

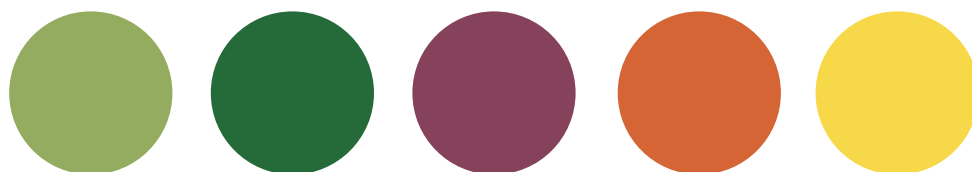
UW-Madison

Nutritional Sciences:

Making an Impact on Healthy Living



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Department of Nutritional Sciences

Research

Education

Outreach

The Department of Nutritional Sciences (DNS) is vital to the work in preventive care and human health. The research and education accomplished here affect all communities from those who are undernourished to the staggering numbers of those suffering from chronic diseases such as obesity, diabetes, cardiovascular disease and some cancers. Many of the leading causes of death are nutrition-related and preventable, diminishing lives and increasing healthcare costs, but there is still work to do in order to more fully understand how our bodies process nutrients as well as how to communicate and sustain healthy eating habits.

Faculty and staff members in DNS aim to solve current significant issues through their own research and participation in many other programs and institutions. DNS researchers play a large role in human wellness by collaborating with other life science and medical departments on this campus and at other universities, sharing their expertise with health organizations throughout the United States, and talking with communities around the world about proper sustainable

nutrition. Their expertise and research spans from metabolic processes to the effects of specific nutrients such as iron, Vitamin A or selenium.

Though research provides the foundation for progress in human nutrition, the second purpose of DNS is to train the future health practitioners, researchers, and health administration professionals. DNS hosts the fifth largest class in the university, Nutrition Today, and Dietetics is the largest program in CALS with a history of successful graduates. The graduate program collaborates with over 20 other departments on campus. Students in Nutritional Sciences get a holistic real world preparation for a large variety of career paths.

Research and academic education are only the doors to further learning, however, and results work best when they reach outside of the lab and classroom. The ultimate goal is to enhance humankind's understanding of the effects of nutrition in relation to health, disease and socioeconomics in order to solve crucial problems people face around the world.

For more information on DNS, visit:

<http://www.nutrisci.wisc.edu/>



“Food is a central activity of mankind and one of the single most significant trademarks of a culture.” – Mark Kurlansky

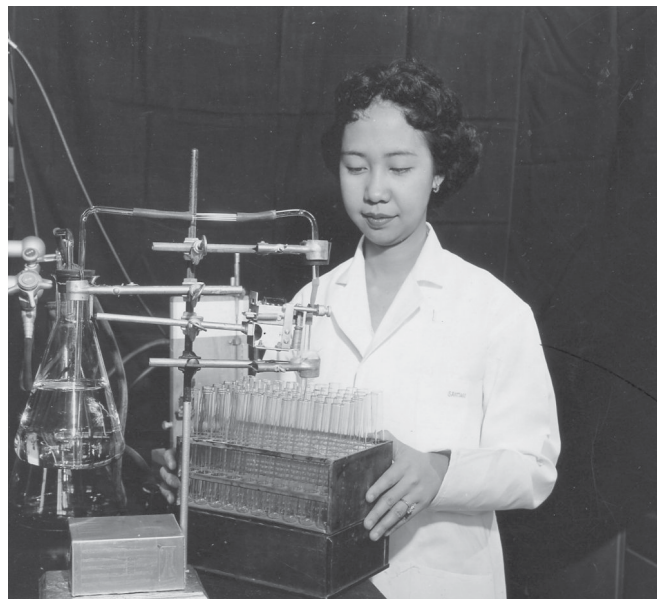
History of Nutritional Sciences at UW-Madison

UW-Madison began focusing on nutrition in the late 1800s with the Morrill Land Grant Act of 1862 and the establishment of agricultural research on the university campus in 1878.¹ Four years later, the Federal Hatch Act prompted agriculture research stations throughout the United States.² Although the research was generally performed to advance agriculture and food production from animals, general nutrition played a strong role. Soon scientists were developing theories on what diet is necessary for any being - animal or human - to live. Public interest in food safety, nutrition and production was also increasing rapidly, which drew the attention of chemists at UW. Many UW researchers discovered nutrients in the early 1900s such as vitamin A, two of the vitamins B, and iron.³ These nutrients were eventually found to prevent common ailments of the time such as pellegra and beriberi, and now we know they are a staple of our diet.

Due to the substantial and growing interest, a number of institutions outside of UW were creating groups to study and discuss human nutrition.¹ The Pure Food and Drug Act and Meat Inspection Act came out in 1906. The first USDA food guide was published in 1916. The American Dietetic Association (now Academy of Nutrition and Dietetics), American Institute of Nutrition (now American Society for Nutrition), and the Nutrition Foundation were all introduced to the U.S. before 1950. Americans were clearly concerned about human nutrition and the researchers at UW were already leading the way to understanding a healthier lifestyle.

Several departments, especially in the College of Agriculture (now College of Agricultural and Life Sciences or CALS), had researchers studying nutrition. Biochemistry often took nutrient-related projects and Home Economics (now Human Ecology) had courses in food and nutrition in addition to research in food composition and effects on the diet. Courses in dietetics date back to 1904 in the Department of Home Economics and were very heavy in the sciences. When Home

Economics was moved to the College of Agriculture in 1908, the dietetics program added medical components to the courses. The department became the School of Home Economics in 1951, which then established the Department of Foods and Nutrition. Dietetics and other studies of nutrition remained in the School of Home Economics until 1968 when university administrators recognized that a more specific focus on the study of human nutrition was needed in the university.²



Emerita Alcantara, a Ph.D. student of Hellen Linkswiler, working in a laboratory in the School of Home Economics shortly before the establishment of the Department of Nutritional Sciences

