Inside This Issue:

- Welcome new department head
- Diversified graduate course offerings
- Drying grant approved
- Cancer fighting broccoli
- Diabetes fighting berry wine
- Alum creates food allergy app
- And more…
VISIONING FUTURE EXCELLENCE: FSHN’S VISIBLE PRESENCE

In my first two months of serving as Head of the FSHN department, I have arrived at one simple truth. The FSHN department is comprised of an extremely engaged, innovative, and entrepreneurial group of faculty, staff, students, and alumni. Clearly, there is a commitment to superb quality in research, teaching and learning, extension and outreach, and service. This will serve the department well as the University makes future strides toward excellence.

In July, Chancellor Wise and Provost Adesida presented the University with the “Visioning Future Excellence Outcomes Report” (http://go.illinois.edu/visioningoutcomesreport). After an extensive process, six themes emerged, around which the University will maintain selected programs and continually enhance and advance these directives while deliberately investing in new efforts and initiatives. Each of the six themes – economic development; education; energy and the environment; social equality & cultural understanding; health and wellness; and information technology – touches on the foundations of FSHN.

In our mission of providing a safe, nutritious and affordable food supply that enhances human health, FSHN is well-positioned to contribute to the University’s goal of solving societal problems and tackling future challenges. Faculty will be called upon to think with ingenuity to bring together clusters of basic and applied scientists who can discover ways to make life better for residents of Illinois, our nation and the world. Students will be expected to learn and lead in ways never imagined. Staff will be invited to offer fresh ideas for support of efforts in FSHN. And alumni and friends of FSHN will be invited to join us in this continual quest for excellence.

Throughout the Fall 2013 Newsletter, you will find examples of excellence and evidence of our capacity to shepherd the excellence themes.

I challenge you to select the Visioning Future Excellence theme that sparks your interest. Set a course for how this theme integrates into FSHN, where and how you might be able to contribute, and then communicate your passion with us. Excellence will be a visible presence for FSHN as we collectively work with purpose and intent to transform lives through discovery and knowledge dissemination.

Sincerely,

Sharon M. (Shelly) Nickols-Richardson, Ph.D., R.D.
Department Head
FSHN WELCOMES NEW DEPARTMENT HEAD

FSHN welcomed Sharon M. "Shelly" Nickols-Richardson Ph.D., R.D., as the new department head on July 1, 2013. Dr. Nickols-Richardson received a bachelor’s of science degree in food, nutrition and institution administration from Oklahoma State University and then completed a dietetic internship at Presbyterian Hospital of Dallas in Texas.

She worked as a clinical dietitian and also served as the clinical section chief for the dietetic service at the Harry S. Truman Memorial Veterans Affairs Medical Center in Columbia, Mo. She then completed a M.S. and Ph.D. in foods and nutrition at the University of Georgia in Athens. Dr. Nickols-Richardson was an assistant and associate professor in the Department of Human Nutrition, Foods and Exercise at Virginia Tech, where she was an affiliate of the Center for Gerontology and served as the director of the didactic program in dietetics. Shelly was most recently an associate and full professor in the Department of Nutritional Sciences at The Pennsylvania State University, where she directed the BONE Laboratory and served as the professor-in-charge of the graduate program in nutritional sciences.

Dr. Nickols-Richardson’s research focuses on determinants of obesity prevention and body weight regulation across the life span to lower the burden of chronic diseases, ranging from metabolic syndrome to osteoporosis. She studies the impact of weight loss, weight loss diets and restrained eating on bone mineral density and bone metabolism and the interaction of nutrient intake and resistance training on bone health. As principal investigator or co-investigator, she has been awarded approximately $3 million in research funding from federal agencies, research foundations, and institutional funding sources. Her research has been published in the Journal of Bone and Mineral Research, Journal of the American Dietetic Association, Calcified Tissue International, and Bone, among others.

She has instructed courses in the areas of community nutrition, nutrition across the life span, nutritional assessment, alternative and complementary nutrition therapies and maternal and child nutrition and was awarded the 2006 Early Career Excellence in Teaching Award from the American Society for Bone and Mineral Research. Dr. Nickols-Richardson has served in leadership roles for several professional organizations, including president of the American Association of Family and Consumer Sciences, member of the 2010 dietary guidelines advisory committee, and associate research editor of the Journal of the Academy of Nutrition and Dietetics.

Shelly and her husband, Dave Richardson, have two children, Rachel and Reese. She enjoys traveling, reading and managing finances for the family farm in Kansas.

ENGESETH SERVES AS INTERIM

Dr. Nicki Engeseth served FSHN as interim department head from December 17, 2012 until June 30, 2013. Dr. Engeseth has been a faculty member at Illinois since 1996, previously and currently serving in the role of associate head for graduate programs. The department appreciates Dr. Engeseth’s leadership and guidance during a time of transition.

STAFF CELEBRATIONS

Marla Todd, Associate Director of Advancement, and her husband John welcomed a baby boy, Levi John Todd, on May 13. He weighed 7 lbs. 10 oz. and was 20 inches long. Levi joins big brothers, Jeremiah and Andrew.

Greg Knott, FSHN business manager for over a decade, took a new position as assistant dean for business operations in the University library. FSHN wishes Greg well in his new endeavor.

PROFESSOR PASSES

Professor Ion Baianu passed away on February 10. Dr. Baianu started at the University of Illinois as a postdoctoral associate in 1980 and began as assistant Professor of Food Science in 1982.

