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EDITORS: AnnMarie Cornejo, Haley Marconett

DESIGNER: Christina Barton

CONTRIBUTORS: Christina Barton Gour Choudhury Peggy Papathakis Welcome to the 2014-15 edition of Newsbite. It was a year of change, progress and growth, with the addition of several outstanding faculty.

I want to start off by congratulating our undergraduate students who won national competitions last year and are in the final rounds of national competitions this year. The Developing Solutions for Developing Countries team placed first, and the Heart Healthy team placed second with their products last year. The Disney-IFTSA and Mars-IFTSA Product Development teams will compete this year at the IFT Annual Meeting and Food Expo in Chicago.

I would also like to congratulate the recipients of numerous scholarships, internships and the students who are holding leadership positions with IFTSA. I am proud of Celina To, who has been selected for an internship at NASA, and Chelsea Yoakum who was the College of Agriculture, Food & Environmental Sciences Outstanding Student in 2014. The training and advising provided to these students by our dedicated faculty is outstanding. I would also like to acknowledge our faculty, lecturers and staff who received awards of excellence.

Four outstanding faculty have joined our department recently. With the addition of new faculty, the department's teaching and research expertise has expanded in the areas of food engineering, clinical nutrition, food processing, food packaging, brewing, food chemistry, and food quality assurance. We are now in a position to partner with our stakeholders to develop cutting-edge teaching and research programs to meet the food, science and nutrition needs of California, the U.S., and the world.

We have been addressing California issues and are expanding our research efforts in the areas of water conservation and sustainability through extramural grant funding. Two major goals are to minimize water use during food processing and maximize the utilization of California farm harvest. We are addressing these issues through multi-institutional collaborative efforts on the re-engineering of food processing technologies.

We have executed a "concept-to-commercialization" project in water conservation that reduces water use by 80 percent during peach peeling, a technology that has been adopted by the industry. We have also completed a pilot-scale project for tomato peeling that completely eliminates water use during peel removal, a technology that is ready for industry adoption. The institute will help us intensify our efforts in solving California's food industry problems and will open new windows of opportunities for our students, faculty and industry.

Another important goal of our department is to improve infrastructure to enhance the Learn by Doing environment and to support the teacher-scholar model. We have added equipment to our laboratories and pilot plant, most of which was purchased from research grants and the profit from student-run enterprises. We have eliminated loss, improved profitability, and expanded the product categories of the Food Science & Nutrition Department's production enterprises. We have also established the Professor Hany Khalil Memorial Scholarship. Funds from this endowment will be used to support student learning and offer more Learn by Doing opportunities.

I am looking forward to intensifying our efforts to establish the California Food Systems Institute with state-of-the-art equipment, modern facilities, and technical and business expertise. The Food Science & Nutrition Department, with exceptional faculty and cuttingedge teaching and research programs, will lead this institute.

Warm wishes,

Gour S. Choudhury, Ph.D. Department Head



"The California Food Systems Institute will help us intensify our efforts in solving industry problems and will open new windows of opportunities for our students, faculty, and California's food industry."

Faculty, staff members receive awards

In June, Food Science & Nutrition Department Administrative Support Coordinator Pamela Montalban and lecturer Susan Swadener both received awards from the College of Agriculture, Food & Environmental Sciences. Montalban was awarded the Talley Farms Distinguished Staff Award, and Swadener received the 2014 CAFES Distinguished Lecturer Award. In October, Professor Doris Derelian was awarded the 2014 Medallion Award from the Academy of Nutrition and Dietetics. She has served as the president of the Academy of Nutrition and Dietetics, on various committees and councils, and currently serves on two future planning groups for the academy.



COMPILED BY CHRISTINA BARTON Photos submitted by Doris Derelian and Ryan Lau

FSN Department welcomes three new faculty members



The FSN Department added three new faculty members to the department. Robert Kravets joined the department spring quarter 2014. Stephanie Jung and Kari Pillola joined the department in fall quarter 2014.

COMPILED BY CHRISTINA BARTON

Robert Kravets Ph.D.

Background: I was born and raised in Chicago, III. I attended the University of Illinois at Champaign-Urbana for my bachelor's and master's degrees. I completed my doctorate at Virginia Tech University in Blacksburg, Va. My first job after graduate school was with Del Monte Foods at their Research Center in Walnut Creek, Calif. After two years, I began working at the C&H Sugar Co. in Crockett, Calif. While I was working at C&H, I went back to school at St. Mary's College in Moraga, Calif., to obtain my teaching credential. Three years later, I left C&H to become a science teacher at Benicia High School. I taught the Introduction to Physical Sciences class and Chemistry for six years before I left teaching to go back to the food industry. I worked at the National Food Lab for more than 13 years before accepting a job at Cal Poly.

I enjoy playing golf, baking (mostly cheesecakes), doing puzzles, and playing with our dogs. My wife and I have also been pirate re-enactors for the past 10 years.

Cal Poly Position: I am an associate professor of food science and nutrition. My current class load includes: Quality Assurance (FSN 335), Food Processing Operations (FSN 204), and Advanced Food Processing (FSN 474).

Plans for Cal Poly: My research plans involve working in the area of process validation. My goal is to begin to define what the necessary process conditions are to assure a safe minimum process for foods. I plan to study the interactions between processing variables to optimize how safe food processes are developed.



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Stephanie Jung Ph.D.