The Dean of CALS, Glenn Pound, initiated a department review of Foods and Nutrition in 1965. Three years later, the Department of Nutritional Sciences was formed under Alfred Harper, a biochemist who served as the Nutritional Sciences department chair for the first fourteen years.² DNS first stayed in the Home Economics building, but was finally housed in the former Children's Hospital in 1982 where it remains today. The department was established with the recognition that nutrition was a diverse field, so faculty members were brought in from departments of Medicine, Biochemistry, Food and Nutrition, and Animal Sciences.²

“The multidisciplinary nature of nutrition and its concern with both fundamental and applied problems make it an essential component of national and international health, food and population programs.” – Alfred Harper (1971)



The Nutritional Sciences Building in 1989

Photo taken by Wolfgang Hoffman, Dept. of Agricultural Journalism

Nutrition still reaches deep into UW and the research has a large impact on our lives. The work done in the Department of Nutritional Sciences exudes the Wisconsin Idea with its collaborative and practical manner. Human and animal health depend on understanding nutrition, especially in today's world where there is malnutrition even in the most developed countries and chronic diseases such as obesity,

cardiovascular, and diabetes are making a huge impact on health and health care costs. The Centers for Disease Control and Prevention (CDC) as well as the Academy for Nutrition and Dietetics state that the high percentages of obesity in the United States - 33 percent of adults and 16 to 17 percent of children - are connected with other chronic diseases, many of which are preventable or can be improved with diet and activity changes. Nutritional Sciences researchers alongside several other UW departments such as Biochemistry, Food Sciences, Microbiology, and the School of Medicine and Public Health work to advance our knowledge of nutrition and potentially alleviate many illnesses that affect the world today.

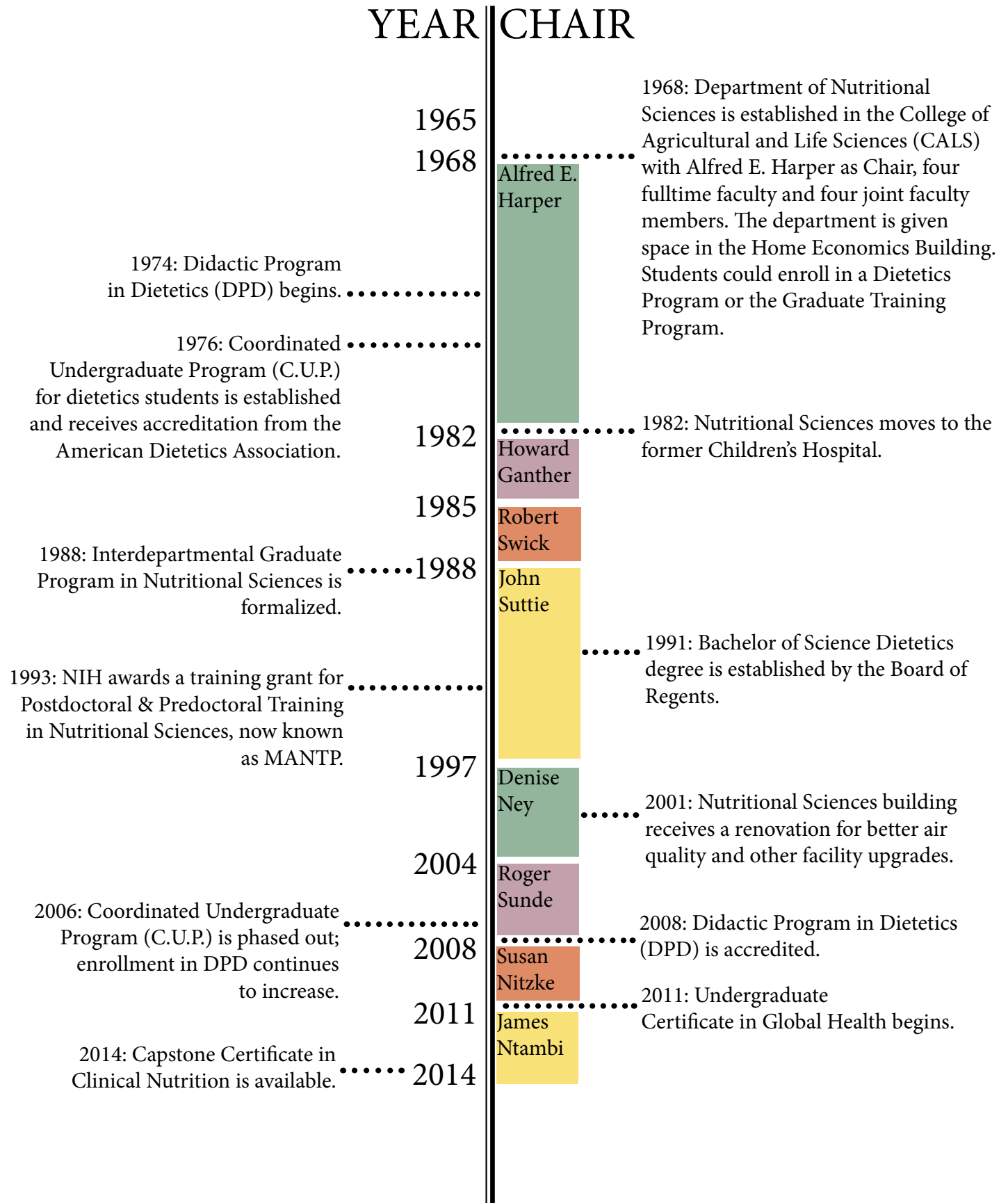
The Department of Nutritional Sciences has three areas of focus: research, education and outreach. Each focus supports the next. With a strong foundation of research, the faculty and staff add to the breadth of knowledge on nutrition and well-being. This knowledge serves other collaborating departments, society, and the students that are learning from Nutritional Science instructors. Education, of course, is a principal focus at DNS with the goal of providing knowledgeable citizens with the skills to improve and promote the health of others. Finally, DNS can make connections within UW-Madison, the state of Wisconsin and farther by sharing the goals and results of their research and education with others.