He served as professor of food chemistry, with a focus on the physical chemistry of foods, since 1994. He was bright and very creative; resulting in his collaborative efforts with many impressive individuals throughout his career.
Dr. Karen Chapman-Novakofski received the Excellence in Nutrition Education Award from the American Society for Nutrition for her outstanding contributions to teaching nutrition. Dr. Chapman-Novakofski is a nutrition professor whose research focuses on community nutrition through education intervention and evaluation, and osteoporosis and diabetes.

Dr. Hong Chen was promoted from assistant professor to associate professor in August 2013. Dr. Chen studies nutrigenomics and epigenetics. Her research specifically focuses on nutrient regulation of epigenetic modifications during human development and carcinogenesis.

Dr. Elvira DeMejia was promoted from associate professor to professor in August 2012. Dr. DeMejia studies bioactive peptides and proteins, with health benefits, in foods, focusing on reduction of inflammation, cancer and cardiovascular risk. She also researches the modulation of toxicity and functional properties of food components, especially flavonoids in ethnic teas and berries.

Dr. Bill Helferich is the recipient of the Mary Swartz Rose Senior Award from the American Society for Nutrition. Each year this award is given to an individual for outstanding research on the safety and efficacy of bioactive compounds for human health. Dr. Helferich’s nutritional toxicology research looks at the effects of natural chemicals present in food on chronic diseases such as breast cancer.

Dr. Mike Miller was promoted from assistant professor to associate professor in August 2013. Dr. Miller studies food microbiology, focusing on functional genomics of lactic acid bacteria (LAB); food and industrial fermentations; gastrointestinal microbiology; and food microbiology and safety.

Dr. Kelly Tappenden has been named this year’s Distinguished Nutrition Support Dietitian, Advanced Clinical Practice Award Winner by the American Society for Parenteral and Enteral Nutrition (ASPEN) for her substantial contributions. This award recognizes a dietitian for his/her outstanding contributions in leadership, practice, and advancement of dietitians in the field of nutrition support therapy. Dr. Tappenden has contributed to ASPEN’s success for more than 10 years, serving as president in 2008-2009.

Dr. Yuan-Xiang Pan was promoted from assistant professor to associate professor in August 2013. Dr. Pan’s research addresses nutrigenomics and epigenetics with a focus on nutrient-gene interaction and chronic diseases. He teaches several advanced nutrition courses for undergraduate and graduate students.

Dr. Karl Weingartner is the recipient of the Professional Staff Award for Sustained Excellence - Teaching and Outreach. This award recognizes outstanding performance and demonstrated professional excellence by professional staff members of the college.

Dr. Weingartner promotes the benefits of the use of soy on campus, with government agencies, and internationally.

Dr. Dawn Bohn received the Teaching Associate Teaching Award that recognizes teaching associates for classroom and/or laboratory instruction in the College, their impact on students, and professional contributions to the academic community.

Dr. Bohn teaches FSHN 101, 414 and 499 and coordinates the online master’s program.

Dr. Yong-Su Jin is this year’s ACES Faculty Award for Excellence in Research recipient for his outstanding professional achievement and demonstrated excellence in research.

Dr. Jin’s body of work in microbial genomics entails microbial bioconversion of biomass into value-added products, microbial genomics for linking, and genotypes and beneficial phenotypes.
GRADUATE COURSE CONSORTIUM DIVERSIFIES OFFERINGS

Four Big Ten universities with food science graduate programs have created a Midwest Consortium of Graduate Courses to increase the offerings of graduate-level food science courses at each university. The four universities include University of Illinois, University of Minnesota, University of Nebraska, and Purdue University. The intent of the consortium is to share select upper-level graduate courses in food science by teaching them in-class at one university, and offering students at the three other universities the opportunity to take the courses for credit by distance education.

“We have a limited number of graduate level courses in the department,” said Soo Lee, associate professor of food science who taught a course offered through the consortium.

Faculty at the course home institution deliver the courses by distance through technology and systems such as Elluminate, Adobe Connect, and others. The University of Illinois offered advanced sensory science in fall 2012 and students from Illinois enrolled in gastrointestinal microbiology at the University of Nebraska in fall 2012 and protein chemistry from the University of Minnesota in spring 2013. The University of Illinois plans to offer additional courses in the 2013-2014 academic year.

One of the many benefits of this program is an increase in the variety of food science courses available to graduate students enrolling at Illinois and an ability to increase the reach of courses.

“The distance course I enrolled in was a great opportunity to learn from faculty that specialize in my field outside my department and university, who had additional insight or other perspective,” said Max Van Tassell, Ph.D. student working with Dr. Mike Miller.

Another graduate student, Jeni Hoefflinger noted that students who want to study with an outstanding professor at Illinois can do so while still benefiting from other professors and coursework by using the shared curriculum. She noted that the shared curriculum exposed her to material that wasn’t being offered at Illinois now or in the near future.

“These courses are a chance for students to learn more material that might apply to their research areas,” Lee said.

There are further advantages to the faculty teaching in these programs, as they build relationships to strengthen the teaching, learning and research projects in FSHN. This also increases exposure of students to faculty, which may result in recruitment for further graduate studies.

FSHN PILOT PLANT UPDATE

Efforts to upgrade the University of Illinois food science pilot plant continued over the past year, with many advances.

Much excitement surrounded a December-event highlighting the processing capabilities throughout the college. This tour for college and campus leaders, as well as current students, featured the meat processing lab, Center for Advanced BioEnergy Research (CABER), National Soybean Research Lab, Agriculture and Biological Engineering facilities, and the food science pilot plant. Just after the first of the year, the food science pilot plant received a new coat of food-grade paint, making it easier to maintain. This was followed by the acquisition of a custom built beverage system for fermented and carbonated beverage production.

Additionally, commercial size kitchen equipment is being added to food laboratories in close proximity to the pilot plant, strengthening the overall usability of the facilities.

