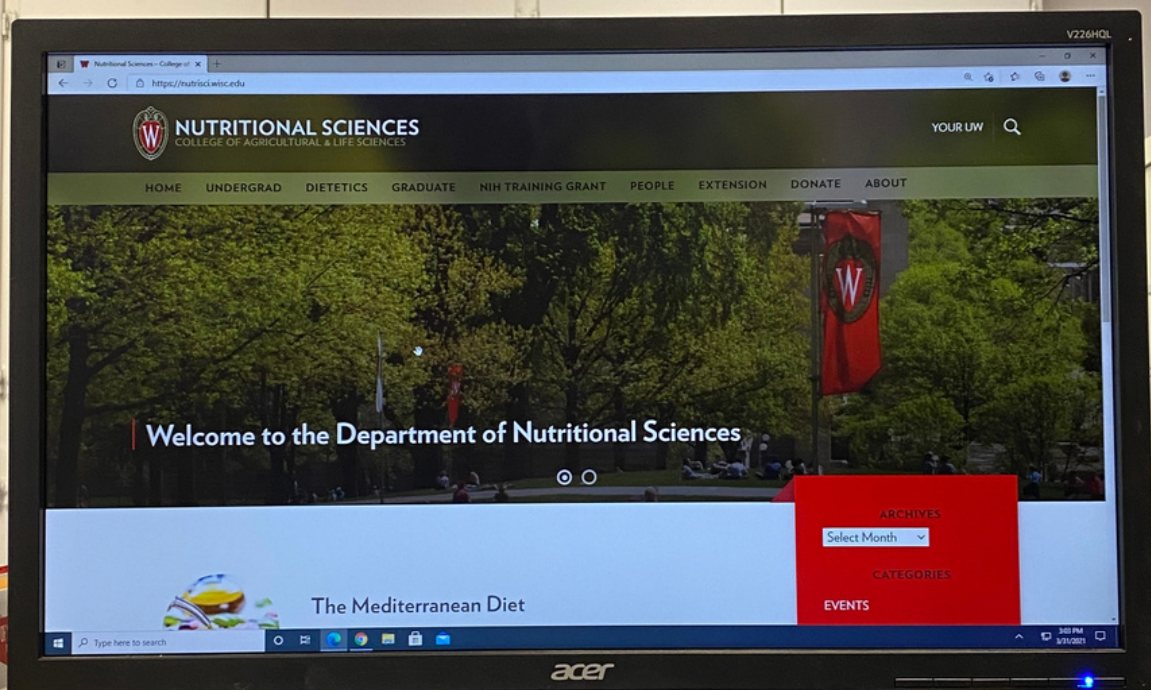
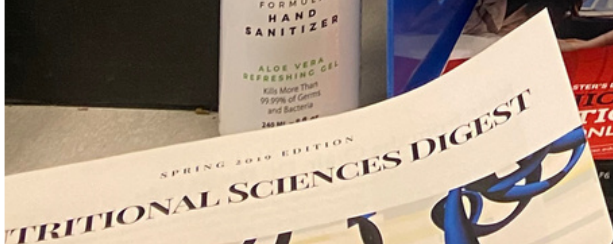


NUTRITIONAL SCIENCES DIGEST



SPRING ISSUE • MAY 2021 • EST. 1968
College of Agriculture and Life Sciences • University of Wisconsin-Madison



NOTE FROM THE CHAIR: DR. DAVID EIDE



Happy spring and greetings from the Department of Nutritional Sciences. Spring in Wisconsin is always an exciting time of rebirth and renewal and that is especially true this spring as we see signs of our campus returning to a more normal, post-pandemic way of life. With continued mask wearing and social distancing, stringent testing, and increasing numbers of us getting vaccinated, the prospect of returning soon to something close to normal has not looked better in many months. The amazing success of testing methods and the astounding speed with which effective vaccines were created in response to COVID-19 has got me thinking a lot about the tremendous and often underestimated value of “basic science”. I define basic science, in contrast to applied science, as research on questions that do not have an immediate and direct application to health, industry, agriculture, etc. For many of the faculty in the department, most of what we do in our nutrition research is basic science. For an example from my own lab, understanding how zinc is

transported into cells and loaded on to the proteins that use it is about as basic as it gets in the field of nutrition yet I have seen applications of our work to diseases such as diabetes and the genetic engineering of crop plants for better mineral nutrition. It is often easy to forget the enormous impact basic science can have on our lives. And this brings me back to thinking about COVID-19. Technical advances in DNA sequencing led to the almost immediate release of the genomic sequence of the SARS-CoV-2 virus to the scientific community for development of sensitive tests for the virus and effective vaccines to prevent infection. This sequencing technology has also enabled the ongoing surveillance for viral mutations and more infectious variants. Much of the testing that is ongoing uses the polymerase chain reaction method that arose from the basic science research of UW-Madison professor Tom Brock on bacteria that can live in the high temperatures of Yellowstone hot springs. Similarly, the development of the Moderna and Pfizer-BioNTech mRNA vaccines is built on years of basic science research on how mRNA is translated into protein, how the folded structure of mRNA affects that translation, and how mRNA are degraded and what factors influence their stability. While the COVID-19 pandemic has been an extraordinary challenge to the world, it has also shown us clearly how both applied and basic science can have enormous benefits in our lives.

IN THIS EDITION...



Advising Challenges during the COVID-19 pandemic



Nutritional Sciences forms Justice, Equity, Diversity, and Inclusion Committee



A Taste of Many Cultures

'Like a Map of the City' - How Metabolic Networks Contribute to Our Understanding of Cancer's Growth

Taken from UW-Health, Carbone Cancer Center and Dr. Jing Fan

Most people think of metabolism as the process by which the body converts food into energy it needs.