¹Denning Ullrich, H. (2004). The nutritionists, scientists and practitioners: A personal and historical story about the men and women who shaped the profession. Berkeley, California: Helen Denning Ullrich

²Harper, A. Correspondences found in Rm. 425 of Steenbock Library Archives, 550 Babcock Dr., Madison, WI. 90/80 3/3 CALS Pound files Box 6 of 15

³DeLuca, H. F., & Harper, A. E. (1983). One hundred years of nutritional research at the University of Wisconsin-Madison. Madison, Wis.: University of Wisconsin, University Archives, Steenbock Rm. 425, Accession 2009/299 60B9

Timeline of Dept.



Faculty & Staff

Chairpersons of Department of Nutritional Sciences

1968-1982 Alfred Harper: Harper organized the Department of Nutritional Sciences as it moved to CALS and ambitiously led the department while also playing an active role in national nutrition policy. He often fought for a more permanent home for the department, which was awarded at the end of his appointment as Chair in 1982. His research focused on amino acid metabolism.

1982-1985 Howard Ganther: The department had just moved into the former Children's Hospital when Ganther became Chair. The success of the department was soaring during this period as UW-Madison ranked in the top five universities in nutrition research. Ganther researched selenium, often finding connections to cancer.

1985-1988 Robert Swick: Swick joined the Nutritional Sciences faculty in 1969 with a successful background in protein metabolism. Prior to working at UW, he had developed a new technique still used today to measure protein turnover in rat livers. He was an active faculty member and Chair, despite retiring in 1986. Swick has since passed away in 2011.

1988-1997 John Suttie: In his first year as chair Suttie formalized the Interdepartmental Graduate Program in Nutritional Sciences (IGPNS), and later applied for an NIH training grant that is still used in the Molecular and Applied Nutrition Training Program (MANTP), both with a focus on the ever-important collaboration between departments. His research focused on vitamin K, and he is a member of the National Academy of Sciences.

1997-2003 Denise M. Ney: Ney enthusiastically served as Chair through many changes to the department. The building was renovated and the Karen Spector Reading Room was built. Both the graduate and the Dietetics programs underwent major curriculum changes during her time as Chair. The Bascom Professorship in Nutrition was established and awarded. She has since worked with the Wisconsin Alumni Research Foundation (WARF) to patent and license glycomacropeptide medical foods that improve diet and health for those with phenylketonuria (PKU) and tyrosinemia. Ney's research in gastrointestinal physiology has led to improved treatments for those suffering from short bowel syndrome.

2004-2008 Roger Sunde: Sunde, who became Department Chair the year he started his work in the department, is dedicated to his research on selenium. He established the Undergraduate Capstone Seminar in Dietetics and Nutritional Sciences.

2008-2011 Susan Nitzke: Nitzke, a graduate from the Department of Nutritional Sciences, worked in the nutrition industry and as an outreach specialist prior to becoming a faculty member. As Chair of the department, she saw the department start the now annual Grandparents University. Her research focused on the methodology for effective nutrition education.

2011-present James Ntambi: Ntambi is currently the Steenbock Professor of Nutritional Sciences and has a joint appointment in Biochemistry. He has seen two certificates come into fruition at Nutritional Sciences - the Undergraduate Certificate in Global Health and Online Capstone Certificate in Clinical Nutrition. Aside from his student field experiences in Uganda with a focus on sustainable nutrition, he researches the genetic regulation of metabolism.

Faculty/Private Investigator & Laboratory Staff

P.I. David Eide, Ph.D.	Position Professor	Research Nutritional genomics and molecular responses to changes in nutrient status
Lab Staff Janet Taggart, B.S., Senior Research Specialist Michael Bucci, Research Assistant, MDTP		
		Jeeyon Jeong, Ph.D., Assistant Scientist Colin MacDiarmid, Ph.D., Associate Scientist
P.I. Rick Eisenstein, Ph.D.	Position Professor	Research Iron metabolism; posttranscriptional control of proteins required for the uptake, storage, and use of iron
Lab Staff Sheila Anderson, D.V.M., Researcher Kate Deck, M.S., Assistant Scientist		
		Chris Nizzi, M.S., Research Specialist Gretchen Seim, IGPNS Student
P.I. Guy Groblewski, Ph.D.	Position Professor	Research Intracellular signal transduction in gastrointestinal epithelial cells
Lab Staff Diana Thomas, B.S., Senior Research Specialist Elaina Jones, IGPNS and MANTP Student		
		Michelle Koke, IGPNS Student Arielle Laski, Intern
P.I. HuiChuan Lai, Ph.D., R.D.	Position Professor	Research Epidemiological studies linking nutrition and disease outcomes in pediatric populations
Lab Staff Makayla Schuchardt, M.S., R.D., C.N.S.C. Anita Laxova, B.S., Research Program Manager Suzanne Shoff, Ph.D., Associate Scientist		
		Zhumin Zhang, Ph.D., Assistant Scientist Lyanne Chin, IGPNS Student
P.I. Denise Ney, Ph.D., R.D.	Position Professor	Research Nutritional management of phenylketonuria and gastrointestinal physiology
Lab Staff Sangita Murali, Ph.D., Associate Researcher Emily Sawin, IGPNS and MANTP Student Bridget Stroup, IGPNS Student		
P.I. James Ntambi, Ph.D.	Position Professor, Chair	Research Mechanisms of fat cell differentiation; regulation of gene expression by dietary and hormonal factors
Lab Staff Sabrina Dumas, IGPNS Student		
P.I. Beth Olson, Ph.D.	Position Associate Professor, Extension Specialist	Research Breastfeeding support and improving infant feeding practices
Lab Staff Alexandra Macmillan Uribe, IGPNS Student Julie Patterson, IGPNS Student		

Faculty/Private Investigator & Laboratory Staff

P.I.	Position	Research
Brian Parks, Ph.D.	Assistant Professor	Systems genetics approaches to evaluate gene-diet interactions and novel genes influencing obesity and diabetes

P.I.	Position	Research
Susan Smith, Ph.D.	Professor	Nutritional interactions with Fetal Alcohol Spectrum Disorder (FASD); molecular mechanisms of FASD neurotoxicity
Lab Staff		
George Flentke, Ph.D., Senior Scientist		Shane Huebner, Ph.D., Postdoctoral Fellow
Ana Garic, M.S., Senior Researcher		Robyn Amos-Kroohs, Ph.D., Postdoctoral Researcher