Several companies, including Kellogg, Quaker (PepsiCo) and Jain Inc. have contributed equipment to the facilities, assisting in updating the equipment available to students and researchers. Companies interested in providing in-kind gifts of equipment may claim the gift as a tax deduction.

FSHN was awarded a campus sustainability grant, made possible by the student sustainability committee. This multi-year grant will fund processing equipment to create a model local food system that provides sustainably processed tomato sauce, made from freshly grown tomatoes, some from the student farms, to campus dining services. This grant will benefit student education and research, as well as many other departmental projects.

The updated space is seeing much activity from students and faculty, as well as external partners using the equipment or bringing their own equipment to the space. Companies or individuals wanting to use the pilot plant facilities are encouraged to contact Brian Jacobson, pilot plant manager at bjacobson3@illinois.edu or 217-300-5404.

Although many updates have occurred, there are still plans for many more upgrades to the facilities. FSHN has met with an architect to explore the possibility of creating food grade GMP space within the plant, although funding will be needed to make this a reality. Additionally, there is still continued need to replace outdated equipment.

For more information on supporting the pilot plant upgrade, contact Marla Todd, Associate Director of Advancement at 217-244-2875.
HOSPITALITY MANAGEMENT PROGRAM HOSTS EVENT

The Department of Food Science and Human Nutrition kicked off the spring 2013 semester with a special event that raised funds for two academic programs in the College of Agricultural, Consumer and Environmental Sciences (ACES). The Jan. 25 event, benefiting the hospitality management program and the Dr. James F. Evans Endowed Chair in Agricultural Communications, featured a fine-dining meal paired with a personal book signing with Orion Samuelson, legendary WGN radio farm broadcaster, and a panel of agriculture economists.

The event, entitled “An Evening with the Voices of Illinois Agriculture” was conceived by University of Illinois farm broadcaster Todd Gleason after he and three others purchased a meat package featuring the Illinois State Fair grand champion barrow sold during the ACES Salute to Agriculture tailgate last fall. Gleason, a 1986 ACES alumnus, said he wanted a way to give back to the campus that set him on a rewarding career path.

Event organizers turned to hospitality management program staff and students to prepare and serve a formal dinner, including the prize pork as passed appetizers and a milk toast. The meal was met with outstanding reviews and exposed many new customers to the opportunity to dine in the Spice Box in Bevier Hall.

Samuelson, who released You Can’t Dream Big Enough in late 2012 told the capacity crowd that it was important for them to “tell the story of agriculture.” He encouraged the university students in attendance to dream big, which is one of the messages in his book. In addition to Samuelson’s comments, an outlook on the 2013 growing season was shared by an experienced agriculture marketing panel.

NSF APPROVES PLANNING GRANT FOR CENTER FOR ADVANCED RESEARCH IN DRYING

A National Science Foundation (NSF) planning grant will help establish the Center for Advanced Research in Drying (CARD), a joint program of the University of Illinois and Worcester Polytechnic Institute (WPI) in Worcester, Mass.

“CARD will be devoted to research in drying moist, porous materials such as food and other agricultural products; forestry and paper products; chemical products; textiles; and biopharmaceuticals,” said Hao Feng, associate professor of food science.

According to Feng, the main focus of the research will be to develop products, processes, designs, and strategies to reduce energy usage and cost in these energy-intensive industries. Added benefits include improvements in product quality and enhancement of sustainable practices. “In other words, CARD will help companies reduce their carbon footprint,” he said.

The grant was funded under NSF’s Industry/University Cooperative Research Center (I/UCRC) program. I/UCRCs were developed to encourage collaboration between companies and universities in the development of novel processes and methods to solve grand challenges confronting our nation, said Irfan Ahmad, co-principal investigator of CARD and executive director of the Illinois Center for Nanoscale Science and Technology.

“NSF provides seed funding to establish the center, and companies provide broader funding for industry-driven research projects. These projects are prioritized by an industry advisory board (IAB)
DISCUSSION ADDRESSES FOOD SECURITY

Food security and food justice were the focus of a public panel discussion on campus during spring 2013. The Robin Orr Colloquy on Food Security and Food Justice addressed topics such as food accessibility, sustainable production, and food assistance programs.

The panel was comprised of experts with a variety of perspectives on the topics. Craig Gundersen, University of Illinois agricultural economist and executive director of the National Soybean Research Laboratory shared much of his experience with SNAP and other food assistance programs. Barbara Fiese, U of I professor of human development and family studies and endowed chair and director of the Family Resiliency Center shared her experiences with the local backpack program. Linda Crawl-Jackson, Extension educator, addressed the topic of educating consumers in areas that are food insecure. Jim Hires, executive director of the Eastern Illinois Food Bank, discussed his experiences working with a food distribution agency. David Bane, a local farmer who is practicing sustainable agriculture, discussed empowering consumers to produce their own food.

This colloquy was held in memory of nutrition advocate Robin Orr, former U of I Extension specialist, and made possible through a generous contribution from William Kling, University of Illinois Chicago faculty member who worked closely with Orr.

“Robin’s work on food policy, nutrition education, and healthy living touched some of the most vulnerable audiences,” Kling said. “This is a fitting way to pay tribute to her while bringing attention to the issues she focused on.” Orr dedicated her work to advocating for nutrition education on a local, state, and national level. In addition to assisting in developing and administrating food program legislation, she worked with obesity, cancer, hunger, and food policy reform.
PUTTING CANCER-FIGHTING POWER BACK INTO FROZEN BROCCOLI

There was bad news, then good news from University of Illinois broccoli researchers this year. In the first study, they learned that frozen broccoli lacks the ability to form sulforaphane, the cancer-fighting phytochemical in fresh broccoli. But a second study demonstrated how the food industry can act to restore the frozen vegetable’s health benefits.