Background: I attended the University of Sciences in Metz, France, for my bachelor's degree in biology, biochemistry and toxicology. I completed my master's degree in biotechnology and food industry at National Polytechnic Institute of Lorraine in Nancy, France. I then completed my doctorate in food engineering and food processing from the National School for Engineers in Agricultural and Food Science Industries in Nantes, France. While completing my master's and doctorate, I worked as a graduate research assistant at the respective institutions. After working in France for a year, I moved to the U.S. and began teaching at Iowa State University, where I started working as a postdoctoral research associate and laboratory manager in the Center for Crops Utilization Research. After two years, I began teaching in the Department of Food Science and Human Nutrition. I was a professor for six years before being appointed director of graduate education for food science and technology. After three years in that position, I accepted a position at Cal Poly.

Cal Poly Position: I am an associate professor of food science. My current classes include: Introduction to Principles of Food Engineering (FSN 330), Food Engineering (FSN 444), and Senior Project (FSN 461).

Plans for Cal Poly: My research interests involve high-pressure processing (HPP), with a focus on proteins, functionality, enzyme activity and small molecules. I am also interested in alternative processing technologies, enzyme-assisted bioprocessing, and the use of green approaches to add value to food and agricultural products.



Kari Pilolla Ph.D., R.D.

Background: My life experiences have inspired a passion for integrating nutrition and exercise for preventing chronic disease, maintaining and achieving health, and optimizing human performance during exercise and sport. To turn this passion into a career, I attended Fresno State, where I completed a bachelor's degree in kinesiology with an emphasis in exercise science. I later acquired dual master's degrees in exercise physiology and nutrition science from San Diego State University. After graduating from San Diego State University, I worked as an exercise physiologist and a sports medicine coordinator for two Southern California hospitals before moving to the Bay Area to work in research at the Stanford Prevention Research Center. After being inspired by the work of my mentors, I eventually returned to school and completed my Ph.D. in nutrition with minors in exercise physiology, and adult and higher education at Oregon State University. During my time at Oregon State, I was fortunate to be a U.S. Department of Agriculture training fellow and a graduate teaching and research assistant. While completing my Ph.D., I was concurrently enrolled in the University of Northern Colorado Dietetic Internship program to become a registered dietitian. After graduating and becoming a registered dietitian, I took a position as a postdoc on a U.S.D.A. childhood obesity prevention project and continued to facilitate classes for Oregon State University, including sport and exercise nutrition, general human nutrition, critical issues in nutrition, lifetime health and fitness, and sessions on prenatal nutrition. I accepted a position at Cal Poly in fall of 2014.

Cal Poly Position: I am an assistant professor of nutrition. My current classes include Community Nutrition (FSN 416), Clinical Nutrition I (FSN 429) and Clinical Nutrition II (FSN 430).



Plans for Cal Poly: My research interests are linked to my disciplinary interests in both nutrition and exercise. My primary research theme focuses on the integration of nutrition and exercise for achieving and maintaining health and preventing lifestyle-related chronic disease across the lifespan for the individual, family and community. I have a special interest in women's health and childhood obesity prevention. On the flip side, my research interests also include optimizing performance and recovery from exercise and sport through nutrition.

Teams continue competition success

Multiple Cal Poly Food Science & Nutrition (FSN) student teams competed in the finals of product development competitions under the Institute of Food Technologists Student Association (IFTSA) in spring and summer 2014.

BY CHRISTINA BARTON

S tudent teams competed in five IFTSA competitions: the College Bowl, Heart Health Product Development, Disney-IFTSA Product Development, IFTSA & Mars Development, and Developing Solutions for Developing Countries. These competitions gave students a Learn by Doing experience and a glance into the food industry.

Spring Competitions

The Heart Health Product Development team placed second in the competition at the IFT Wellness Conference in Chicago, Ill., during spring break 2014. The team, comprised of students Kyle Failla, Lauren Gross, Katie Lanfranki, Khadija Nafi, Rachael Redlo, Jaime Savitz, Hira Shafique and Adam Yee, created a savory "chip-and-dip" product called "Demergo" for the competition. "Demergo," meaning "to sink in" in Latin, combined a crispy, rosemary-infused cracker with a creamy, Mediterraneantype cauliflower spread that satisfies some daily nutrient intake recommendations. According to the team, the cracker and dip was pleasing in taste, without the high salt and fat content associated with traditional chips and dip.

The College Bowl team competed in the IFTSA Mountain West Regional Competition at Cal Poly Feb. 28. The competition challenges undergraduate and graduate students in all areas of food science and technology, including history of foods and food processing, food law, and general IFT/food-related trivia. The team, which placed third overall, was composed of Lauren Borovilos, George Lew, Jake Malloy, Jaime Savitz, and Kyler Walters. The competition was organized by food science senior Emma Sandquist, the IFTSA Mountain West Area representative, and food science Professor Amanda Lathrop. In April 2014, the competition was held in Los Angeles. The team, which placed third overall in the double elimination bracket, included Laura Borovilos, Tiffany Lau, George Lew, Ashley Long (captain), Jake Malloy, Jocelyn Ngo, and Kyler Walters.



Left: The Heart Health Product Development team representatives, left to right: Khadija Nafi, Jaime Savitz, Katie Lanfranki and Adam Yee, at the IFT Wellness Conference in Chicago, III.

Middle: The 2014 College Bowl team, left to right: George Lew, Jocelyn Ngo, Ashley Long, Lauren Borovilos, Kyler Walters, Tiffany Lau, and Jake Malloy





Photos submitted by Katie Lanfranki, Amanda Lathrop, and Celina To

Above: The 2015 College Bowl team, left to right: Jaime Savitz, George Lew, Lauren Borovilos, Kyler Walters, and Jake Malloy, at the competition.

