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Division of Nutritional Sciences Receives USDA Higher Education Challenge Grant

URBANA, Ill. - The Division of Nutritional Sciences graduate training program at the University of Illinois has received a \$150,000 Higher Education Challenge Grant from the USDA National Institute of Food and Agriculture to jumpstart development of courses as part of a proposed new certificate program focused on food/ feed regulations and nutrition policy. The new program will prepare graduate students for leadership positions in industry and government.

A team of 10 faculty and staff prepared the innovative and highly interdisciplinary grant, from five different units in the U of I College of Agricultural, Consumer and Environmental Sciences: the Division of Nutritional Sciences (DNS), the Departments of Food Science and Human Nutrition, Animal Sciences, Agricultural and Consumer Economics, and the Agricultural Leadership, Education and Communications program. The grant team also includes partners from industry and government. This combined academic, industry, and government expertise will provide students with team-based and multi-faced learning opportunities to ensure their success.

The grant will provide support for the development of new, in-depth courses on nutrition policy, food regulations, and scientific communication skills. It is intended to provide future professionals with the tools needed to effectively support industry's increasing regulatory needs while also preparing graduate students with increased leadership and communications skills to help solve challenges in the fields of food, nutrition, animal feed and agriculture in the years to come.

Elvira de Mejia, DNS director and professor of food science and human nutrition is the lead investigator on the grant; co-investigators are Jessica Hartke, associate director of DNS, and Melissa Prescott, assistant professor of food science and human nutrition and DNS.

“We want to develop these courses and eventually the new certificate program because it is an important gap in the professional education of nutritional, food, and animal scientists, who will be working in these highly regulated industries. There is an unmet need that includes not only understanding regulations but also developing non-cognitive leadership, science translation, and communication skills,” de Mejia says.

The three-year grant will help fund the development of three new graduate-level courses in the area of science translation, food regulations, and nutrition policy, as well as an applied nutrition field course that will be held in Washington, DC. The grant will also facilitate the opportunity for participating students to build an individualized mentoring program with leaders in industry and for students to develop advanced professional skills.

Students who complete these new courses will be uniquely positioned to take leadership roles in industry and government to address challenges in human and animal health and nutrition, de Mejia says.

Written by: College of ACES staff



ILLINOIS

Nutritional Sciences

COLLEGE OF AGRICULTURAL, CONSUMER
& ENVIRONMENTAL SCIENCES

DNS Employees



Dr. Elvira de Mejia
Director



Dr. Jessica Hartke
Associate Director



Dr. Anna Keck
Visiting Project
Coordinator



Ashley Negangard
Office Support
Associate

Note from the Director

Dear DNS Family-

It is with great pleasure that I share with you the accomplishments of the Division of Nutritional Sciences.

Spring and summer 2020 have been unforgettable. This has been a very challenging time, however at the University of Illinois, science continues to proliferate, new discoveries are happening, more programs and centers are inaugurated and in DNS we continue on with our research and educational programs to prepare transformative leaders in nutrition. Based on the DNS vision, we value diversity, inclusivity and equity; we treat each other with dignity and respect, and promote citizenship, excellence, quality, and service, and foster innovation and creativity.

New opportunities for students and faculty are in the horizon based on the National Institutes of Health Strategic Plan for Nutrition with focus areas on personalized nutrition, the study of human behavior with genomic research in humans, plants, and microorganisms, as well as analytical sciences, computing, and biostatistics.

Over the past year, it has been so refreshing and priceless to witness the involvement and continued support of DNS alumni who have donated their time, talent and knowledge to the newest generation of students via their participation in DNS professional development courses and workshops, training grant applications, endowed awards, and endowed fellowships or scholarships. The support from DNS alumni, friends, corporations, and endowments is vital to sustain and enhance our program excellence. Your support of DNS makes such a difference in our ability to continue the cutting-edge training and professional development of future generations of Nutritional Sciences students.

I thank Drs. Jessica Hartke and Anna Keck, and Ms. Ashley Negangard for preparing the newsletter and for all their contributions and constant support to the program. We are blessed with their presence and commitment to DNS.

I appreciate and value your comments and suggestions; please do not hesitate to contact me at edemejia@illinois.edu; 217-244-3196.

Respectfully,
Elvira de Mejia

DNS staff, faculty and students contributed to support our local Frontline workers in the Urbana-Champaign area during the COVID-19 outbreak.

