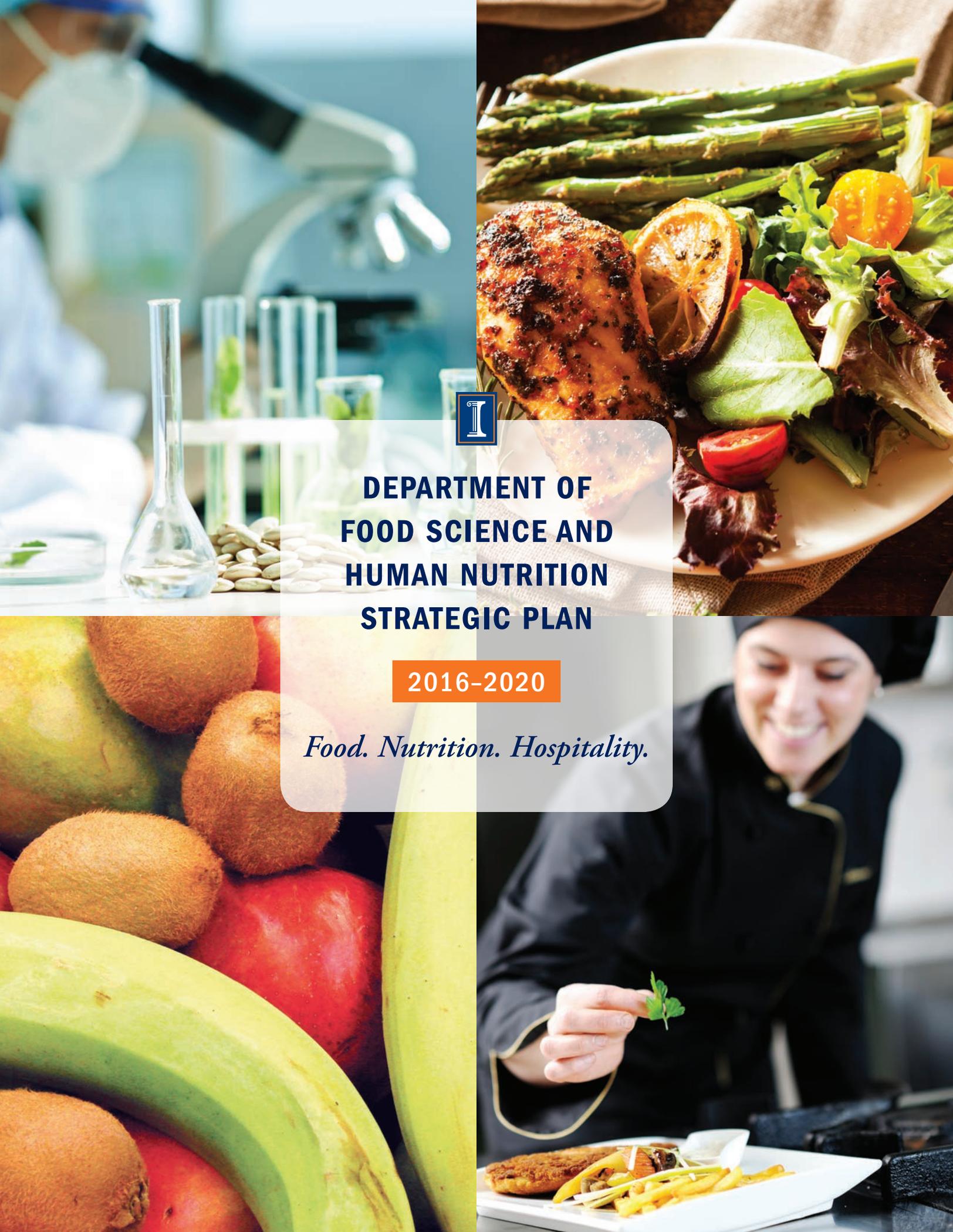




**DEPARTMENT OF  
FOOD SCIENCE AND  
HUMAN NUTRITION  
STRATEGIC PLAN**

**2016-2020**

*Food. Nutrition. Hospitality.*



## Department Head Statement

Food is personal. When people have food in adequate and reasonable amounts, at affordable prices and in unadulterated forms, it leads to optimal nutritional status and good health. Eating foods that are preferable and pleasing to the person, produced by environmentally sustainable methods and technologies and obtained through hospitable means or services, meets a basic human need that makes one feel satisfied, worthy, and productive.

