



Food Science News

Department of Food Science

Department Head Update

Dear Friends of Food Science,

It has been a busy spring semester with short-courses, classes and social activities in full swing. It is awesome (and I must admit a bit tiring) to have a full schedule of activities again. However, today, campus is quiet since the students are off on spring break. While the calm is nice, I look forward to having them back on March 13th!

As I write, I'm watching the renovation and addition of new buildings to East Halls from my window. The back-up beepers for lifts and loaders and the construction noise are slowly driving some of the administrative staff crazy. But it is good to see the buildings look so nice. From what we have been told, the "East Halls Experience" will be much different than what many of you remember.

As noted in this edition of Food Science News, there have been a number of "comings and goings" over the last few months. **Susan Watson** retired from the Berkey Creamery after 35 years as a store manager. We wish her the best in her next chapter. We welcomed two Ukrainian scholars, Drs. **Olena** and **Nataliia Voloshchuk** and, in addition, welcomed **Julia Ciaccia** as the new Sensory Evaluation Center Coordinator.

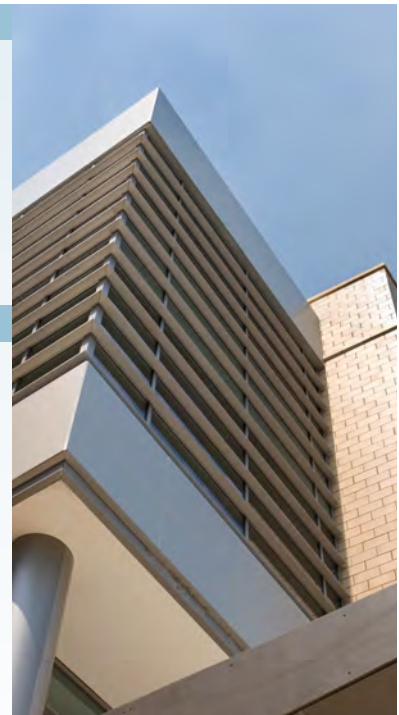
Faculty continue to be recognized for excellence in teaching and research. Dr. **Chris Sigler** received the Bixler Memorial award and Drs. **Wee** and **Elias** received the Community of Teaching Excellence award. We were also proud to learn that Dr. **Edward Dudley** was elected a Fellow of the American Academy of Microbiology. Please join me in congratulating all for well deserved recognition.

On April 4, 2023, from 2:00 to 6:00 p.m. **Keystone IFT, Penn State Food Industry Group** and the **Department of Food Science** are hosting an afternoon of presentations followed by a reception at the Penn Stater Hotel. We are experimenting with this format to provide an opportunity for professionals, students and faculty to network and to present research topics of current interest. Please join us if you can.

I look forward to seeing many of you on April 4th.

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

Bob Roberts, Professor and Head



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Researchers Devise, Test Food-Safety Training Program for Farmers Market Vendors

Responding to a need revealed in their earlier studies, a team of Penn State researchers developed and pilot-tested a customized food safety training program for farmer's market vendors.

The training caps several years of research and addresses a problem in Pennsylvania and other states related to inadequate food safety practices among farmers market vendors, noted team leader [Catherine Cutter](#), professor of [Food Science](#) and assistant director of Food Safety and Quality Programs for [Penn State Extension](#).

Cutter said the training and research are especially relevant because the farmers market movement is thriving, with the sale of locally grown agricultural products direct-to-consumers becoming commonplace and extremely popular.

According to 2017 U.S. Department of Agriculture statistics, the number of farmers markets in the U.S. has increased to more than 8,600, amounting to approximately \$2.8 billion in agricultural sales. While direct-to-consumer sales still account for less than 1% of total agricultural sales in the U.S., the impact is significant for the 130,056 farms that participated in direct-to-consumer marketing in 2017, in addition to the millions of consumers who purchased those agricultural products.