Summer Competitions

Three teams competed in various competitions at the IFT Annual Meeting & Food Expo in June 2014 in New Orleans, La. The Disney-IFTSA Product Development team, comprised of Alex Carpenter, Katie Lanfranki, Matthew Medlin, Christina Neumayr, and Ali Shapira, received an honorable mention for their product, "Nem-O's." The competition challenged competitors to create a market-relevant product, developed around a Disney character, for children 10 years and younger, that included at least half a serving of a fruit, a vegetable, a low-fat dairy product, and/or whole grains. The team put a healthy twist on a traditional oatmeal cookie, fashioning it after Nemo from the movie "Finding Nemo."

"The cookie was made of sweet potatoes, oats, apples, dates, applesauce, quinoa, cinnamon, and vanilla," Lanfranki said. "This on-the-go snack contained a naturally derived sweetness from fruit and a crispy, nutty flavor from popped quinoa."

The IFTSA & Mars Development team created a product called Java Joltz — a caramel-flavored gummy treat. Team members Meredith Bibbo, Mikey Castillo, Kyle Failia, Trevor Fast, Julia Kot, Jessica Lee, George Lew, Jake Malloy, Jessica Marer, Heather McCain, Jocelyn Ngo, Alison Shapira and Celina To received an honorable mention for their product. The competition was split into four parts: a 24-page written proposal, an oral presentation, a product sample/tasting session, and a poster session. Java Joltz, filled with a liquid espresso gel, contained 100 milligrams of caffeine and could be eaten either as a candy or dissolved in hot water to make a coffee drink.

"We had to brainstorm ideas, do benchtop trials of formulations, perfect formulations, conduct professional sensory tests, and consider all aspects of large-scale production, marketing and sales," Bibbo said.

Although it was a lot of work, the competition was a great learning experience, according to Malloy.

"The competition really opened our eyes to the world of product development, providing us with an amazing opportunity to present our ideas to the food industry as a whole," Malloy said. "I very strongly recommend that students get involved in a competition like this so [they] can gain even more firsthand knowledge of food science and be recognized nationally for their hard work and dedication."

The Developing Solutions for Developing Countries (DSDC) team placed first with "Amma Mamas"— a flatbread/tortilla made from defatted soy flour, sweet potato, millet flour, whole bovine milk, and cinnamon. The team was composed of Evan Quigley, Emma Sandquist, Jaime Savitz, Courtney Schlossareck and Kyler Walters. The competition prompted teams to invent a food product for a country in Africa using defatted soy flour. The team decided to focus on pregnant women in Chad. "These flatbreads would provide pregnant women with essential nutrients that are often lacking in African diets, such as iron, folate, calcium and protein," Savitz said.

The development of the product involved a lot of research, according to Quigley.

"Research included the cultural background of Chad, the economic feasibility of the product, technical problemsolving, formulations of the Amma Mamma's product, transportation of the product, packaging and so many other elements," Quigley said.

At the competition, the team presented the product, explained what it was, how it worked, how it was made, and the impact it would have on women in Chad.With their first-place finish, their product was an even bigger success than they thought.

IFT sent the team's ideas to Africa to assist organizations there and to help them improve their existing products, Savitz said.

Savitz, a second-time DSDC competitor, believes both years have been memorable experiences that have helped her learn a lot about food science and nutrition.

"Going to the finals for this competition was of great encouragement for me as a food science major," Quigley said. "You see your field being implemented into the workforce on a grand scale and bring about value and importance of food science in the future."



Above: The Disney-IFTSA Product Development Team's product, Nemo-O's, and the packaging they designed for it.



Above: The three teams, IFTSA & Mars Development, Disney-IFTSA Product Development, and Develping Solutions for Developing Countries, pose for a photo with their awards at the IFT Annual Meeting & Food Expo in New Orleans in June 2014.



Over the summer, many students gain industry experience through internships in different fields. Here's what two food science students had to say about their summer 2014 internships.

COMPILED BY CHRISTINA BARTON

Perri Berman junior, food science

Tell us about your internship:

I worked at Annie's Inc., owned by General Mills, as a product innovation intern. Most of my time was spent doing benchtop work in the test kitchen. I had the opportunity to work on all of their products, such as macaroni and cheese, cookies, crackers, gummies, frozen entrees, dressings, graham crackers, granola bars, and gluten-free products. I also worked with all of the managers on the product innovation team by helping to organize in-house tastings and tabulating

the results. Some of my time was also spent doing packaging review and speaking with suppliers. I had the opportunity to work on a product from scratch and got to develop it under a manager who allowed me to have a lot of creative freedom.

How did you get your internship?

I got my internship through a Mustang Jobs posting. I sent in my application, and they contacted me for a series of interviews.

How did Cal Poly prepare you for the internship?

The hands-on labs at Cal Poly really helped me understand what was going on in the plants operated by Annie's because I already had experience. Also, being familiar with a pH meter, an aqua lab, a refractometer, and titrations proved to be useful. It was very helpful that I had taken food processing and sensory classes.

How did the internship help you move forward in your studies at Cal Poly?

The internship helped me get a good real-world understanding of concepts that I have not yet learned in class. I feel that having done an internship allows me to more easily pick up concepts in class because I have actually had a chance to see them firsthand.

How do you think the internship will help you get a job after graduation?