Food is also political and provocative. What is a sustainable food system? What food processing technologies are personally, societally, and environmentally appropriate? What is a reasonable amount of food? How much food loss or waste is acceptable? Should all children in public schools be served the same foods? What foods are optimal for an individual's health requirements, given genetic and environmental factors? For 150 years, the University of Illinois has been discovering solutions, developing technologies, and disseminating research-based education to address big issues in the food, nutrition, and hospitality sciences.

Nearly every grand challenge that faces the world has a connection to food, whether it is ensuring water and food security, conserving energy in food production, reducing food loss and waste, developing novel foods, promoting food-based nutrition and health and mitigating disease, personalizing foods and dietary patterns to complement medical treatments, and setting food policy for economic and national security, and development, and so on. The Department of Food Science and Human Nutrition is uniquely positioned to radically and boldly solve local and global challenges in the food, nutrition, and hospitality sciences, as we are committed to bringing together talented people, technological resources, and dedicated time to discover and implement solutions to food-related problems. Challenges of and changes across the next 20–25 years are grounded in the choices and considerations made over the next 3–4 years. We are strategically positioned to address emerging issues and transform lives through our scholarly pursuits.



A handwritten signature in black ink that reads "Sharon M. Nichols Richardson".

Sharon M. Nichols Richardson

*personal*  
*provocative*  
*political*

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*For 150 years, the University of Illinois has been discovering solutions, developing technologies, and disseminating research-based education to address big issues in the food, nutrition, and hospitality sciences.*

# INTRODUCTION

The Department of Food Science and Human Nutrition (FSHN) is composed of 24 tenure system and nine specialized faculty members, along with a number of professional staff. Together, we implement research, education, and outreach programs designed to promote a safe, nutritious, accessible, and affordable food supply that enhances human health. We offer undergraduate concentrations leading to BS degrees in Dietetics, Food Science, Hospitality Management, and Human Nutrition, and these baccalaureates assume positions as nutritionists, dietitians, food scientists, technologists and engineers, product development and marketing researchers, food systems managers, restaurateurs, and entrepreneurs. Professional positions and advanced educational pathways are abundant for graduates of our programs. We offer state-of-the-art research-centered graduate programs leading to MS or PhD degrees in Human Nutrition or Food Science. We also offer a Professional Science Master's degree and an online Food Science Master's Degree, both of which are non-thesis options. Individuals that earn advanced degrees from our department typically experience accelerated careers in industry, government, and academia.

The FSHN Department has multidisciplinary research programs that focus on the integration of food, nutrition, and health; food materials science and engineering; biochemical and molecular nutrition; and food safety and security. We have outstanding teaching and research facilities with cutting-edge analytical equipment, including a food-processing pilot plant, a bioprocessing and fermentation pilot plant, a sensory science laboratory, a metabolic kitchen, and a human nutrition assessment laboratory. In addition, we have access to and utilize various technologically advanced support facilities, including animal care, proteomics, genomics, microscopy, imaging, and many others.

The Strategic Planning Committee has reflected on the current state of FSHN, and in light of emerging opportunities stemming from grand societal challenges it has prepared this document that establishes our vision and mission, and the values and principles that will guide our department as we move to achieve our stated goals, develop and implement new initiatives, and define the benchmarks that will quantify our future successes.

Our strategic plan provides a roadmap for the Department to guide decisions as we prioritize our efforts toward achieving our mission and vision. We expect to achieve the goals as outlined in our plan to accomplish major Departmental initiatives that are compatible with the Institution's aim of being *the preeminent public research university with a land-grant mission and global impact.*

*Together, we implement research, education, and outreach programs designed to promote a safe, nutritious, accessible, and affordable food supply that enhances human health.*



## OUR VISION

To be a global leader at transforming lives through distinguished scholarship in food, nutrition, and hospitality sciences.