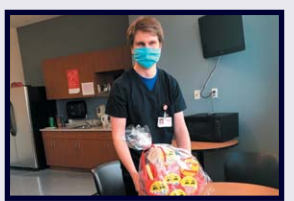
We provided a total of 6 meals/treats to:

Carle Clinic in Mahomet

Carle Clinic in Rantoul

Carle Pathology - COVID testing team

Champaign-Urbana Public Health District Emergency Operations Center



Thank you to all who contributed!

University of Illinois COVID-19 information page: <https://covid19.illinois.edu/>

Check us out on
social media!



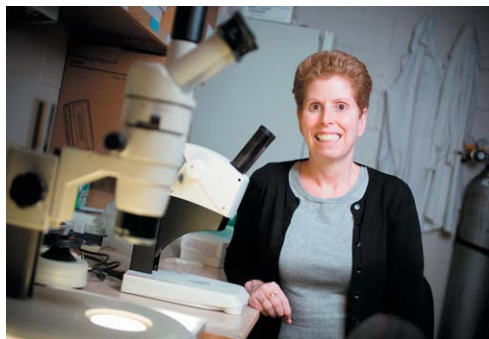
[nutritionalsciencesuiuc](https://www.linkedin.com/company/nutritionalsciencesuiuc)



Division of Nutritional
Sciences



[@DNSatUofI](https://twitter.com/DNSatUofI)



Research Spotlight

DNS faculty member Dr. Jodi Flaws, DNS graduate student Karen Chiu, and others recently explored the relationship between exposure to environmental contaminants, the gut microbiome and more.

CHAMPAIGN, Ill. — The microbes that inhabit our bodies are influenced by what we eat, drink, breathe and absorb through our skin, and most of us are chronically exposed to natural and human-made environmental contaminants. In a new paper, scientists from the University of Illinois at Urbana-Champaign review the research linking dozens of environmental chemicals to changes in the gut microbiome and associated health challenges.

The review is published in the journal *Toxicological Sciences*.

The paper includes sections on compounds used in manufacturing consumer goods, including the bisphenols found in plastic food packaging, and phthalates, which are used in everything from vinyl flooring to plastic films. It also describes the science associated with exposure to persistent organic pollutants (POPs) and heavy metals. POPs include chemicals like PCBs; perfluorochemicals, which are used in nonstick cookware and food packaging; flame retardants known as polybrominated diphenyl ethers; and pesticides and herbicides.

“More than 300 environmental contaminants or the metabolic byproducts of those contaminants have been measured in human urine, blood or other biological samples,” said Jodi Flaws, a U. of I. professor of comparative biosciences who led the analysis with Ph.D. student Karen Chiu. “Chemicals such as bisphenols, phthalates and some pesticides, persistent organic pollutants and heavy metals can alter hormone metabolism and are associated with adverse health outcomes.”

The negative health effects linked to these chemicals include reproductive and developmental defects, Type 2 diabetes, cardiovascular dysfunction, liver disease, obesity, thyroid disorders and poor immune function, the researchers report.

Dozens of studies have explored how chemical exposures affect health, and scientists are now turning their attention to how these chemicals influence gut microbes.

Studies have found that exposure to bisphenols, which are detectable in the urine of more than 90% of adults in the United States, increases levels of *Methanobrevibacter* bacteria in the male gut. These microbes have been shown – in humans and in mice – to boost their host’s ability to extract more energy from food.

High phthalate exposure in human newborns is associated with changes in the gut microbiome and altered immune responses to vaccination. In mice, exposure to phthalates during puberty appears to inhibit the microbial synthesis of butyrate, a metabolite that is essential for intestinal health, immune regulation and neurological function.

Studies have found that exposure to PCBs is associated with microbial shifts in the gut and increased gut permeability, intestinal inflammation and cognitive problems. Once used as coolants, PCBs were banned in the U.S. in 1978 but persist in the environment.

Perfluorochemicals are used in nonstick cookware, food packaging and stain-resistant carpets. One study linked PFCs to changes in the gut microbiome and impaired lipid metabolism in female – but not male – fish and their offspring.

Studies have found that exposure to glyphosate herbicides alters the bacterial makeup of the gut microbiome in cattle, rodents and honeybees. The pesticide chlorpyrifos affects microbial populations in male rodents and fish exposed during development and adulthood, and causes inflammation and oxidative stress in the gut.

