DNS Excellence Fellowships-Transforming DNS Students

Outstanding graduate students are the foundation of the vibrant and highly collaborative interdisciplinary research and training environment found in the Division of Nutritional Sciences (DNS). In order to continue to maintain this foundation, DNS must be prepared to actively recruit exceptional applicants into our program. Fellowships are crucial to our ability to recruit the next generation of leading interdisciplinary nutritional scientists.

As many of our readers may be aware, DNS utilizes a unique matching system for our admissions where applicants must match with a faculty member before receiving an offer of admission. Essential to this matching process is a guarantee of financial support for the duration of a student’s graduate training program, as 100% of DNS students are provided with financial support for their graduate program. Most often, this financial support comes from a fellowship or from a research or teaching assistantship (RA or TA). The Nutritional Sciences Excellence Fellowship program provides DNS with the flexibility to extend offers of admission to the best and brightest applicants early in the admissions process.

DNS Excellence Fellowships are intended to recognize academic and research excellence and provide the fellow with a stipend and tuition and fees waiver. Fellows are free from the additional work expectations associated with a RA or TA, and are free to focus exclusively on their unique research project.

DNS Excellence Fellowships are making a significant impact on DNS students’ lives. I sat down to talk with several students who have received DNS Excellence Fellowships. This is what they had to say:

Karen Chen, MS candidate: “Without my DNS Excellence Fellowship I would not have made as much progress as I have. As a second year M.S. student, I have already been published in two papers and am on track to have at least two first-author publications by the time I graduate. Overall, the fellowship has not only increased my productivity, but has also helped my personal and professional development.”

Jennifer Kaczmarek, PhD candidate: “Receiving this fellowship has eased my financial burden tremendously and helped me be able to complete the Dietetic Internship so I can obtain my RD.”

Laura Moody, MD-PhD candidate: “The DNS Excellence Fellowship influenced my decision to pursue a degree in nutrition and in DNS. Many other joint MD-PhD programs I looked at did not offer fellowship opportunities for the doctoral degrees. The DNS Excellence Fellowship definitely influenced my decision to join the Division of Nutritional Sciences.”

The DNS Excellence Fellowships program is one of the many ways that DNS is working towards our mission to “Prepare Transformative Leaders in Nutritional Sciences”. To learn more about supporting the Nutritional Sciences Excellence Fellows Program, contact Matt Smith at 217-333-6113 and msmi@illinois.edu.

Written by: Jessica Hartke
DNS Welcomes New Students in January 2017!

Pictured (l to r): Carly Rundle, and Miriam Aguilar-Lopez

In Memoriam

Fred A. Kummerow, a pioneer in the study of dietary contributors to heart disease who led a decades-long crusade to remove trans fats from the food supply, died Wednesday, May 31, at his home in Urbana, Illinois. He was 102.

Kummerow was a former faculty member of DNS, and a professor of comparative biosciences who maintained a laboratory at the University of Illinois at Urbana-Champaign until he was 101. Kummerow attended the University of Wisconsin, Madison, earning a B.S. in chemistry in 1939 and a Ph.D. in biochemistry in 1943. He worked as a nutritionist at Clemson University and as a professor of chemistry at Kansas State University before joining the U. of I. faculty in 1950.

Much of his research for over seven decades explored relationships of lipids (fats and oils) to nutrition and heart disease. He published a paper on the negative heart health effects of trans fats in 1957 and had been concerned about their effects ever since. In 2009 (at age 95), he filed a Citizens Petition with the Food and Drug Administration to ban trans fat entirely. When there was no action on that petition after a docket number had been assigned, a lawsuit on his behalf was filed in 2014. He was delighted and vindicated when the FDA finally agreed that trans fats were dangerous and announced their ban in 2015 and agreed trans fats could no longer be added to food in most cases after June 18, 2018. He had long believed in the nutritional value of eggs, butter and red meat and the normally beneficial role of cholesterol, a component of cell membranes and hormones that the body manufactures itself. He said when receiving news of the trans fat ban, “Science has come out on top.”

