



- > *Prof Papathakis Brings Hope to Malawi*
- > *Research Reveals Real Results*

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Welcome to the winter 2013 edition of Newsbite. It has been an exciting year with much progress in many areas. Several of our faculty and staff members received college and university awards. Some of our professors were actively engaged in international activities, and one of our food science students, Stephanie Ronquillo, was the recipient of our college's academic excellence award. I am very proud of all of them!

Our STEM (Science, Technology, Engineering and Mathematics)-designated academic programs (food science and nutrition) are focused on the acquisition and application of knowledge through lectures, laboratory exercises and research utilizing California-grown crops. We have completed our dynamic strategic plan (2012-17), which emphasizes expanding our capability to support these activities while enhancing the Learn by Doing environment. The strategic plan also encompasses ongoing areas of attention such as curriculum and assessment, student engagement and enrollment, and outreach to key communities/industries in food science and nutrition.

Enrollment in our classes is high, and we continue to attract very bright undergraduate and graduate students. This year, we had 11 new graduate students join our department. Some of the thesis projects they are working on include green approaches to cleaning food processing plants and equipment, evaluating the nutritional value of food crops, high-moisture extrusion processing, vitamin D and insulin sensitivity, Listeria in cheese, process development, and the perception of resting energy expenditure in a subset of freshman students. In the meantime, we are making good progress in new stand-alone master's programs in food science and nutrition, as these two programs, in addition to our grant-writing efforts, will help us increase our graduate student population.

Research and scholarly activities in the department are expanding. Our faculty and staff have been very busy securing grants to increase the range of teaching and scholarly activities. Undergraduate and graduate students are integral to faculty research, which is another avenue for our faculty to provide real-world Learn by Doing experience. The emerging California Food and Nutrition Institute, currently housed in the FSN Department, is actively engaged with California's food and beverage industry. The institute offered 10 supervised internships to our undergraduate students during summer 2012 to work on numerous research projects in collaboration with industry. Students worked as teams on water conservation during food processing, developing new products and processes, and evaluating green approaches for cleaning food processing equipment and plants. Faculty, staff and students were very busy supporting local food businesses and entrepreneurs new to food processing.

The economic downturn has been challenging, but we made strides in a number of areas. Several new faculty and staff members joined our department. Professor Brian Hampson retired and is now helping us in our research efforts. We have acquired several new pieces of equipment to expand the capability of our pilot plant and fabrication shop. We are aggressively pursuing resource-generating initiatives to improve our infrastructure, which is essential to expanding our teaching and research capability. We are committed to building a dynamic department equipped with state-of-the-art laboratories and pilot plant, demonstration facilities, and education programs designed to adapt to the changing needs of the world. I am looking forward to another exciting year of growth and development.

Warm Wishes,



Gour S. Choudhury, Ph.D.
Department Head

Message From The Department Head



Two Alumnae Serving in PEACE CORPS

BY Jo Ann Lloyd

Photographs courtesy of Lisa Wong and Kerry Pearson

*From
Ethiopia*



Lisa Wong Battles HIV/ AIDS in Ethiopia

Lisa Wong (Nutrition '12), who is spending 27 months as a Peace Corps volunteer in Ethiopia, is an optimist who always sees the glass as half full. "Every day is rewarding, regardless if it is a good day or a bad day," said Wong, currently training in the town of Assela. "There is always something to be learned and an opportunity for personal and professional growth."

During her first three months, Wong spent eight hours a day in intensive training, learning technical skills and Amharic, the country's official language and one of the most difficult for native English speakers to learn.

When she completes her training, she will move to Yirgacheffe, a town of about 22,000 people, to work on HIV/AIDS prevention, treatment and care. "I will work with others to create sustainable projects that focus on HIV/AIDS prevention for all demographics, especially the prevention of mother-to-child transmission," Wong said. "The goal is to share knowledge so Ethiopians can sustain future projects long after I leave."

Although she grew up in a "small, conservative, industrial agricultural town" in the San Joaquin Valley, Wong says she did not experience culture shock when she settled almost 10,000 miles from home.

"I did most of my personal growth while I was in San Luis Obispo and abroad in Ghana, West Africa," she said. "The people of Ethiopia are very peaceful, social and hospitable."

"The culture is comprised of many ethnicities, traditions, beliefs and religions," she continued. "I had spent some time studying abroad and traveling in Africa before, so many norms in the Ethiopian culture overlapped with other countries I'd been to. If anything, I will experience reverse culture shock when I return to America."

► story continues on page 6



Lisa Wong (second from left) embraces her welcoming host family.

To India



Kerry Pearson (center) with students at her host sister's school in Banjuket



Lisa Wong (center) has no problem assimilating to Ethiopian culture.



Kerry Pearson wears a traditional Nepal outfit: kurta.

Kerry Pearson Promotes Food Security in India

Kerry Pearson (Nutrition '11) has traded the English language for Nepali, switched from meat and potatoes to mostly vegetarian fare, and exchanged the familiarity of the U.S. for the beauty and mystery of India.

As a Peace Corps volunteer, Pearson will serve 27 months in the mid-hills region of Nepal, working to improve food security. Food security aims to give people everywhere access to sufficient, safe and nutritious food.

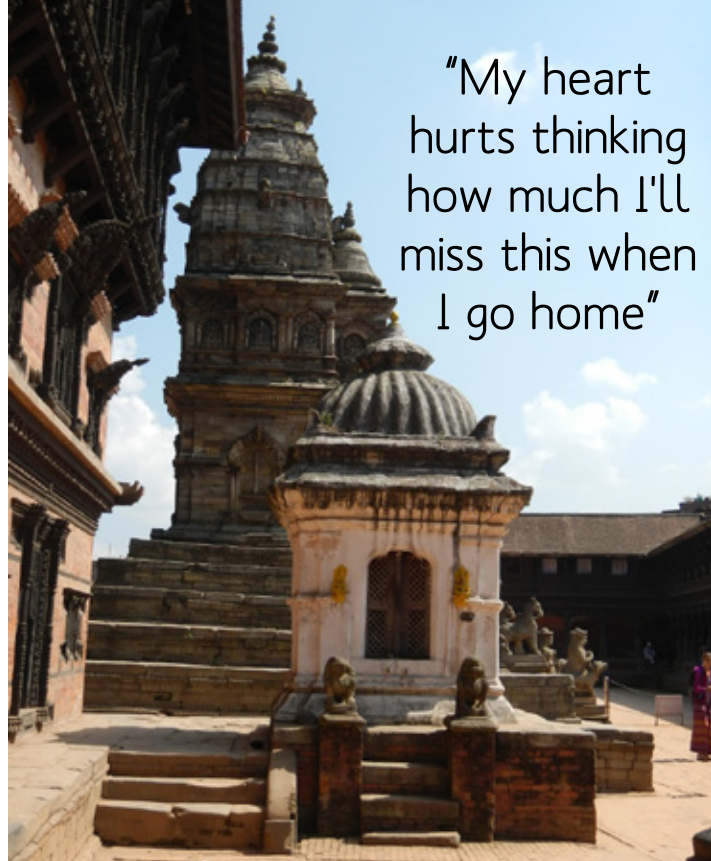
Pearson's long journey to India included a four-day stay in a hostel in Katmandu. Her first impression of the city — "dirty and crowded" — quickly changed. "Once you look more closely, you see beauty everywhere," she noted.