“We discovered a technique that companies can use to make frozen broccoli as nutritious as fresh. That matters because many people choose frozen veggies for their convenience and because they’re less expensive,” said Elizabeth Jeffery, professor emerita of nutrition.

“As little as three to five servings of broccoli a week provides a cancer-protective benefit, but that isn’t true for bags of broccoli that you pluck out of your grocery’s freezer,” she noted.

The problem begins when soon-to-be-frozen broccoli is blanched, or heated to high temperatures, to inactivate enzymes that can cause off-colors, tastes, and aromas during the product’s 18-month shelf life, she explained. The extreme heat destroys the enzyme myrosinase, which is necessary to form sulforaphane, the powerful cancer-preventive compound in broccoli, she said.

“We know this important enzyme is gone because in our first study we tested three commercially frozen broccoli samples before and after cooking. There was very little potential to form sulforaphane before the frozen broccoli was cooked and essentially none after it was cooked as recommended,” said Edward B. Dosz, a graduate student in Jeffery’s laboratory.

In the second study, the researchers experimented with blanching broccoli at slightly lower temperatures instead of at 86ºC, the current industry standard. When they used a temperature of 76ºC, 82 percent of the enzyme myrosinase was preserved without compromising food safety and quality.

Sulforaphane is formed when fresh broccoli is chopped or chewed, bringing its precursor glucoraphanin and the enzyme myrosinase into contact with each other. The researchers first thought that thawing frozen broccoli in the refrigerator might rupture the plant’s cells and kick-start the enzyme–substrate interaction. “It did not work,” Dosz said.

But they had previously had success using other food sources of myrosinase to boost broccoli’s health benefits. So the researchers decided to expose frozen broccoli to myrosinase from a related cruciferous vegetable.
When they sprinkled 0.25 percent of daikon radish—an amount that's invisible to the eye and undetectable to our taste buds—on the frozen broccoli, the two compounds worked together to form sulforaphane, Dosz said. “That means that companies can blanch and freeze broccoli, sprinkle it with a minute amount of radish, and sell a product that has the cancer-fighting component that it lacked before,” he said.

One question remained: Would sulforaphane survive the heat of microwave cooking? “We were delighted to find that the radish enzyme was heat stable enough to preserve broccoli’s health benefits even when it was cooked for 10 minutes at 120°F. So you can cook frozen broccoli in the microwave and it will retain its cancer-fighting capabilities,” Dosz said.

Jeffery hopes that food processors will be eager to adopt this process so they can market frozen broccoli that has all of its original nutritional punch.

Jeffery and Dosz co-authored both studies.

Commercially produced frozen broccoli lacks the ability to form sulforaphane was published in the Journal of Functional Foods and is available online at:


USDA and the National Institute of Food and Agriculture (NIFA) funded this research.

Modifying the processing and handling of frozen broccoli for increased sulforaphane formation appears in the Journal of Food Science and can be viewed online at:

http://onlinelibrary.wiley.com/journal/10.1111/%28ISSN%291750-3841/earlyview

Sakata Vegetables Europe supported this study.

### TOOL HELPS DIETITIANS DELIVER INFO CLIENTS NEED... AND CAN UNDERSTAND

If you have consulted with a nutrition educator about how best to lose weight or manage your diabetes, high blood pressure, or high cholesterol, you may not have learned as much as you could have, said Dr. Karen Chapman-Novakofski, professor of nutrition.

“Only 80 percent of the dietitians we surveyed did any pre-assessment of the client’s nutrition literacy, which makes it difficult for educators to target their counseling so clients can understand and act on the information they are given,” Chapman-Novakofski said. Her recent doctoral student, Heather Gibbs, who is now an assistant professor at Olivet Nazarene University, has developed an algorithm that dietitians can use to determine precisely what knowledge and skills are required for a particular client.

“Some clients need to know how to manage their intake of macronutrients: carbohydrates, protein, and fat. Some need to learn about portion sizes, and others have to be able to read labels. Still other clients must be able to categorize foods into groups. For each of these skills, we provide questions and exercises that assess the client’s knowledge. Then dietitians will be able to better focus on what their clients need to know,” she said.

Chapman-Novakofski said doctors and dietitians often don’t initiate conversations that could help patients successfully manage their conditions. They may lack time or they may assume a background level of understanding that the client does not have.

“During a routine physical, your doctor may tell you that your blood pressure is high and that you need to watch your salt intake. But what does that mean to you?” she asked. “A better-case scenario would be for the doctor to ask if you can name some foods that are high in sodium. If you can’t, then she knows you need to have a conversation about how to identify higher-sodium foods.”

“A related article was published in a recent issue of Health.

“Until health professionals start asking questions to see what the patient knows, you don’t get any effective behavior change,” she said.

The researcher said that it’s important sometimes for dietitians to narrow their focus. If educators understand why the client is there, think about what skills and information that person needs, and then do an evaluation to learn what the person’s nutrition literacy is in that area, they can deliver the material in a way the client can understand and use, she said.

A related article was published in a recent issue of Health.
UNIVERSITY OF ILLINOIS SCIENTISTS HAVE EVIDENCE THAT LIFELONG EXPOSURE TO GENISTEIN, A BIOACTIVE COMPONENT IN SOY FOODS, PROTECTS AGAINST COLON CANCER BY REPRESSING A SIGNAL THAT LEADS TO ACCELERATED GROWTH OF CELLS, POLYPS, AND EVENTUALLY MALIGNANT TUMORS.