P.I.	Position	Research
Roger Sunde, Ph.D.	Professor	Selenium deficiency and high selenium as models for nutrient regulation of gene expression; molecular mechanism of selenium regulation and homeostasis; biochemical functions of selenium; molecular biomarkers of selenium status
Lab Staff		
Rachel Taylor, IGPNS Student		
JinLong Li, Visiting Research Fellow		

P.I.	Position	Research
Sherry Tanumihardjo, Ph.D.	Professor	Vitamin A assessment methodology; carotenoid bioavailability; and international nutrition
Lab Staff		
Chris Davis, M.S., Research Specialist		Bryan Gannon, IGPNS and MANTP Student
Mike Grahn, B.A., Senior Research Specialist		Stephanie Mondloch, IGPNS Student
Luciana Mourao, Ph.D., Honorary Fellow		Kiersten Olsen, IGPNS Student
Devicka Suri, M.S., M.P.H., Research Intern		

P.I.	Position	Research
Eric Yen, Ph.D.	Professor	Intestine, assimilation of dietary fat, and energy balance; physiological functions of triacylglycerol synthesis
Lab Staff		
David Nelson, Ph.D., Assistant Scientist		
Mei-I Yen, Ph.D., Honorary Fellow		
Ting-Ni Huang, IGPNS Student		

Animal Care Facilities		
Chris Davis, M.S., Research Specialist		
Chris Nizzi, M.S., Research Specialist		
Sheila Anderson, D.V.M., Researcher		
Magali Hernandez, Animal Research Technician		

Academic Staff

Staff Member

Pete Anderson, M.S., R.D.
Michelle Johnson, M.S., R.D.
Lynette Karls, R.D., C.D.
Robin Mittenthal, M.S.
Makayla Schuchardt, M.S., R.D.
Julie Thurlow, Dr.P.H., R.D.

Position

Senior Lecturer
Lecturer
Distinguished Faculty Associate
Associate Student Services Coordinator
Assistant Faculty Associate, Clinical Nutritionist
Faculty Associate

Extension

Staff Member

Gayle Coleman, M.S., R.D.
Teresa Curtis, M.S., R.D.
Betsy Kelley, M.S., R.D.

Position

Senior Lecturer & Extension Specialist, UW-Extension
Outreach Specialist, DNS
Outreach Specialist, DNS

Administrative/Office

Staff Member

Bill Omdahl
Kristen Dreifuerst
Maria (Masha) Zdanovskaia
Liz Kalmbach
Scott Anderson

Position

Department Administrator
University Services Associate, Undergraduate and Graduate Coordinator
University Services Associate 2
Network Administrator
Financial Specialist

Emeritus Professors & Past Nutritional Sciences Staff

Emeritus Professors

Atkinson, Richard
Benevenga, Norlin J.
Elson, Charles
Ganther, Howard
Greger, Janet
Harper, Alfred
Hoekstra, William
Johnson, Nancy
Linkswiler, Hellen
Marlett, Judith
Nitzke, Susan
Pringle, Dorothy
Schoeller, Dale
Shrago, Earl
Steele, Robert
Suttie, John
Swick, Bob
Voichick, Jane

Past Professors

Csete, Joanne
Gormican, Annette
Rose, David

Past Academic Instructional Staff

Auerbach, Gail
Christian, Janet
Gleason, Sara
Karr, Jennifer
Nagel, Maria
Patterson, Jill
Wentworth, Alice

Past Outreach Staff *

Getlinger, Mary Jane
Green, Gloria
Kedrowski, Karen
Lambrecht, Ann
Pederson, Kate
Rettamel, Amy

*This list of past faculty and staff was compiled from old records and archives. There may be past DNS employees not listed. In addition, there are many affiliated faculty and staff who are not shown here but appreciated in many ways for their contributions to DNS programs.

Research

Discovery

Insight

Evidence

Research provides the base of information that supports the education and outreach missions of the department. The private investigators at Nutritional Sciences gather data and share any significant results in industry-based publications, thus adding to the pool of knowledge on our health and potential improvements. The research done here is valuable to labs in other UW departments, scientists outside of UW, health care providers, agriculture, government officials concerned about health care costs, the health and food industries, and the general public. Scientists search for ways to prevent chronic diseases, intervene in disease progression, and may be able to extend a healthier lifespan by investing time into a thorough search on how nutrients affect our bodies.

Ten faculty members have research labs in the Nutritional Sciences building and Dr. James Ntambi, the present chair of the department, keeps his lab in the Biochemistry building as he serves a joint appointment with the two departments. In August the department will welcome an additional faculty member, Brian Parks, who will also have a lab. Also working in the labs as of July 2014 are 18 additional scientists and researchers, 5 postdoctoral students, 14 graduate students, and approximately 30 undergraduate students. They conduct a variety of investigations ranging from homeostasis management to the effects of individual nutrients on metabolic processes.

“Only through basic research will adequate techniques for the early detection of malnutrition be developed and knowledge of the effects, especially long term effects, of early malnutrition of different types be assessed and established.” - Alfred Harper (1971)



Dr. James Ntambi and scientist Makoto Miyazaki in Ntambi's research lab after the discovery that removing the SCD-1 gene from a mouse allows it to eat a high-fat diet without gaining weight or risking complications of diabetes (2002)

Photo taken by Jeff Miller

The Purpose & Power of Research

Nutrition has a strong impact on human health and the state of our economy. According to the CDC, many chronic diseases are preventable and diets play a significant role in the development or prevention of those diseases. Both the government and citizens would save healthcare dollars by avoiding nutrition-related diseases if they could sustain a healthy diet.

Here at the Department of Nutritional Sciences, faculty members are the private investigators into many problems caused by different forms of malnutrition. Their research covers an array of critical issues such as neurological diseases, nutrient imbalances, cancer,

obesity, diabetes and more. Some researchers even invest their time into specific populations, such as children or communities in other countries. Below is a list of the critical issues addressed within the UW-Madison Nutritional Sciences laboratories.