Kummerow is survived by his three children, Max, Jean and Kay Kummerow; three grandchildren, Elizabeth Loban, Robert Loban and Patrick Watson; and one great-grandson, Asher Watson. His wife of 70 years, Amy, died of Parkinson’s disease at 94. Professor Kummerow’s Memorial Service will be held Friday, Sept. 1, at 12:30 p.m. at the U of I, Biosciences Building, Urbana.
URBANA, Ill. – Researchers at the University of Illinois are using pigs as a model to study the best way of evaluating protein quality in foods eaten by children, a method that was proposed by the Food and Agriculture Organization (FAO) of the United Nations in 2011.

“Plant proteins are the primary sources of amino acids in many parts of the world, whereas animal proteins are the primary sources in other parts of the world. However, the composition and digestibility of these types of proteins differ,” says Dr. Hans H. Stein, professor of animal sciences at U of I and principal investigator of this research.

Researchers in Stein’s lab conducted a study to calculate protein scores for eight sources of protein, derived from both plants and animals.

Protein scores compare the amount of digestible amino acids in a food with a “reference protein,” a theoretical protein which contains fully digestible amino acids in the proportions required for human nutrition at a particular stage of life.

The score which has been used for more than 20 years is the protein digestibility-corrected amino acid score, or PDCAAS. PDCAAS is calculated using the total tract digestibility of crude protein. However, this method has certain shortcomings.

“The total tract digestibility fails to take into account nitrogen excretion in the hindgut,” Stein says. “The PDCAAS also assumes that all amino acids in a foodstuff have the same digestibility as crude protein, but in reality, amino acid digestibilities differ.”

These flaws led to the development of a new measure, called the digestible indispensable amino acid score (DIAAS). The DIAAS is calculated using ileal digestibility values, because all absorption of amino acids takes place in the small intestine. It also uses values calculated individually for each amino acid.

Stein and his team determined standardized ileal digestibility of crude protein and amino acids in eight sources of animal and plant protein: whey protein isolate, whey protein concentrate, milk protein concentrate, skimmed milk powder, pea protein concentrate, soy protein isolate, soy flour, and whole-grain wheat. They derived DIAAS scores from those ileal digestibility values. They also calculated PDCAAS-like scores by applying the total tract digestibility of crude protein in the ingredients to all amino acids.

All dairy proteins tested in the study met Food and Agriculture Organization (FAO) standards as “excellent/high”-quality sources of protein for people six months of age or older, with DIAAS values of 100 or greater. Soy protein isolate and soy flour qualified as “good” sources of protein, with a score between 75 and 100. With scores below 75, pea protein concentrate and wheat did not qualify to make recommendations regarding protein quality.

“Compared with DIAAS, PDCAAS calculations tended to underestimate the protein value of high quality protein sources, and overestimate the value of lower quality sources,” says Stein. “Thus, to better meet protein requirements of humans, especially for people consuming diets that are low or marginal in digestible amino acids, DIAAS values should be used to estimate protein quality of foods.”

Stein acknowledged certain limitations in the study. “The protein sources used in this experiment were fed raw, and foods processed as they typically are for human consumption might well have different protein values.” However, he says, it represents a step forward in determining protein quality.

Funding for the research was provided by National Dairy Council, the non-profit organization founded by America’s dairy farmers and funded by the national dairy checkoff program. The organization had no input into the experimental design or analysis.

“The results of this pilot study indicate that dairy proteins may be an even higher quality source of protein compared to vegetable-based protein sources than previously thought,” said Dr. Greg Miller, chief science officer at NDC. “While using DIAAS is a newer concept and more research will be needed, one thing rings true — milk proteins are high quality and milk as a beverage has protein plus eight other essential nutrients, which is especially important when it comes to kids, because they need quality nutrition to help support their growth and development.”