## OUR MISSION

To implement research, education, and outreach programs designed to promote a safe, nutritious, accessible, and affordable food supply that enhances human health.

## OUR CORE VALUES

The Department of Food Science and Human Nutrition delivers high-impact programs of research, education, and outreach through scholarship that exemplifies integrity, excellence, creativity, and collaboration.



## OUR GUIDING PRINCIPLES

### We Provide

- Freedom to pursue academic interests in a diverse, inclusive, interdisciplinary, and enabling environment
- Opportunities for independent and collaborative discovery and learning

### We Expect

- Rigorous and ethical scholarship across our areas of excellence
- Responsibility and accountability for individual, group, and program actions, outcomes, and effects
- Commitment to the land-grant mission
- Dissemination of results and knowledge to a global audience

### We Encourage

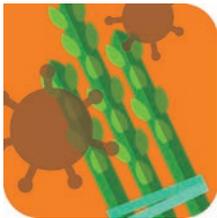
- Innovation and inspiration in scholarly pursuits
- Transformative ideas and aspirations for the future
- Diversity in our scholarly approaches
- Recognizing the ever-changing landscape of higher education, the Department will apply these guiding principles to an adaptable, nimble, transparent, and transformative approach to the pursuit of excellence in food science and human nutrition.



# OUR AREAS OF EXCELLENCE

## RESEARCH

Thematic areas of research in the Department of Food Science and Human Nutrition address several grand challenges facing society that cut across components of an integrated food system. Core areas for investigators in the Department include:



**Integrated Food, Nutrition and Health** | focus is on creating foods, exploring diets, and identifying food and nutrition patterns for optimal health, including gastrointestinal health, weight management, cancer prevention, and metabolic disease prevention.

**Food Materials Science and Engineering** | emphasis is on food ingredients, properties and interactions, as well as food microstructures, micro-carriers, and nanotechnology for developing novel, nutritious, abundant, and affordable foods.

**Biochemical and Molecular Nutrition** | attention is on metabolism of nutrients and bioactive food materials to elucidate mechanisms of action using genomics, sequencing, biomarker, and big data tools and analyses for health promotion, disease prevention, and survivorship.

**Food Safety and Security** | focus is on food microbiology and foodborne pathogen detection to ensure a safe and accessible food supply, as well as biomass conversion and balance across food, fuel, and fiber sources.

To discover knowledge and create technologies that are transferable to stakeholders and the public, investigators use a variety of basic and applied research methods and tools. All tenure system faculty members in the Department are engaged in interdisciplinary research. It is through such collaborations that the Department contributes to creative problem solving for complex issues surrounding the creation of abundant food and energy in a manner that is environmentally sustainable for the betterment of individuals, families, and communities in Illinois and around the world.

The FSHN Department has a diversified portfolio of research funding. Sources include:

- National Institutes of Health
- United States Department of Agriculture, National Institute for Food and Agriculture
- Department of Defense
- National Science Foundation
- Illinois Department of Transportation
- Food, nutrition and public health foundations and organizations
- Food, nutrition and health industries

Chairships and Professorships are bestowed upon faculty members who are the most distinguished in their disciplines and have demonstrated excellence in all areas of the land-grant mission. Such appointments denote a distinction above that of a typical Professorship in the individual's Department.



Sharon M. Donovan, Melissa M. Noel Chair in Nutrition and Health



William G. Helferich, Diet, Women's Health and Aging Professor



Kelly A. Tappenden, Kraft Foods Human Nutrition Professor

Scholar Appointments are designed to foster the programs of exceptionally promising Assistant and Associate Professors. Such appointments indicate outstanding promise in emerging scholars.



Anna Arthur Parker, Sylvia Stroup Scholar in Nutrition and Cancer

The University Scholars program recognizes the contributions of outstanding teachers and scholars. This distinction represents preeminence in the areas of teaching and research.