“In our study, we report a change in the expression of three genes that control an important signaling pathway,” said Hong Chen, associate professor of human nutrition.

The cells in the lining of the human gut turn over and are completely replaced weekly, she noted. “However, in 90 percent of colon cancer patients, an important growth-promoting signal is always on, leading to uncontrolled growth and malignancies. Our study suggests that the aberrant Wnt signaling during the development of colon cancer can be regulated by soy-rich diets.”

“The good news is that a diet rich in soy genistein represses those signals through epigenetic modifications at the regulatory regions of those genes,” said Yukun Zhang, a doctoral student in Chen’s laboratory.

Chronic exposure to genistein, an organic compound in soy, reduced the number of pre-cancerous lesions in the colons of laboratory rats exposed to a carcinogen by 40 percent and reduced Wnt signaling to normal levels, she said.

In their study, the scientists modeled lifetime exposure to soy by feeding pregnant rats and their offspring a diet containing soy protein isolate and a diet that contained genistein compound. At seven weeks of age, offspring rats were exposed to a carcinogen, and they continued eating either the soy protein or the genistein diet until they were 13 weeks old.

At that time, the researchers inspected the colons of rats in both soy groups and compared them to rats in a control group, noting the number and severity of tiny abnormal growths in each. They also compared Wnt signaling before and after the carcinogen to see whether either diet had any effect on its upregulation.

In the genistein-fed animals, signaling levels were similar to rats that had not received the carcinogen.

“Genistein decreased the expression of three genes and repressed this signaling process that is associated with abnormal cell growth and cancer development,” Chen said.

She said this shows that colon cancer is an epigenetic disease, meaning that dietary and environmental factors can influence genes to be switched on or off so you have a different pattern of gene expression, leading to a change in disease susceptibility.

It has long been known that immigrants from Asia—where soy is traditionally a food staple—experience rising levels of colon cancer as they adopt the eating habits of the Western nations they now call home, she said.

“The genetic information you inherit from your parents is not the whole story. Our dietary choices, our exposure to environmental toxins, even our stress levels, affect the expression of those genes,” she said.
A FSHN faculty member has synthesized a sugar in human milk that is thought to protect babies from pathogens. That is important because 2FL, the shorthand scientists use to describe this human milk oligosaccharide (HMO), has not been added to infant formula because HMOs are incredibly expensive.

“We know these oligosaccharides play a vital role in developing a breast-fed baby’s gut microbiota and in strengthening their immunity. 2FL (2-fucosyllactose) is the most abundant HMO in breast milk,” said Michael Miller, associate professor of food microbiology. Unfortunately, 1 milligram of 2FL costs $100, meaning a single study would require $1 million for the HMO alone, he said.

Yong-Su Jin, assistant professor of food science, believed he could synthesize this oligosaccharide found in breast milk using a strain of E. coli engineered for that purpose.

A new postdoctoral researcher in Jin’s laboratory had done some of the legwork for such a project in Korea, and they used their combined experience and expertise to engineer an HMO that can be produced very cheaply and quickly: 1 gram of 2FL per liter of E. coli broth. That means it is possible to produce 2FL in the lab, paving the way for more cost effective research.

“The trick is to get the E. coli cells to increase their production of the starting material (GDP-fucose), which we did by overexpressing the pre-existing biosynthetic pathway. Then we had to give it the ability to transfer GDP-fucose to lactose. We solved that problem by inserting a gene from another organism,” he added.

Miller will soon be able to begin a study investigating the role of 2FL in infant nutrition and eventually make recommendations about whether it should be added to infant formula. “And we can use this technique to synthesize and study the hundreds of other HMOs in human milk too.”

Jin and Miller believe that their work also has pharmaceutical applications. “Adding 2FL to the food of soldiers on deployment could keep them out of sick bay,” Jin said. A second use might be reducing the number of Campylobacter infections that originate in raw or undercooked poultry.

“Whole cell biosynthesis of a functional oligosaccharide, 2-fucosyllactose, using engineered Escherichia coli” was published in Microbial Cell Factories and is available online at http://www.microbialcellfactories.com/content/11/1/48.

### EVEN SMALL WEIGHT GAINS RAISE BLOOD PRESSURE IN COLLEGE STUDENTS

A study conducted by FSHN professors shows that as little as 1.5 pounds per year is enough to raise blood pressure among college-aged students.

“In our study, a small weight gain was enough to raise a young adult’s systolic blood pressure by 3 to 5 mm Hg. If young people continue to gain 1.5 pounds a year and think it doesn’t matter, they’re misleading themselves and potentially increasing their risk for heart disease,” said Margarita Teran-Garcia, assistant professor of human nutrition.

Data were collected from 795 18- to 20-year-old applicants to the Universidad Autonoma de San Luis Potosi in Mexico who weren’t accepted to the university but reapplied the next year. The study assessed changes in BMI and body weight over one year and explored whether the applicants experienced changes in blood pressure and blood glucose levels.

One-year changes in body weight were associated with increased blood pressure for both men and women. In the 25 percent of the applicants who had a weight gain of 5 percent or more, that gain was associated with higher blood pressure. The changes were more significant for women than for men, she said.

“The good news is that the reverse was also true. Women who lost 5 percent of their body weight saw reductions in their blood pressure,” she said.

The harmful effects of weight gain may be especially pronounced among Mexicans, a group that develops heart disease risk factors at much younger ages and at lower BMIs than comparable groups in the United States. Almost 31 percent of Mexican adults have hypertension, ranging from 13 percent of adults in their twenties to 60 percent of adults age 60 and over, she said.