The paper, “Values for digestible indispensable amino acid scores (DIAAS) for some dairy and plant proteins may better describe protein quality than values calculated using the concept for protein digestibility-corrected amino acid scores (PDCAAS)” was published in the February 2017 issue of the British Journal of Nutrition.

The co-authors were John Mathai and Yanhong Liu of the University of Illinois.
2017 Margin of Excellence Research Fund Recipients

Research funds support research conducted by students and provide them with experience in preparing research proposals. Students are selected by the quality of the proposed research and are provided $800 - $2,000.

Melisa Bailey (M.S., Holscher)
Investigating the role of dietary fats and fiber in metabolic endotoxemia induced inflammation

Kirsten Berding-Harold (Ph.D., Donovan)
Influence of diet on microbial SCFA production in children with Autism Spectrum Disorder and correlation to symptom severity

Natasha Chong-Cole (Ph.D., Donovan)
Nature and nurture on picky eating behavior in early childhood

Megan Corbett (DVM, Ph.D., Johnson)
Attenuation and resolution of neuroinflammation in the neonate using herring roe oil

Erin Davis (M.S., Donovan)
Analysis of lactoferrin and lysozyme in mature milk of mothers in the STRONG Kids 2 Cohort

Caitlyn Edwards (M.S., Khan)
Developing neurocognitive paradigms to study food-related cognitive control process

Bridget Hannon (M.S., Teran-Garcia)
Obesity related disease risk and individual genetic variation in Hispanic families

Sookyoun Jeon (Ph.D., Erdman)
Effects of dietary sources on selective uptake and binding proteins of xanthophylls in the retinal regions of infant rhesus macaques

Jennifer Kaczmarek (M.S., Holscher)
Impact of broccoli consumption on Bacteroides vulgatus in human gastrointestinal microbiota

Lauren Killian (Ph.D., Lee)
FODMAP analysis of endurance athlete diets and common sports nutrition products

Julia Kim (MPH, Ph.D., Donovan)
Evaluation of the H.A.P.P.Y. curriculum among African-American, adolescent mothers

Laura Knight (M.S., Dilger)
Longitudinal effects of early-life iron status neurodevelopment in pigs

Brian Leyshon (Ph.D., Johnson)
Effects of iron deficiency upon neurotransmitter tone neuroplasticity

Jan Lumibao (Ph.D., Gaskins)
The effect of microglia-glioblastoma (GBM) crosstalk on GBM cell invasion, proliferation, and glutamatergic metabolism

Viridiana Luna (M.S., Teran-Garcia)
Assessment of dietary fiber intake among Hispanic-heritage families using a culturally tailored food frequency questionnaire

Natalie Masis (Ph.D., Chapman-Novakofski)
Determining Fresh Fruit and Vegetable Program (FFVP) implementation correlates with fruit and vegetable preferences of k-2nd graders

Vanessa Peters (M.D., Ph.D., Tappenden)
The in-vitro effects of Bifidobacteria and butyrate supplementation on Clostridium difficile pathogenesis

Katie Ranard (M.S., Erdman)
Expression of a-tocopherol transfer protein and tocopherol associated protein in extrahepatic tissues of infant rhesus macaques fed natural or synthetic a-tocopherol

Joe Rowles (Ph.D., Erdman)
Impact of isolated soy protein in non-alcoholic fatty liver disease progression: monitored by a novel quantitative ultrasound (QUS) method

Sharon Thompson (Ph.D., Holscher)
Dietary fiber consumption and the gut microbiota-liver axis

Student Recognition

Oral and Poster Award Recipients at the 2017 Nutrition Symposium

Pictured (l to r) back row: Bridget Hannon, Lucy Mailing, Caitlyn Edwards

front row (l to r): Annabel Biruete, Dr. Teresa Davis, Karen Chen, Sharon Thompson

Student Awards at 2017 Nutrition Symposium

Oral Session 1: Sharon Thompson
Oral Session 2: Caitlyn Edwards
Poster Session: Annabel Biruete, Karen Chen, Bridget Hannon, Lucy Mailing

Congratulations and thank you to all of the student and faculty presenters, judges and volunteers who helped to make this year’s Nutrition Symposium a success!