Elvira Gonzalez de Mejia



Sharon M. Donovan



Kelly A. Tappenden



Shelly J. Schmidt

Feature of Illinois Extension



Chapman-Novakofski

## INSTRUCTION

The Department of Food Science and Human Nutrition supports four areas of undergraduate concentration.

**Dietetics** | application of food and nutrition knowledge to improving nutrition and maintaining good health. Students receive verification statements in this accredited program to enter dietetic internships and graduate programs on the pathway to becoming registered dietitians.

**Food Science** | integration of chemistry, biology, engineering, and food systems to create and market new foods, enhance food safety, and manage food supply chains. Students complete an approved program to become leaders in the food industry, pharmaceutical, and personal care products industries as well as government research institutions.

**Hospitality Management** | combination of complex business principles with biological and social sciences toward careers in the hospitality industry. Students pursue positions in restaurant management, event planning, catering, and food service sectors.

**Human Nutrition** | integration of chemistry, biology, physiology, psychology, sociology, and nutrition to understand the impact of diet and lifestyles on human health. Students enter human services professions and health professional schools such as medical, dental, and physical therapy.

The Department of Food Science and Human Nutrition offers the Masters of Science (MS) and Doctorate of Philosophy (PhD) degrees in the concentrations of Food Science and Human Nutrition. The MS and PhD programs are traditional, in-resident thesis-based programs requiring completion of original research, from which graduates quickly find positions in academia, industry, and government agencies. In addition, the Department administers a Professional Sciences Masters (PSM) program, a course-intensive concentration with a combination of science and business, and an Online MS Degree in Food Science program for professionals continuing to work in industry while simultaneously completing the graduate program. The PSM and Online MS are non-traditional, non-thesis programs and are considered terminal degrees, not requiring a research component. Qualified students who are enrolled in the MS or PhD programs may complete our accredited graduate-level Dietetic Internship.

## EXTENSION, OUTREACH AND ENGAGEMENT

**Illinois Extension** | One Professor and Extension Specialist develops and manages University of Illinois Extension programs in foods and nutrition, notably in the areas of diabetes prevention, osteoporosis prevention, elderly nutrition, and nutrition education programs for adolescents.

**Outreach and Engagement** | We create and deliver meaningful public service and outreach programs that engage individuals, families, and communities in ways that impact their health and well being. Faculty members participate in public engagement through demonstration projects, workshops, training sessions, service learning courses, and industry consulting and collaborating that relate to food supply and access, food safety, food chemistry, and childhood obesity prevention, among other topics.

## OUR OPPORTUNITIES FOR GROWTH

An environmental scan of the drivers behind changes in food, nutrition, and hospitality sciences, leads us to target areas for future growth. Drawing upon events, trends, and expectations, rooted in evidence and experience, we have identified three key areas for advancement.

**Food Loss and Waste** | is an economic and environmental drain, as up to four billion tons of raw and processed food materials are unused each year. From food processing to transportation to retailing to consumer habits, losses in food span the entire food system. Solutions at the macro-level, such as food system analyses and shifts, as well as at the micro-level, such as sensors, nanotechnology, anaerobic digestion, or value-added biotransformation, are needed to reduce wastage. Bioconversion into novel products and food waste recovery, from the food service sector for example, are areas ripe for exploration.

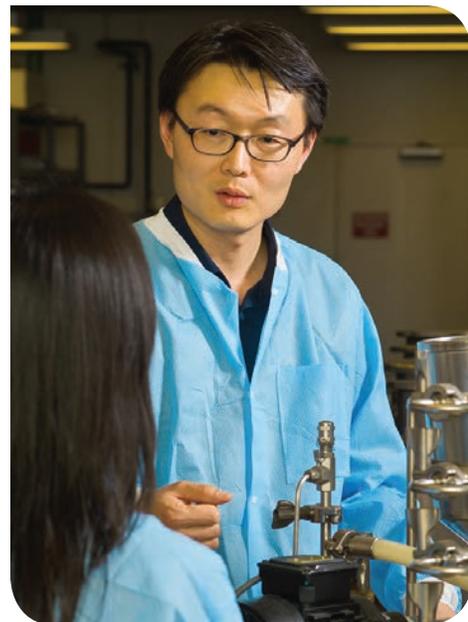
**Personalized Nutrition** | will be at the forefront of health promotion and disease prevention and management. In the United States, about 33% of premature deaths are due to poor nutrition and physical inactivity. Using tools and techniques in the basic nutrition sciences, coupled with analytical strategies from big data, discoveries in the intra- and inter-personal variability in responses to food- and diet-based interventions will be elucidated, such that scientific evidence for individualized recommendations for nutritional health will be available.

