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Penn State Food Science Program Reaffirmed as one of World's Best

Penn State News



Penn State student Emily Caldwell works in Penn State's famous Berkey Creamery

Penn State's Department of Food Science recently received re-approval of its undergraduate program from the Institute of Food Technologists (IFT). The recognition verifies that the university has one of the premier food science programs in the country.

The application for the IFT certification outlined the Food Science Department's ongoing efforts to continuously improve its curriculum and student learning, according to John Floros, professor and head of the department.

"After a lengthy and time-consuming process, IFT's higher education review board reviewed our application and announced that it had approved our program for the next five years," he said.

"IFT approval signifies that our program provides students with the core competencies that meet the needs of our profession in industry, government and academia, and that our students are well-equipped with the scientific, technical, problem-solving and communication skills, as well as other interpersonal and leadership qualities required to excel after their graduation from Penn State."

Founded in 1939, the Institute of Food Technologists is a nonprofit scientific society with 20,000 individual members working in food science, food technology and related professions in industry, academia and government. With offices in Chicago, Ill., and Washington, D.C., it champions the use of science across the food value chain through knowledge sharing, education and advocacy, encouraging the exchange of information, providing both formal and informal educational opportunities, and furthering the advancement of the profession.

A Sweet Career Food Science Grad Relishes Hershey Job

Nicole Puhlman, Writing Intern



Andy Hirneisen

The food industry is a great field to be in because no matter what the economic climate is, people are always going to eat, according to Andy Hirneisen, a 2007 Food Science graduate who now works for The Hershey Company.

He currently works in the microbiology lab for the candy maker, assuring that “Hershey’s products meet the company’s high quality and safety requirements.”

While he was a student in the College of Agricultural Sciences, Hirneisen, who minored in German, twice studied abroad through Penn State. The first trip was to Switzerland and Italy, and the second was to Costa Rica.

“The Hershey Company manufactures and sells candy all over the world, so I think being exposed to different cultures and seeing food-manufacturing facilities in other countries and comparing them to facilities in the United States was definitely a plus for me,” he said.

Hirneisen landed the job at Hershey after completing an unpaid internship with the company during college. “I heard about the internship when someone from Hershey came to a Food Science Club meeting,” he said. “Getting that experience was really important.” Hirneisen always liked science in high school and noticed how broad the food science field is. “There are a ton of opportunities for different career paths,” he said.

“The Food Science department at Penn State exposes students to a wide variety of courses from many different disciplines. Even though I work in a microbiology lab, I still use principles from the chemistry and engineering courses I took.”

His advice to current and future students? “Network, network, network!”

Starting with Cereal Food Science Major Interns with Kellogg Company

Porsha Robinson, Writing Intern



Agnes Lim

If breakfast really is the most important meal of the day, then Penn State Food Science major Agnes Lim is a very important person.

The senior landed two internships with the Kellogg Company, the world’s leading producer of cereal and other nutritious breakfast foods, in the fall of 2008 and summer of 2009.

A native of Indonesia, she left her family there in 2006 to pursue her love for food and to conquer a foreign tongue. “I really like learning chemistry, and I also like learning about the flavor and the color changes in food, so I thought it would be interesting inventing and developing new foods,” she said. “Also, because English is not my native language and it’s a language I’ve always wanted to speak fluently, I decided to come to a country where it is spoken.”

Lim’s first internship with Kellogg was in Memphis, Tenn., and the second was in Muncy, Pa. During her internships, she participated in hands-on activities that taught her about both the science and the business aspects of food production.

Lim’s duties included developing new food products and food packaging, assisting the production process, monitoring the quality of the food following production, and of course, eating breakfast. “While in Tennessee, I was a food technologist intern, and I worked on a project that essentially introduced fiber to Fruit Loops, making the cereal more wholesome,” she said.

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Science-U Camp 2009

Dr. Catherine Cutter, Professor of Food Science

In late July, faculty, staff, and students from the Department of Food Science conducted a week-long science camp for 26, eighth, ninth, and tenth graders entitled “Natural Born Killers: Food-Borne Illness and the Microbial Menace.” The Science-U camp was the first program of its kind offered by an academic unit within the College of Agricultural Sciences and in collaboration with PSU Eberly College of Sciences.