But when new UW Carbone Cancer Center member Jing Fan, PhD, thinks about metabolism, she is focused on the complicated network of biochemical reactions. These biochemical reactions and metabolites - the small molecules created in the process - are at the center of many dynamic cellular functions.

"Our lab is interested in how cells use their metabolism, distribute their metabolic resources and perform different metabolic functions in different physiological and pathological conditions," said Fan, who's also an assistant professor in UW-Madison's Department of Nutritional Sciences.



Metabolism can affect cellular processes in multiple ways. Some metabolites can activate other signaling proteins. Because metabolites participate in biochemical reactions that modify DNA, metabolism can also leave longer-term impacts on cells. Additionally, rapidly growing cancer cells have specific metabolic demands and targeting their metabolism could be a way inhibit the growth of a tumor.

Fan's research group has been working on understanding metabolism in a quantitative, systematic way.

"If you know the metabolic network, it's kind of like a map of the city," Fan said. "We're trying to quantify the traffic through different roads to see which road is a major traffic road, which one is a minor traffic road, and how traffic changes over time in different situations."



"If you know the metabolic network, it's kind of like a map of the city," Fan said.

The researchers rely on a technique called mass spectrometry that allows them to measure all the types of compounds present in cells. When combined with a tool called an isotopic tracer, which serves as a sort of tracker on some of the molecular components of the compounds in a cell, the scientists are able to measure the rates of the myriad different biochemical reactions in cells. This then lets them look for changes in cellular metabolism.

The sensitivity of these methods has helped her research group analyze how cancer cells metabolize certain small molecules, with some types of cancer depending on specific metabolic activities more than normal cells.

"We could survey for different cancer types and identify the metabolic activity for different cancers, and we can use that to treat different cancers in a very specific way," Fan said.

In addition to examining how cancer cells regulate their metabolism, Fan's group also studies immune cells, another group of specialized cell types that must respond rapidly to their environment. Immune cells must quickly respond to an infection while also not maintain inflammation longer than necessary.

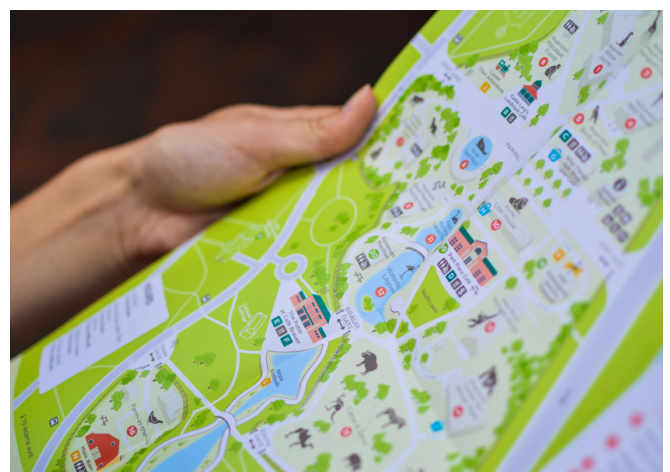
"When immune cells get activated, their metabolism changes really profoundly, and we want to know what are the mechanisms that allow them to quickly change their metabolism," Fan said.

The metabolism of immune cells is very different depending on whether they have been activated and how much time has elapsed. For example, Fan's lab has previously shown that macrophages, a type of immune cell, go through two distinct metabolic stages during their response. These metabolic stages are associated with changing cellular functions in the macrophages and their transition from a pro-inflammatory to more immunosuppressive stage.

Having identified some key points that regulate the metabolic network of macrophages, Fan's group is looking further into how this regulation occurs and what it means for the cells in different conditions.

Fan's group is also comparing the metabolism between macrophages and neutrophils, another type of immune cell. They are interested in the differences between longer-term dynamic changes of macrophages and the fast-responding actions of neutrophils.

"Metabolism and other cellular processes are very connected, and there many different mechanisms that make them connected," Fan said.



ADVISING CHALLENGES DURING THE COVID-19 PANDEMIC

Madelaine Triebold

The COVID-19 pandemic has definitely brought a lot of changes to the University of Wisconsin-Madison's Nutritional Sciences Department. Since March of last year, the department's faculty and students have been challenged while adapting to an online format.

Advisors have worked extra hard over the past year to help out their students through these challenging times. Erika Anna, Katie Butzen, and Sarah Golla, the advisors for the department of UW Nutrition Sciences, reflect on the hurdles, unforeseen items, impacts on the department's diverse environment, and successes of advising and graduate student recruitment during the COVID-19 pandemic.

COVID-19 has impacted everyday advising appointments, especially IGPNS, emphasizing the importance of the advising and mentorship relationship throughout school, but that has been hard to do with the online format. Since March of last year, advisors have adapted to one-on-one appointments on Microsoft Teams and by phone. They also have webinars and group advising sessions over platforms such as Zoom. Undergraduate students and the MS/PhD program have been impacted in different ways. Katie Butzen commented that the MS/PhD graduate students need more validation than actual professional guidance.

"I would make rounds and/or students could simply pop into my office with a question or a thought," said Butzen. "I really missed this style of advising, because I think it was much easier for students to have their needs met quicker, even if the question was complex and required some extra time and work on my end. In addition, it helped build community within the department."

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“There are things we would typically do that I cannot do in the same way in this environment”



To try to continue this method of advising, Butzen created a Drop-In Model for the Fall semester where she had weekly virtual graduate student drop-in hours on Microsoft Teams. The hours were not fully utilized by students, so for this Spring semester, she scheduled cohort meetings with the graduate students. This method of advising includes a general wellness check-in along with a listening session.

How the undergraduate program was impacted varied from student to student. Some seemed to thrive from the online environment, while others felt isolated and that they were missing out on the college experience. The campus subscribed to the use of Microsoft Teams for undergraduate advising meetings. Butzen talks about her experience advising with Microsoft Teams: “The software works well and seems relatively easy for most students. I have been intentional about meeting with each student multiple times throughout the semester, and that has been heightened in COVID. There has been an increase in appointments because students’ needs are greater. They need community, more resources, and general support,” Butzen said. These undergraduate students were impacted in different ways, but all of them needed the increase in support this semester whether they realized it or not.