During those four days, she endured six rounds of vaccinations and learned about safety issues and Peace Corps policies. She also learned basic language skills so she could greet her host family appropriately.

From Katmandu she traveled three hours east — covering a mere 40 miles — on beautiful, windy mountain roads, arriving at her training site in the small village of Banjuket. She is spending three months there, immersing herself in the language and culture. Her days are spent in a classroom, mainly studying Nepali.

"I still have no clue what my family is saying to me most of the time, but every day I make a little progress," she said. "By the end of the day, I'm so exhausted, I sit on the porch and pretend to study, or I'll play with the neighborhood kids." After dinner, it's more studying until bedtime.

"My heart hurts thinking how much I'll miss this when I go home"



When she moves to her permanent site in Nepal's Syangja District, she will work as an agricultural specialist on projects that promote off-season vegetable production, the use of improved seeds, and permaculture gardening techniques. She will also teach nutrition and hygiene.

Although her days are long and the work is hard, she has fallen in love with the people and lifestyle. "I sometimes sit on my balcony in the sunshine, watching the neighborhood kids playing in the street and people walking by or stopping to chat with friends, and my heart hurts thinking how much I'll miss this when I go home."



"Pinging" (or swinging) is a traditional activity during the Dashain festival. This is done standing up and requires far more muscle and skill than you would think. The older women and young girls tend to be the best pingers of all.



Kerry Pearson's aamaa (mom) eating breakfast in the kitchen. They eat on the floor with their hands. The cook in Nepali culture eats last, after everyone else has been served.



Afghan Soldiers Learn to 'ADAPT'

BY Hany Khalil

In August of 2011 the U.S. Department of Agriculture's Foreign Agricultural Service funded a \$2.2 million contract to train military personnel deploying to Afghanistan. The project, titled "Agriculture Development for Afghanistan Pre-deployment Training (ADAPT)," is implemented by four universities including Fresno State (lead campus), Cal Poly, Colorado State and Southern Illinois University. The ADAPT project is designed to help Department of Defense personnel work with Afghan farmers on improving their agricultural practices to ensure food security and economic development. Because trainings focus on simple, effective and sustainable problem-solving approaches, U.S. government civilians from the Department of State, USDA, U.S. Agency for International Development, and CIA are now enrolling in the program.

Food science and nutrition Professor Hany Khalil has traveled to Afghanistan as the Cal Poly training site lead facilitator. ADAPT relies on Cal Poly students and faculty to implement the monthly trainings.

Feedback from military and civilian personnel indicate that ADAPT has helped them appreciate the challenges that lie ahead as they deploy to Afghanistan. One individual said, "This course is an essential part of pre-mobilization. It has opened my eyes to what I am likely to encounter in my province. This course is Afghan-centric and delivers usable information by instructors who worked in Afghanistan."

The ADAPT project has had remarkable impact on U.S. strategy in Afghanistan. Positive media coverage of the training has appeared on the Pentagon Channel, The New York Times, The Fresno Bee, the San Luis Obispo Tribune and KCOY-TV, among others.



Hany Khalil explains a solar-drying technique that can help the Afghan population dry fruit, extending food supplies long after the harvest season ends in January. Khalil is teaching Soldiers from the 401st Civil Affairs Battalion and Marines from the 3rd Civil Affairs Group how to improve agriculture in Afghanistan. (U.S. Army photo by Staff Sgt. Felix R. Fimbres)



Nazmi Appointed to DART

Governor Brown recently appointed nutrition Assistant Professor Aydin Nazmi to the Developmental and Reproductive Toxicant (DART) Identification Committee. As a member of the committee, Nazmi will review hazardous materials on the Prop. 65 list. This list contains chemicals that are linked to cancer, reproductive harm and birth defects. The identification committee will focus on chemicals federal or international agencies have not previously reviewed.

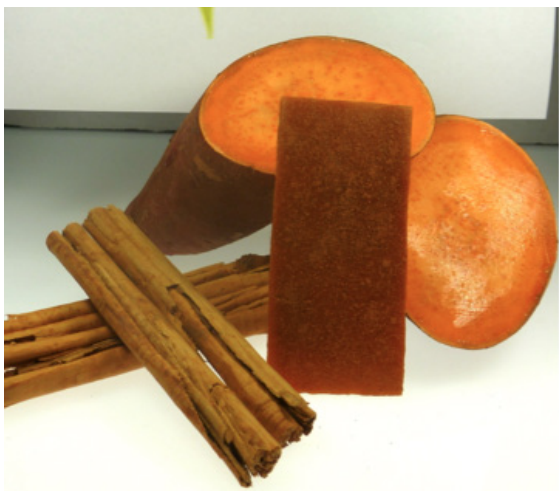
Nazmi served as a postdoctoral research fellow at the University of Michigan School of Public Health from 2008 to 2009 and as a Peace Corps volunteer from 1999 to 2001. He is currently the interim director of Cal Poly's Science through Translational Research in Diet and Exercise (STRIDE).