Catherine Cutter works with high school students at Science-U Camp

In this camp, food microbiologists-in training were introduced to the food system by visiting the PSU Mushroom Farm, Creamery, Meats Lab, and Café Laura. Campers learned what steps go into harvesting some of our food from plants and animals and what it takes to make our foods safe and wholesome. When things go awry—and they can—food microbiologists-in training learned the skills needed to determine the source and cause of the contamination including laboratory methods in microbial forensics that are required to identify, track down, and eliminate the offending organism(s). Along the way, the campers honed their interrogation and communication skills which they put to use when they participated in a mock trial in the new PSU Law School. Campers had to convince a judge and jury that their laboratory investigations and resulting evidence could implicate or defend the perpetrator(s) of the outbreak. Based on the feedback from the campers and parents, the Science-U camp was well received. Plans are in the works for another offering of the Food Science camp for June 21-25, 2010!

“When I was in Pennsylvania, I learned more about production and making the manufacturing process more efficient by creating new, less-costly packages for Nutri-Grain bars.”

In both plants, Lim got to do one of her favorite things—eat. “In Tennessee, I had to taste cereal everyday as part of my work—it’s called quality check. I would taste all the cereals repeatedly every day, with no milk, and I would have to make a call—does it look good, does it taste good, etc.?” she said. “It was the same in Pennsylvania, but with Nutri-Grain bars and Pop-Tarts.”

The internships have given Lim insight into life after graduation. “They have helped me figure out what I want to do and what I don’t want to do,” she said, “They taught me about the business, the marketing, the human resources and the labor side of food production.”

Lim hopes to attend graduate school after working for a year or so. She intends to acquire all the knowledge she can so she can fulfill her main career goal back at home. “I want to have my own food company in Indonesia someday,” she said. “I want to produce something with fiber that Indonesians can eat every day. I want to use the knowledge I acquire here and take it home. I love and miss Indonesia, especially the food.”

Ironically, if given a choice, Lim would skip breakfast and go straight to desert. “My favorite American food would have to be ice cream,” she said, “I also like smores and pumpkin pie—basically all things sweet.”

Tawfik Sharkasi named Outstanding Alumnus by College of Ag Sciences



Tawfik Sharkasi

Tawfik Sharkasi of Chicago, Ill., is one of six people to receive a 2009 Outstanding Alumni Award from Penn State's College of Agricultural Sciences. The award recognizes outstanding achievements and provides opportunities for recipients to interact with faculty, students and other alumni.

Sharkasi, vice president and chief science and technology officer for William Wrigley Jr. Company, graduated from Penn State in 1984, earning a doctorate in Food Science. He received his bachelor's degree from the University of Tripoli, Libya, and his master's degree in 1979 from Washington State University, both in Food Science.

Sharkasi has 25 years of global experience in management of food manufacturing and Research and Development for top companies such as Nestle, Kraft and PepsiCo. His record of successfully coordinating research, technical and product development functions with marketing, production and finance has solidified his professional reputation in the food science industry.

In his current position at Wrigley, he is responsible for delivering new and innovative technologies in gum and confections. He previously was the company's vice president of Research and Development. His background includes a wide range of food and beverage products for retail, fast-food and specialty markets, from development of strategic research and development plans to factory management.

A member of the Institute of Food Technologists and the American Cocoa Research Institute, Sharkasi holds five U.S. patents for food technologies.

"Dr. Sharkasi's standing in both the discipline of food science and within the food industry reflects brightly

not only upon his personal drive for excellence and devotion to service, but upon the university, the College of Agricultural Sciences and the Department of Food Science," said John Floros, head of Department of Food Science, in nominating Sharkasi for the award. "His willingness to serve as a member of the department's advisory board helps our program and curricula remain at the forefront of food science."

Peterson Receives Food Industry Group Student Leadership Award

Tom Dimick, Outreach Coordinator



Hilary Peterson

Hilary Peterson is the 2009 recipient of the Food Industry Group Student Leadership Award. The award was presented September 26, 2009, at the Food Industry Group Fall Board Meeting during the Annual Food Science Tailgate.

Hilary received her BS in Food Science in 2009. Hilary was an active member in the Food Science Club, the Penn State Ag Advocates, Ag Student Council, Institute of Food Technologist (IFT) Student Association, and Altas THON. Hilary served as Co-chair of AG Day 2009: Harvest to Household, a college event to promote agricultural awareness campus-wide. In addition, she served as Chair of the Awards Committee for the AG Student Council, Co-chair of Atlas THON Family Relation Committee, and Secretary of the Food Science Club. As a student, Hilary was the recipient of an IFT Freshman Scholarship and two Keystone IFT Scholarships and a number of department and college scholarships.

Hilary has been an active volunteer in Altas THON in 2006-2007 and as served as Co-chair in 2008 to raise money for the Pediatric Cancer Unit at the Hershey Medical Center. She has also participated at the Centre County Food Bank donation center and with Food Science Club food drives.