But despite these benefits, many in public health have begun to realize the inherent food safety risks associated with this relatively under-regulated food industry, Cutter pointed out. "In most states, farmers market vendors and their food products may not be inspected by local, state or federal public health inspectors, so the safety of foods sold at farmers markets may be unknown," she said. "Farmers market vendors may be uncertified or untrained in food processing and food safety concepts."

Research team member Joshua Scheinberg, a former doctoral degree student in Cutter's research group in the [College of Agricultural Sciences](#), spearheaded the research, which was part of his doctoral thesis research; he was assisted in the work by Penn State Extension educators.

The Farmers Market Food Safety training program includes a PowerPoint presentation and a resource guide. The PowerPoint presentation slide collection and associated training activities were designed by Penn State Extension educators experienced in retail food safety education.

The topics covered for the training program were researched thoroughly and specifically selected to address the gaps identified in the comprehensive farmers market food safety needs assessment performed by Scheinberg and colleagues in a previous study, while also covering major areas of the U.S. Food and Drug Administration's Food Code and applicable Pennsylvania state food safety regulations.

In that earlier study, researchers performed a needs assessment that utilized retail food safety vendor observational analysis, vendor and health inspector surveys, and farmers market manager structured group interviews to determine gaps, needs, the knowledge and attitudinal base of farmers market vendors, and training preferences. Based on responses from vendor surveys and market manager group interviews, researchers determined that a three-hour, in-person, semi-interactive program in a classroom setting would be appropriate for training farmers market vendors.

The [results of the current study](#), recently published in the Journal of Extension, also demonstrated that a combination of a training resource guide with traditional slide-presentation training methods resulted in a significant gain in knowledge and change in attitudes among farmers market vendor participants. The results also revealed that participants understand the importance of hygiene, hand washing, cross contamination, thermometer use and food safety hazards at the farmers markets.

Additional results suggest that demographic and even educational background differences among participants had little bearing on their knowledge, and that the training was effective in reaching participants of varied backgrounds.

As a result of the success of this pilot study, [a four-hour online version of the training developed from this study is currently offered by Penn State Extension](#).

Rama Radhakrishna, former professor of agricultural and extension education in the Department of Agricultural Economics, Sociology and Education, contributed to the research.

The research was funded by Penn State Experiment Station and the U.S. Department of Agriculture's National Institute of Food and Agriculture. [Full Article...](#) ([Penn State News](#))



Farmers market vendors may be uncertified or untrained in food processing and food safety concepts, and in most states, farmers market vendors and their food products may not be inspected by local, state or federal public health inspectors. Credit: Sean Davis. All Rights Reserved.

Q&A: Is Chocolate Healthy?



*Dr. Joshua Lambert,
Professor of Food Science*

To learn more about chocolate and its effects on us, we spoke with [Joshua Lambert](#), professor of food science at Penn State. Lambert's research focuses on diet, specifically adopting dietary practices to prevent cancer, obesity and inflammation. He has worked extensively with cocoa, the key ingredient in chocolate.

Q: Why do we associate chocolate with love and intimacy?

Lambert: I'll start by saying that I am not a historian, so I can't tell you much about the history of chocolate and Valentine's Day, but I will say that the process of eating chocolate hits our brain's reward system the same way love does. It's pleasant to eat chocolate. It tastes good, it has fats and sugars, and therefore signals the reward pathways in our brains. There's a biological, evolutionary reason for that. Your body needs fats and sugars to

function — and, in terms of evolution, we also need companionship. So, I think to the extent that chocolate is or should be linked to Valentine's Day, it has to do with our neurology. We are giving the people we care about something that, when they eat it, will make them feel good.

Q: That makes sense, but it will do more than just make them feel good, right? Doesn't it have health benefits?

Lambert: Yes. The human studies that have been done with chocolate seem promising. As far as their effects on cardiovascular disease and other inflammatory health issues, I would say at a minimum it doesn't seem like there's any association between eating chocolate and getting diabetes or other health problems — as long as you're eating chocolate within normal consumption patterns. Chocolate is not the boogeyman of bad health that we all heard about as kids.