Watch the keynote address by Dr. Teresa Davis here: https://nutrsci.illinois.edu/students/symposium/nutrition_symposium
• Celeste Alexander was selected to serve on the SAGE (Students Advising on Graduate Education) Board in the Graduate College for 2017-2018. She was a finalist at ASN’s Emerging Leaders in Nutrition Science Poster Competition, and received Honorable Mention for the National Science Foundation Graduate Research Fellowship.

• Tzu-Wen Liu Cross was awarded a University of Wisconsin Cardiovascular Research Center T32 Postdoctoral Fellowship in Translational Cardiovascular Science, funded under the National Institutes of Health (NIH) through the National Research Service Award (NRSA) Training Grant mechanism, and received third place in the Obesity RIS (Research Interest Section) in the ASN Emerging Leaders in Nutrition Science Poster Competition at Experimental Biology.

• Erin Davis received first place in the ASN Emerging Leaders in Nutrition Science Poster Competition in the Maternal, Perinatal and Pediatric Nutrition RIS at Experimental Biology. She was also the recipient of the 2016-2017 Dannon Gut Microbiome, Yogurt and Probiotics Fellowship Grant.

• Caitlyn Edwards received third place in the ASN Emerging Leaders in Nutrition Science Poster Competition in the Nutrition Translation RIS at Experimental Biology.

• Kirsten Berding Harold received the 2017 Mars, Inc. Predoctoral Fellowship from the American Society for Nutrition Foundation.

• Sookyoung Jeon received a 2017-2018 UIUC Graduate College Dissertation Completion Fellowship. Her research focuses on brain and eye health during infant development. She was also a recipient of a travel award in the ASN Emerging Leaders in Nutrition Science Poster Competition at Experimental Biology.

• Jennifer Kaczmarek received an ASN Student Interest Group Travel Award at Experimental Biology.

• Vanessa Lagos presented ‘Chemical composition and amino acid digestibility on soybean meal produced in the United States, China, Argentina, Brazil, or India’, at the Midwest Animal Science Meeting in Omaha, NE in March 2017.

• Brett Loman was a recipient of the 2017 College of ACES Louis V. Logeman Graduate Student Teaching Award.

• Lindsey Ly has been awarded a prestigious NSF Graduate Research Fellowship that will provide her with five years of research support.

• Lucy Mailling received second place in the Obesity RIS in the ASN Emerging Leaders in Nutrition Science Poster Competition at Experimental Biology.

• Natalie Masis was selected as a finalist for the 2017 Children’s Division Poster Award for the Society of Nutrition Education and Behavior Conference (SNEB). She is now a student committee member and abstract reviewer for SNEB. Her abstract was accepted for a poster presentation at the SNEB Annual Conference in Washington, DC. She also had one paper published and one accepted in the Journal of Nutrition Education and Behavior.
Janet Liechty, Blair Rowitz, Margarita Teran-Garcia, Ken Wilund, and Jeff Woods were among those named as Carle Illinois College of Medicine inaugural faculty.

Megan Dailey received the Best Reviewer Award from the American Physiology Society for her work on the editorial board of the American Journal of Physiology.

John Erdman Co-Chaired a symposium at the Experimental Biology meeting with Nancy Engelmann Moran (Ph.D. in DNS and now Assistant Professor at the Baylor College of Medicine) entitled "Moving towards personalized nutrition of dietary carotenoids: A review of the genetic and non-genetic factors impacting absorption, metabolism and health impacts". He joined the Editorial Board of the J. Nutrition for a two year term (third time on the board), and was elected as Fellow of the International Carotenoid Society.