“All of these data together suggest that exposure to many of these environmental chemicals during various stages of life can alter the gut microbiome in ways that influence health,” Chiu said.

Written by: Diana Yates



Jodi A. Flaws is a Professor in Comparative Biosciences at the University of Illinois-Urbana/Champaign. She received a B.S. in Biology from St. Xavier University, a M.S. in Biology from Loyola University of Chicago, and a Ph.D. in Physiology from the University of Arizona. Following completion of the Ph.D. degree, Dr. Flaws performed postdoctoral research at Johns Hopkins University and the University of Maryland. Following postdoctoral training, Dr. Flaws accepted an Assistant Professor position at the University of Maryland, where she subsequently was promoted to Associate Professor. In 2006, Dr. Flaws accepted a position as Professor of Comparative Biosciences at the University of Illinois-Urbana/Champaign. Dr. Flaws’ research program is mainly focused on determining the mechanisms by which environmental chemicals affect the development and function of the reproductive system. Her research is funded by grants from the National Institutes of Health. She has published over 200 peer-reviewed papers that have involved extensive participation and authorship by graduate students, postdoctoral fellows, veterinary medical students, and undergraduate students.

May 2020 Graduates!

Caitlyn Edwards, PhD
Advisor: Naiman Khan

Bridget Hannon, PhD
Advisors: Naiman Khan and
Margarita Teran-Garcia

Ching-Yen Lin, PhD
Advisor: Kelly Swanson

Ruyu Liu, MS
Advisor: Naiman Khan

Susan Mantell, MS
Advisor: Nick Burd

Joe Rowles, PhD
Advisor: John Erdman

August 2020 Graduates!

Catherine Applegate, PhD
Advisor: John Erdman

Student Recognition

2020-2021 Fellowship Recipients

DNS Excellence Fellowship:
Andrea Dest

**National Science Foundation
Graduate Research Fellowship:**
Ana Mitchell

**USDA National Institute of
Food and Agriculture Fellowship:**
Katie Ranard
Sharon Thompson

CONACyT Fellowship:
Jessica Nicanor

Ann E. Radcliff Tudor Research Scholarship:
Ashleigh Oliveira

**Robert Wood Johnson Foundation Health
Scholar Fellowship:**
Christian Maino Vieytes

**NIH T32 Tissue Microenvironment
Predoctoral Fellowship:**
Ashlie Santaliz-Casiano

Jonathan Baldwin Turner Fellowship:
Colleen McKenna
Leila Shinn

**The Kraft Heinz Company Human
Nutrition Fellowship:**
Elizabeth Gutierrez

USDA National Needs Fellowship:
Alex Baldeon
Hanchu Dai
Noah Hutchinson
Justin Kim
Arden McMath
Breanna Metras
Clara Salame
Anqi Zhao

2020 Margin of Excellence Research Fund Recipients

DNS received 23 Margin of Excellence research proposals. All proposals were reviewed and rated by a faculty committee. Below are the top seven proposals that were ranked Very Good or Excellent. A total of \$42,500 was funded amongst 20 proposals.

Catherine Applegate (PhD, advised by Dr. Erdman)
Validation of ultrasound microvessel imaging for use in an autochthonous model of cancer

Erin Davis (PhD, advised by Dr. Donovan)
Short-Chain Fatty Acid Profiles in Lactating Women Undergoing a Probiotic Yogurt Intervention

Monica Kashi (PhD, advised by Dr. Khan)
Relationships between Different Carotenoid Assessment Techniques in Adulthood

Arden McMath (PhD, advised by Drs. Donovan and Khan)
Gut microbiome mediation of appetite dysregulation in an obese state

Leila Shinn (PhD, advised by Dr. Holscher)
Establishing a panel of gastrointestinal microbial biomarkers of whole food intake in healthy adults

Sharon Thompson (PhD, advised by Dr. Holscher)
Differences in the fecal metabolome, microbial taxa communities, and hepatic lipid concentrations with avocado intake among adults with overweight or obesity

Anqi Zhao (PhD, advised by Dr. Miller)
The Impact of Glucosinolates and Isothiocyanates on Extraoral Bitter Taste Receptors