**School Food Systems** | over 80 million children attend public schools in the United States, and in Illinois, roughly 1 million school-aged children benefit from the National School Lunch Program. Food, nutrition and hospitality sciences are no more evident than in school food systems. Discoveries in the psychosocial, environmental, educational, and technical aspects of school food and nutrition programs, policies, and practices are fundamental to establishing a safe, nutritious, accessible, and affordable food supply in this context.

With our aspiration of global leadership in transforming lives through distinguished scholarship and with a constant eye on preeminence in the food, nutrition, and hospitality sciences, we will focus our efforts and resources on achieving quality, quantity, and impact in strategic goal areas. We also will hold ourselves accountable for our expected achievements, and we will continuously evaluate our efforts to adapt, adjust, and lead in an ever-changing environment.

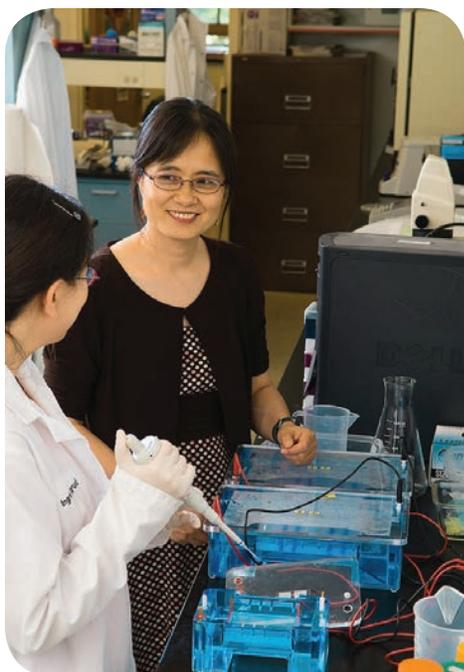
*“Sustainability and food security are very serious problems both within the US and globally. Reductions in food loss and food waste can dramatically improve the sustainability of our food supply and improve access to healthy food for all. FSHN’s recruitment goals will ensure that we are a leader in this impactful research area.”*

—Dr. Michael J. Miller, FSHN



# OUR GOALS, INITIATIVES AND BENCHMARKS

By 2020, the Department of Food Science and Human Nutrition will achieve the following goals, through the noted initiatives and related benchmarks.



## 1. Foster outstanding basic and applied research across areas of excellence

### A. Build faculty capacity and excellence in strategic areas

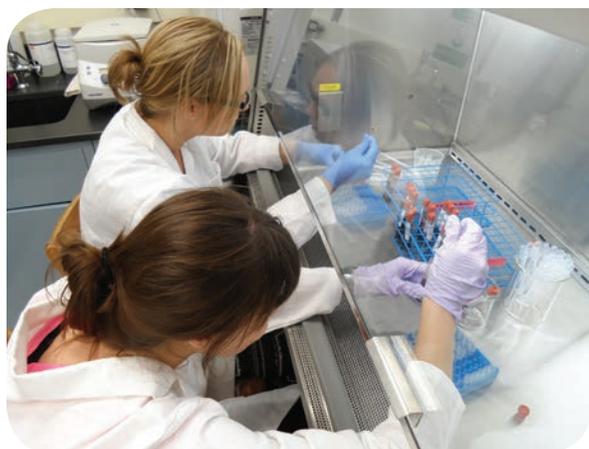
- i. Tenure system faculty,  $n=+3$  (increase from 24 to 27)
  - a. Food Loss and Waste as part of Food Safety and Security and/or Food Materials Science and Engineering
  - b. Personalized Nutrition as part of Biochemical and Molecular Nutrition and/or Integrated Food, Nutrition, and Health
  - c. School Food Systems as part of Integrated Food, Nutrition, and Health and/or Food Safety and Security