Michael Miller received the International Dairy Foods Association Teaching Award in Dairy Manufacturing.

Zeynep Madak Erdogan received a faculty fellowship award from the National Center for Supercomputing Applications (NCSA). She presented at the Jensen Symposium on Breast Cancer in Cincinnati, OH, in November 2016; at the AACR Annual Meeting in Washington, DC in April 2017; and at the FASEB Conference on Rapid Signaling & Genomic Hormone Action in Health & Disease in Snowmass Village, CO, in June 2017. She was a research symposium speaker at the University of Illinois Breast Cancer Research Program in Chicago, IL, in February 2017. She received a DAS Day Award (Dow Agrosciences grant) to catalyze further collaboration between Dow and UIUC.


Dr. Peter Garlick, former DNS faculty member, passed away on February 16, 2017. He joined the Department of Animal Sciences in 2003, and the Division of Nutritional Sciences a short time later. Among countless academic achievements was his contribution to the field of human nutritional protein requirements as the chair of the Protein Subgroup for the U.S. National Academy of Sciences, and serving as an expert consultant for the World Health Organization.

Peter will be remembered for his brilliant mind, pragmatism, easygoing nature, love of his family and friends, the natural world, and classical music.
Focus on Alumni

Alumni Updates

DNS Alumni and students at Experimental Biology 2017.

Pictured (l to r): Henna Muzaffar, Melissa Kaczmarczyk, Carl Liguori, Heather Mangian, Rita Strakovsky, Brett Loman, Diego Hernandez-Saavedra

Kirstie Canene-Adams (Ph.D., 2007) and David Adams welcomed their third child, Jack David Adams, on April 30, 2017.

Mary Dean Coleman-Kelly (M.S., 2010) is the Undergraduate Professor-in-Charge, and the DPD Director for the Dietetics program, for the Penn State Nutritional Sciences department. She received the HHD Alumni Society Excellence in Teaching Award in Fall 2016, and has served on the Nutrition and Dietetic Educators and Preceptors Council leadership board since 2015.

Dipti Dev (Ph.D., 2013) has been selected for the Betti and Richard Robinson Professorship from the University of Nebraska for a period of five years. The appointment recognizes her demonstrated excellence in early childhood extension programing and potential for future accomplishments.

Renae Geier (M.S., 2016) has accepted a position as Scientist at Church and Dwight Animal Nutrition in Waukesha, WI, and received the J.B. Russell Young Scientist Award of 2017 from the Congress on Gastrointestinal Function Committee.

Dolores Guest (Ph.D., 2009) and Christopher Guest (Ph.D., 2008) welcomed their first child, Zane Alexander Guest, on July 16, 2016.

Tory Parker (Ph.D., 2008) was promoted to Senior Director of Research & Development at doTERRA Intl. in December 2016. He presented two posters at Experimental Biology in Chicago, IL in April 2017, and he is the PI on 12 papers that have been accepted or published in 2017 from work developed around essential oil function and activity, both in vitro and clinical.

Deshanie Rai (Ph.D., 2000) is the chair of ASN’s Vitamins Minerals Research Section, and the Co-Chair of Women in Science Affinity, Healthcare Businesswomen’s Association (HBA). She received a ‘Lead for Life Award’ from Bayer Healthcare in 2016. She presented at the TIM User’s Group Meeting in Triskelion, Netherlands, and the International Scientific Association for Prebiotics and Probiotics in Chicago, IL in 2017. She was also a moderator for the Inspiring Value-Driven Innovations in the Health and Wellness Industry event in Whippany, NJ hosted by HBA. She is the author of the book chapter (in press): ‘Role of the Gut Microbiome in Cardiovascular Health’ in the Handbook of Nutrition and Heart Health.