Veg This Way Impresses in 90 Seconds

BY Sabrina Muttillo, Brittnee Neuman, Kaitlin Munoz and Sara Rodich

Veg This Way, a vegetable leather food product developed by a team of food science students, emerged a winner in a recent university-wide competition. Developed to provide consumers with a healthy, ready-to-eat, on-the-go snack, Veg This Way contains one-and-a-half servings of vegetables. It is made by dehydrating sweet potato puree and seasoning it with cinnamon. Veg This Way was entered in the 2012 Ray Scherr Elevator Pitch Competition through Cal Poly's Center for

Innovation & Entrepreneurship. This competition required the team to write a 90-second pitch that explains the product while also explaining its importance in the current market. The pitch was given to a group of judges, who then chose the finalists. Veg This Way was chosen as a finalist in the Idea Cloud section of the competition. The pitch was then given again at the final round to another set of judges, who selected Veg This Way as the competition winner.



Veg this way is made with sweet potato and seasoned with cinnamon



Meet the Veg this Way team: Sabrina Muttillo, Kaitlin Munoz, Brittnee Neuman and Sara Rodich (Left to right)



Brian Hampson, Professor Emeritus

On July 31, 2012, Professor Brian Hampson retired from Cal Poly, where he most recently served as professor of food science. Hampson joined Cal Poly in 1991, after having worked for the U.S. Department of Agriculture's Agriculture Research Service from 1988 to 1990, and McCormick Corp.'s Gilroy Foods Division from 1990 to 1991. In both capacities, Hampson held the position of microbiological scientist. Hampson originally hails from Waukegan, Ill., and attended the University of Illinois, Urbana-Champaign, where he earned a bachelor of science in genetics and human development in 1981, a master's degree in biological sciences in 1983, and a doctorate in food science with an emphasis in food microbiology in 1988. In addition to teaching numerous courses to thousands of students over 21 years, Hampson researched the application of ozone in food processing and the cultivation of algae for food, feed and fuel. He is our new professor emeritus and will help us build our research portfolio.



Amy Lammert Joins FSN



Amy Lammert is the newest addition to the FSN family. She is joining the faculty with extensive experience in teaching, industry, research and service. Lammert earned her Master of Science and doctorate in food science from the University of Illinois at Urbana-Champaign with a focus on food chemistry. Lammert then began her career at Unit/Wesson/ConAgra Grocery Products in Fullerton, Calif., where she worked as a rheological scientist and product developer,

troubleshooting product and process issues and obtaining five patents.

Lammert next served as an applications scientist with PepsiCo's Quarter/Tropicana/Gatorade Functional Nutrition Team, screening ingredients that had specific nutritional benefits and making recommendations about the functionality of those ingredients in PepsiCo food and beverage products. In 2008, Lammert became the senior dairy ingredients applications specialist at Cal Poly's Dairy Products Technology Center. There she developed several prototypes, including high-protein, milk-based recovery beverages; reduced-fat ice cream with probiotics; and a culinary-style "pepper jack and mac." Currently Lammert is working on two research grants: one with Cal Poly professors Amanda Lathrop and Nana Farkye on low-sodium mozzarella cheese; and a second with industry on the influence of emotion on food product liking and texture, using words and images.



Brenda Flood Moves to Engineering

Brenda Flood recently transferred to the College of Engineering to fill the position of advancement coordinator. She worked for FSN for more than four years. As administrative coordinator of the FSN Department, Flood went above and beyond to ensure the academic success of students, to coordinate various fundraisers with clubs, to assist with the planning of Savor the Central Coast, and more.



Pamela Montalban Appointed new Admin Coordinator

Please welcome Pam Montalban to the department. She has been an administrative coordinator at Cal Poly since 2009, previously in the Horticulture and Crop Science Department.

Graduate Research: Low-Salinity Tank Cleaning

BY Kyle Manchester

Photograph by Dinh Luu

I started my master's in food science at Cal Poly winter quarter 2012, working for Department Head Gour Choudhury on a project to lower the salinity of food and wine processing equipment cleaning effluents. California has more wineries and food processors than any other state in the country, and the San Joaquin Valley is home to many of these facilities. One of the most significant environmental issues in the Central Valley is the accumulation of salts that negatively affect water quality in the area. Wine and food producers in the San Joaquin Valley are among the greatest contributors to environmental salt buildup in the area. Up until this point, the majority of work on this subject has been focused on methods of reusing or treating wastewater, but the contribution we hope this research will make is to mediate salinity buildup by reducing the use of saline cleaning solutions and reducing or eliminating the need for treatment and disposal.

My research is examining the use of a high-pressure water-wedge designed to penetrate underneath food and separate it from the equipment surface. I hope to have answered a number of important questions by the end of my program, such as: what are the parameters that can be adjusted to most efficiently clean with the wedge, and what values should those parameters take to maximize effectiveness? Does the water wedge clean equally well compared with traditional methods of cleaning? To what extent is the effluent improved in terms of its salinity, organic load, and pH? To measure the cleanliness of test surfaces, I adapted a total organic carbon-swabbing method from the pharmaceutical industry in which all of the organic carbon picked up on a swab is converted to carbon dioxide under extreme heat. Then it can be measured easily, regardless of the original form of the organic carbon.



Graduate Perspective

The experience I've gained working with Dr. Choudhury and the professors in the department has gone a long way toward my professional and personal development over the last year. I've learned a lot about what it means to work independently and how to tackle challenges that inevitably come up doing research, which I know will be instrumental to my future success. Setting achievable goals, planning, and working with other departments and students to complete those goals are all skills I feel fortunate to have developed over the past year. One of the advantages of being a grad student in a predominantly undergraduate department at a predominantly undergraduate university is the close relationships I've been able to develop with many of the staff and faculty. The diversity and depth of knowledge and experience in our department is an important asset to everyone who studies here. On multiple occasions, the answer to a problem that I've been struggling with for days or weeks ends up being answered by a professor or technician who just happens to be somewhat of an expert on that particular subject. Finally, all the close relationships with Cal poly's industry partners will be helpful when I look for a job, and I also appreciate the direct influence that industry has had on my thesis work. I know that what I'm working on is important to the industry, and that knowledge motivates me and gives me a level of satisfaction with my research that I wouldn't have without those ties.

Left to Right: Luiz Mazul, Department Head Gour Choudhury, Olivia Anderson, Anna Nakayama, Simon Zhao, Adam Yee and Garrett Morris enjoy a delicious home-cooked meal and each others' company at the department get-together.



FSN Family Celebration

Homemade

Supplies

keg
carbon dioxide tank
pressure gauge
plastic hoses
Clean and sanitize all equipment with soap and hot water to prevent microbial contamination

Ingredients

2.5 gallons water
2-4 tbsp root beer extract*
5 cups sugar
1 tbsp vanilla extract
1 tbsp molasses

Mass Production Version

1. Combine all ingredients and mix until the sugar is dissolved.
2. Place root beer in a keg and add 30-35 psi of carbon dioxide.
3. Place in refrigerator for two days. The colder the refrigerator the better.