“We’d like to learn how much high blood pressure is caused by genetics and how much is lifestyle related and propose interventions for persons of Mexican descent in the United States who have a family history of hypertension and heart disease,” she said.

The study is part of the Up Amigos project, a collaboration between scientists at the U of I and the Universidad Autonoma de San Luis Potosi.

For more information about Up Amigos visit familyresiliency.illinois.edu.
Researchers in FSHN found compounds in blueberry and blackberry wines that inhibit enzymes responsible for carbohydrate absorption and assimilation, potentially providing new options for diabetes treatment.

“We’re thinking about a dealcoholized fermented fruit beverage that would optimize the inhibition of the alpha-amylase and alpha-glucosidase enzymes and also make use of the wines’ other healthful bioactive components,” said Elvira de Mejia, professor of food chemistry and food toxicology.

In the study, researchers found that the effectiveness of the wine was nearly equal to acarbose, an anti-diabetes drug. In addition, they assessed the effect of berry fermentation at different temperatures on these carb-inhibiting enzymes.

At both room and cold (4°C) temperatures, berry wine retained the ability to degrade the enzymes, she said.

In a second study, researcher Michelle Johnson of the Division of Nutritional Sciences quantified the antioxidant, polyphenol, and anthocyanin content of blueberry and blackberry wines. Her proposed blend contains an abundance of these bioactive compounds, which add to its healthful properties.

The researchers are particularly interested in the ability of anthocyanins to reduce inflammation, which contributes to the development of many chronic illnesses, including cancer, metabolic disease, and cardiovascular disease. To that end, they are experimenting with the berries’ effects on inflammatory cells, and they have found that anthocyanins reduce markers associated with the inflammatory response.

“Preliminary studies have indicated that anthocyanins may have a positive effect on cognition and overall brain health while protecting against some of the effects of aging, such as Alzheimer’s disease and memory loss. These berries have some very intriguing components,” de Mejia said.

A food chemist, de Mejia would like to remove the alcohol from the wines, leaving the carb-degrading enzyme compounds, the inflammation-fighting anthocyanins, and other beneficial bioactive components in a functional and flavorful drink for diabetics and others.

The bioactive ingredients could also be added to any prepared beverage to give it color, flavor, and nutritional punch, making them useful to the food industry, she said.
**BRONZE TABLET**

Inscription on the Bronze Tablets recognizes sustained academic achievement by undergraduate students at the University of Illinois. Students must have at least a 3.5 cumulative grade point average through the academic term prior to graduation, and rank in the top three percent of the students in their graduating class to receive this recognition.

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**Student News and Awards**

**Nadine Auborg**, Ph.D. student working with Dr. Tim Garrow, received the P.E.O. International Peace Scholarship. The International Peace Scholarship Fund, established in 1949, is a program which provides scholarships for selected women from other countries for graduate study in the United States or Canada.

**Julio Lopez**, Ph.D. student advised by Dr. William Helferich, competed for the American Society for Nutrition (ASN) Global Nutrition Council Graduate poster award at the Experimental Biology 2013 Annual Meeting in Boston, Massachusetts. This was an invitation-only competition.

**Eliana Rosales**, Ph.D. student advised by Dr. Nicki Engeseth was accepted to the 2013 student program for the Pennsylvania Manufacturing Confectioners’ Association and was awarded a travel assistantship to attend.

**Lisa Shkoda**, recent dietetics graduate, was selected as the 2013 IDA Outstanding Dietetic Student of the Year in a Didactic Program in Dietetics. This state award is bestowed upon only one dietetic student in Illinois every year.

This award recognizes a student for demonstrating the beginning branches of professional leadership and dedicated service to the profession of dietetics.

**Itzel Vazquez Vidal**, Ph.D. student advised by Dr. Margarita Teran-Garcia, received the Verdell Frazier Young Scholarship Award from the Women’s Resource Center.

This award is presented to a graduate student who is in the early stages of graduate study and shows significant scholarship and promise. The award is funded through the estate of Roger Morse, a 1934 physical education graduate, and his wife Catherine.

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**Dan Zhou**, Ph.D. student studying with Dr. Yuan-Xiang Pan and interning with Abbott Nutrition, was recognized as the Most Valuable Graduate Student in the University of Illinois Research Park. She translated scientific evidence into talking points and other information that can be used to educate policymakers on key Abbott Nutrition health policy issues.

More than 400 highly-skilled student interns work for Research Park tenants, gaining valuable experience while making real contributions to internal corporate research and development programs.

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The following Food Science and Human Nutrition students have been recognized with the Bronze Table distinction.

**Lily Claire Benner**, *Food Science* from Tuscola, Illinois

**Yu Fang**, *Dietetics* from Nanjing Jiangsu, China

**Eileen Kamtawijoyo**, *Food Science* from Jakarta barat, Indonesia

**Jamie Ann Keen**, *Human Nutrition* from St. Charles, Illinois

**Donny Sumitro Kwandindo**, *Food Science* from Tangerang, Indonesia

**Madelyn Murphy**, *Human Nutrition* from La Grange Park, Illinois

**Alexa Marie Weiler**, *Human Nutrition* from Oak Lawn, Illinois
### Outstanding M.S. Student

**Hong Nan**

**Advisor**
Yong-Su Jin

**Hometown**
Bloomington, Illinois

**Research**
Production of value-added chemicals from engineered yeast

**Undergraduate Study**
University of Illinois at Urbana Champaign

### Outstanding Ph.D. Student

**David Bloom**

**Advisor**
Dr. Soo-Yeun Lee

**Hometown**
Sterling, Illinois

**Research**
Sensory discrimination testing methods using complex beverage systems

**Undergraduate Study**
University of Illinois at Urbana Champaign

### Outstanding Undergraduate Student Leader

**Ellyn Polley**

**Hometown**
Bloomington, Illinois

**Student Activities**
Association of Food Technologists Exec. board and ExplorACES chair, Campus Recreation Ice Arena-Customer Service Assistant, Research and Development Intern at Prinova, Phi Eta Sigma Honors Fraternity, Chemistry Tutor, Illinois Residence Hall Council - Floor Representative, Leadership for American Volunteer, OSF St. Joseph Medical Center Volunteer