### B. Promote publications, grants, and contracts activity in all areas

- i. Number of peer-reviewed publications, 165/year (currently 150/year)
- ii. Research expenditures, \$5M/year (currently \$3.5M/year)
- iii. Percentage of publications appearing in journals with impact factors greater than 3.0, 50%

### C. Enhance core research facilities for long-term growth

- i. Complete Metabolic Kitchen renovations by 2017
- ii. Complete Pilot Plant renovations by 2018
- iii. Create a Food Microbiology Suite by 2019



## 2. Enable transformative educational programs

### A. Recruit and retain high-quality students, including diverse students

- i. Number of undergraduate students,  $n=435$  (currently 395)
- ii. Freshman retention rate, 94% (currently 93%)
- iii. Bachelor of Science terms to degree, 8.2 (currently 8.7)
- iv. Number of residential and online graduate students,  $n=150$  (currently 138)
- v. Doctorate of Philosophy terms to degree, 12.0 (currently 12.8)
- vi. Percentage of underrepresented minority students, 15% (currently 14.5% undergraduate; <1% graduate)

### B. Continue excellence in instruction

- i. Percentage of faculty named to the “List of Teachers Ranked as Excellent by the Students,” 55%/academic year (currently 50%/academic year)
  - a. “Instructor’s Overall Teaching Effectiveness” departmental average rating, 4.3 (currently 4.1)
  - b. “Overall Quality of this Course” departmental average rating, 4.3 (currently 4.1)

### C. Foster transformative learning

- i. Percentage of undergraduate students completing a Study Abroad or International experience, 32% (currently 30.7%)
- ii. Percentage of undergraduate students completing a mentored research experience, 56% (currently 54.3%)
- iii. Percentage of thesis-seeking graduate students receiving an assistantship or fellowship, 95%
- iv. Percentage of doctoral-level graduate students publishing two peer-reviewed papers before graduation, 90%

## 3. Provide relevant information and outreach to the public that we serve

### A. Engage in professional and public service

- i. Percentage of faculty involved in Illinois Extension, outreach, public engagement, and/or service activities, 100% (currently 100%)
- ii. Percentage of faculty holding positions of leadership in professional societies and associations, 58% (currently 54%)

### B. Contribute to entrepreneurship, innovation, and technology transfer

- i. Number of invention disclosures, patents, licensing agreements, start-up companies, etc., 2/year (currently 1/year)

## 4. Steward and advance resources for strategic investment

### A. Focus on faculty capacity and excellence in strategic areas

- i. Number of tenure system faculty positions, headcount, n=27
- ii. Number of new endowed tenure system faculty positions with emphasis in strategic area, n=1

### B. Emphasize transformative learning experiences of students

- i. Meet Pilot Plant Renovation goal, \$3,000,000
- ii. Student support for scholarships and fellowships, annually, \$400,000

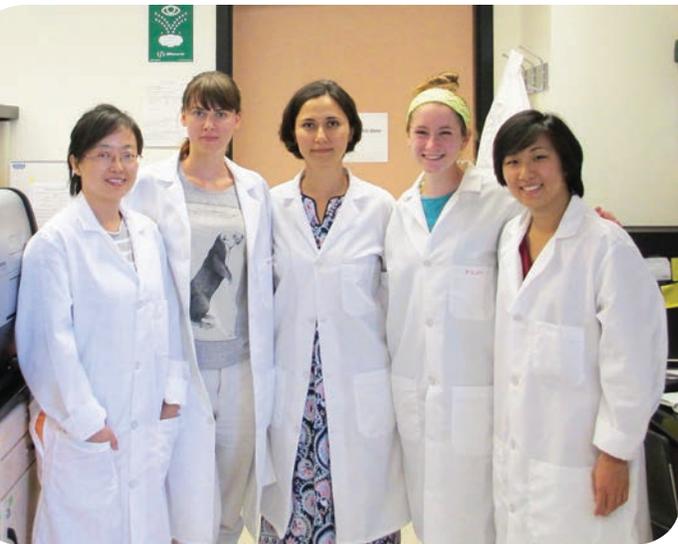
### C. Plan for future mission-oriented facility as part of campus campaign