Having an internship strengthens your resume, which helps distinguish your application from others when companies are looking through stacks of resumes. An internship also enables you to gain professional connections with people who can then be resources when you are trying to get a permanent job. I love the connections that I have made so far, and I can see them being more than willing to help me find an awesome career in the future.



The biggest thing that I learned during my internship was that in order to work in the food industry, you really need to be able to work with people. Not only do you work with a team of food scientists, but you also have to rely on a whole network of people for information about plant equipment, ingredient statements, formulas, raw material pricing, and much more. Communicating effectively

(and politely) is crucial to success. I always hated calling people before this internship, but I was forced to call professionals daily to ask for information. At first it was uncomfortable, but it is a skill that you need to have to succeed.

What advice do you have for students who are uncertain about doing an internship?

I would say that if an opportunity is given to you, take it. Having an internship and hating it is just as good as having an internship and loving it. At least you know that you don't want that job when you graduate because it's not a good fit for you. And, if you end up loving your internship, you've found a possible future career path.



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Lauren Bosio junior, food science

Tell us about your internship:

I interned at Taylor Farms Produce. I worked for its Food Service division as a quality assurance intern during the summer. However, I also worked with the quality assurance team at its retail facility as well. At the time, the team had interest in increasing the shelf life of the arugula and kale commodities for food service by thoroughly analyzing the products, literally from "field to fork." During my internship, I researched fertilizer and crop protectant and the shelf life of kale and arugula varieties. I worked on problem and resolution analysis regarding production efficiency and customer-focused sensory analysis surveys. I obtained experience with various quality-control instruments and the interpretation of raw data in Excel, in addition to completing individual outreach to seed and fertilizer suppliers and farmers. I also obtained a thorough understanding of produce shelf-life studies.

How did you get your internship?

I have to say, I was lucky. I stumbled upon this summer internship after being asked to fill in a as a babysitter for a friend. When I showed up at the family's house, I found out that the father is president of Taylor Farms Food Service. After an informal interview, he offered me the job. My advice is always be on your toes because you never know what opportunity could come. On the flip side, don't wait around for luck. Reach out to companies that you are inter-

ested in, create a LinkedIn account, and put yourself out there. In the meantime, find a small job during school that channels your food science-related interests.

How did Cal Poly prepare you for the internship?

Cal Poly's Learn by Doing philosophy really prepared me for my internship with Taylor Farms. I've always been a hands-on learner, so for me, resources like the pilot plant and workshops were extremely helpful. The opportunity to work as a student assistant helping to produce Cal Poly's jam and barbecue sauce solidified the knowledge I learned in class and later used in the field.

How did the internship help you move forward in your studies at Cal Poly?

The internship made everything I learned in class more tangible. For example, in one of my classes, my professor mentioned that problems can occur daily during production. Experiencing unintended production setbacks forced me to brainstorm practical solutions, which helped me gain confidence. Being able to make real-life connections between my studies and the field makes food science more interesting.

How do you think the internship will help you get a job after graduation?

The internship provided me with a wealth of experience and knowledge about the food industry. It also gave me confidence to speak with employers, solve industry-related problems, make connections, and the list goes on. With the tools and skills I acquired from the internship, I am confident that I will have employment opportunities post-graduation.

What was the most important lesson you learned from your internship experience?

By far, the most memorable thing I've learned is to be bold. My co-workers had a long history of working in agriculture, and I had none. Before this internship, I had little desire to discover what a life in agriculture looked like. Learning not to be afraid to ask questions, and make mistakes, broadened my horizons and gave me an appreciation of the agriculture industry. I learned so

much about what I wanted to do, and what I didn't (which is just as valuable).

What advice do you have for students who are uncertain about doing an internship?

Do it! What is stopping you? Your selfesteem? Your pride? Humble yourself to take the internship that might not be what you're looking for. Trust me, you'll learn something that will be of value, and it might even be just a little bit fun! If you think you don't have all the knowledge for the job,

don't worry. First off, you're just an intern — breathe! Companies expect you to make mistakes, however, they also expect you to learn from them. You have unlimited resources, including access to lecture slides on PolyLearn, professors' help, and your co-workers. Don't hesitate to reach out for guidance!

Any final comments or advice?

Come prepared to an interview. Do your homework on the company. Learn what products they sell, how the products are processed, and the expectations of the position you're applying for. Be prepared to showcase yourself in terms of how you are able to meet their needs. This will impress them and suggest to them that you will take the job seriously. \diamond



Students lead in national organization

FSN students hold leadership positions in IFTSA after success in various product development competitions

BY CHRISTINA BARTON

Four FSN students were chosen for leadership roles with the Institute of Food Technologists Student Association (IFTSA) for the 2014-15 competition year. IFTSA is the student association of the Institute of Food Technologists (IFT), a national organization for food professionals. IFTSA connects students studying food science and technology from around the world. IFTSA members have opportunities to compete in competitions; receive funding, awards and honors; earn

IFT scholarships, and make contacts with professionals in the food science and technology industry.

Jaime Savitz, a third-year nutrition major, and Katie Lanfranki, a fourth-year food science major, serve as contacts for two IFT competitions: Developing Solutions for Developing Countries and the Global Student Innovation Challenge respectively. Kyle Failla, a second-year food science major, is a member of the IFTSA marketing board, and Emma Sandquist, a fourth-year food science major, serves as the Mountain West Area representative.

