for the Excellence in Academic Advising Award.

Sigler has succeeded admirably in professionalizing advising in food science, Coupland noted, adding that he has taken over individual advising relationships with each student and has systematized and professionalized the process.

"He provides individual plans and regular check-ins with each student and a more personal follow-up and guidance as needed," Coupland said. "As well as responding to student needs, he has proactively developed ways to teach students to succeed in the system. For example, he developed a comprehensive advising guide on Canvas."

In addition, Coupland pointed out, Sigler created and oversees a mentor program that pairs and assigns students a faculty mentor, a food science faculty member with disciplinary expertise and professional connections who can provide the introductions and guidance helpful for success in the work world.

"Dr. Sigler designed a student survey that allows students to identify their individual interests and goals and uses this to effectively pair them with the right mentor," Coupland said. "The new advising model provides the professional mentoring guidance combined with Chris' meticulous advising around curricular issues."

Overseeing recruitment efforts, advising student clubs and co-teaching the food science-focused section of the first-year seminar, Food Science 150 — where he teaches student-success and college-acclimation strategies — Sigler is also instructor for four other courses in food science. They include Food Science 297, Careers in Food Science; Food Science 402, Supervised Experience in Food Science Teaching; Food Science 495, Internship and Co-Op Experience; and Food Science 602, Supervised Experience in College Teaching (graduate). All of these courses aim to assist students in the food science department academically, socially and professionally.

Students have noticed and appreciate his focus on career-oriented advising.

When Madalyn Arthur, a just-graduated senior majoring in food science, met Sigler in 2018, she found him always to be diligent, organized, interested and passionate about every one of his students, she said.

"He goes above and beyond, creating tailored recommended academic plans for students and personalized Canvas pages with links and instructions on all major advising topics," she said. "And he organizes outreach events to help students build resumes, garner interview skills, and find internship and research opportunities."

Sigler advises both the student Fermentation Club as well as co-advises the student Food Science Club, and his guidance and input into the Food Science Club's direction has been invaluable, according to Leah Bodinger, a member of the group's executive board for the past three years and its current president. "He helps to brainstorm ideas for events that the club can sponsor while attempting to make even our most ambitious ideas possible financially and logistically," said Bodinger.

Tyler Chandross-Cohen, a former undergraduate food science student and now graduate student pursuing a doctoral degree at Penn State, believes Sigler is an awesome recruiter. Chandross-Cohen worked alongside Sigler as a member of the Food Science Advocates, a group Sigler created to assist in recruitment efforts and help prospective students connect on a meaningful level with those already pursuing a degree in their interested field. [Read More ... \(Penn State News\)](#)



Chris Sigler, assistant teaching professor, has been the academic adviser for the 150 students in the food science major since December 2017 Credit: Penn State

Faculty Profile: Dr. Yi Zhang

Assistant Professor of Food Science



Dr. Yi Zhang

[Dr. Yi Zhang](#) is originally from Qingdao, a seaside city in northeast China known for its coastal line, seafood, and Tsingtao beer. She studied Food Science & Engineering at the Ocean University of China, where she developed a research interest in biomolecules and biomaterials from marine sources. It included the fabrication of chitosan derivatives for the treatment of beverages and supplementation in fish diets. Dr. Zhang obtained her Ph.D. in Food Science and Agricultural Chemistry at McGill University in Montreal, Canada, where her research foci involved food enzymes and biocatalysis. Her research aimed at discovering new extremophilic enzymes for food uses and understanding how enzyme structures decide their unique functions. She was also interested in developing sustainable biorefinery processes for functional biomolecules to assure food and nutrition security. Food-derived antioxidant peptides with potential health benefits were produced and investigated using *in vitro*, *in vivo*, and bioinformatics approaches. Dr. Zhang also participated in industrial collaborations with agri-food sectors to help develop new healthy food products through bioprocessing. In 2019, she was awarded a Commonwealth Blue Charter fellowship and conducted research in Ghana, West Africa, on the bioconversion of agricultural waste into biodegradable food packaging materials as alternatives for single-use plastics. After her postdoctoral training at McGill, Dr. Zhang went to France, where she began as an Assistant Professor and a Junior Chair, leading projects in Enzymology for the Synthesis of Marine Biomaterials at the Université de Pau et des Pays de l'Adour and the French National Centre for Scientific Research. In August 2022, Dr. Zhang joined the Department of Food Science at Penn State. She will build her research and teaching on food macromolecules, food enzymes, biocatalysis, and byproduct valorization.