COVID-19 has also impacted the graduate student recruitment process this year. “The biggest hurdle is the lack of human contact. There is a lot more intervention you can have with someone you meet face-to-face at a recruiting conference or a prospective student than online,” said Butzen. Just like with advising, recruitment is important to have face-to-face. That way, informal conversations can take place, flyers can be handed out, and it is easier to show a sense of community that exists within the department.

This year, graduate recruitment has adapted to doing more webinars with the Division of Continuing Studies, but this has brought along some challenges with not being in-person, according to Golla. “There are things we would typically do that I cannot do in the same way in this environment—e.g., giving a 5 min presentation at the start of a large lecture class in-person (like NS 132), talking at in-person staff meetings for other advising offices, having lots of students come to my table at physical recruitment events, etc.” Golla said. Many aspects of graduate recruitment could not be conducted the same this year with it taking place online.



The department's mission to create a diverse environment has also been impacted because of the coronavirus as well. The online format makes it difficult to communicate with students and anticipate their needs. Anna comments on her experience this year with keeping a diverse environment. "With the physical space between faculty, staff, and students, there is decreased connectivity with the potential for decreased sense of belonging and support," Golla said. In-person seems to make it all the better, such as a "hallway chat" as described by Anna that can lead to important conversations. Golla mentions that keeping a diverse graduate recruitment has been hard this year too. "Turnout for virtual recruitment events has not always been as high as with past in-person practices—which makes our goal of recruiting and retaining a diverse student body a challenge," Golla said. Being in-person makes it all the more important for recruiting, and having those face-to-face conversations to show that the department is a welcoming inclusive atmosphere.



Looking forward to the future of the department's diverse environment, Butzen is excited for new things to come. "I am excited for the formation of the Justice, Equity, Diversity, and Inclusion (JEDI) committee (formation is currently underway). In addition, I know Beth Olson [Associate Professor. Ph.D.], Erika Anna, and Liz Kalmbach [Department IT Manager] are working towards building a space for diversity and outreach on our website," Butzen said. Any of the possible setbacks from maintaining a close-knit community in online format will definitely show major improvement in the near future with all the new initiatives that are underway.



Not only have the students been struggling with getting help during this isolated school year, but the advisors have definitely had their struggles as well. The advisors for the UW Nutritional Sciences Department work hard to make sure all of their students' needs are met during this challenging time. Golla speaks about how she has felt about the online format for advising: "As advisors, we care deeply about students' wellbeing and success—and many of us are experiencing feelings of burnout," Golla said. They have used a lot more of their time this year to be there for their students. Butzen mentions that the online format requires a lot more preparation and planning in meeting with students. She also explained how after online meetings with students, "there is a lot of post-meeting work to accumulate the meeting summary and all the information about the resources the students/you shared with them," Butzen said.





The online format comes with more work than it would compared to in-person meetings. The physical distance has been challenging to advisors that want to be there for their struggling students. Anna speaks about how she has been prioritizing her students' needs this semester: "My appointments are going longer than the scheduled 30 minutes, and I'm working more closely with both students and their parents, which was never really a thing before," said Anna. Advisors, although they had a huge workload this year, put the health and needs of their students first to make sure they were being cared for.

Although there have been a lot of negative impacts to advising this year, there have been some benefits and unpredicted successes in the recruitment process and within advising. Golla talks about how advising has been somewhat convenient for students this year. "The benefit of virtual, and the reason I will continue to have this option for advising appointments in the future- is the convenience for students," Golla said. If a student is not available to stop by to an advisor's office in person, conducting a quick zoom call can be a lot easier to fit around a student's schedule. There have also been successes within recruitment as well. Butzen talks about her experience this year: "One major success of the recruitment process has been the expansion of the recruitment weekend to a virtual week. The flexible model allowed us to interview more students that we have in past years," Butzen said. Although recruiting prospective students may be hard in an online format, having a longer virtual week allows advisors to come in contact with more students than they have in the past.

Adapting to an online format this year for advising and graduate recruitment has definitely had its ups and downs. Although this year has proved that many aspects of advising are more beneficial in person, having an online format has shown its quickness and ability to interact with more students than before. The Department of Nutritional Sciences is excited for the future and seeing everyone back on campus, with changes that will improve the environment. As stated by Butzen, "I definitely cannot wait to be back on campus and recreate the fun and lively community we had!"



WELCOME HOANG BUI TO THE IGPNS PROGRAM

Fall 2021 Recruiting Class

Hoang completed all of his education at the University of New Mexico-Albuquerque. He completed his undergraduate years in 2018, graduating with a Bachelor of Science in Biochemistry — with an impressive overall GPA of 4.08 — and a minor in Music. He then graduated with a Master of Arts in Education in 2020 with an overall GPA of 4.03.

Not only were his grades in college impressive, but the amount of work experience as well. Some of his accomplishments include working in the New Mexico Scientific Laboratory, Office of the Medical Investigator, as a Morphology Technical Specialist from 2015-2016. From 2016-2018, Hoang worked at the National Institute of Health -UNM IMSD Program-Center for Evolutionary and Theoretical Immunology. He then worked as an undergraduate research assistant/scholar, studying The Immune Response on the Intracellular Protozoan Parasite *Toxoplasma Gondii*.

In the summer of 2017, Hoang was an Undergraduate Research Intern for the National Science Foundation in the Cornell University Molecular Biology and Genetics REU Program. During his internship, Hoang studied the effect of multiple genes on sperm competition and egg laying ability in *drosophila melanogaster*.