With far-reaching connections to other scientists on and off campus, industry leaders, sponsors, and government programs, Nutritional Sciences researchers have and can continue to accomplish their goals of improving our knowledge about nutrition-related diseases. Further exploration in this field will produce longer and healthier lives.

Faculty Member	Research Focus	Critical Issue(s) Addressed
David Eide, Ph.D.	Zinc Metabolism & Homeostasis	Diseases like Alzheimer's, ALS, and Huntington's
Rick Eisenstein, Ph.D.	Coordinate Regulation of Iron Metabolism & Production of Red Blood Cells	Anemia, Iron Deficiency or Overload
Guy Groblewski, Ph.D.	Membrane Trafficking in Digestive Epithelia	Pancreatitis, Pancreatic Cancer
HuiChuan Lai, Ph.D., R.D.	Pediatric Populations	Cystic Fibrosis, Asthma, Lung Disease, Obesity
Denise Ney, Ph.D., R.D.	Phenylketonuria (PKU), Gastrointestinal Physiology	Phenylketonuria (PKU), Short Bowel Syndrome (SBS)
James Ntambi, Ph.D.	Genetic Regulation of Metabolism	Obesity, Diabetes, Cardiovascular Disease
Beth Olson, Ph.D.	Breastfeeding, Early Childhood Nutrition Interventions	Infant Health, Effective Child Obesity Prevention
Brian Parks, Ph.D.	Gene-diet Interactions and Novel Genes	Obesity, Diabetes
Susan Smith, Ph.D.	Alcohol and Fetal Development	Prenatal Alcohol Exposure
Roger Sunde, Ph.D.	Dietary Requirements for Selenium and Impact of Excess Selenium	Diseases affecting the Muscle and Heart, questionably also Cancer & Diabetes
Sherry Tanumihardjo, Ph.D.	Vitamin A	Human Nutrition
Eric Yen, Ph.D.	Dietary Fat Metabolism in Intestines	Obesity and other Metabolic Diseases

Undergraduate Programs

Knowledge

Practice

Experience

Nutritional Sciences seeks to foster a comprehensive learning environment for its students by providing knowledgeable instructors, an intensive curriculum, and building field-related experience. Students are the future skilled practitioners, researchers, industry leaders and public health officials. After graduation they will enter the field and help the economy in two ways - as a working citizen and applying their skills to benefit people's food quality, health, and lifestyle.

The Department of Nutritional Sciences presently offers two undergraduate degrees under one Nutritional Sciences major: Bachelor of Science and Dietetics. The Nutritional Sciences major is the third largest in the College of Agricultural & Life Sciences (CALS). Both degrees have curricula heavy in biology, chemistry and nutritional sciences with additional science courses that depend on the student's focus. Those in the Didactic Program in Dietetics (DPD) are also required to take some business and food science courses since registered dietitians generally work more closely with the public.

Bachelor of Science- Dietetics

Director of DPD: HuiChuan Lai

Coordinator of DPD: Lynette Karls

Students who plan to become a registered dietitian (RD) must fulfill three requirements: a Bachelor of Science degree, a dietetic internship (DI), and pass the national registration exam. DNS has an accredited Didactic Program in Dietetics (DPD) that specifically prepares students to excel as a dietitian by building skills in critical thinking, science, communication, and clinical health.

Future Paths for Dietetics:

- ▶ Registered Dietitian (RD)
- ▶ Clinical Healthcare (hospitals, nursing homes, etc.)
- ▶ Graduate School
- ▶ Research
- ▶ Public Health Agency
- ▶ Food Industry
- ▶ Private Practice (nutrition consultant)
- ▶ Pharmaceutical Companies

DNS Dietetic Internship placement is approximately 80 percent. That's 30 percent greater than the national average!

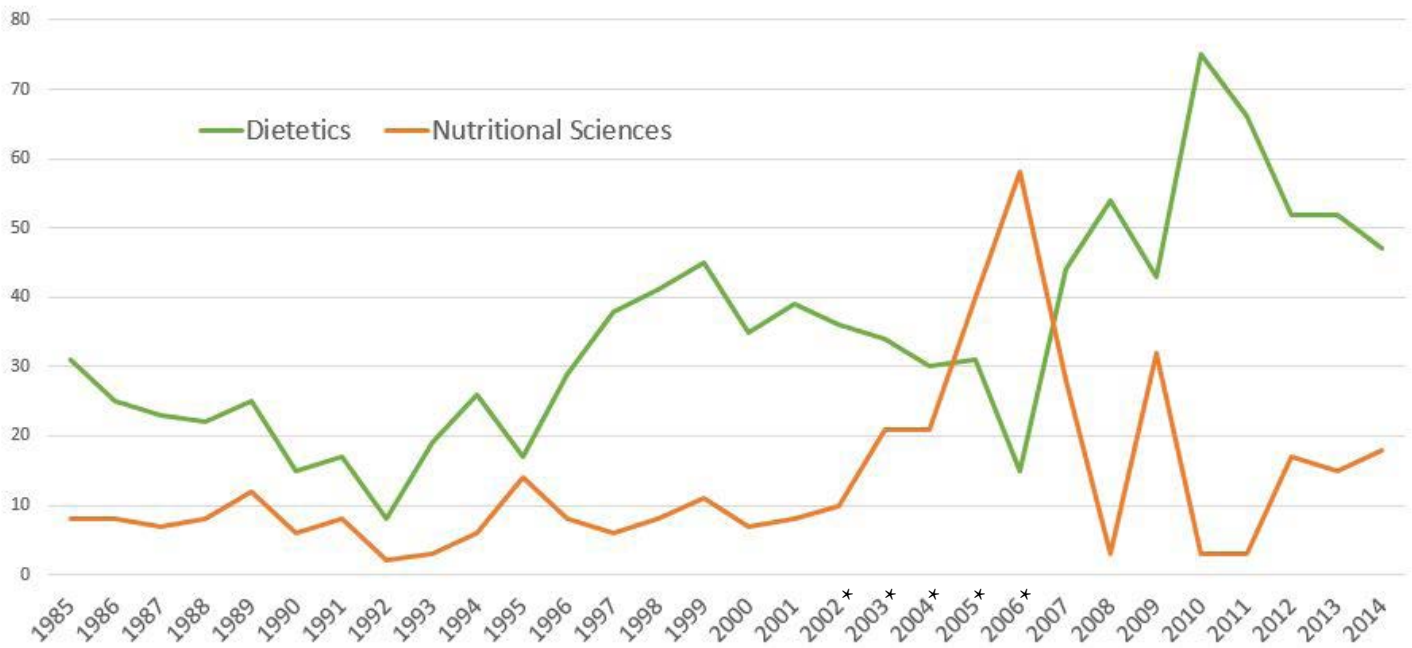
Bachelor of Science- Nutritional Sciences