Student Recognition



2020 Endowed Student Award
Winners

David H. Baker Nutrition Scholar Award Fund
Vanessa Lagos Munoz

James L. Robinson Nutrition Impact Award Fund
Erin Davis

Toshiro Nishida Research Award Fund
Alex Baldeon
Ana Mitchell

William C. Rose Endowment Award
Asma'a Albakri
Catherine Applegate
Annabelle Shaffer
Leila Shinn

Frank W. Kari Endowed Memorial Award Fund
Joey Arballo
Ivan Pinos Cabezas
Karen Chiu
Miriam Aguilar Lopez



Leila Shinn
Chair

Colleen McKenna
Chair-Elect

Mindy Lee
Treasurer

Megumi Hashida
Treasurer-Elect

Hanchu Dai
Secretary

Ana Mitchell
Student Representative
to the Faculty

Emanuela Kayser
Networking Chair and
Professional Development

Sergio Miranda Junior
Social Engagement and
Activities Chair

Alex Baldeon
Outreach Chair

Monica Kashi
Media Chair

Faculty Updates

Aditi Das

Associate Professor
Dept. of Comparative
Biosciences
College of Veterinary
Medicine

Ryan Dilger

Associate Professor
Dept. of Animal Sciences
College of ACES

Sharon Donovan

Professor and Melissa M.
Noel Endowed Chair in
Nutrition and Health
Dept. of Food Science and
Human Nutrition
College of ACES

John Erdman

Professor Emeritus
Dept. of Food Science and
Human Nutrition
College of ACES

Hannah Holscher

Assistant Professor
Dept. of Food Science and
Human Nutrition
College of ACES

Naiman Khan

Assistant Professor
Dept. of Kinesiology and
Community Health
College of Applied Health
Sciences

Yuan-Xiang Pan

Associate Professor
Dept. of Food Science and
Human Nutrition
College of ACES

Kelly Swanson

Professor of Animal and
Nutritional Sciences
Dept. of Animal Sciences
College of ACES

Margarita Teran-Garcia

Research Assistant Professor
Dept. of Biomedical and
Translational Sciences

Ana Mitchell

Nutritional Sciences
Graduate Student

Jaume Amengual was named the 2020 recipient of the Mary Swartz Rose Young Investigator Award from the American Society for Nutrition (ASN) and its Foundation.

Sharon Donovan was appointed as Director of the newly established Personalized Nutrition Initiative (PNI). The PNI, a partnership between IGB and ACES, is an important area for strategic investment in the campus Strategic Plan as well as a keystone of the new NIH's 10-year Strategic Plan for Nutrition. She was also appointed as a CAS Professor with the Center for Advanced Study at Illinois. Being selected for CAS Professorship is one of the highest forms of recognition at the University of Illinois. The selection is based upon nominations for outstanding scholarly activities.

Kelly Swanson was selected for the College of ACES Senior Faculty Award for Excellence in Research. He joined the Board of Directors for the International Scientific Association for Probiotics and Prebiotics (ISAPP) and became the Associate Editor for Animal Feed Science and Technology.

ILSI- DNS Webinar Series on the Gut-Brain Axis and the Microbiome

August 28, 2020

Introduction: Rodney Johnson, PhD
Speakers: Jeffrey Woods, PhD
Noah Hutchinson, DNS Student
Title: Exercise, Diet, and the Gut-Brain-Axis

September 3, 2020

Speaker: Kelly Swanson, PhD
Title: Sex-Related Differences in Host Metabolism and
Health: Role of the Gastrointestinal Microbiome

Speaker: Celeste Alexander, DNS Student
Title: Metabolic and Gastrointestinal Health Perturbations Following Cholecystectomy in a Model of Menopause

September 11, 2020

Speakers: Yanina Pepino, PhD
Clara Salame, DNS Student
Title: Low Calorie Sweeteners: Treat or Trick?

September 18, 2020

Speakers: Aditi Das, PhD
Andrew Steelman, PhD
Justin Kim, DNS Student
Title: Neuromodulatory Role of Omega-3 Fatty Acid
Endocannabinoids found in the Gut

September 25, 2020

Speakers: Sharon Donovan, PhD, RD
Naiman Khan, PhD, RD
Arden McMath, DNS Student
Title: STRONG Kids 2: The role of Childhood Nutrition
and Obesity in the Microbiome-Brain Axis

For more information:
<https://go.illinois.edu/ilsidnswebinarseries>



Drs. George Fahey and Kelly Swanson were invited to give a talk at Mahidol University near Bangkok. Their seminars were on The Science of Pet Food Nutrition.