Q: Can you explain what you mean by "normal consumption patterns"? I'm asking this for a friend, who is myself.

Lambert: The approach I've taken in terms of answering the question "how much chocolate should I eat?" or "what kind of chocolate should I eat?" is to think about it in terms of your overall health. The best thing you can do is have a diet with lots of fruits and vegetable, gets lots of exercise and don't smoke. Then, when you go to have what I call "indulgence foods," you can put chocolate in place of something else. If you're eating lots of indulgence foods all the time and you don't eat very many fruits and vegetables, you don't exercise and you smoke, then probably adding some chocolate on top of that is not going to help you with your health issues. But if you have a generally healthy diet and lifestyle and you're craving a treat, I'd recommend reaching for chocolate.

Q: And why would you recommend chocolate?

Lambert: Our team works primarily with cocoa and animal models, and we have found health benefits that show decreases in obesity, inflammation and other risk factors for potential cardiac issues.

Other studies using chocolate in humans have found positive effects, where the populations that are consuming more chocolate have a lower incidence of cardiovascular disease and high blood pressure. Now, whether or not that chocolate has to be super dark, containing very high levels of cocoa powder, is unclear, at least from the population studies, because they weren't designed to parse that out.

Note: Cocoa is the seed of the cacao tree, whereas chocolate is processed cocoa mixed with other ingredients like milk and sugar.

Q: That leads me to my next question. What type of chocolate should we be eating?

Lambert: As far as what kind of chocolate you should eat, I would say at this point, if you like dark chocolate, you should eat dark chocolate. If you don't like 99% dark chocolate, then I don't think there's enough evidence to say that's what you should eat. If you like a Hershey's milk chocolate bar, then eat that. It's really about adopting chocolate as that indulgence food to replace something else that maybe doesn't have those added health benefits, and not overdoing it.

Q: That is music to my ears, Josh.

Lambert: It's like everything when it comes to diet and health, you have to meet people where they're at. If you don't like Brussel sprouts, then what I tell you about how good they are for you isn't going to matter. So, we should be focusing on what you do like that is also healthy, like carrots. Maybe someday we'll be able to say "you must eat 95% single origin chocolate from this part of the world" but right now, there's no evidence. There's no data to support that sort of prescription. At this point, any chocolate, in moderation, is a good choice if you're craving something sweet. [Full Article... \(Penn State News\)](#)



To learn more about chocolate and its effects on us, we spoke with [Joshua Lambert](#), professor of food science at Penn State. Lambert's research focuses on diet, specifically adopting dietary practices to prevent cancer, obesity and inflammation.

Credit: Marco Verch/Creative Commons. All Rights Reserved.

Department of Food Science Welcomed Two Ukrainian Scholars



Ukrainian scholars Olena Voloshchuk, Ph.D., Research Technologist and Nataliia Voloshchuk, Ph.D., Post-Doctoral Scholar welcomed into Food Science Department

The [Department of Food Science](#) welcomed two Ukrainian scholars in July of this past year. Sisters [Nataliia](#) and [Olena Voloshchuk](#) arrived in the US as part of the “Uniting for Ukraine” program instituted by the Biden Administration to evacuate refugees from war-torn Ukraine. Nataliia and Olean resided in an area north of Kyiv that had fallen in the path of the invading Russian Army.

Nataliia had been involved with Penn State since 2018, first having participated in the Ukraine – Penn State Food Safety Short Course that was offered in Kyiv under the direction of [Dr. Catherine Cutter](#) and [Dr. Swamy Anantheswaran](#). In 2019, Nataliia was selected as a Woskob Fellow in the [College of Agricultural Sciences](#) (COAS) which provided her funding and support to work at Penn State in the Department of Food Science.

Through the “Uniting for Ukraine” program that was established to support immigration to the United States, Nataliia’s son, Ene, joined his mother and aunt on the trip to the U. S. Their travel was supported by the International Office in the Penn State’s COSAS as well as by faculty and staff within the Department.