He also worked at Highland High School from 2019-2020 as an ATRAP (Albuquerque Teacher Residency Partnership) Resident/Teacher Resident, and is currently a Hoover Middle School science teacher as an ATRP Resident/ Teacher Resident. Hoang is definitely a well-accomplished student and we are very excited for him to join us in the fall!

ALUMNI HIGHLIGHT

Dr. Melanie Gillingham

1. Why did you choose UW-Madison?

I am originally from Oklahoma. A professor spoke highly of the UW Madison nutrition graduate program during my Master's degree at the University of Oklahoma Health Science Center and my sister attended UW-Madison for her undergraduate degree. After completing my MS in nutrition and a dietetic internship, I worked as a clinical RD for about 4 years while my husband was in medical school but knew I wanted to return to school to get a PhD in the future. Towards the end of his medical school, we started looking for locations with both a family practice residency and a PhD program in Nutrition Science. After a December interview trip through the Midwest, we gravitated to the UW programs. I remember coming to the interview in a suit and dress shoes with 2 feet of snow on the ground. Dr. Rick Eisenstein was shocked at my footwear and couldn't believe I didn't own snow boots. (I do now.) My husband matched with UW family medicine and I was accepted into the graduate program and we moved from Oklahoma to Wisconsin. I learned a lot about snow during our 5 years in Wisconsin.

2. What is your favorite memory from attending UW-Madison?

There are a lot of good memories but the people and friends I made will always be forefront in my mind. I remember weekly study sessions preparing for our qualifying exams with fellow graduate students, Leah and Kerry. In the Ney lab, each graduate student had their own project but on big experiment days we would all pitch in and work together. I remember long days of rodent surgery with Mike, Karen and Elizabeth. During my 1st year of graduate school, I completed the LEND program at the Waisman Center. I made some great friendships in the metabolic clinic at Waisman and still have the privilege to work with Cary Harding and Sandy Van Calcar who are now here in Portland, OR at OHSU.

3. What inspired you to study nutrition?

I initially became interested in nutrition science in my undergraduate basic nutrition class. It combined the science of physiology, biochemistry and food. My science classes were always some of my favorites but the material could sometimes be abstract. I like the application of nutrition science with such a fundamental human activity – eating – that spans different cultures, societies and environments.



4. Can you describe your current work/research?

I am an Associate Professor in the Molecular and Medical Genetics Department at Oregon Health & Science University. My laboratory studies fatty acid oxidation disorders, rare autosomal recessive disorders of the fatty acid oxidation pathway. Infants and children with fatty acid oxidation (FAODs) can present with hypoketotic hypoglycemia, cardiomyopathy and hepatomegaly during periods of negative energy balance. Adolescents and adults have recurrent rhabdomyolysis with prolonged fasting, exercise or stress. The corner stone of treatment for all long-chain fatty acid oxidation disorders is to minimize fat oxidation with small frequent meals and avoiding fasting. Patients are advised to consume a low-fat diet and often supplement with medium-chain triglycerides or MCTs that bypass the long-chain fatty acid oxidation enzyme defects. Our group has conducted clinical trials on increased protein diets, MCT supplementation prior to exercise, and recently, a novel odd-chain triglyceride, triheptanoin. We demonstrated that triheptanoin improved cardio-respiratory function both at rest and during exercise compared to MCT. This might be particularly important for patients who are struggling with cardiomyopathy. Our RCT data along with open labeled trials conducted by the pharmaceutical company Ultragenyx were submitted to the FDA and triheptanoin was approved in July, 2019. The brand name is Dojolvi and it is the first FDA approved treatment for long-chain fatty acid oxidation disorders. Another area of research focus is on long-chain 3-hydroxyacylCoA dehydrogenase deficiency (LCHADD) retinopathy. LCHADD is one of the long-chain FAODs but the only disorder that has a progressive retinopathy with vision loss.

There are no treatments for LCHADD retinopathy specifically. Early diagnosis with newborn screening, along with good medical and dietary management and prevention of metabolic crises slows the progression of vision loss but does not halt it. We have developed a cell culture model using patient fibroblasts, de-differentiated to induced pluripotent stem cells and then re-differentiated to retinal pigment epithelium. The LCHAD-deficient RPE do not make ketones, accumulate triglycerides and other partially oxidized fatty acid products and do not oxidize fatty acids. The cells are susceptible to oxidative stress induced by hydrogen peroxide and die in the presence of added fatty acids more rapidly than wild-type cells. We are now testing a gene replacement approach to see if the normal gene can rescue the phenotype.

We also used CRISPR-Cas9 and introduced a common point mutation into the mouse genome to create an LCHADD deficient mouse. Previous attempts to knockout the entire gene, HADHA, were neonatal lethal. Our LCHAD mutant mice die more frequently during the immediate post-natal period but some have survived into adulthood. We looked at the adult LCHAD deficient mouse eyes and found they have decreased visual acuity and accumulate lipid droplets in the retinal pigment epithelium suggesting they will be a good animal model of the human retinopathy. Eventually, we plan to test our gene replacement approach in the mice.

I am also the director of the thesis track of our Masters of Science in Human Nutrition program. The OHSU graduate programs of human nutrition offers a combined MS/dietetic internship program with a thesis or capstone option. Within the program I teach nutrition research, a laboratory nutrition methods course and several electives. The program accepts about 10 MS/DI students per year through the DICAS match system.



5. What do you like to do in your free time outside of work?

I really enjoy cooking and exploring new cuisines. My family often has a theme each year like Spanish, Asian or South American cooking and we try new recipes or dishes 1-2 times per week. I love hikes and walks on the Oregon coast and beaches. We also enjoy skiing or mountain hikes on Mt Hood or in the Cascade mountain range. I recently tried snow shoeing and really enjoyed it.