(If you don't have a keg and a case of carbon dioxide, try the DIY version.)



*found at local brewery supply shops

Recipe

Recipe provided by Adam Yee

Supplies

Any air-tight container (i.e. bottle with cap)

Yeast Mixture

1/2 cup lukewarm water
1/4 tsp yeast

Root Beer Mixture

2.5 gallons water
2-4 tbsp root beer extract*
5 cups sugar
1 tbsp vanilla extract
1 tbsp molasses

Do-it-Yourself Version

1. Add 1/4 teaspoon of yeast in 1/2 cup of lukewarm water. Let yeast bloom.
2. Combine all ingredients and mix until the sugar is dissolved to create root beer mixture.
3. Add yeast mixture to root beer mixture in air-tight containers.
4. Leave in refrigerator for two days. The colder the refrigerator the better.

The yeast will undergo fermentation, producing carbon dioxide, which will be trapped in the air-tight container. Though a little bit of ethanol alcohol is produced, it is not enough to turn it into a beer. It may cause a "yeasty" flavor change.



The carbon dioxide will turn into carbonic acid, which will lower the pH of the root beer and cause a flavor change.



Lunch Menu

Salad

Orzo pasta salad with mozzarella, basil, tomatoes and red wine vinaigrette

Spring salad with candied walnuts, blue cheese and poached pears

Main Course

Muffaletta sandwich with olive tapenade, turkey, ham and a variety of cheeses

Caprese sandwich with pesto mayonnaise, tomato, lettuce and mozzarella

Little Italy sandwich with sun-dried tomato spread, peppers, smoked ham and provolone cheese

Dessert

S'mores cupcake with homemade marshmallow

Beverage

Fresh home brewed root beer



Food science Professor Brian Hampson tasting root beer brewed by Adam Yee.

Congratulations to FSN seniors!



Left to Right: Professor Arlene Grant-Holcomb with Anna Bassett, Sabrina Muttillio and Brittnee Neuman

Left to right: Jocelyn Ngo, Olivia Anderson, Kathleen Phi, Brett Story, Shirley Song, Trung Hoang, Julie Ucelli and Stephanie Ronquillo



Food for Thought: **Prof. Papathakis’ Research Aims to Nourish Pregnant Women in Malawi**

BY Jo Ann Lloyd

Photographs courtesy of Peggy Papathakis



"Sadly," writes food science and nutrition Professor Peggy Papathakis, "Malawi is ranked the world's third worst place to be a mother. In rural areas, about half the mothers deliver their own babies, many while en route to a clinic for that purpose. The country's maternal mortality rate is among the top 10 in the world; one in 36 mothers die related to pregnancy and/or delivery."

Papathakis noted those grim statistics on her blog while on sabbatical last year, three months of which were spent in Malawi gathering information for a study proposal on undernourished pregnant women.

Papathakis is collaborating with Mark Manary, a colleague at Washington University in St. Louis, Mo., who has already made enormous contributions feeding malnourished infants and young children with Chiponde, a concoction of peanut butter, nonfat dry milk, oil, vitamins and minerals made by Project Peanut Butter, a nongovernmental organization. Chiponde has saved thousands of lives throughout the world. It is 90 percent effective as the sole source of nutrition for recovery from severe malnutrition.

"There are no international standards to diagnose malnutrition in women," Papathakis said. With the goal of contributing to

international public policy development, she wanted to see what happens "on the ground" in a developing country. Malnourished people don't function at their optimum, Papathakis said, calling the situation a "huge human capital loss."

"I want to focus on policy-relevant research in nutrition," she said. "I want to fill that gap. I went to Malawi to study pregnant women. It is a small, very poor but safe country."

And primitive. "The clinic is under a tree, and the office is the back of a truck," Papathakis said. "I woke at 4:30 a.m. each day and was at the clinic by 7. Women were already lining up with their children. Some had walked more than an hour to get there."

"The United States Agency for International Development (USAID) is interested in looking at what we do for undernourished pregnant woman," Papathakis said. "We don't know the best supplement ... what's the most effective ... what helps them recover fastest." Papathakis, who has applied for an \$800,000 USAID grant, hopes to conduct a large-scale study to compare standards of care with a new product targeted to malnourished pregnant women. The grant would fund an intervention trial for 1,800 pregnant women with malnutrition in Malawi.

► story continues on page 16



Nurses test Chiponde acceptance with malnourished child.



Food models for diet assessment



Two Malawi mothers stir a com-based porridge.

It could also spawn other grants and additional international opportunities for nutrition, and other students and graduates. Last year, thanks to Manary and Project Peanut Butter, four Cal Poly graduates were able to work in Malawi for three months. Another recent grad is headed to Sierra Leone as part of the same program, and two more are going in March.

Papathakis' next goal is to develop a recipe, probably one similar to Chiponde using peanut butter as the protein. "First I've got to make it on paper; then I've got to test it," she said. "Is it something they could eat for a third of their daily calories?"



A brother and sister wait in line for nutrition assessment



Mothers line up for daily check-up



Peggy Papathakis (Left) and Kelsey Ryan, food scientist



WHO comes calling

BY Jo Ann Lloyd

Professor Peggy Papathakis spent four of seven months of her sabbatical last year in Geneva, Switzerland, as an invited member of an elite World Health Organization committee convened to develop the first nutrition guidelines for people infected with tuberculosis.

After reviewing the evidence and collaborating with the other committee members, Papathakis wrote the first draft of the 73-page "Guidelines for Nutritional Care and Support for Patients with Tuberculosis."

While reviewing the evidence, Papathakis experienced an "ah ha" moment. "The biggest message is there is a lack of evidence on nutrition and TB," she said. "I reviewed tons of literature on the energy needs for those with HIV. There was evidence on more than 3,000 patients. With TB, however, there was only evidence on energy requirements on a total of 30 TB patients."

And studies on TB ended in the 1970s because the anti-TB drugs in widespread use were so powerful, the malnutrition associated with the disease was no longer considered a problem. "But now, even with the drugs, we are seeing nutrition is important again. It needs further study; we are hoping a renewed interest in studying nutrition and TB will emerge," Papathakis said.