Nataliia Voloshchuk was most recently an Associate Professor in the Department of Phytopathology and faculty in Plant Protection, Biotechnology and Ecology at the National University of Life and Environmental Science of Ukraine (NULES of Ukraine). Her work focused on identification of mold and its byproducts in various agricultural matrices. Prior to that, she was Head of Department of Plant Sanitary Expertise and Seed Certification, Ukrainian Laboratory of Quality and Safety of Agricultural Products, NULES. She received her Ph.D. in Biology from NULES, specializing in mycology and had done a post-doc at Bonn University in Germany. At Penn State, she will be working with Drs. Catherine Cutter and Josephine Wee on the deterioration of plant food by mold.

Olena Voloshchuk was most recently an Assistant Professor of Microbiology, Virology and Immunology, at Bogomolets National Medical University. Her research focused on searching for new compounds with antimicrobial, antifungal and antiviral activity among adamantane (alkyl, cyclo-alkyl) derivatives of aminopropanol-2 using bacteriological, virological, molecular genetics and bioinformatics methods. She received her Ph.D. from D.K. Zabolotny Institute of Microbiology and Virology of National Academy of Sciences of Ukraine. At Penn State, she will be working with Dr. Jasna Kovac on the control of biofilms by foodborne pathogens.

Ene is 10 years old and will be attending the Young Scholars of Central PA Charter School where he is working to improve his English-speaking skills. He poses a keen sense of humor, enjoys playing Minecraft, and loves pizza. ([Martin Bucknavage](#))

Bucknavage Appointed to Pennsylvania Food Policy Council Advisory Committee



Martin Bucknavage, Senior Food Safety Extension Associate

[Martin Bucknavage](#) is a senior food safety extension associate in Penn State’s College of Agricultural Sciences and team lead for industrial food safety and quality.

The governor’s office recently named Martin Bucknavage to represent [Penn State Extension](#) on the advisory committee of the new Pennsylvania Food Policy Council. Bucknavage is a senior food safety extension associate in Penn State’s [College of Agricultural Sciences](#) and team lead for industrial food safety and quality.

In December, Gov. Tom Wolf signed an executive order creating the Pennsylvania Food Policy Council. “Food is a basic human right that has the power to change lives,” Wolf said in a state news release. “This Food Policy Council will work for the people of Pennsylvania to improve their everyday lives and our collective future. It is our responsibility and our duty to take hunger off the table.”

The U.S. Department of Agriculture’s Economic Research Service found that 10.2% of Pennsylvania households were food insecure in 2021, and the Pennsylvania Department of Environmental Protection estimates that more than 2.7 million tons of food waste are produced in Pennsylvania annually.

The council will evaluate issues facing Pennsylvania’s food system and develop strategies to improve food security and nutrition while reducing food waste. The nine-person council will include a director along with the secretaries of the departments of Aging, Agriculture, Education, Environmental Protection, Health, Human Services, and Labor and Industry. ([Full Article... Penn State News](#))

Dudley Elected as Fellow of American Academy of Microbiology



Dr. Edward Dudley, Professor of Food Science

[Dr. Edward Dudley](#) was elected as one of 65 new fellows to the Class of 2023. Fellows of the [American Academy of Microbiology](#), an honorific leadership group and a think tank within the ASM, are elected annually through a highly selective, peer-review process, based on their records of scientific achievement and original contributions that have advanced microbiology. The Academy received 148 nominations this year and elected 65 into the 2023 Fellowship Class. There are over 2,600 Fellows in the Academy representing all subspecialties of the microbial sciences and involved in basic and applied research, teaching, public health, industry, and government service.

Dudley's research interests include molecular biology and genomics of food-borne pathogens; toxin production by *Escherichia coli* O157:H7; genomics methods of tracking bacteria associated with food-borne outbreaks; function and application of Clustered Regularly Interspaced Short Palindromic Repeats (CRISPR) ([ASM Press release](#))

Sigler Awarded Anna and Guy Bixler Memorial Award in Food Science

[Dr. Chris Sigler](#), Assistant Teaching Professor and Academic Advisor in Food Science, is the recipient of the 2022 "Anna and Guy Bixler Memorial Award in Food Science." The fundamental purpose of the "Bixler" award is to "honor and recognize outstanding teaching and/or teaching innovation by a faculty member in the Department of Food Science."