Staff Profiles

Jodi Butler joins Food Science Department as Financial Assistant

[Jodi Butler](#) joined the Department of Food Science on July 11, 2022, as the new Financial Assistant. Her responsibilities include processing of Shop OnLion orders, p-cards, travel, cash advances, wage hiring and non-grant budgets. Jodi looks forward to collaborating with the staff and contributing to the department.

Jodi has been with Penn State for 11 years formerly with the University Health Services Finance Department. She received her Associate degree at South Hills School of Business.

In her spare time, Jodi can be found running outdoors, spending time with her family and supporting both of her girls, Jodyn and Madysn, playing collegiate and high school volleyball.



Jodi Butler



Jessica Kara

Jessica Kara joins Creamery as Quality Assurance Manager

[Jessica \(Schumacher\) Kara](#) joined the Creamery on August 24, 2022. She will be responsible for the Food Safety and Quality Assurance programs for the products manufactured in the Penn State Creamery as well as monitoring compliance with all local, state, and federal dairy laws.

Jessica is a 1995 graduate of the Penn State Food Science Program, and she currently resides in the Lehigh Valley with her husband Scott (1998 PSU HRIM), son AJ, and their four dogs. She and her family plan to move to State College after AJ completes high school in June.

She has spent her career working in the food industry in a multitude of roles in the areas of Food Safety and Quality Assurance. She has worked for such companies as Kraft Foods, Nestle Waters, Gertrude Hawk Chocolates, Just Born Quality Confections, and the Boston Beer Company. She has extensive experience with writing and implementing Safe Quality Food (SQF) systems, auditing food safety programs, and day to day food manufacturing quality operations.

Her hobbies include photography, watching soccer, taking pictures of her son playing soccer, and traveling. She and her family love to cruise and visit the Caribbean. Her favorite Caribbean destination (so far) is Turks and Caicos.

Summer Undergraduate Class 2022

Matthew Lacava
Evan Barone

MS and PhD Graduates, Summer 2022



Brigitte Farah, MS

Thesis title: *The Effect of Interactions Between Capsaicin and Dairy Proteins on Oral Burn.*
(Advisors— John Coupland and John Hayes)



Jennifer Goza, PhD

Thesis title: *An Instrumental and Sensory Characterization of V-type Starch-aroma Compound Inclusion Complexes.*
(Advisor – Helene Hopfer)



Fallon Hammer, MS

Thesis title: *Use of Exogenous Enzymes to Liberate Monoterpene and Thiol Precursors from Hops and their Ability to Modulate Flavor in Pale Ale Style Beers.*
(Advisors—Ryan Elias and Philip Jensen)



Shravya Mukka, MS

Thesis title: *Aligned Electrospun Starch-Pullulan-Protein Nanofibers.*
(Advisor – Gregory Ziegler)

Welcome New 2022 Graduate Students

Tyler Chandross-Cohen
Morgan Failla
Jie Feng
Justin Gaiser
Ishita Ghosh
Madeline Harper
Zilfa Irakoze
Cynthia Loi

Hanieh Moris
Andrew Paff
Edwin Rivera-Lopez
Abimel Salazar
Megha Vyas
Jasmine Williams
Elizabeth Esayev

Awards and Honors

46th American Society of Enology & Viticulture—Eastern Section (ASEV-ES) Annual Meeting

Samuel Ziegler, M.S Student in Food Science, recently received best enology poster for his research on “*Effect of Maceration and Post-Maceration Enzyme Additions on Tannin Concentration in Hybrid Wines*”. (faculty advisors, Misha Kwasniewski and Helene Hopfer)

2022 Food Industry Group Student Leadership Awards

Leah Bodinger, Judith A. Williams Food Industry Group Undergraduate Student Leadership Award
Tara Pickens, Food Industry Group Graduate Student Leadership Award

U.S. Department of Agriculture Grant , \$605,000 to study how microbial biofilms protect *Listeria monocytogenes*

Jasna Kovac, Lester Earl and Veronica Casida Career Development Professor of Food Safety
Luke LaBorde, Professor of Food Science
Laura Rolon, Ph.D. student in Food Science

2021-22 Community of Advising Excellence Award from Penn State’s College of Agricultural Sciences