**Future Plans**
Applying to pharmacy school as she works and volunteers

### Outstanding Undergraduate Student Researcher

**Carmen Au**

**Hometown**
Chicago, Illinois

**Student Activities**
Association of Food Technologists (AFT), Phi Eta Sigma Honor Society Member and Tutor, president of James Scholars and Undergraduate Researchers Association, Wesley Foundation Haunted House Volunteer, employee of the U of I Meat Lab and the Loomis Lab of Physics, undergraduate research in the lab of Dr. Nicki Engeseth and intern at Dixon Springs Agricultural Center

**Future Plans**
Studying lipids and nanotechnology as a master’s student at Iowa State University after a summer internship in product development at McCain Foods in Wisconsin

### Outstanding Senior in Dietetics

**Jaime Rizzie**

**Hometown**
Orland Park, Illinois

**Student Activities**
Student Dietetic Association Co-President, McKinley Health Center Nutrition Peer, Carle Foundation Hospital dietetic technician, Bevier Cafe barista, FSHN 340 bakery supervisor, University Lutheran Church financial secretary & choir member, Academy of Nutrition & Dietetics, Eastern Illinois Dietetic Association, Phi Eta Sigma Honors Society, Senior 100 honorary award winner

**Future Plans**
Dietetic internship at Ohio State University & the RD exam. Hopes to become a Certified Diabetes Educator, working in a clinical setting on medical nutrition therapy

### Outstanding Senior in Food Industry and Business

**Lauren Smith**

**Hometown**
Harding, Illinois

**Student Activities**
Association of Food Technologists ExplorACES chair, ISR hall council member, committee head of the JBT cupcake project, research assistant, and supervisor at the ISR dining hall

**Future Plans**
Employed at Nestle Purina as a quality management trainee in Clinton, Iowa

### Outstanding Teaching Assistant

**Sarah Scholl**

**Advisors**
Drs. Nicki Engeseth and Shelly Schmidt

**Hometown**
Center Valley, Pennsylvania

**Undergraduate Study:**
University of Maryland, College Park

**Teaching**
FSHN 101
**FSHN OUTSTANDING SENIOR IN FOOD SCIENCE**

**Alexandra Pierce**

**HOMETOWN**
Centerville, Ohio

**STUDENT ACTIVITIES**
University of Illinois Cheerleading

**FUTURE PLANS**
Graduate school at The Ohio State University in Food Science

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**OUTSTANDING SENIOR IN HOTELITY MANAGEMENT**

**Adam Cohen**

**HOMETOWN**
Highland Park, Illinois

**STUDENT ACTIVITIES**
Former president and active member of Sigma Alpha Mu, Hospitality Management Association, and Learning Assistant for Bevier Café

**FUTURE PLANS**
Working as an Assistant Manager at Highland Pop Gourmet Popcorn & Fudge Shop in Highland Park, Ill., trying to build this hometown favorite into a national supplier of gluten free, nut free gourmet popcorn and fudge. He is also seeking a full-time position with national hotel chains.

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**FSHN OUTSTANDING SENIOR IN HUMAN NUTRITION**

**Jamie Keen**

**HOMETOWN**
Saint Charles, Illinois

**STUDENT ACTIVITIES**
Student Alumni Ambassadors, Alpha Phi Sorority, Colleges Against Cancer and Urbana Middle School and Carle Hospital Volunteer

**FUTURE PLANS**
Chicago Medical School

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**IFT STUDENT ASSOCIATION MEMBERS NETWORK, COMPETE**

More than 50 students from Ohio State, Purdue University, University of Illinois, University of Kentucky, and University of Tennessee converged on the University of Illinois campus for the Institute of Food Technologists Student Association (IFTSA) Midwest Area college bowl and a weekend of career development and fellowship activities. Sarah Scholl, a FSHN doctoral student, served on the IFTSA Board of Directors as the Midwest Area Representative during the 2012-2013 school year. She was responsible for coordinating the weekend of festivities in April.

The weekend kicked-off with a friendly ‘Chopped’ competition, where teams of students created dishes with a specific set of ingredients. Judges, Dr. Soo-Yeun Lee, associate Professor of food science, Terri Cummings, FSHN director of student services, and Carter Phillips, executive chef of Bevier Café; tasted all the dishes and declared the winner based on taste, creativity, and originality. The following day was full of local Champaign-Urbana food, starting at Prairie Fruits Farm with a delicious breakfast on the farm. Students had time to shop from the local farmers present and see the goats on property. Bart Basi, Cheese and Crackers, led a cheese tasting and lecture on campus. Lunch was catered by Maize, a local Mexican restaurant located in Champaign, where Guy Fieri from Food Network’s “Diners, Drive-in’s and Dives” tried his first corn mushroom earlier this year.