Students who declare a major in Nutritional Sciences with a Bachelor of Science degree are given a more flexible choice of courses in comparison with the DPD, though still heavy in biology, chemistry and other sciences. The curriculum focuses on understanding how nutrients affect development in normal and disease states as well as metabolic processes.

Future Paths for B.S. Nutritional Science:

- ▶ Medical School
- ▶ School of Dentistry
- ▶ Graduate School
- ▶ Research
- ▶ Agribusiness
- ▶ Food Industry
- ▶ Government Agency
- ▶ Pharmaceutical Companies

Bachelor Degrees Awarded in the Department of Nutritional Sciences (1985-2014)



The data shown is from ISIS, gathered by the Office of Academic Planning and Institutional Research (APIR), sorted by Amber Heiden. *Due to program changes from 2002 to 2006, a lower number of students in the Dietetics Program had been reported. The chart accurately reflects the total number of students enrolled in Nutritional Science programs, though a greater number of Dietetics students is likely.

For more information on DNS undergraduate programs, visit:

<http://www.nutrisci.wisc.edu/Undergrad/General/ugindex.html>



First Day of Nutrition Today, the fifth largest class at UW-Madison, taught by Pete Anderson (2011)
Photo taken by Bryce Richter

Nutritional Science Certificates

Undergraduate Certificate in Global Health

Executive Committee

Program Director: Sherry Tanumihardjo

Associate Director of Education and Engagement,

GHI: Lori DiPrete Brown

Director of International Programs, CALS:

John Ferrick

Staff Members

Program Manager/Advisor, CALS: Robin Mittenthal

Education Programs Associate/Advisor, GHI: Sweta Shrestha

The Undergraduate Certificate in Global Health opens the opportunity for students to explore key issues affecting the well-being of humans, non-human animals, and the environment. It is an interdisciplinary program established in 2011 by the College of Agricultural and Life Sciences (CALS) in collaboration with the Global Health Institute (GHI), housed in Nutritional Sciences. In just three years it has become one of the largest certificates on campus with over 400 alums and more than 400 current students. The program introduces undergraduates in any field of study to preventive approaches to chronic and infectious diseases and related problems such as land degradation and conflict. The program includes a strong emphasis on the development of cultural competencies needed for students to work in partnership with diverse populations in the U.S. and around the world.

For more information on the Global Health Certificate, visit:

<http://ghi.wisc.edu/education/undergraduate-certificate/>



Students in a Global Health Field Course are helping to shell beans in the Dominican Republic.

Photo by Joanna Tess

Online Capstone Certificate in Clinical Nutrition

Director: Lynette Karls

Program Manager: Scott Anderson

Nutritional Sciences initiated this certificate in 2014, the newest program that improves students' prospects in the competitive labor market with advanced training in clinical nutrition. Recent graduates, dietetic interns, or experienced professionals will find value in obtaining the extensive skills and knowledge now required by dietetic internship directors and employers. Courses focus on nutrition support, assessment, counseling, and research along with critical care and some pediatrics.

For more information on the Capstone Certificate, visit:

<http://www.nutrisci.wisc.edu/GradProgram/gradcapstone.html>

Graduate Program

Specialization

Research

Skill

Admissions Committee Chair: David Eide
Certification Committee Chair: Sue Smith

Orientation Committee Chair and P.I.: Rick Eisenstein
Administrative Coordinator: Kristen Dreifuerst

A Nutritional Sciences graduate program with faculty from DNS, as well as affiliate faculty from CALS and the School of Medicine and Public Health (SMPH), was established with the department in 1968. The Interdepartmental Graduate Program in Nutritional Sciences (IGPNS) was formalized in 1988 to incorporate a larger interdisciplinary pool of faculty which more fully support graduate students in their research and career interests in nutrition. Students now have access to faculty in 22 academic departments on campus, which provides an interdisciplinary approach to the students' education and research. The program offers master's degrees with an emphasis on Biochemical & Molecular Nutrition or Human Nutrition as well as doctoral degrees with an emphasis on Biochemical & Molecular Nutrition, Human Nutrition, or Animal Nutrition.

Biochemical & Molecular Nutrition Emphasis

Chair of Emphasis Group: Guy Groblewski

This emphasis group focuses on the application of biochemical and physiological approaches to the understanding of nutrient function and metabolism in systems ranging from the whole animal to the molecular level. Studies in this area require specialized knowledge of physics, chemistry, biochemistry, physiology, and molecular biology in the application of these disciplines to studies ranging from the whole animal to the molecular level.

Animal Nutrition Emphasis

Chair of Emphasis Group: Tom Crenshaw

This emphasis group takes a comprehensive view of animal nutrition. Studies range from applied animal feeding trials to basic studies on nutrient metabolism or integrated whole animal metabolism with an emphasis on quantification and regulation. Studies in this area require specialized knowledge of chemistry, biochemistry, physiology and statistics in the application of these disciplines to an understanding of nutrient utilization.

"The program provides a unique bridge between College of Agricultural and Life Sciences and School of Medicine and Public Health."