Penn State Berkey Creamery Milk Bottle Collection

Thomas Palchak, Creamery Manager

Penn State's Berkey Creamery is world-famous for its ice cream. This reputation makes it a much-loved landmark for students, families and visitors to Penn State's main campus. Artifacts and records of the Creamery can be found in their main office. Milk and ice cream containers, tokens, cheese boxes, bottle openers and even a reverse image of Andrew Borland are on display. These Creamery items from years past are less well-known to Penn Staters, and are seen by very few people.

Apart from these few pieces one particular class of objects is fervently sought by collectors of all things Penn State as well as other collectors throughout the country. The items coveted are glass milk bottles bearing Penn State identification from 1904 through 1960. The class-gift from the Agricultural Sciences class of 1953 is on display in the main lobby of the Food Science Building. Inside this glass display case is housed a magnificent and complete one-of-a-kind milk bottle collection of Penn State Creamery during that time.

Penn State Creamery milk bottles first appeared over a century ago in the Patterson Building (the third building to house the Creamery's dairy plant.) The year was 1904 and those first bottles didn't even include the words "Penn State." Instead, those very early bottles were labeled "State College Dairy" in raised letters. These bottles were mouth-blown at the time, having been made before the development of the automatic bottle-making machine. In addition to the 1904 bottle in the dis-

play case, one other such bottle can be found in the Creamery office in room 119 Food Science Building. In 1914 the name was changed to "State College Creamery." In 1932 the Pennsylvania Keystone was embossed on the side of the container. Pyroglazed – a type of silk screening- bottles used by the Creamery started in 1937 and continued until 1960. Pennsylvania State College was changed to Pennsylvania State University in 1953 and shortly thereafter State College Creamery changed their name to University Creamery. Pyroglazed bottles using various fonts of red lettering continued for several more years.

In 1958 the Creamery discontinued retail delivery of dairy products and so began the demise of Penn State's glass milk bottles. By 1960 the remaining glass bottles on hand were completely phased out and replaced by waxed, gable top cardboard containers. Glass bottles bearing the University designation were in-use for only seven years. Interesting to note is that Penn State University Creamery milk bottles are harder to locate than Penn State College Creamery milk bottles which were available in the early part of the century through 1953.



The milk bottle collection on display in the lobby of Food Science Building is on loan from the Penn State Pasto Agricultural Museum. It was created by Dr. Darwin G. Braund, a volunteer Curator of the Pasto Museum, who donated his private collection. Also on display is the first

book containing the general ledger and chart of accounts of "The Agricultural Experiment Station Creamery", dated 1894.

Note to our readers: An extremely rare quart-size Royal Ruby (red) "Borden" bottle is part of another milk bottle collection at Pasto Museum. This bottle was used to prepare milk samples for dairy product judging teams. It is one of only twenty-five that are known to exist.

Featured Faculty

Kerry Kaylegian, Director of Industrial Outreach and Pilot Plant Manager

Welcome to the Featured Faculty column. Our intent is to increase your awareness of the breadth and expertise of the Food Science Department.

Dr. Stephanie Doores



Stephanie Doores

Dr. Stephanie Doores, Associate Professor of Food Science, received her B.S. in Biology at the College of St. Elizabeth and her M.S. in Microbiology at the University of Maryland. To fill a course outside of her major as an M.S. student, her advisor suggested a course in a new major, Food Science. Stephanie's enjoyed the applied aspect of Food Science and it

was a good combination with her interest in pathogens. She obtained her Ph.D. in Food Science from the University of Maryland. Stephanie finished at Maryland on a Friday and started work as an Assistant Professor of Food Science at Penn State the next Monday, teaching Food Microbiology Lecture and Lab – which she continues to teach every Fall.

Stephanie's research at Penn State started as a continuation of her Ph.D. project investigating *Sporolactobacillus* in foods. It wasn't long before *Listeria monocytogenes* was discovered as a food borne pathogen, and her focus shifted. She studied the occurrence of *L. monocytogenes* in raw milk in Pennsylvania, its survival in ice cream and heat resistance properties. More recently she has looked at factors influencing the effectiveness of ultrasound technologies in inactivating *L. monocytogenes* in milk and meat products. Stephanie is investigating *Bacillus cereus* in raw milk and its impact on pasteurized milk shelf life. Her lab has developed a typing scheme for *B. cereus* and is identifying ways in which *B. cereus* can enter the processing stream.