- i. Building fund considered for campus master plan



## OUR PROCESS

Our strategic plan was developed over a 24-month period that began in the spring of 2014, with the Provost's Review of Academic Programs. This review required a candid and critical self-assessment of programmatic goals, trends, and challenges as related to student academic experiences, research and scholarly vitality, and human, physical, and financial resources and provided a framework for strategic planning. Throughout the fall of 2014, the Strategic Planning Committee met monthly to discuss and deliberate the Department's core values, vision, mission, immediate priority areas, and major future initiatives in the context of Departmental strengths, weaknesses, opportunities, and threats. These discussions informed a full-day faculty retreat at the end of 2014 and at the end of 2015, during which participants expressed further ideals, goals, and aspirations for the Department. During 2015–2016, the Strategic Planning Committee deliberated and developed drafts of our plan, and in the spring of 2016, these drafts were presented to the Departmental Faculty Advisory Committee followed by the full faculty body. Four open forums were held during which departmental members provided additional critical input. This final version of our plan was unanimously approved at the May 6, 2016, FSHN Department faculty meeting.



## FSHN STRATEGIC PLANNING COMMITTEE

- Leslie Alexander
- David Brandon
- Sharon Donovan
- Nicki Engeseth
- Hao Feng
- Timothy Garrow
- William Helferich
- Yong-Su Jin
- Michael Miller
- Manabu Nakamura
- Shelly Nickols-Richardson

## CONTACT FOR DEPARTMENT

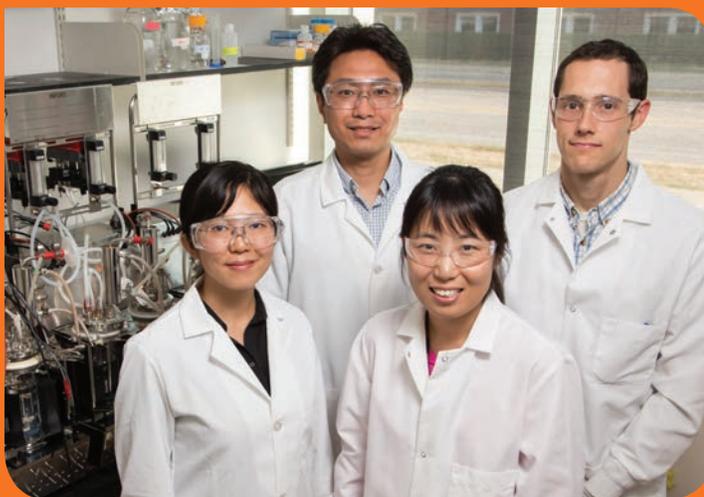
To connect with the FSHN Department, please contact us at: [fshn-general@ad.illinois.edu](mailto:fshn-general@ad.illinois.edu). We are located at 260 Bevier Hall, 905 S. Goodwin Ave., Urbana, IL, 61801. Please browse our website at: [fshn.illinois.edu](http://fshn.illinois.edu).

## INVEST IN FSHN

To make a charitable donation to the FSHN Department, please give online at: [fshn.illinois.edu/gift](http://fshn.illinois.edu/gift). To further discuss your intents and wishes, please contact Mr. Matthew Smith at: [msmi@illinois.edu](mailto:msmi@illinois.edu).

## RENOVATION OF FSHN'S PILOT PROCESSING PLANT IS ON SCHEDULE FOR A SPRING 2017 OPENING





ILLINOIS  
UNIVERSITY OF ILLINOIS AT URBANA-CHAMPAIGN