Editor's Note: At the time of this writing, the first draft of "Guidelines for Nutritional Care and Support for Patients with Tuberculosis" remains confidential and had not been released. Papathakis was hoping WHO would release the new guidelines at an international lung meeting that was to be held in November in Kuala Lumpur, where she was to present literature review findings.

> IN SUPPORT OF EXCELLENCE

The Food Science and 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. We thank you for all that you do.

David B. and Ruth E. Aine
Ray D. and Sandra A. Akrawi
Mary J. Aleman
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Christine M. and Robert E. Bisson
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Jim R. and Sally B. Brooks-Schulke
Kristen L. and Michael T. Bruce
Gerald W. Carlson
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Maureen S. Chestnutt
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Barry I. McConnaughey
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Charles B. and Flavia Muttillio
Larry L. and Patricia M. Newby
Marissa A. Nowakowski
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Kerry E. Pearson
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JoAnn Porcaro
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William A. and Susan L. Russell
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Stephanie K. Schneider
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Michael F. and Barbara A. Shenson
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David C. Sonderegger
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Sherrill S. and Michael G. Smith
Bruce T. and Stephanie J. Sneed
Susan G. Spencer
Teresa Stanley
Marjorie C. and Sam O. Sue
Deborah A. and Jon A. Tomita
Cara E. Vainish
Hans J. and Carla M. Wagner
Brent R. and Sarah K. Wells
Rachael M. Willey

Food Fit for Space Travel

Interview with Food Science Alumna: Monica Leong

Q: Tell us about your journey from Cal Poly graduation to your current professional role:

A: Before I attended Cal Poly, I earned an associate's degree in general science at a city college in Chicago. I attended the University of Washington for about five quarters, originally planning to get my B.S. in biochemistry and my M.S. in food science. That didn't quite work out. The style of teaching at UW was not for me. I decided to transfer to Cal Poly to get my B.S. in food science. That was the best choice I made for my academic career. Throughout my several years of schooling, I worked full time at Trader Joe's and often found myself busy with school or work about 75 hours a week (adding up class, labs, homework, work and commuting times). I don't necessarily encourage others to work as much as I did if they can avoid it, but working a part-time job makes you appreciate your education so much more, and it really does prepare you for your first career after college. One of the questions I was asked at my interview was to describe a conflict resolution in a workplace. How many recent college grads can answer that if they never had a job while in school? There are some skills you can't learn from a Powerpoint presentation or a book. You learn these skills through experience — just like the school motto says, Learn by Doing. I applied for this job while taking a break from editing my senior project and decided to peruse Mustang Jobs. I saw the listing for this job, and thought to myself, "How cool would it be to work for NASA? I should apply for this." I did and I took the job.



Freeze-dried Ice Cream | Evan Amos

Q: How did your years at Cal Poly prepare you for what you are doing now?

A: Cal Poly provided me the intellectual tools to succeed at my job. I have had to apply a little knowledge from every food science class I took. My crazy 75 hour/week schedule forced me to become more organized with my time and to make every second count toward my goals. You can score the highest score in a standardized test and be the smartest person in the world, but if you have no social skills and cannot communicate properly to peers and co-workers, you will have a tough time succeeding. That is why I really valued my time at Trader Joe's; working with that company for eight years really gave me confidence in myself as a worker and a learner. When I worked with 100 other people to run and manage a store, I learned how to be a team player. Sometimes, you have to work with people who are just not very easy to work with. They might skip group meetings and not do their part, and you end up having to fix their late submissions because you don't want your group grade to go down.

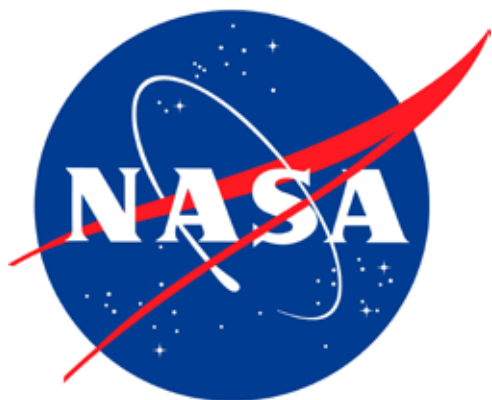
"It's very **rewarding** when the astronauts come back for a debriefing and tell us that they enjoyed our food while aboard the International Space Station."



Space Food | Giorgia Zanellato

Q: What do you find most rewarding about your current assignment?

A: First of all, I work with space food, which is very enjoyable. I've been challenged with a few projects, mostly involving process improvement and product development. I get to make and taste the space food, meet astronauts, and be a part of the team that keeps astronauts alive and healthy in space. It's very rewarding when the astronauts come back for a debriefing and tell us that they enjoyed our food while aboard the International Space Station (ISS). Another great part of my job is that even though I have graduated, I am still learning. As a research food scientist, my job requires me to spend a lot of time going through journal articles and applying that information to the studies we are currently conducting. We do a lot of freeze drying here in our pilot plant, and despite how much I retained from FSN 474, there is no way I could do my job with just that basic knowledge. I love that I can keep learning at my job, not only from my research but from the other scientists and engineers with whom I work.

**Q: Do you have any advice for students who are about to embark on their own adventures after graduation?**

A: Be a confident and effective communicator. Know the science, and show 'em you know it! When I asked my colleagues why they offered me the job and not one of the two other candidates (who were recent grads from MIT and Cornell), they said it was because my core sciences were strong, and they liked my confidence. My other piece of advice is not to settle for any old job right away. If you've had an internship already, you should be expecting much more out of your first career. Always remember interviewing is a two-way street. You have to make sure you want to work with them as well. Do not be afraid to ask questions. In fact, a lot of interviewers listen to your questions and judge how thoughtful they are. My second interview with NASA lasted five hours. After two hours of questions, we went out to lunch, and then I took a short tour around the labs and building. I was so nervous walking in, but by the time I left, I forgot I was even at an interview! I wanted that job even more at that point.



Monica Leong (Food Science '11)
Concentration: Advanced Food Science

Q: What are your greatest challenges at NASA?