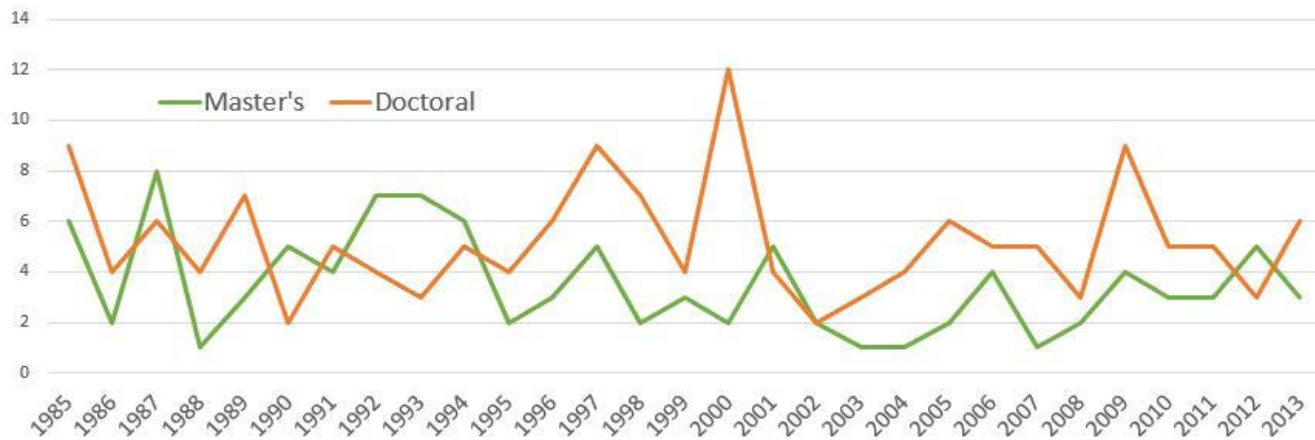
- Dr. James Ntambi

Human Nutrition Emphasis

Chair of Emphasis Group: Susan Smith

This emphasis group takes a comprehensive view of human nutrition with emphasis on the maintenance and promotion of human health. It utilizes diverse research approaches to carry out studies on optimal nutrition and nutrient requirements, metabolism and interactions. Results from this research can be utilized in programs focused on prevention and treatment of disease, identifying mechanisms and relationships between health/nutrition and various physical or environmental factors, designing and evaluating educational or technical intervention strategies, and studying implications for nutrition policies and programs.

Graduate Degrees Awarded in the Department of Nutritional Sciences (1985-2013)



The data shown is from ISIS, gathered by the Office of Academic Planning and Institutional Research (APIR), sorted by Amber Heiden.

For more information on IGPNS, visit:

<http://www.nutrisci.wisc.edu/GradProgram/GradIndex.html>

Molecular & Applied Nutrition Training Program (MANTP)

Director: Rick Eisenstein (Nutritional Sciences)

Executive Committee Members:

Herb Chen (Surgery), Denise Ney (Nutritional Sciences), Dave Eide (Nutritional Sciences), Margaret Clagett-Dame (Biochemistry)



Elaina Jones, a graduate student in the IGPNS and MANTP programs, conducts research on acinar cells of the exocrine pancreas in Guy Groblewski's lab.

MANTP is an NIH-funded T32 program focused on the training of predoctoral students and postdoctoral researchers by providing financial support to the trainees for an array of nutrition-related biomedical research. The program currently supports four predoctoral and four postdoctoral positions under any of the 25 faculty trainers. The trainers represent multiple departments from CALS and SMPH. Additionally, funds raised by MANTP bring in nutrition researchers from around the nation to speak on campus. With this cross-disciplinary approach, MANTP promotes greater collaborative research efforts across the basic and clinical science aspects of nutrition on the UW-Madison campus.

The program, originally named Postdoctoral and Predoctoral Training in Nutrition, was initiated by Dr. John Suttie in 1993. It then supported three pre- and postdoctoral trainees each under 13 faculty researchers.

Under the leadership of Dr. Denise Ney and Dr. Rick Eisenstein, MANTP grew to include additional faculty and to support four predoctoral and four postdoctoral trainees. In 2008 the MANTP Executive Committee invited students in from programs including the Integrated Program in Biochemistry (IPiB), Cell and Molecular Biology (CMB), and the Medical Sciences Training Program (MSTP) in addition to the IGPNS, as long as they were in the research program of a MANTP faculty trainer. Additionally, funds were awarded for a postdoctoral slot dedicated to the training of future physician scientists. The expansion further strengthened the resources and ties between departments with similar goals of encouraging trainees toward successful careers in nutrition and biomedical research.

For more information on MANTP, visit:

<http://www.nutrisci.wisc.edu/NIH/nutritionatwisc.html>

Outreach

Community

Wisconsin Idea

Service

Each department on the UW-Madison campus serves a greater goal called the Wisconsin Idea - to improve critical issues and situations outside the campus border. The faculty, staff and students of Nutritional Sciences consider this a very important objective in their work with different nutrient effects on the body and nutrition-related diseases. Dr. Ntambi, Chair of Nutritional Sciences, states, “just doing research and leaving everything in the laboratory is not going to help people out there who need our discoveries.” The point of the research, and the point of training competent workers, is to learn and disperse useful information into the community that is suffering from nutrition-related diseases. The purpose of Nutritional Sciences is to help people live healthier lives.

In order to accomplish this worldwide goal, Nutritional Sciences uses UW-Extension, faculty member community involvement, the Global Health Certificate, the Dietetics and Nutrition Club, and many more opportunities to encourage health and wellness in the state of Wisconsin and many other countries.

“It is good to have a tie between Extension and the department so everyone can see both sides of the coin [on nutrition] - science and public health.” - Elizabeth Kelley

UW-Extension

Sr. Extension Specialist: Gayle Coleman, M.S., R.D., C.D.

Assoc. Extension Specialist: Elizabeth Kelley, M.S.

Outreach Specialist: Teresa Curtis, M.S., R.D.

Extension Nutrition Specialist (and Assoc. Professor): Beth Olson, Ph.D.