Stephanie conducted a project with Dr. Bob Beelman to determine the cause of a staph enterotoxin out-

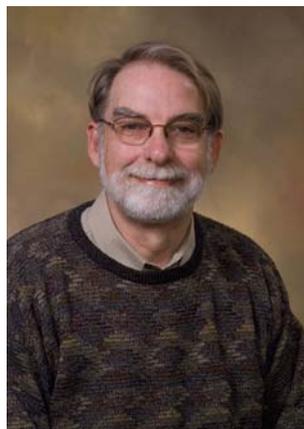
break in canned mushrooms. The investigation into a toxin that survives autoclaving was an exercise in creative problem solving and new ways of thinking about food microbiology and processing.

Stephanie is the Undergraduate Program Coordinator for Food Science. She has contact with all incoming students and helps get them started in their new academic program and college life. Stephanie continues to serve as a resource for our students throughout their undergraduate program in Food Science.

As part of this role, Stephanie is the primary contact for undergraduate scholarships, internships, and company job interviews. If your company is interested in supporting a scholarship, or you are looking for a summer intern, or a permanent employee, please contact Stephanie and she will help you. Summer internships/employment do not need to be within a formal "internship program" but can be customized to meet the needs of your company. Stephanie can be reached at 814-0863-2956, sxd11@psu.edu.

On a personal note, Stephanie enjoys gardening and has a well-attended yard that is the envy of her neighbors!

Dr. Robert B. Beelman



Robert Beelman

Dr. Robert B. Beelman, Professor of Food Science, received his B.S. in Biology from Capital University in Columbus, OH. Bob was introduced to Food Science during a conversation about a food science demonstration that one of his friends seen. Intrigued, Bob went to investigate and was offered a fellowship while talking to a

Food Science professor. Bob went on to get his M.S. and Ph.D. from The Ohio State University. Bob came to Penn State University as a faculty member in the Division of Food Science, which was then part of the Horticulture Department.

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New Sensory Scientist Dr. John Hayes



John Hayes

Dr. John Hayes, Assistant Professor of Food Science, earned his B.S. and M.S. in Food Science from Cornell. He then worked for California based DigiScents on the iSmell, a consumer grade odor delivery system. John conducted basic psychophysics research at a Yale-affiliated laboratory before entering a doctoral program at the University of Connecticut. At UConn, he

won the Pangborn Sensory Science Scholarship, and earned a Ph.D. in Nutrition and a graduate certificate in Quantitative Research Methods in Psychology. He then received training in alcohol and behavioral genetics as an NIH postdoctoral fellow at Brown in Providence RI. In 2009, he joined the Penn State Food Science faculty.

John's research explores why we eat the foods we do. He studies food choice within a biobehavioral framework, integrating traditional sensory science methods with behavioral genetics to understand biological factors that may cause individuals to like and consume some foods but not others. Special emphasis is given toward foods and beverages that have a strong potential health impact, like beer and wine, high fat/sweet mixtures, and phytonutrient rich bitter vegetables. He is also interested in the acquisition of preferences for initially aversive foods, like hot peppers or black coffee. Under his leadership, the Sensory Evaluation Center conducts more traditional testing of products to further mission of the department and training future food scientists.

John is excited to return to a Food Science Department because the field has a multidisciplinary tradition that emphasizes a critical balance between theory and application. In his free time, John likes to cook for family and friends, visit wineries, and of course eat. He also spends lots of time playing with his daughter Maggie and son Jack.

Bob started his research career focused on supporting the Pennsylvania wine industry. An outgrowth of this was the popular undergraduate course on Wine Appreciation and Technology that he taught for 15 years. There is still a strong wine component taught in Fd Sc 413, Science and Technology of Plant Foods, that Bob teaches every fall.

Bob's other main responsibility was to support the Pennsylvania mushroom industry, ranked #1 in the U.S. At the time the majority of mushrooms were canned, and Bob worked on improving processing technology and efficiency. More recently the industry has shifted to the fresh market. Bob, now an industry expert, holds several patents in improving mushroom processing and nutrition.

Mushroom nutrition is the centerpiece of Bob's research. Often thought of as having little nutritional value, Bob's research brings to light mushrooms as an important source of trace minerals and bioactives. His research on growth media and processing techniques moved mushrooms from the category of being a good source of selenium to being an excellent source of selenium.

Bob currently has 2 graduate students working on nutritional aspects of mushrooms. Ergothionine (ergo) is a compound of interest for its antioxidant properties. Bob's research has shown that not only are mushrooms the best dietary source of ergo, but that these levels can be increased in mushrooms through cultivation techniques. Bob is also working on the use of pulsed UV light to increase the Vitamin D content of mushrooms.

While Bob is thinking of retiring from the active professorial duties of teaching and committees, he is still very active in starting new programs. The next step for his mushroom research is to look at biofortification and using coffee processing waste to grow mushrooms in Africa. He is also focusing on starting a center at Penn State on the use of plant foods and mushrooms to improve human health.