ACES Funk Award Recipients

Karen Chapman-Novakofski
Spitze Land-Grant Professorial Career
Excellence Award

Paul Davidson
Faculty Award for Excellence in Teaching

Hannah Holscher
Faculty Award for Excellence in Research

Juan Loor
Faculty Award for Global Impact

Kelly Swanson
Faculty Award for Excellence in Research

Alumni Updates

Sean Adams (PhD 1994) accepted a new position as Scientific Director for the UC Davis Center for Alimentary and Metabolic Science and Vice Chair for Basic Research in the Department of Surgery at the UC Davis College of Medicine.

Leia Flure (Kedem) (MS 2010) welcomed her second daughter, Ivy Jo Flure in February 2020.

Alyce Fly (PhD 1991) retired from Indiana University as Professor Emerita and accepted a new job as Department Chair in the department of Nutrition and Health Sciences at Ball State University.

Jessica Hartke (PhD 2006) received the 2020 College of ACES and Paul A. Funk Recognition Award for Professional Staff Award for Excellence in Administration.

Sookyong Jeon (PhD 2018) welcomed a baby girl, Haeun Kim on February 28, 2020

Melissa Kaczmarczyk (PhD 2012) accepted a new position as Principle Scientist at Tate and Lyle.

Barbara A. Kochanowski (MS 1984, PhD 1984) received the Outstanding Alumni Award in February 2020 from the Penn State Nutrition and Dietetics Alumni Society.

Sean H. Adams
Scientific Director
UC Davis Center for
Alimentary and Metabolic
Science
Vice Chair Basic Research
Department of Surgery
UC Davis College of Medicine

Cindy Davis
Director of Grants and
Extramural Activities
Office of Dietary Supplements
National Institutes of Health

Ratna Mukherjea
Director
Global Nutrition
DuPont Nutrition & Health

Christine Pelkman
Principal
Pelkman NSci Consulting

Christina Sherry
Director Global Nutrition
Sciences, PepsiCo

Amanda Young
Vice President Research &
Development
Shared Development, Cost
Engineering, Nutrition, &
Business Processes
The Kraft Heinz Company

Mike Zora
Vice-President
Archer Daniels Midland
Company

DNS Alumni Guest Lecture in NUTR 590 - "Professional Development: Industry Immersion for Career Opportunities"



Kirstie Canene-Adams
PhD 2007
Senior Scientist
Tate and Lyle



Jessica Campbell
PhD 2006
Senior Nutrition Manager
General Mills



Laura Czerkies
MS 2001
Manager
Nestle Nutrition



Matthew Kuchan
PhD 1991
Research Fellow, Director
Pre-Clinical Research
Abbott Nutrition



Matt Panasevich
PhD 2015
Scientist
Blue Buffalo Co.

Mary Frances Picciano Scholarship Fund



The Division of Nutritional Sciences at the University of Illinois is proud to announce the recent creation and endowment of the Mary Frances Picciano Graduate Scholarship. This scholarship was created by a former student to show appreciation for the impact Mary Frances made on shaping her professional career path.

“As a mentor, Dr. Picciano had a valuable impact on my career as a nutritional scientist. She was always teaching her research group the importance of the scientific process in the laboratory and the keys to successful grant writing and publishing of our research findings. Most importantly, she was supportive of her students in all aspects of our lives and modeled an effective balance of work and family life.”

- Anne Smith (PhD 1986)

Giving Options

- **Mary Frances Picciano Scholarship Fund for Current Use Fund (#11336465):** In recognition of Mary Frances Picciano, this fund provides scholarship support for DNS students on a competitive basis.
- **Nutritional Sciences Margin of Excellence Fund (#339154):** Provides conference travel grants and research seed-grant funding to DNS students on a competitive basis
- **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
- **Frontiers in Nutritional Sciences Fund (#339153):** Supports the weekly DNS seminar series for University of Illinois faculty and students

DIVISION OF NUTRITIONAL SCIENCES



Catherine Applegate, PhD



Caitlyn Edwards, PhD



Bridget Hannon, PhD



Ching-Yen Lin, PhD



Ruyu Liu, MS



Susan Mantell, MS



Joe Rowles, PhD

Support DNS

We are very thankful to the faculty, students, alumni and friends who have supported DNS through contributions to the Endowment Fund, the Annual Fund, and the Margin of Excellence 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.