Lanfranki and Savitz, as

competition chairs, act as liaisons between the participants and the judges and sponsors. Lanfranki works with IFT staff in selecting competition judges and creating rules, answering participant's questions, and mediating between competition sponsor Tate & Lyle and participants. Savitz also answers participant questions and serves as the main point of contact for the judges. Failla works with the IFT vice president of marketing to brainstorm and implement new outreach initiatives, brand development, member benefits, and develop marketing materials for the IFTSA.

Failla, Lanfranki and Savitz believe working in a leadership position at IFTSA has been a great opportunity to expand their



industry network, make business connections, and make friends with food science students from across the country.

Savitz sees her leadership role as a great gateway for work she wants to do after graduation.

"One of my goals is to bridge the gap between food science and nutrition, and I feel that taking on leadership roles within IFT is a great way to do that," Savitz said. "I plan to work in product development of medical foods, and food science will most certainly be critical."

For Failla, this opportunity has served as a great Learn by Doing experience.

"It has been a great platform for me to learn how to be a more effective communicator, team member and time manager," Failla said. "It was a goal of mine to take advantage of the short time that I have at Cal Poly, and I can honestly say, it has been one of the best decisions I have made as a student.."

FSN students receive scholarships from foundation

Last September, food science undergraduate Khadija Nafi received a \$3,000 scholarship from the Food Marketing Institute (FMI) Foundation. Along with the scholarship, Nafi received an all-expenses paid trip to attend the Safe Quality Food International Conference in Orlando, Fla. At the conference, she gave a presentation about food auditing.

"I would like to thank Dr. Choudhury and Professor Niku for

taking time to write me letters of recommendation. I also thank Pam Montalban for letting us know about these great opportunities in the food industry," Nafi said.

Food science graduate student Antoinette De Senna also received a scholarship from FMI. De Senna and Nafi were two of 10 students from schools nationwide who received a scholarship from FMI last year. ◆

All about alumni: Interview with Cal Poly alumna

COMPILED BY CHRISTINA BARTON

Andrea Zeng B.S., Food Science, 2014

Describe your Cal Poly journey:

My journey at Cal Poly was fairly straightforward. I started in the Food Science Department with a culinary concentration and continued to pursue this path for the rest of my undergraduate education. I also picked up a packaging minor.

Tell us about your current position:

I currently work at Lundberg Family Farms as a product innovation coordinator. Lundberg Family Farms is a mid-sized, family-owned-andoperated company focused on growing superior rice and producing rice-based products. Founded in 1937, the company has continued to grow and expand while maintaining its core values of quality, sustainability and innovation.

How did Cal Poly prepare you for your position?

My experiences at Cal Poly definitely helped prepare me for the working world. The food science courses provided me the fundamental knowledge that is essential to my work today. Understanding the basic processing of food, safety, regulations, product development, packaging and more, has helped me do my job better. In addition to the food science curriculum, my internship and work experience also helped prepare me for my position. Research at the Dairy Products Technology Center provided me with great lab experience. Interning for Earthbound Farm gave me insight into the world of produce and quality assurance. As a manager at Cal Poly Chocolates, I learned the most -- everything from quality assurance to new product development and how to manage the responsibility and ownership of a company.

Do you have any advice for current students?

1. Ask questions. I cannot emphasize this enough. I feel that I get greater clarity and ultimately a better understanding of something when



I ask for more information. If there is no answer, you have asked a great question that merits research.

2. Get an internship, a part-time job, or a volunteer position. Without my experiences outside the classroom, I would not have been ready for my current position. I think working really teaches you fundamentals that a classroom can't provide. There is a sense of responsibility when working that I didn't experience as a student.

3. Group projects matter. I know how much these can be dreaded, but the real world is driven by collaboration, the ability to work with anyone, and the knowledge that everyone is important and moves projects forward. In hindsight, I wish I had worked and collaborated with more varied groups and individuals. Full disclosure: there were moments that I thought projects were unimportant "busy work," but honestly, I should have grasped these as opportunities to learn something and create something greater. •





Above:Andrea Zeng, second from right, participated in the 2013 Disney- IFTSA Product Development Competition in which her team placed first for their product, Mike's S'Creamy Dip and Scare Me Chips.The team shows off their temporary tattoos and wacky hair at IFT's Annual Meeting and Food Expo in Chicago.

Left: Andrea Zeng was a manager for Cal Poly Chocolates. She helped make the chocolate bars during Friday production runs.

Looking to the future: ADVANCING TOGETHER

BY CHRISTINA BARTON AND GOUR CHOUDHURY

The Food Science and Nutrition (FSN) Department has been expanding faculty expertise, improving infrastructure, and working with our stakeholders to develop cutting-edge teaching and research programs. The ultimate goal is to establish a dynamic training and research institute designed to adapt to the changing needs of the industry.

The Food Science and Nutrition (FSN) Department has been expanding faculty expertise, improving infrastructure, and working with our stakeholders to develop cutting-edge teaching and research programs. The ultimate goal of the department is to establish a dynamic training and research institute, designed to adapt to the changing needs of the industry. For the past 20 years, FSN Department Head Gour Choudhury has been working on a vision to fully integrate "farm to fork" and provide the state of California the support its food and agriculture industry needs. When Choudhury joined the department in fall 2011, he shared his ideas and initial concept for an institute that would be a training and research home for the industry. Today, his vision has evolved into the California Food Systems Institute (CFSI).

What is CFSI?

The CFSI will be the research and training home of the food and agriculture industry in the state. The CFSI will be "dedicated to the pursuit of research and educational activities on food, agriculture, health and environmental issues" and will aim to be a center of excellence to pursue a comprehensive polytechnic approach to research and education through the integration of components ranging from food production to consumption.