6. What advice do you have for students graduating now and trying to pursue their passions?

Perseverance and intellectual curiosity will carry you far as you enter your career. With each set back or challenge you face, take a moment to reframe the situation and see it as an opportunity to grow. Perhaps you can learn to communicate your message more effectively in a presentation, in a grant application, in a job interview or on a resume. Ask questions and be curious about your field and it will make your work so much more rewarding. Professors, colleagues, co-workers are much more willing to share insights with you or discuss interesting aspects of project or a patient's medical care when you ask questions and seem genuinely interested in learning. Many times, those seemingly less important observations, or that conversation in the hall with a colleague about an odd piece of data have led me in a new direction and opened new avenues of research that I would never have foreseen. It also makes each day's work more fun.

Awards and Acknowledgements



Vanessa Leone

Congratulations to Vanessa Leone! Vanessa, one of our IGPNS trainers, was one of four people chosen by the Wisconsin Alumni Research Foundation (WARF) to be awarded the WARF Accelerator Microbiome Challenge Grant, for monitoring the microbiome as an indicator of fibrotic liver disease.

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Emily Britt

Congratulations to Emily Britt! Emily was chosen to receive the Louis and Elsa Thomsen Wisconsin Distinguished Graduate Fellowship Award. This award acknowledges her excellent academic performance and research productivity during her Ph.D. career at the University of Wisconsin-Madison.



Awards and Acknowledgements



Katie Butzen

Congratulations to one of our Nutritional Sciences advisors, Katie Butzen, on winning the WALSAA Outstanding Advisor Award from CALS! This award recognizes an individual who has demonstrated a deep concern for the welfare of CALS undergraduates and has invested exceptional time and effort in providing them (individuals, teams, or clubs) with academic or personal guidance.

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Erin Ard

Congratulations to Erin Ard, the recipient of the Department of Nutritional Sciences' Hellen M. Linkswiler Scholarship! This scholarship is awarded to students enrolled in the online Master of Science in Clinical Nutrition (MS-CN) degree program. Erin will begin UW Health's Integrated Graduate Program in Nutrition and Dietetics this summer.



Awards and Acknowledgements



Libbi Chitwood and Lindsey Steinl

A special shout out to our wonderful students Lindsey Steinl, a senior in our DPD program, and Libbi Chitwood, a student in our MS-CN and UW-Health Dietetic Internship! Both students won Outstanding Dietetics Student awards from the Wisconsin Academy of Nutrition and Dietetics (WAND). These awards recognize the emerging leadership and achievement of students in accredited and approved dietetics education programs. Way to go!



Libby Chitwood

Outstanding Dietetics Student -
Dietetic Internship Award



Lindsey Steinl

Outstanding Dietetics Student -
Didactic Program in Dietetics Award

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NUTRITIONAL SCIENCES FORMS JUSTICE, EQUITY, DIVERSITY, AND INCLUSION COMMITTEE



THE DEPARTMENT OF NUTRITIONAL SCIENCES IS EXCITED TO ANNOUNCE ITS NEWLY FORMED JUSTICE, EQUITY, DIVERSITY AND INCLUSION (JEDI) COMMITTEE.

The responsibility of this committee will be to consider and recommend actions that can be taken by the department and the Interdepartmental Graduate Program in Nutritional Sciences (IGPNS) to improve the department's efforts surrounding justice, equity, diversity, and inclusion.

Diverse perspectives are drivers of innovation and relevance surrounding justice, equity, diversity, and inclusion. With the goal of forming a diverse group to inform and act strategically on long and short-term goals, the JEDI committee includes undergraduate and graduate students, research and instructional staff, nutritional sciences faculty, and faculty from other departments who are members of the IGPNS program. We were pleased by the robust interest to join from students across the department.

The JEDI committee held its first meeting in April. Working through an agenda of short and long-term priorities, early focus areas include:

- Mentor and mentee relationships
- Diversifying seminar speakers invited to the department
- Resources for retention and recruitment of underrepresented students
- Identifying opportunities for community outreach
- Identifying and implementing training recommendations surrounding justice, equity, diversity, and inclusion with the vision to cultivate sustained commitment among students, faculty, and staff

Special thanks go to Dr. Adam Kuchnia for serving as chair of the JEDI committee.

A TASTE OF MANY CULTURES

GROW Magazine, UW Madison
Written by Michael P. King

How does the American ideal of healthy eating exclude other cultures? That was the question posed to students by instructor Erika Anna BS'13 in a creative writing exercise called "six-word stories."

"Eurocentric diets promoted over others' cultures," one student wrote.

"Only American foods represented as healthy," wrote another.

A third put it more bluntly: "Others feel their food is bad."

It gets to the heart of what students explore in Nutri Sci 377: Cultural Aspects of Food and Nutrition. It began as an online summer term course in 2019 and was a fall semester offering for the first time in 2020.

"We have a workforce of food and nutrition professionals that is mostly white and identifying as female," says Anna, a registered dietitian and assistant faculty associate in the Department of Nutritional Sciences. "As a result, curriculum for students, nutrition education for patients and communities, and health care practice are largely developed through a singular lens, and lacking broad cultural relevance. I knew going into course development that my role would largely be as a conduit for diverse voices, research, media, and resources."