Bob has a passion for the art of Bonsai. You can often see his trees in the Food Science Department office. He likes to travel someplace warm in the winter with his wife, and makes time for an annual trip out west for fly fishing.

Featured Staff

Dr. David DePasquale



David DePasquale

The Department welcomes Dr. David DePasquale to our staff. David is the Operations Manager of the Sensory Evaluation Center, under the direction of Dr. John Hayes. David oversees the daily operations of the Sensory Evaluation Center and works with industrial partners in all phases of sensory evaluation projects. David has an extensive industry background in product development, quality control, and consumer market research. David can be reached at (814) 863-4698, dad33@psu.edu.

Gregory Davidson



Gregory Davidson

Gregory Davidson, Budget Staff Assistant, received his B.S. in Management/Accounting from Lock Haven University. Greg has over 12 years of accounting experience in various public and private industries. He joined the Department of Food Science staff in October of 2009.

Greg's responsibilities include interpreting and advising faculty, students, and staff on department, college and university fiscal policies and procedures. He will initiate appropriate processes for and monitor and report on all departmental budget activities.

In his free time, Greg enjoys spending time with his wife and two sons. He is also an adult leader for the Cub Scouts and Boy Scouts of America programs. Greg can often be found in the outdoors whether it be camping, hiking, fishing or hunting.

Susan Valimont



Susan Valimont

Susan joined the Creamery staff in spring of 2009. Before coming to the Creamery she worked in various positions in the Housing and Food services Department most recently at R.C. Proffitts/The Mix in Pollock Commons for 10 years. She recently started her 16th year working at Penn State University. Sue is proud to work in a department that holds such a prominent

place in PSU's history. Sue enjoys interacting with the student employees and customers as well as the alumni.

"It is very important for me to work in an environment where food safety and sanitation procedures are required by all employees." Sue obtained her ServSafe® certificate six years ago. With all of the news about food borne illnesses recently, She thought it is critical to not only make sure that food safety procedures are being followed, but to explain to our employees what can happen if they are not.

Sue has two daughters, Ashlan and Kylen. Besides being the biggest fan of whatever sporting event her children are active in, she is an active member of the Mt. Top A.L.I.V.E. relay for life team. She also enjoys going to extreme Go-kart races, which, thankfully neither of her daughters are interested in doing, camping, reading and spending time with friends and family.

Fundamentals of Food Science

May 4 - 6, 2010 •
University Park, PA



This course teaches core concepts of Food Science to technical personnel from other disciplines and nontechnical personnel who have little or no experience in the food industry. Lectures, demonstrations, and hands-on laboratories will be used to teach the vocabulary associated with food science and manufacturing, and the core principles of food chemistry, engineering, microbiology, nutrition and sensory science, using real-world food examples.

The registration fee is \$1250. For more information, see the Food Science Department Short Course website, <http://foodscience.psu.edu/workshops/fundamentals-of-food-science> or go directly to the Conference and Short Course Office website for detailed event information and registration, <http://guest.cvent.com/EVENTS/Info/Summary.aspx?e=6058cc0e-04e3-4bd7-a6ee-1d2be4ab5ad3>.

This publication is available in alternative media on request.

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202 Food Science Building
University Park, PA 16802
Phone: (814) 865-5444
Fax (814) 863-6132
<http://www.foodscience.psu.edu>

Calendar of Events

Better Process Control School

April 26-29, 2010
Contact: Dr. Stephanie Doores, sxd11@psu.edu,
(814) 863-2956

Fundamentals of Food Science

May 4-6, 2010.
Contact: Dr. Kerry Kaylegian, kek3@psu.edu,
(814) 867-1379

Food Safety Workshops and Short Courses for the Meat and Poultry Industry

May 11-13, 2010
August 24-26, 2010
September 21-23, 2010
November 30-December 2, 2010
Contact: Martin Bucknavage, mwb124@psu.edu,
(814) 867-1839
Dr. Catherine Cutter, cnc3@psu.edu,
(814) 865-8862
Dr. Chris Raines, crr11@psu.edu,
(814) 867-2880

PA Assoc of Milk, Food, and Environmental Sanitarians Conference

May 12-13, 2010
Contact: Dr. Robert Roberts, rfr3@psu.edu,
(814) 865-8301

Food Microbiology Short Course

May 18-20, 2010
Contact: Dr. Catherine Cutter, cnc3@psu.edu,
(814) 865-8862
Dr. Hassan Gourama, hxg@psu.edu,
(610) 396-6121

For more information visit:

www.foodscience.psu.edu/events