A: The answer is space food! Space food encompasses a completely different set of challenges than any other part of the commercial food industry. We do not worry about how much ingredients cost — the astronauts will eat only the best. We do not have to conform to the demands of a marketing team like so many other companies do. We just make space food. And we make sure it tastes good, is safe, and has a long enough shelf life. It's not always that simple, though. By 2030, NASA hopes to launch a mission to Mars, which is approximately a two-year mission. Currently astronauts do not typically spend more than six months at a time in space, and even still, it is at relatively low orbit. We are able to send cargo vehicles to the station. If we go to Mars, we will not have that luxury. We are currently working on a project to develop a bioregenerative system on Mars. Basically that means we want to grow fruits and vegetables on Mars in a hydroponic greenhouse. Right now, astronauts primarily eat pre-packaged foods, either rehydratable or in a thermostabilized pouch, but on Mars, they want to combine those foods with greenhouse vegetables and fruits. We can. And we are working hard to come up with solutions to minimize the risk of these missions. This is just one example of the many challenges of space food. Luckily, we just concern ourselves with the food.

Nutrition Club



MISSION STATEMENT

To educate the community on how to live a healthy lifestyle and the benefits of a balanced diet. We also provide a professional and social networking system for students interested in nutrition and give them the opportunity to explore different realms of nutrition.

COMMUNITY INVOLVEMENT

At the beginning of this year, some of our club members participated in the Hunger Walk in San Luis Obispo put on by the Food Bank to "end hunger one step at a time." We also had members participate in the NEDA (National Eating Disorder Association) Walk in November to raise awareness about eating disorders. Many club members also attend meetings for the Coastal Tri-Counties District of the California Dietetic Association. At these meetings, our members meet and network with nutrition professionals throughout the Central Coast. In the past, we have volunteered at the Wildflower Triathlon and hope to volunteer in the years to come!

ON-CAMPUS ACTIVITIES

Our club provides a great networking system for our members. We invite guest speakers to our meetings to share their experiences in the nutrition field and help us explore the many career paths available in our field. Many of our speakers provide volunteer and job opportunities. For example, many of our club members worked at Bearskin Meadows Diabetes Camp during summer 2012.



CONTACT US

If you would like to be a guest speaker at one of our meetings or if you have internship or job opportunities, please contact us at calpolynutritionclub@gmail.com.



ABOUT US

Global Food Tasters is the newest club in the Food Science and Nutrition Department. We cook, eat and explore cultures from all over the world. So far we have tasted the exotic flavors of Thailand, went to the South for some comfort food, and decided to battle it out in an "Iron Chef" competition. Our club aims to teach students about the diverse flavors of the world, along with some basic cooking skills. In addition to our meetings, you can find us roasting marshmallows on the beach and selling baked goods on Dexter Lawn. So join us next quarter as we travel the world one plate at a time. Be on the lookout for our next big event: A mash-up of "Iron Chef" and "Chopped," where teams will compete to create a dish using a basket of secret ingredients.



MISSION

Our club provides Cal Poly with a new way of exploring and enhancing students' communication skills through a creative outlet that is accessible to all Cal Poly students and staff.



CONTACT US

If you would like to be a guest speaker at one of our meetings, or if you have internship or job opportunities, please contact us at globalfoodtasters@gmail.com.



Emerging Food and Nutrition Institute Moves *Forward*

BY Jo Ann Lloyd

All it took was a year. And a great deal of thought, work and planning.

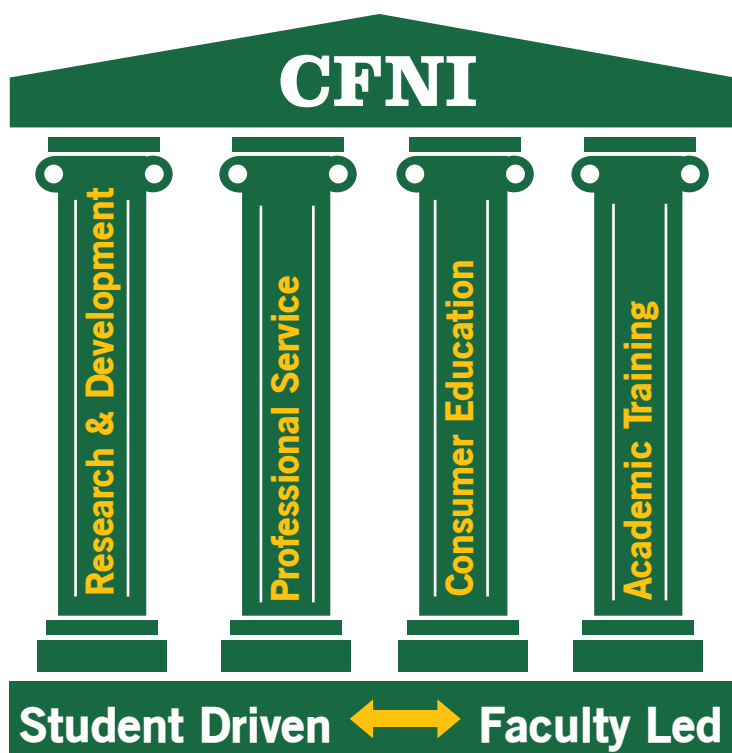
When Food Science and Nutrition Department Head Gour Choudhury came to Cal Poly in summer 2011, his ambitious plans for a statewide research and training center seemed like a project that would take decades to realize.

But just a year later, 11 students were conducting research and testing and perfecting products in the inaugural Summer Internship Program, the first step in Choudhury's plan to create the emerging California Food and Nutrition Institute (CFNI).

Choudhury envisions the CFNI as the state's research and training home for the food processing industry. "The student-driven, faculty-led programs will be a cooperative effort between the CFNI and the food and beverage industry to promote sustainable, value-added food processing," Choudhury said. It will be a center of excellence for research and development, and it will provide professional services, consumer education and academic training.

Choudhury also expects industry to use the facility and faculty expertise to develop nutritious food products, and to manufacture, test market and educate consumers about them.

The institute will create opportunities for faculty and students in the colleges of Agriculture, Food & Environmental Sciences; Engineering; Science and Mathematics; and the Orfalea College of Business. The institute has already initiated one new major: food plant operations and management. "This proposed major is something we developed with a great deal of input from industry, and they are excited about its prospects," Choudhury said.



The California Food and Nutrition institute focuses on research and development, professional service, consumer education and academic training.

In the Lab

Student interns conduct research on variety of projects

Department Pilot Plant Manager Brandon Coleman (Food Science '09) ran the first Summer Internship Program, overseeing 11 students working — and getting paid for — 40 hours a week.

They worked in industry-supported projects, grant-funded projects, and projects to expand Cal Poly's current food line. Thanks to the work accomplished, two new products were added: cherry jam and barbecue sauce.