Senior dietetics major Ayda Mohd Ayob prepares a meal using the tropical cassava plant as part of her final project for Nutri Sci 377: Cultural Aspects of Food and Nutrition. Photo courtesy of Ayda Mohd Ayob

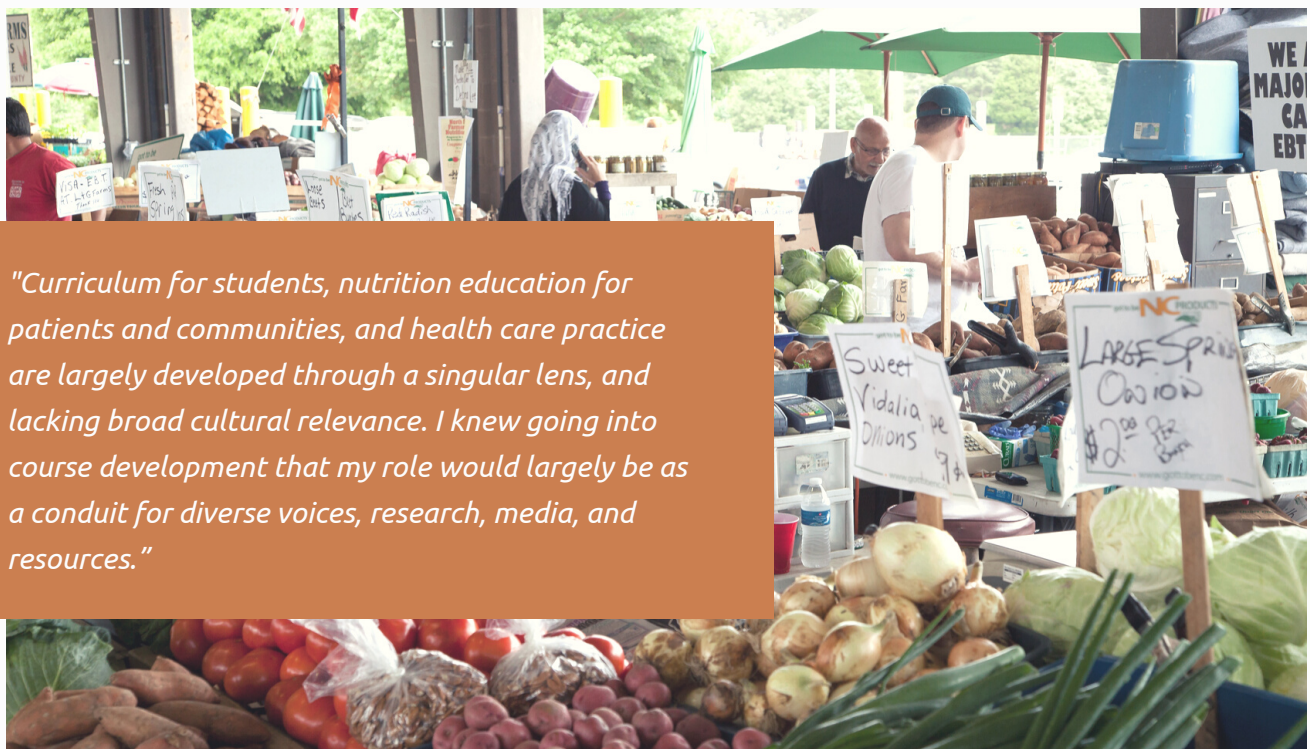
A host of collaborators from across the nation lend their expertise to the course throughout the semester, thanks to a grant from the UW Division of Continuing Studies. This gives students an opportunity to see many different dietitians and food and nutrition professionals as the leaders and innovators they are within the field, Anna says.

At the start of the semester, students examine how implicit bias, microaggressions, and the ideology of racial colorblindness influence human interactions. This portion is led by Teresa Turner, a nutritionist with Army Child and Youth Services at Fort Meade and a past chair of the Diversity and Inclusion Committee of the Academy of Nutrition and Dietetics.

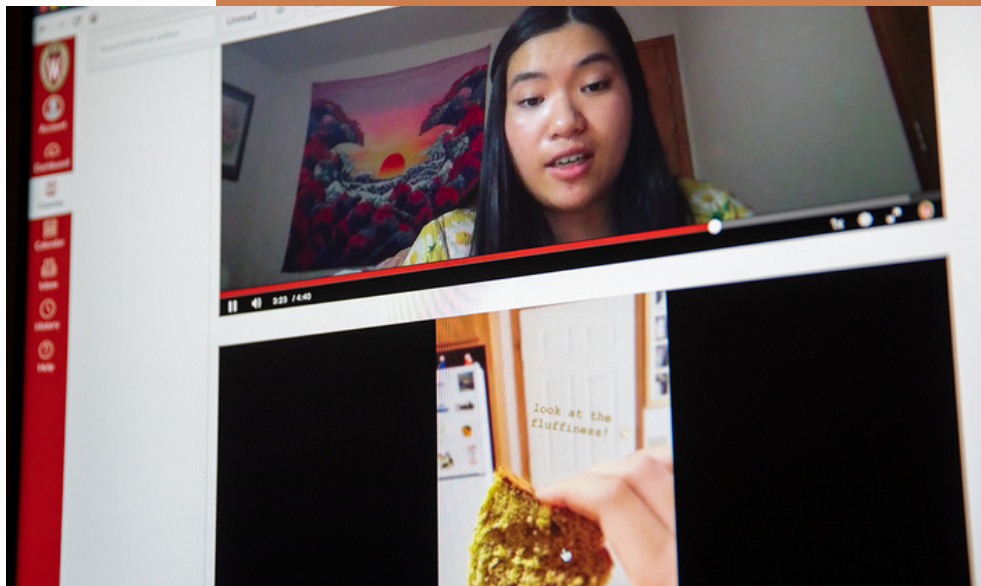
The course doesn't stop there. Anna and co-instructor Amber Haroldson BS'08 help students explore the food preferences and cultures of Indigenous people, Latin Americans, Black and African Americans, and the religiously observant. YaQutullah Ibraheem Muhammad, a clinical dietician with the Veterans Administration and chair of the nutrition academy's Religion Member Interest Group, talks to students about halal and haram foods, nutritional considerations for fasting during Ramadan, and the Five Pillars of Islam.

The class also dives deeper into federal food assistance programs (SNAP, WIC, and FDPIR) and how well they work — or don't work — for those they serve. The programs have added culturally relevant items to lists of approved foods, but the extent of that can vary regionally, and requesting added traditional foods can be a lengthy process.