CFSI will rest on four main pillars, all encompassing studentdriven and faculty-led ideas: research and development, professional service, consumer education and academic training. The institute will pursue five goals:

- Meet California's human resource needs in the food science industry
- Pursue research and development in a variety of industry areas
- Facilitate collaborative projects among Cal Poly, industry, and other universities and organizations
- Provide continuing education and industry training in a variety of areas through workshops and short courses based on current needs of the industry and community
- · Maximize dissemination of all CFSI activities and outcomes

As a collaborative Cal Poly institute, CFSI will operate on the principle of merging disciplines to solve emerging issues and challenges. The institute plans to partner with other departments in the College of Agriculture, Food & Environmental Sciences, other colleges and organizations on campus, and with other universities. When fully functional, the institute will have expertise on food production, food safety, regulatory affairs, marketing, market research, budgeting, product costing, economic/financial feasibility, food packaging, process chemistry, product quality, sensory evaluation, product/process development, nutrition, process engineering and automation, and equipment design and fabrication. CFSI will integrate current facilities such as the Dairy Processing Technology Center and



Meat Processing Center and plans to add new facilities including a sensory science center, research labs, conference center, training/education center, scale-up facility, food safety center, industry incubators, graduate student facility, regulatory affairs, and an enology center.

Potential CFSI Impact

The institute will serve and partner with the agriculture and food industry, the community, and consumers in food and agriculture-related research and education. Choudhury envisions the institute as a catalyst to foster business expansion as well as the development of new businesses throughout California since value-added agriculture is key to diversifying the state's economy. This research and training facility will help advance that vision and help promote a sustainable food and agriculture industry in California. The state-of-the-art equipment paired with the technical expertise at the institute will help California lead the nation in food and agriculture-related activities and remain competitive in the global market.

As a multidisciplinary institute, CFSI will close the gap between the number of available graduates and the research and development needs of the state. The institute will:

- · Enhance the university's instructional capability
- Enable faculty to deliver training emphasizing Learn by Doing and apply scientific and engineering principles to the food and agriculture industry
- · Facilitate small-scale, in-plant training to students
- Attract and retain students
- · Improve consumer awareness in nutrition and health
- Enhance the potential of grant funding for graduate education in solving industry problems.

The California Food Systems Institute, with integrated research, education and outreach activities, will assist California and national food and agriculture companies to get their products to a point where they are most likely to succeed in the marketplace and optimize the chances for sustained value-added profitability. Industry advancement and community challenges will be addressed through a comprehensive, integrated approach that focuses on the agricultural continuum.



Graphic by Christina Barton

Treating Malnourished Mothers In Malawi

FSN alumni work on nutrition research project with Professor Papathakis in Malawi, Africa

BY CHRISTINA BARTON Photos submitted by Jennifer Grise and Peggy Papathakis

fter raising needed funds for her research, FSN Professor Peggy Papathakis is working in Malawi, Africa, with four FSN graduates. Papathakis' research, titled "Mamachiponde" is aimed at determining which of three food interventions will help moderately malnourished pregnant women in Malawi recover the fastest and produce healthier babies.

process to blend the ingredients better based on the available equipment in Malawi.

General Mills helped the team with the first industrial scale production of their recipe, first in its lab in the U.S. and then in Malawi.

After an accessibility study of 100 pregnant women in Malawi in January 2014, the product was sent back to General Mills

How it all began

In 2004, Dr. Mark Manary started Project Peanut Butter (PPB) in Malawi, Africa. The nonprofit organization advances the treatment of severe malnutrition with effective, locally produced, readyto-use therapeutic foods and by providing nutritional and medical support primarily to children suffering from severe and acute malnutrition. Peggy Papathakis met Manary at



for a nutritional profile study. The team changed the Malawian soy oil to canola oil to improve the fatty acids, and the final recipe was ready in March 2014.

Papathakis raised \$1.3 million and began her study in January 2014. The first clinic opened in Malawi three months later, and the first round of production for the peanut butter began. The study will offer one of three treatment plans to 2,000 malnourished pregnant women. The first treatment option

a World Health Organization (WHO) conference in Geneva, Switzerland, a few years ago and learned about his work in Malawi. Manary, a professor of pediatrics at Washington University School of Medicine in St. Louis, Mo., only had medical student volunteers involved in his projects. He and Papathakis were interested in including nutrition students.

Papathakis had always wanted to work on international nutritional studies and research, and pursued working with Manary.

To prepare for the study, Papathakis worked with five students to create a nutritionally dense peanut butter paste made with peanuts, oil, brown sugar, multivitamin and mineral powder, nonfat dry milk, and whey protein concentrate. The paste, called Mamachiponde, is a ready-to-use supplemental food (RUSF). Students Anna Nakayama and Simon Zhao volunteered to help in Malawi. The team worked through 22 trial versions of the paste before developing one that had the nutrient profile Papathakis was looking for. According to Zhao, they made many small batches to see which tasted better and contained the most nutrients. They also worked to develop a is the standard of care for malnourished pregnant women: a corn-soy blend flour cooked into a porridge along with folic acid and iron. The second treatment option is the same corn soy blend, but with the addition of a low-cost prenatal supplement that includes 15 vitamins and minerals. The third treatment option is Papathakis' Mamachiponde RUSF.

The study today

More than 760 women have been enrolled in the study at one of the 12 clinics in southern Malawi.