Far left: CFNI team (Back row, left to right): Shoshanna Cantor, Matt Goldstein, Toni DeSenna and Kyle Manchester. Center Row: Adam Yee, Anna Nakayama, pateel Krikorian, College of Agriculture, Food and Environmental Sciences Dean Dave Wehner, Lesley Gamper, Luis Mazul. Front Row: Kelsey Harms



In a Nutshell

Students Kelsey Harms and Luis Mazul developed several tree nut products, working to perfect the flavor and consistency, figuring out moisture content, pH content, acidity. "Do we add citric acid or lemon juice to address the pH?" wondered Harms. Turns out lemon juice created better color and lowered the pH level.

"To figure out which process produced the best product, we tried different approaches," Harms said. "We had to go through the hot-fill process — it has to be hot enough to kill microbes — but what effect does the heating have on color, texture, taste?"

"We made tiny tweaks every day," Harms continued. "The process was slow and tedious, and we encountered many problems and roadblocks."

But the experience gave the students a glimpse into professional practice. "It was close to a real-world job," Harms said. "I learned that product development and research and development take a tremendous amount of work. It sounds glamorous and creative and wonderful, but sometimes it's exhausting."

As an undergraduate, Pilot Plant Manager Coleman was always looking for opportunities to be involved with the food industry, but there wasn't much available. "To supervise a team of students and coordinate efforts with industry and the department was a joy," he said. "The best part was seeing how much the students grew. Their repertoire of capabilities, knowledge and skill level increased vastly because of the experience with various products and processes."

► story continues on page 26



Middle Left: Matthew Goldstein and Shoshanna Cantor obtain the refractive index of their sample.

Left: Lesley Gamper and Shoshanna Cantor mix ingredients in the steam kettle.



PROFESSOR'S RESEARCH GIVES STUDENTS

LEARN BY DOING EXPERIENCE

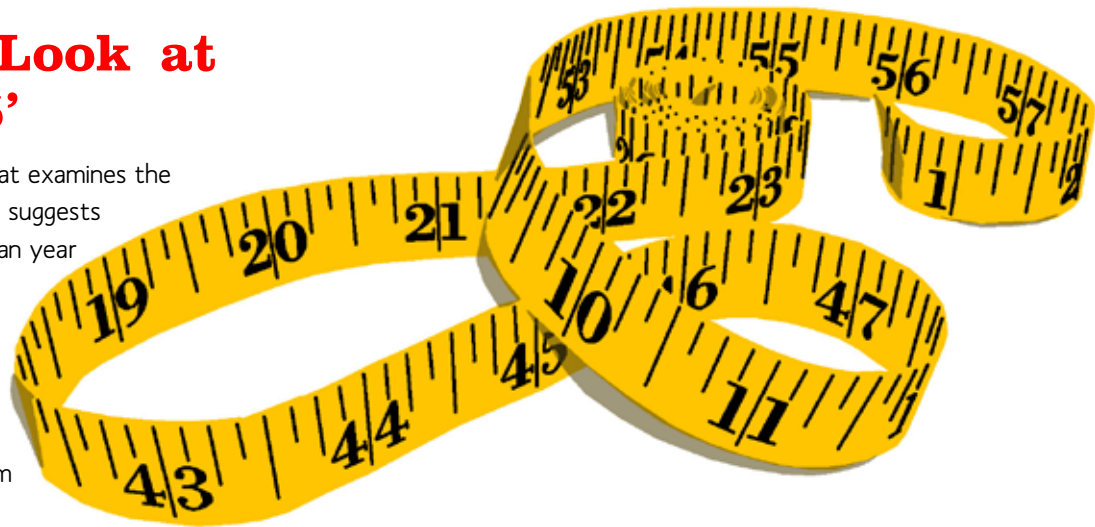
BY Laura Hall & Jo Ann Llyod
Photographs courtesy of Laura Hall

FSN Professor Laura Hall is conducting several research projects with FSN graduate students Adrienne Pride, Marisa McAdler and Alison Bushnell, and more than 15 undergraduate students. Students are gaining valuable hands-on experience with research that exemplifies Cal Poly's Learn by Doing philosophy.

Taking a Fresh Look at the 'Freshman 15'

Hall and Pride are working on a study that examines the veracity of the "Freshmen 15" theory, which suggests students gain 15 pounds during their freshman year of college. The study, titled "Perception of Resting Energy Expenditure (REE) in a Subset of Freshman Students from the FLASH College Health Study," is a collaboration with kinesiology Professors David Hey, Ann McDermott and Todd Hagobian, all of whom are part of the university's STRIDE (Science through Translational Research in Diet and Exercise) program.

"We looked to see if Cal Poly students put on pounds their freshman year, and if they did, what contributed to their weight gain," Hall said. In fall 2011, she enlisted student volunteers to assess energy (calorie) needs based on height and weight, body composition (fat and muscle), diet and physical activity. They repeated the exercise in spring 2012.



The Sunshine Vitamin Can it Reduce Diabetes Risk?

Hall and McAdler are working on "Vitamin D Status of Obese Adult Women and the Effectiveness of Vitamin D Supplementation on Improving Vitamin D Status, Insulin Sensitivity and Markers of Inflammation" with FSN Professor Scott Reaves, FSN grad student Tiev LaGuire, and Mary Oates, M.D., research physician for the College of Agriculture, Food & Environmental Sciences and the FSN Department, along with UC Davis Professors Sean Adams and Charles Stephensen.

They are looking at the vitamin D status and insulin sensitivity of obese adult women and measuring how effective vitamin D supplements are in improving their insulin sensitivity and lowering their risk of diabetes.