Chris Sigler, Assistant Teaching Professor and Academic Advisor in Food Science

2022 Excellence in Academic Advising Award from Penn State’s College of Agricultural Sciences

Chris Sigler, Assistant Teaching Professor and Academic Advisor in Food Science

2022 Fall Keystone IFT Scholarships

Leah Bodinger
Elizabeth Henry

Early Achievement in Research Award from Penn State’s College of Agricultural Sciences

Jasna Kovac

Microbiome Center Data Analysis Leadership Fund

Taejung Chung

Faculty Promotions

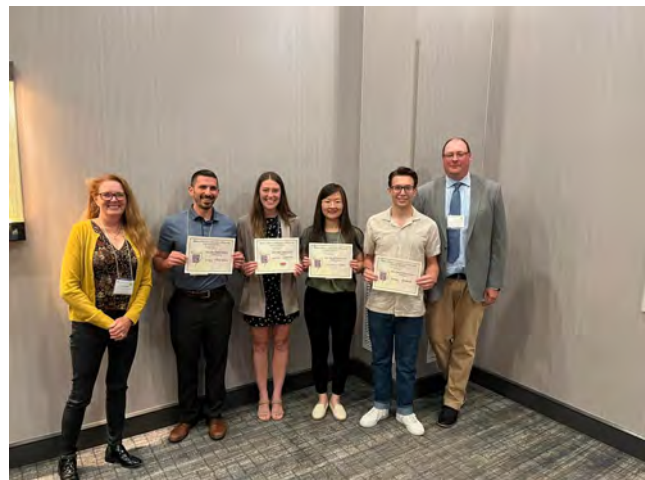
Helene Hopfer, rank of Associate Professor of Food Science
Kathleen Keller, rank of Professor of Nutritional Science

Ziegler Receives Award for Best Poster at 46th American Society of Enology and Viticulture Annual Meeting

Samuel Ziegler was awarded the best enology poster award at the 46th American Society of Enology & Viticulture – Eastern Section (ASEV-ES) Annual Meeting, held in Bloomington, MN from July 13-15, 2022.

Sam’s poster was titled “Effect of Maceration and Post-Maceration Enzyme Additions on Tannin Concentration in Hybrid Wines”. Sam is advised by Drs. [Misha Kwasniewski](#) and [Helene Hopfer](#).

Samuel Ziegler, MS Student in Food Science, (second from right) received the best enology poster award at the 46th American Society of Enology & Viticulture Meeting.



Contact Information

Department of Food Science
202 Rodney A. Erickson Food Science Building
University Park, PA 16802
Phone: (814) 865-5444
FAX: (814) 863-6132
Email: foodsci@psu.edu

foodscience.psu.edu



**Giving to the Food
Science Department go to:**
GiveTo.psu.edu/FoodScience

Annual Tailgate Highlights

After a 2-year hiatus, the annual Food Science Tailgate was held on Oct 1, 2022, with steady rain and cool weather hovering over Happy Valley. Alumni, friends, faculty, staff, students, and their families came together to enjoy one another's company and to support the Department of Food Science at the annual tailgate held inside the Food Science Building.

Approximately 185 guests attended this year's event, co-sponsored by the [Food Science Department](#), the Penn State [Food Industry Group](#), and the [Food Science Club](#). The day's activities included the Food Industry Group board meeting and presentation of the Food Industry Group Student Leadership Award, followed by a tailgate lunch with excellent food prepared by the Food Science Club. A silent auction was held to support the Food Industry Group International Travel Endowment which support student travel and activities. Participants headed to Beaver Stadium for a damp, soggy win over the Northwestern Wildcats, 17-7.

Upcoming Events

- | | | |
|------|-------|---|
| Nov. | 1 | Dairy Basics: Fundamentals of Quality and Safety , University Park, PA |
| | 2 | Hazard Analysis & Preventative Controls for Small-Scale Dairy Processors ,
University Park, PA |
| | 7-10 | The Science and Art of Cheese Making Short Course , University Park, PA |
| Jan. | 8-14 | Ice Cream Short Course , University Park, PA |
| | 27-29 | Ice Cream 101, Introduction to Frozen Desserts , University Park, PA |

Update Your Alumni Information

Updating your information with the Alumni Association is now easier than ever. You can change your home address, work address, e-mail address, and other information online by completing the secure [record update form](#) on the Penn State Alumni website. Or you may also contact the Alumni Records staff directly.

Web: [Record Update Form](#)

Phone: 800-548-LION (5466), option 2

Mail: Penn State Alumni Association
Alumni Data Access & Services
Department B
Hintz Family Alumni Center
University Park, PA 16802



This publication is available in alternative media on request.

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