"WIC, SNAP-Ed, and FDPIR include nutrition education along with food packages," notes Anna. "But if the education delivered isn't culturally relevant or ignores or violates cultural beliefs, practices, or customs, it could lead to a complete rejection of essential health care information." The course satisfies UW–Madison's ethnic studies general education requirement and is the lead course in We Are What We Eat: Food and Identity, a CALS-based First-Year Interest Group. It is available to all students regardless of major or college.



"Curriculum for students, nutrition education for patients and communities, and health care practice are largely developed through a singular lens, and lacking broad cultural relevance. I knew going into course development that my role would largely be as a conduit for diverse voices, research, media, and resources."



Kelly Luu, a junior nutritional sciences and Asian languages and cultures major, gives a presentation about matcha, a fine powder made from special green tea leaves, as part of a class project for Nutri Sci 377: Cultural Aspects of Food and Nutrition, an online course, in summer 2020. For the assignment, Luu made a honey matcha castella cake. Image prepared by Michael P. King

Ayda Mohd Ayob is a senior dietetics major from Perak, Malaysia, and is also pursuing a certificate in business management through CALS. She hopes to earn the registered dietitian credential and become a clinical dietitian in the United States. For Ayda, the biggest takeaway from the course was embracing a mindset of “cultural humility.”

“There’s always something we don’t know about other people or cultures,” she explains. “It’s definitely okay to not know all of it. But try to ask, become more open-minded in approaching people and understanding things of importance.”

For the course’s final project, students choose a food, dish, or ingredient; research its cultural and nutritional significance; cook with it; and consider how easily ingredients could be procured under a food assistance program.

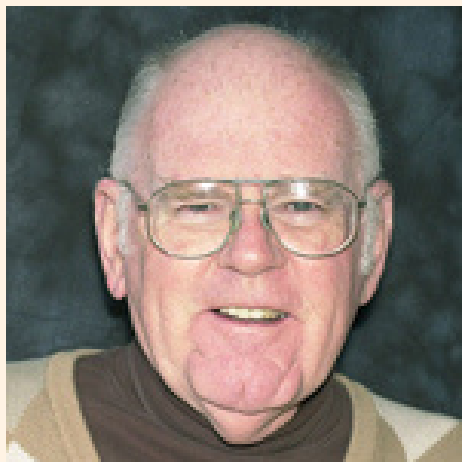
Ayda selected cassava, a tropical tuberous root that can be baked or fried and is often processed into a flour and tapioca. Although she became familiar with it while growing up in Asia, her research taught her how widespread cassava is globally, including in parts of Africa and its native Latin America. She notes how the cultural history of the Makushi people in Guyana is intimately linked to the crop.

Marie Shoemaker, a senior from Milwaukee majoring in food science, chose the “three sisters” — a combination of corn, beans, and squash grown and sometimes eaten together by numerous Indigenous groups of North America. The trio’s synergy goes beyond their time in the soil, Shoemaker notes. Nutritionally, the individual foods compensate for the others’ essential amino acid deficiencies to form a complete protein profile — perfect for vegetarians or when animal protein is scarce.

“Together they work like a family,” she says. “They’re stronger together.”

Anna relishes the students’ transformation over the course of the semester. “Students who, early on, report that health status is largely determined by an individual later identify that there are many social, political, and environmental influencers determining an individual’s health,” she says. “It’s been really wonderful to see their worldview expand into more of a systems-level thinking.”

Remembering John Suttie, Professor Emeritus of Biochemistry and Nutritional Sciences



John W. Suttie, celebrated scientist and professor of Biochemistry and Nutritional Sciences at University of Wisconsin-Madison, died on December 21, 2020 in Green Valley, Arizona, at 86. He was a nationally recognized and influential researcher, scholar, and advocate for the scientific community, and to his peers and colleagues, a cherished friend, storyteller, collaborator and pioneer. Suttie was born and raised on a dairy farm in the small town of Galesville, WI, where the foundation for his long career in science was laid in a one-room schoolhouse.

Suttie studied fluorosis as an undergraduate with Professor Paul Phillips, subsequently earning a B.S. (1957), M.S. (1958), and Ph.D. (1960) in Biochemistry from UW-Madison. He spent a year as an NIH Postdoctoral Fellow at the National Institute for Medical Research in England, returning to UW-Madison in 1961 to join the Department of Biochemistry as a professor. Suttie also became professor and chair of the Department of Nutritional Sciences, and held an affiliate faculty role with the UW Institute on Aging and Adult Life. He retired from the university as Professor Emeritus in 2001.

Suttie was known for his outstanding work on blood clotting, including the metabolism and mode of action of vitamin K, and fluoride toxicity. Suttie's lab was a vibrant center for vitamin K research, and Suttie himself served as a world expert on vitamin K and the anticoagulants dicumarol and Warfarin. His interest in nutrition and the environment also led to his emergence as an expert consultant on fluoride toxicity and the effect of fluoride accumulation in the skeleton. His research provided a baseline for assessing hazards, defining emission standards, and enacting regulations of fluoride emissions across the country. Over his long career, Suttie published more than 300 journal articles on vitamin K function and on the nutritional toxicology of fluoride.

Suttie's deep commitment to advancing science was evident in his active involvement in numerous leadership and committee roles both on campus and well beyond. He served as Director of the Center for Coagulation Research, President of the American Institute of Nutrition (now American Society for Nutrition), and President and Board Chairman of the Federation of American Societies for Experimental Biology, the major national life sciences society. As chair of Nutritional Sciences (1988-1997), Suttie re-invigorated the department's impact across campus, accomplished in part by creation of the Interdepartmental Graduate Program in Nutritional Sciences and attaining a highly competitive NIH nutrition training grant. As editor of the *Journal of Nutrition* (1998-2003) he expanded its scope and was founding editor of *Advances in Nutrition* (2010-2014), the latter now the most highly cited of the four journals published by the American Society of Nutrition. Suttie's work enhanced the reputation of the College of Agricultural & Life Sciences (CALS) as a nationally prominent center for research in biochemical, human and animal nutrition.