► story continues on page 26



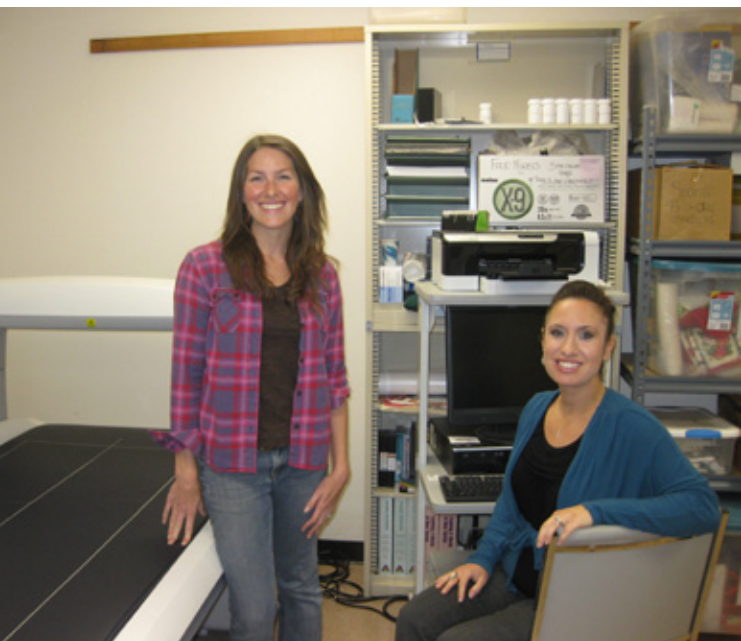
Shelby Benci (FSN alumna Spring 2012) and Adrienne Pride (FSN Grad Student) holding food models used in the study

"We also wanted to see if students knew and understood their calorie needs," Hall explained. "We asked students to estimate their REE, then we measured their actual REE and the calories they consumed to determine if they were overestimating the calories they need."

"So far, we've found that 39 females gained 2.5 pounds and 3 percent body fat over their freshman year and overestimated their calorie need by 150 calories a day," Hall reported. "Our ultimate goal is to find ways to help students maintain a healthy weight throughout their college years."

Funding for the project was provided by an Agricultural Research Institute Grant.





FSN grad student Marisa McAdler and Professor Laura Hall next to DXA machine in Nutrition Assessment Lab

...continued from page 25

The study is being conducted as a randomly assigned, placebo-controlled, double-blind intervention with a vitamin D supplement (4,000 IU) over six months. "We are measuring body composition and bone density using our Dual Energy X-ray Absorptiometry (DXA) machine," Hall said. "We are also measuring anthropometrics (i.e., weight and waist circumference), vitamin D status, glucose, insulin, inflammation markers and fats in the blood."

They are also looking at dietary vitamin D and calcium intake, sun exposure and exercise and determining how all the study factors relate to each other. "The goal," said Hall, "is to establish ways to promote insulin sensitivity in obese people and decrease diabetes."

Grants from the Agricultural Research Institute, the UC-CSU Collaborative, and the Medical Nutrition Practice Group funded the study.

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This Jam's Cherry!

As manager of Cal Poly Jam, the campus jam enterprise, sophomore Matthew Goldstein was confident he could make cherry jam. But he and partner Shoshanna Cantor discovered not all fruits are created equal.

Goldstein is familiar with making Cal Poly's flagship strawberry and olallieberry jams. But he had to start from scratch with the cherries. "The usual recipes just didn't work," he said.

Cal Poly alum Steve Ernst (Crop Science '93), whose family owns a cherry orchard, supplied the cherries. "We had a test run, and it didn't go well," Goldstein admitted. "Cherries have very different sugar, water and pectin content than the berries I was used to dealing with."

"We tried the cherries using the strawberry recipe," he continued. "It didn't work. It was runny; the flavor was off. Strawberries have a very delicate flavor, aroma. They can't be cooked too hot or for too long."

Goldstein thought cherries would be

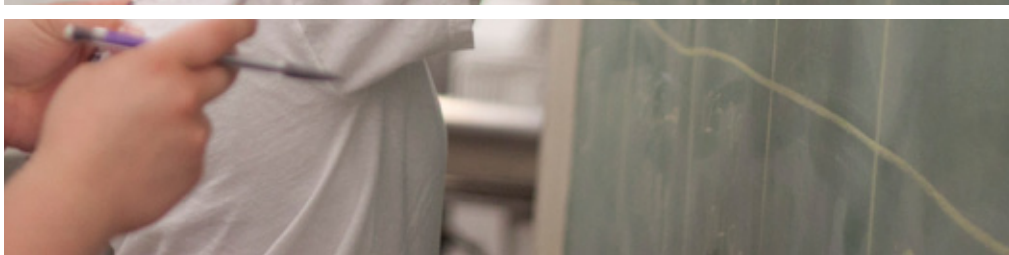
the same. Turns out, every recipe has to be tailored for each fruit, and he had to develop the jam from scratch. Researching recipe books and talking to friends, he finally nailed down a recipe using tart cherries instead of the sweet variety. "With tart cherries you get that full mouth feel from the jam."

He started with a small stock pot and scaled down recipe and kept increasing the batches, using bigger and bigger equipment. "I just kept multiplying the recipe, and it worked," he said.

They are now making 600 jars a week in two huge kettles that each hold 210 pounds of cherries plus 250 pounds of sugar.

The internship gave Goldstein the opportunity to develop standardize procedures and streamline processes to better manage the Cal Poly Jam enterprise. He was also able to develop a business plan. The result is a consistent production and staff members who are properly trained in production and safety techniques.





Fund the Future

We invite you to enhance the vision that is at the heart of the university's educational enterprise: supporting students. A vast majority of Cal Poly students receive some form of financial aid. For these deserving students, the generosity of donors make it possible for them to attend Cal Poly and take advantage of the university's unique educational experience.

Scholarships provide direct support to students in the Food Science and Nutrition Department. There are three ways to make a donation to an FSN Scholarship: fill out the form below, give online at giving.calpoly.edu, or call us at 805-756-1555.

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Support academic excellence by contributing to one of our Food Science and Nutrition scholarships:

- ☐ **Bob Noyes Student Development Scholarship** provides future food industry students with opportunities to develop leadership and professional skills.
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- ☐ **Charles O. and Helen B. Penwell Scholarship Endowment** benefits students with an interest in dietetics.
- ☐ **William, Joseph and Charles Cattaneo Memorial Scholarship** provides financial support for qualified food science and nutrition students.
- ☐ **Ruth A. Hitt Memorial Scholarship** provides financial support to qualified food science and nutrition students.
- ☐ **San Marcos Grange scholarship** offers financial support to food science students with a preference to students with a 4-H, FFA and/or Grange background.
- ☐ **Mimi Russell Memorial Scholarship Endowment** provides financial support to qualified food science and nutrition students.
- ☐ **Support Excellence in Food Science and Nutrition** provides funding to enhance student education, student work experience, new equipment, lab materials, and student travel and leadership.
- ☐ **Cal Poly Chocolates** provides funding for student work experience, student travel to conferences, and new equipment.

CAL POLY

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