Dr. Sigler is a dedicated, innovative and effective teacher. His responsibilities include co-teaching FDSC 150S (Food Science First-Year Engagement), as well as teaching FDSC 402 (Supervised Experience in Food Science Teaching) and FDSC 602 (Supervised Experience in College Teaching). Chris has completely redesigned all these courses since joining the Department in December of 2017. Because Dr. Sigler has a background in education and extensive experience as a classroom teacher, he has made FDSC 402 and FDSC 602 particularly relevant and valuable to the students.

To help assure student success, he developed a "Canvas Advising Course" that students can refer to as they are scheduling or need information about academic policy. This approach has been so successful that other colleges have developed similar courses for their students.



Dr. Chris Sigler, Assistant Teaching Professor, and Academic Adviser

Wee and Elias Recipients of Community of Teaching Excellence Award



Dr. Josephine Wee, Assistant Professor of Food Science

[Dr. Josephine Wee](#), Assistant Professor of Food Science, and [Dr. Ryan Elias](#), Professor of Food Science, have been selected as recipients of the 2022 Community of Teaching Excellence Award for the College of Agricultural Sciences. This award is a reflection of their recent commitment to the students and teaching programs within the Department of Food Science, as well as throughout the College of Agricultural Sciences.



Dr. Ryan Elias, Professor of Food Science

Staff Profile

Julia Ciaccia joins Food Science Department as Sensory Evaluation Center Coordinator



Julia Ciaccia

[Julia Ciaccia](#) joined the Sensory Evaluation Center (SEC) in the Department of Food Science as the new SEC Coordinator in January. Her responsibilities include overseeing undergraduate employees and working with graduate students and clients to prepare, run, and analyze sensory tests. Julia is excited to experience all the Department of Food Science has to offer and further develop her sensory knowledge.

Julia is originally from Atlanta, Georgia where she attended Georgia Tech and graduated with a bachelor's degree in Biology in May 2022. She spent the last 6 months interning with Shark Ninja's Sensory Department in Boston, Massachusetts before joining the Sensory Evaluation Center on January 19th, 2023. Julia is passionate about human behavioral research, statistical analysis, and product development which makes sensory evaluation the perfect fit.

In her free time, Julia loves trying new plant-based foods, sewing, and taking care of her two lizards. She also enjoys the outdoors and is excited to explore all of the beautiful nature surrounding State College.

Long-time Berkey Creamery Store Supervisor Susan Watson Retires after 35 years

After a career spanning more than three decades at Penn State, Susan Watson has retired after nearly 35 years as a Store Manager at the [Berkey Creamery](#).

Watson said she first visited the Creamery at six years old, when her father — a Penn State campus security officer at the time — took her to get her first cone of bittersweet mint, a flavor that continues to be her favorite to this day.

After this early memory, Watson didn't return to the Creamery as an employee until the summer of 1988, when she was recruited as a tech service staff member charged with overseeing the store.

The rest, Watson said, is history. After joining the staff, Watson managed the store alongside her colleagues and the student employees. As she gradually climbed the ranks, managing the cheese packaging operations also became part of her role. In 1990, she started operating the Creamery's tent at the Arts Festival, an experience she credits for helping her to realize how much she loved working at the Creamery and how she could make a positive impact on the student employees.

In 2015, Watson's role changed to food service manager and she was also eventually made the manager of the Commissary, where they packaged products, developed new products, and had partnerships with other areas of the University like the Butcher Block, the mushroom facility, the poultry facility, and the Bakery.

"I stayed there all 34-plus years because it was an amazing place to work," Watson said. "I've gained so many friendships, had so much fun working with the student employees and met so many exciting people."