December Graduate

• Tzu-Wen Liu Cross, Ph.D.
  Advisor: Kelly Swanson

May Graduates

• Annabel Biruete, Ph.D.
  Advisor: Ken Wilund
• Bridget Hannon, M.S.
  Advisor: Margarita Teran-Garcia
• Brett Loman, Ph.D.
  Advisor: Kelly Tappenden
• Katie Robinson, MPH/Ph.D.
  Advisor: Margarita Teran-Garcia

Pictured (front row): Jennifer Williams, Kristy Du, Tzu-Wen L. Cross, Annabel Biruete, Karen Chen
(middle row): Brett Loman, Katie Robinson, Dr. Teran-Garcia, Bridget Hannon
(back row): Dr. Hartke, Dr. Johnson, Dr. Wilund, Dr. Swanson

2016-2017 External Advisory Committee

Joshua Anthony, Ph.D.
Vice President
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Interdepartmental Graduate Program in Nutrition
Purdue University

Susan Johnson, Ph.D.
Professor and Director
The Children’s Eating Laboratory
University of Colorado

Matthew Kuchan, Ph.D.
Section Head
Discovery Research
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Luis Mejia, Ph.D.
Adjunct Professor
Department of Food Science and Human Nutrition
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University of Pittsburgh Medical School

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Department Head
Department of Food and Nutritional Sciences
Tuskegee University

Jeffrey Zachwieja, Ph.D.
Senior Vice President for Nutrition Research
Dairy Research Institute
New Faculty in DNS

Issac Cann, is a Professor of Microbiology in the Department of Animal Sciences, Department of Microbiology, and the Carl R. Woese Institute for Genomic Biology (IGB). Dr. Cann is the leader of the Microbiome Metabolic Engineering (MME) theme of the IGB. His research focuses on how microbes in the human colon capture energy from fiber sources and how their end products impact the health and nutrition of the host. He is especially interested in how microbial fiber metabolism may remodel gene expression in the gut.

Janet Lietchy, is an Associate Professor in the School of Social Work, and is a faculty member in the College of Medicine. Dr. Liechty's research and practice interests are in exploring the psychosocial dimensions of health, wellness, chronic conditions and disability, and processes of growth and healing leading to greater quality of life. Of particular interest is how family processes influence health beliefs and behaviors in young children through young adulthood; and the interplay between individual, family, culture, and social determinants of health. A second area of interest is in healthcare professional education to enhance cultural competency, family systems awareness, interdisciplinary team care, and integrated behavioral and primary care.

Giving Options

- DNS Excellence Endowment Fund (#773001): Provides permanent funding for the recruitment and retention of the best graduate students and enhanced research and professional development experiences for all DNS students
- DNS Annual Fund (#332984): Provides unrestricted support for DNS
- David H. Baker Nutrition Scholar Award Fund (#771806): Recognizes students who display excellence in research as documented through peer-reviewed publications, awards and research grants
- James L. Robinson Nutrition Impact Award Fund (#772698): Recognizes students who display excellence in professional service through activities in the NSGSA or to promote and enhance DNS and/or nutrition at the campus, state or national level
- Frank W. Kari Memorial Award Fund (#773054): Provides travel awards to DNS students to present their scientific findings at professional meetings, such as Experimental Biology
- Toshiro Nishida Research Award Fund (#772951): Provides support for travel to national and international scientific conferences to DNS Students
- William C. Rose Award Fund (#770331): Provides travel awards to DNS students to attend scientific conferences in the field of nutritional sciences

Support DNS

We are very thankful to the faculty, students, alumni and friends who have supported DNS through contributions to the Endowment Fund and the Annual Fund. Contributions of all amounts are greatly appreciated. DNS would like to ask that you consider taking this opportunity to help secure our brilliant future by making a new contribution or an additional contribution to your alma mater.

Experimental Biology 2017
University of Illinois Nutrition Mixer

Thank you to our sponsors!

Ed Ulman, Research Diets, Inc.,
Department of Food Science and Human Nutrition, and
Department of Animal Sciences

Giving Back