FSN alumnae are working in Malawi with Papathakis: Lindsey Ngo and Anna Nakayama are volunteering for three months; Jocelyn Fry, research coordinator, will work there for one year. Jennifer Grise, a FSN alumna who is now project manager for the St. Louis Nutrition Project (SLNP), the sister organization to Project Peanut Butter (PPB) and its research arm, is also assisting. Grise joined PPB in the summer of 2013, working as a volunteer in Sierra Leone, one of the countries PPB operates in. Simon Zhao traveled to Malawi mid-February for a four-month stay to take over for Nakayama. Both Nakayama and Zhao completed their dietetic internships after graduating from Cal Poly in June 2013. They kept in touch with Papathakis and jumped at the opportunity to go to Malawi and help with her research.

Papathakis and the volunteers are researching multiple studies in Malawi. Grise is working on a study that evaluates children's health status post-recovery from malnutrition after five interventions are distributed. The interventions include providing bug nets, deworming medications, malaria prophylaxis, a lipid nutrient supplement, and zinc. Fry and Nakayama are working with Papathakis on her study assessing the effectiveness of three different malnutrition treatments given to pregnant women over 16 years of age.

At each of the clinics they visit, the assistants screen pregnant women to determine if they are moderately malnourished and could be included in the study. Nakayama and Fry work with Malawian nurses at the 12 clinics, taking measurements of the women and newborn babies and recording the data. The measurements include mid-upper arm circumference, triceps skin fold, hemoglobin, weight, height, and blood pressure.

Once the women are enrolled, they complete a food frequency questionnaire, a food security questionnaire, and a quality-of-life questionnaire. The women return to the clinic every two weeks for checkups and counseling, and are given another two-week supply of the supplement they are taking. The women are monitored until their babies are three months old. Papathakis and her team also do home visits to see how well the women are adhering to their treatment. While there, they inventory the food in the house and ask the women what they ate in the past 24 hours.

Recently, Malawi has experienced severe flooding, destroying much of the crops. This rainy season, known as the "Hungry Season," leaves many without adequate food. The flooding, Papathakis said, will likely make this year's Hungry Season worse. The impact is already being seen. In just a two-week span during the rainy season, 71 women were enrolled in the study, indicating the potential for higher numbers of malnourished women this year. On a recent home visit, Papathakis saw evidence of this hunger.

"Four days after one woman had received her two-week supplement supply, it was almost gone," Papathakis said. "The family was eating more than the she was."

On another visit, more than 50 percent of the bag of the cornsoy porridge was gone within a few days. It was supposed to last for two weeks, but the rest of the family was eating the supplement as well.

Several smaller studies are also ongoing. Graduate student Cambria Glosz, who worked in Malawi from September to December 2014, studied the vitamin and mineral levels of the women before the start of the nutrition supplement and for 12 weeks after taking the supplement. Papathakis and her team are continuing to collect samples, which the volunteers will bring back to Central Coast Pathology in San Luis Obispo for analysis.

Papathakis works with PPB to produce the Mamachiponde supplement at their factory in Malawi, and Nakayama and Fry help oversee its production.

Research Impact

Both Nakayama and Grise agree that Cal Poly gives them

hands-on experience that they couldn't find elsewhere. Grise manages more than 13 people working on the projects in Malawi. She is responsible for hiring and paying international and national staff, managing the homes volunteers live in, assisting in volunteer training, and volunteering in the pediatric clinics.

For Grise, working in Malawi has been a great experience and a chance to work further with other Cal Poly students and graduates.

"It is a wonderful experience to meet up with former classmates and work, live, eat and enjoy life together in Malawi after graduation," Grise said.

When Nakayama returns to the U.S., she will work at Massachusetts General Hospital, where she completed her dietetic internship. She will also work on several inpatient research studies. Grise plans to apply to nurse practitioner programs. Zhao will continue working on a pediatric fellowship or pursue a master's in public health and nutrition.

Depending on the state of the food supply, Papathakis' study will run through 2016. Papathakis returned to Cal Poly in May. She will return to Malawi in January for another five months. FSN graduates will continue to help in Malawi throughout the rest of the study. Once the study is complete, Papathakis and her researchers will begin preliminary analysis of the data.

Papathakis said the people in Malawi make the study worthwhile despite the many challenges.

"In developing countries, everything moves really slowly, like you are watching life go by," Papathakis said. "Yet the Malawian people are so welcoming. It is nice to work in a place where people really appreciate what you are doing.".



Professor Peggy Papathakis worked with five students to create a ready to use supplemental food to use in her research, called Mamachiponde. Here is a profile of the supplement.

Ingredients:

peanuts canola oil brown sugar multivitamin and mineral powder non-fat dry milk whey protein concentrate Nutrition Per day: 900 calories 35 g protein

About equivalent to 3/4 cup peanut butter

Graphic by Christina Barton

FEATURE *Photo Gallery*

A DAY IN THE LIFE

Above: Papathakis walking part of the 5-km hike up a mountain to a study mother's home Below: FSN volunteers Simon Zhao, Lindsey Ngo, Jocelyn Fry, and Anna Nakayama with Papathakis in Malawi



Below: One of the study's mothers with her family outside their home



Above: Driver Mkwinja wearing his Mamachiponde shirt



Photos submitted by Peggy Papathakis

Life in Malawi is very different than life at Cal Poly for Professor Peggy Papathakis. Here's a look at her daily life while completing her research in Malawi.



Above: Nurse Edith, driver Philemon, and nurse Eleanor



Above: A nurse explains the study to prospective women at a clinic Below: On a home visit, a nurse asks the woman questions about diet through a household food inventory questionnaire and a food frequency questionnaire.