Four UW-Extension Specialists are housed in the Department of Nutritional Sciences, each with a different role in community nutrition outreach. Through their work with the Wisconsin Nutrition Education Program (WNEP), Supplemental Nutrition Assistance Program-Education (SNAP-Ed), and Extended Food and Nutrition Education Program (EFNEP), they work with county Extension staff to promote healthy eating on a budget to limited-income families around the state.

For more information, visit:

WNEP- <http://www.uwex.edu/ces/wnep/>

Family Living Programs- <http://flp.ces.uwex.edu/about/>

The UW-Extension Specialists also work with county staff and community partners to coordinate nutrition education programs that respond to county needs, and evaluate program success. Their work contributes to the health and well-being of low-income and underserved populations throughout Wisconsin who otherwise wouldn't have access to certain nutrition information.

“There are Extension offices in every Wisconsin county (72), and they have educators or agents that work out in the community.” - Gayle Coleman

Dietetics & Nutrition Club (DNC)

The DNC members actively spread the word of nutrition in and outside of the UW-Madison campus. Three committees organize different events that members can volunteer for or attend. Within the campus community members create and hang posters at different places that encourage healthy eating, dispense their Healthy Handouts at student unions, give presentations to groups on campus, and volunteer at Slow Food at The Crossing. Club members also travel off campus to give presentations in programs like REAP or the Leopold After School Nutrition Program with Americorp. These opportunities benefit the students who are interested in nutrition and well-being, no matter what their major is, and their work reminds people about the importance of eating well for your mind and body

Faculty Community Involvement

Each faculty member has research responsibilities, serves on a variety of committees and editorial boards, and publishes their work in scientific journals. Many also reach out in other ways, becoming involved in their community or other nutrition outreach. The following lists just a few of each faculty member's participation in outreach activities.

- ▶ David Eide speaks at variety of seminars and symposiums on this campus and at other universities and internationally. He is also involved with an international conference organization.
- ▶ Guy Groblewski speaks at international conferences about his research in digestive epithelia and pancreatitis.
- ▶ HuiChuan Lai speaks at conferences around the world about cystic fibrosis.
- ▶ Denise Ney speaks at seminars throughout the U.S., Canada and Europe on PKU, a rare genetic protein disorder. She also works with the Waisman Center on campus.
- ▶ James Ntambi speaks at consortiums and seminars in the U.S. and Africa. He is member of the Food



DNC members at the Fall 2014 Student Organization Fair

& Nutrition Board of Institute of Medicine, and a member of the International Committee of the American Society for Cell Biology.

- ▶ Beth Olson supports faculty and Extension personnel with research and educational materials needed to encourage healthy eating and the knowledge of nutrition needed to encourage healthy eating within the context of their everyday lives.
- ▶ Dale Schoeller gives a variety of presentations throughout the U.S., and participates in the Wisconsin Farm-to-School Summit in LaCrosse, WI.
- ▶ Susan Smith speaks at international conferences about prenatal alcohol exposure. She also gives presentations to lay audiences and veterinarians about domestic rabbit nutrition.
- ▶ Sherry Tanumihardjo speaks about vitamin A research around the world.
- ▶ Eric Yen speaks at seminars throughout the U.S., and conferences in Asia on mouse metabolic phenotypology. His lab also hosts high school students in a pre-college summer program.



Denise Ney gives a speech about PKU in Milan, Italy
Photo provided by Denise Ney

Department Community Involvement

“As the leading academic medical center in Wisconsin, the University of Wisconsin-Madison has the opportunity, if not the responsibility, to take the leading role in research, treatment and prevention of obesity related disease.”

- <http://www.pediatrics.wisc.edu/outreach/wisconsin-prevention-obesity-diabetes/>

Nutritional Sciences as a department connects with other institutions or organizations that share the same mission of exploring nutrient effects on humans and animals to improve quality of life. Two of these organizations include Wisconsin Partnership for Activity and Nutrition (WI PAN), and Wisconsin Prevention of Obesity & Diabetes (WiPOD).

WI PAN, a program initiated by the Wisconsin Department of Health Services, is creating a state plan to more effectively integrate nutrition and physical activity into the lives of Wisconsin residents. The plan outlines strategies for encouraging healthy behaviors at home, schools, healthcare facilities, at work, and for

entire communities. Wisconsin Nutrition Education Network, part of UW-Extension, participates in WI PAN activity.

WiPOD is housed in the UW-Madison School of Medicine and Public Health, Department of Pediatrics, yet has an interdisciplinary perspective by collaborating with several campus departments including Nutritional Sciences. Their mission is to “conduct, evaluate, and disseminate [obesity] research to improve community-based approaches in Wisconsin communities.” A number of Nutritional Sciences faculty and staff are active members of this group.

For more information, visit:

WI PAN- <https://www.dhs.wisconsin.gov/physical-activity/index.htm>

WiPOD- <http://www.pediatrics.wisc.edu/outreach/wisconsin-prevention-obesity-diabetes/>

Value of Nutritional Sciences

Health

It is clear from the history of the university as well as the current and ongoing work in DNS that nutrition is an essential part of our lives. The role of the DNS faculty, staff and students is to translate their research into viable information that communities can absorb and act on. It is to improve the world's knowledge and ability to maintain a healthy diet of necessary nutrients whatever their environment may be.

Nutritional Sciences relies on the ability to collaborate with others in order to expand on existing knowledge and disseminate the information to the people who need it. The department has strong connections to many other researchers on campus, those in Biochemistry and School of Medicine being two large contributors. Faculty members participate on health administration boards and committees, and DNS houses Extension

Economy

personnel who do work to improve the health of our Wisconsin communities. The students engage with the community through the Dietetics and Nutrition Club or Global Certificate courses. The reach of DNS, the necessary mission of the department, is to influence wellness at every one of these levels.

DNS has some strong partners, but the prevalence of nutrition-related chronic diseases is still a looming threat to the livelihoods of many. In order to make a true impact and lower the numbers of those suffering from poor nutrition, DNS invites anyone to join the ongoing effort of making an impact on nutrition, wellness, and preventive care. The UW-Madison Department of Nutritional Sciences and its partners will continue to help people work toward a common goal of being well and living a healthy lifestyle.

Sustainability