Watson said that while she's hard pressed to pinpoint a favorite memory from her time at the Creamery, football weekends will always be a time she'll hold close to her heart.

"Every customer that came into the store was excited to be there — to get a cone or have ice cream packed up for the trip home," Watson said. "It was such a high energy atmosphere, and even the opposing team's fans were happy to be there. We always had positive energy on football weekends that people rarely complained about the long lines. It was magic to just be there." ([PSU News, Katie Bohn](#))



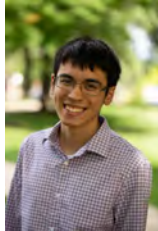
Susan Watson

Fall Undergraduate Class, 2022

Jialing Chen
Alexandra Melton
Anna Nguyen
Rylee Nugent

Ashley Ohstrom
Daniel Snarski
Jenna Tsvayga
Yikun Wang

Fall MS and PhD Graduates, 2022



Peter Demartino, PhD

Thesis title: *Effect of Resistant Starch on the Gut Microbiome and Gut Health Outcomes.*
(Advisor— Darrell Cockburn)



Magdalena Naziemiec, PhD

Thesis title: *Assessing the Stability of Polyfunctional Thiols in Hops and Beer Throughout the Brewing Process.*
(Advisors—Ryan Elias and Ramaswamy Anantheswaran)



Andrew Ledley, PhD

Thesis title: *Optimizing the Utilization of Gluten-Free Grains for the Production of Gluten-Free Beer.*
(Advisors—Darrell Cockburn and Ryan Elias)



Andrew Paff, MS

Thesis title: *Developing a Non-thermal Approach to Study Human Gut Bacteria Microbiome Behavior on Pulse Starches.*
(Advisor – Darrell Cockburn)



Nixon Meneses Marentes, MS

Thesis title: *Effect of the Addition of Cocoa Sweetenings and Time of Fermentation on Flavor Compounds and Sensory Perception.*
(Advisor – Helene Hopfer)



Samuel Ziegler, MS

Thesis title: *Novel Enzymatic Extraction and Quantification of Phenolics in Interspecific Hybrid Red Wines.*
(Advisor – Misha Kwasniewski)

Congratulations!

Student Honors and Awards

2022-23 College of Agricultural Sciences Graduate Student Competitive Grants Program, 2022-2023

Taejung Chung

2023 FSIS Food Safety Fellow, Oak Ridge Institute for Science and Education(ORISEO) Program

Brittani Bedford

2023 PMCA Student Outreach Program

Songyi Yoo

Cynthia Loi

Kai Kai Ma

Bridget Reed

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

Upcoming Events

March	21-23	Preventive Controls for Human Foods , Glen Mills, PA
	27-5	Better Process Control School , University Park, PA
April	4	IGNITE Talks and Reception , University Park, PA
	11	Food Defense , University Park, PA
	12-13	Foreign Suppliers Verification (FVSP) for Importers , University Park, PA
	14	Listeria Control in Produce Packinghouses , Biglerville, PA
	18-20	Penn State Ingredient Plant-Based Yogurt Short Course , University Park, PA
	25-26	Fundamentals of HACCP , University Park, PA
May	3-5	Principles of Sensory Evaluation Short Course , University Park, PA
	9-11	Preventive Controls for Human Foods , University Park, PA
	23-25	Food Microbiology Short Course , University Park, PA
June	6-8	Food Mycology Short Course , University Park, PA
	19-23	Penn State Chocolate Short Course , University Park, PA
	26-30	Fundamentals of Food Science Short Course , University Park, PA

IGNITE Talks and Reception

Join us on April 4, 2023 at the Penn Stater Hotel and Conference Center, State College, PA, for an exciting afternoon of lightning talks on innovation and hot research topics by Industry Professionals, Alumni, Food Science Faculty, and Graduate Students. The event is sponsored by Keystone IFT, Penn State Food Industry Group and the Department of Food Science.

[Register Here!](#)

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 at 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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