In support of excellence

The Food Science & Nutrition Department is honored to recognize those people whose contributions to the department enable us to continue to provide students with the opportunity to learn and grow at Cal Poly. Thank you for all that you do.

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Collaborations grow across campus, country

Nutrition students and graduates team with STRIDE for local programs, statewide and national research projects

BY CHRISTINA BARTON

ince its start in 2008, Pink and Dude Chefs has been led by graduate students and has grown and evolved every year. Jessie Bierlich, a graduate student studying nutrition, took leadership of the program this year and added a twist. Bierlich and the Pink and Dude Chefs team is collaborating with with professors and graduate students at Vanderbilt University in Nashville, Tenn., where two cohorts were established. Another two cohorts were established in California, one in nearby Arroyo Grande and another in Shandon, about 50 minutes from San Luis Obispo.

Pink and Dude Chefs is an after-school program for middle school children that provides nutrition education and teaches culinary skills. The first half of each session involves a nutrition lesson in the classroom focusing on one aspect of nutrition, like carbohydrates or fats. The second half involves applying

that lesson in the kitchen. During fall quarter, the program met twice a week for six weeks. In the winter, the program was held once a week for 12 weeks.

Last year, kinesiology Professor Camille O'Bryant shared information about the program with colleagues at Vanderbilt University's Peabody School of Education. Professors Sharon Shields and Carol Nixon

expressed interest in Pink and Dude Chefs. After receiving a grant from Vanderbilt to come to San Luis Obispo to see the program, Shield and Nixon approached STRIDE with the idea to collaborate. The collaboration would evaluate the effectiveness of the program in Tennessee with middle school students in a different demographic than the California cohorts.

During the fall, Bierlich collected data from the different sites and analyzed it for her thesis. Each cohort had nine to 12

PINK AND DUDE CHEFS"

students that Bierlich taught with the help of two assistants and other STRIDE nutrition student volunteers.

Bierlich said she really enjoyed working with the middle school students because they are eager to learn, but still keep things light with their great sarcasm.

The collaboration between the two universities helped the STRIDE Pink and Dude Chefs team improve their teaching skills. In return, the STRIDE team helped Vanderbilt develop the nutrition portion of its program.

In 2014, STRIDE launched Pink and Dude Chefs Online Campus to help teach others about the program so they could implement it in other areas. The teams from Vanderbilt and Shandon completed the online training. The program has also

> been piloted in North Dakota. This winter, two more communities in the Silicon Valley are expected to offer the program.

Fourth-year nutrition student Michaela Clauss works with Pink and Dude Chefs and STRIDE's Health Ambassadors, a nutrition community outreach program, as a site manager running the outreach events and managing the Health Ambassadors.

"The most rewarding part of being involved with STRIDE and all of these programs is being able to teach our community about nutrition and health, empowering people to make healthy choices and actually being able to see these actions take place," Clauss said.

Clauss also researched the Smarter Lunchrooms Movement (SLM) over the summer. SLM aims to help students make







After preliminary research over the summer, Clauss was inspired to look into a career involving the school lunch program.

"I want to healthfully impact students each day and introduce them to wholesome foods that make a difference in their food selection throughout their lives," Clauss said.

Clauss is working on a project with the Institute for Advanced Technology and Public Policy with kinesiology alumna Jessica Avalos. They are creating a nutrition education program with nutrition and health education videos that will be produced by Univision. It will include an interactive component to reinforce what was learned and an incentive to implement what they learned. The program will target low-income and recently immigrated parents.

Bierlich helped do some preliminary research for another STRIDE research study. She worked with city & regional planning Associate Professor Kelly Main to research community wellness plans in cities throughout California. Bierlich looked at 15 general city plans to see if they had a health plan and how they were implementing it. Bierlich interviewed city planners about health and wellness in their respective communities. During her research, she found only a couple cities were actually doing anything about health and wellness. The study will analyze ways to bridge the gap between creating city wellness plans and actually implementing them. \diamond





Top left Students serve the food they made during a Pink and Dude Chef session while the STRIDE volunteers observed.

Above: The Pink and Dude Chefs team, led by Jessie Bierlich (center back row)

Left Michaela Clauss (center) making chocolate muffins with students in the Pink and Dude Chefs program

Below: Students show off the sushi they made during one session of the Pink and Dude Chefs program.



Photos submitted by Michaela Clauss and Jessie Bierlich



1 Grand Avenue San Luis Obispo, CA 93407-0258

Website

fsn.calpoly.edu

Email fsn@calpoly.edu

Facebook facebook.com/FSN.Calpoly

LinkedIn

linkedin.com/in/calpolyfsn



Last September, the Food Science & Nutrition faculty and staff had their annual Fall Conference department meeting at the Lighthouse Suites in Pismo Beach. Pictured (front row, from left) Department Head Gour Choudhury, Amanda Lathrop, Luis Castro, Amy Lammert, Shohreh Niku, Kari Pilolla, Peggy Papathakis, Pamela Montalban. (Back row, from left) Arlene Grant-Holcomb, Stephanie Jung, JillVictorino, Aydin Nazmi, Brandon Coleman, Susan Swadener, Doris Derelian, Robert Kravets, Scott Reaves.

Photo submitted by Gour Choudhury

FSN End-of-the Year Banquet

The FSN Department will hold its annual End-ofthe-Year Banquet this spring at the Madonna Inn. We thank our sponsors for their generous support of this event.

Photos submitted by Sean Ely