After fueling up, students were eager to start the 2013 IFTSA Midwest Area college bowl hosted held in the ACES library. Moderator Rod Stoll, vice president of public relations at Farm Credit Services of Illinois, and judges Dr. Aaron Uesugi, senior scientist at Kraft, Yvonne Stuchell senior research food scientist at Archer Daniels Midland, and Dr. Ramesh Yetella, scientist at the Institute of Food Safety and Health oversaw the competition. In the end, Purdue University defeated University of Tennessee in a hard fought battle.
FSHN GRADUATE CREATES APP TO DETECT FOOD ALLERGENS IN RESTAURANTS

Recent hospitality management graduate, Henry Estes, is not only beginning his career with Lettuce Entertain You Enterprises, but is also at the forefront of Eatible, a free app that can be obtained through iPhones and Androids to answer the question “What’s edible?” for people with allergies when they go to a restaurant.

A year ago, Estes noticed that apps were looking into calories in the items offered by restaurants, but no one was reporting allergens that were in these foods. It was then that he began the process of creating Eatible by receiving a grant from the Illinois Entrepreneurship Program to get him started as he worked with individuals to give their input on design and collect data.

After data collection and design processes were complete, Apple reviewed the app and it was released to the public on January 6. In its first month, Eatible had over 750 downloads with over 31 restaurants and 500 food allergy items. By creating a profile on the app or their website, a person can select their allergy options that include dairy, wheat, soy, fish, walnuts, treenuts, peanuts, shellfish, pecans, and gluten. After selecting a restaurant, the menu will show which products are safe to consume and those that are not and provide which allergen is included in the menu item.

It is recommended, however, to still inform the restaurant of the allergies a person has.

As Estes looks towards the future of Eatible, his goal is to expand its market and reach over 100,000 downloads. He would like to have information pertaining to diabetes, sugars, and sodium. Another feature he would like to add would be suggestions so that customers can still have some of their favorite menu items, but simply ask for there to be no peanuts or other common allergens that can easily be removed. Additionally, restaurants will have the opportunity to be Eatible certified by not only being added to the restaurant listings for the app, but also having a contract to be featured at the top of the restaurant list in their area.

To make suggestions or add your favorite restaurant’s menu to the app email hello@whatseatible.com or visit the website at www.whatseatible.com.
James J. Albrecht, Ph.D. ’58 and Former Vice President of McCormick Inc., received the 2013 Calvert L. Wiley Distinguished Service Award from the Institute of Food Technologists for providing continuous and outstanding service and stewardship to IFT for more than 44 years by serving in leadership positions on more than 25 committees, task forces and juries, including serving on the Board of Directors.

Alesia Bock, ’89, is now Owner/Managing Director of AgriSystems International. Founder and former President, Thomas B. Harding, Jr, started the organic and sustainable foods consulting firm over 40 years ago, one of the first of its kind to offer assistance to growers and processors to certify their products and processes organic.

The business also monitors and advises on food policy & regulations, quality/food safety, and sustainability tools. The company website is www.agrisysintl.com.

Wayne Iwaoka, Ph.D. ’73, was honored as the 2013 Outstanding Alumnus of the University of Hawaii’s College of Tropical Agriculture and Human Resources.

Dr. Iwaoka was recognized for his excellent contributions and dedication to education and mentorship, and for his widespread impact on students and programs.

Howard Katz, ’82, joined the University of Illinois Alumni Advisory Board.

Kate Reed, ’11, was accepted into the West Virginia University Hospital dietetic program and was just recently named the outstanding dietetic intern of the year for the entire state of West Virginia.

Alison Weingartner, wife of Karl Weingartner, Ph.D. ’81 and Director of the INTSOY program, passed away from complications of cancer on April 27.

U.S News and World Report ranked the flexitarian diet as the number six diet in 2013.

The Flexitarian Diet, written by Dawn Jackson Blatner, ’97, guides readers to eat more vegetables while still enjoying meats.

Christine Jablonski, ’12, (left) was recognized by the Illinois Dietetic Association as the 2013 Outstanding Intern.

She is pictured with Lisa Shkoda, IDA Outstanding Dietetic Student of the Year.

Nita Francis, ’70, provided the commencement address during the College of ACES graduation ceremony on May 11.
THANK YOU TO OUR GENEROUS DONORS

The Department of Food Science and Human Nutrition would like to express sincere appreciation to the following people and organizations for contributing to our programs from July 1, 2012 to June 30, 2013. It is with the support of alumni and friends that FSHN is able to implement outstanding education, research and outreach programs.

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Gary List, adjunct assistant professor, was named as a 2013 Institute of Food Technologists Fellow. Dr. List was recognized for his outstanding contributions to food science as a leader in oilseed processing, and for development of technologies leading to more healthful fats and oils. Dr. List has had a long, distinguished career as a research chemist at the USDA Regional Laboratory in Peoria, Illinois. He has had a hand in every major event occurring in the oilseed industry over the past 45 years. He is internationally known and recognized as an expert through prestigious awards and invitations to speak at international conferences and the World Congress. Dr. List has been active in the IFT for several years at the sectional and national levels and in many divisions.

Mary Ellis, long-time food science secretary, celebrated her 90th birthday in November 2012. She enjoyed a celebration with family and friends at Silver Creek Restaurant.

Jennifer Akiko Nakamura, wife of Dr. Mani Nakamura, passed away on April 1 in St. Louis after a battle with a rare form of cancer, embryonal sarcoma.

Deshanie Rai, a former Ph.D. student of Dr. Sharon Donovan and adjunct faculty member of FSHN, was awarded a 2013 Tribute to Women and Industry (TWIN) award that honors women who excel in their field and make significant contributions to their organization and profession.
WE WANT TO HEAR FROM YOU!

Please take a moment to fill out this form and mail it to the Department of Food Science and Human Nutrition, fax it to 217-265-0925, or e-mail to the address below. This helps us to stay in contact with you and to update our records. Additionally, any news that you would like to share will be included in next year’s newsletter.

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