Suttie was recognized by the scientific community as an extraordinary scholar and researcher, earning such prestigious awards as the Mead Johnson Award of the American Institute of Nutrition, the Osborne & Mendel Award, the Bristol-Myers Squibb/Mead Johnson Award for Distinguished Achievement in Nutrition Research, the Conrad Elvehjem Award, and numerous professorships and lectureships. He was elected to the National Academy of Sciences in 1996.

Suttie's work helped to establish national nutrition policy. He played an important role in increasing the NIH budget by appearing many times before Congress to speak of the importance of federal funding and negotiating on behalf of nutrition scientists. His advocacy was considered a great service to the scientific community in general, and his achievements helped raise the visibility of CALS and UW-Madison on the national stage.

Suttie influenced generations of student scientists, training 45 graduate students and 27 postdoctoral scientists, and serving as lead instructor of Biochemistry 501, a key course in the Biochemistry undergraduate curriculum. He authored the highly-regarded "Introduction to Biochemistry" textbook for undergraduates, and played a key role in reorganizing Biochemistry's graduate curriculum.

By all accounts from those who knew him, Suttie was, resoundingly, even more than an exceptional scientist and scholar. He was an active and vibrant member of the community, and a challenging and supportive colleague with a hearty sense of humor. He was a remarkable, caring person with a gift for connecting and a ready smile.

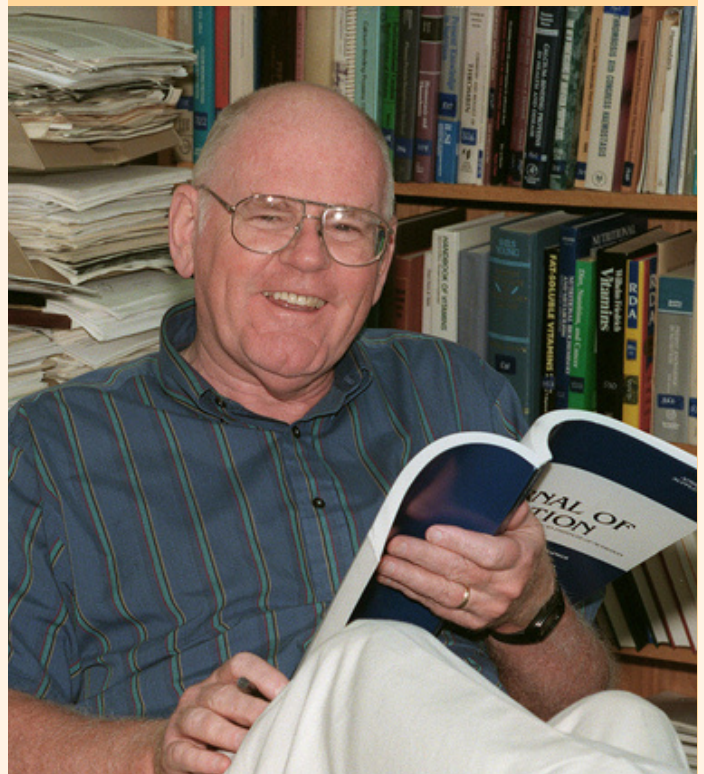
"Because of his great sense of humor, John made life pleasurable for everyone around him," said Biochemistry Professor Emeritus Hector DeLuca, "yet he was strong and resolute when required. John Suttie is a largely unsung champion of the University of WI-Madison at all levels, one of the most highly regarded members of the Department of Biochemistry and of Nutrition. Both I and the University will forever miss him."

"I always really enjoyed talking with John, about most anything – inevitably laughing, often at ourselves. He was a very welcoming support to me in my early years here, in his own very distinctive ways. I have missed our times together since he left Madison, even to the point of imagining him walking down the hall to drop by."

– Marvin P. Wickens, Professor of Molecular Biology and Biochemistry

"John and I frequently took opposite sides on issues but I really liked and respected him. He always listened to other views and changed his stands if the info showed otherwise."

– Bill Reznikoff, Emeritus Professor of Biochemistry



"I remember John in faculty meetings and on committees as thoughtful, even handed, respectful and collegial. His smile was unforgettable and heart warming."

– Judith Kimble, Professor of Biochemistry

Written by UW-Madison Department of Biochemistry:

<https://biochem.wisc.edu/news/2021/news-remembering-suttie-2021-01-28>



Remembering Professor Emeritus Earl S. Shrago

Earl S. Shrago, professor of Medicine and Nutritional Sciences at University of Wisconsin-Madison died peacefully at his home in Madison WI surrounded by his family on January 14th, 2021 at the age the age of 92. He was a nationally recognized and influential researcher, scholar, and physician and, to his peers and colleagues, a cherished friend and collaborator.

Earl grew up in Omaha NE attending Central High School and Creighton University. He then went to the University of Nebraska at Lincoln for medical school. While a medical intern at Michael Reese Hospital in Chicago, he met his future wife Anita Shrago (nee Lien). In 1955, Earl and Anita were married in San Francisco where Earl was stationed with the Navy during the Korean War. After his honorable discharge from the Navy in 1956, they began their family in Chicago where he was a medical resident before moving to Madison as a faculty member in 1959.

He retired from the University in 1997 after a meritorious 37 years of service to the Departments of Medicine and Nutritional Sciences and the Enzyme Institute. His contributions greatly enhanced our reputation as an institution of higher learning and he rendered extraordinary service to the community, the state, and the nation in various roles over the years.

As a new faculty member, Earl initiated a series of investigations into the biochemistry of fatty acid metabolism that would progress throughout his career. His contributions to the field achieved international prominence and the more than 130 original scientific papers and numerous book chapters and reviews attest to his impact on the field.

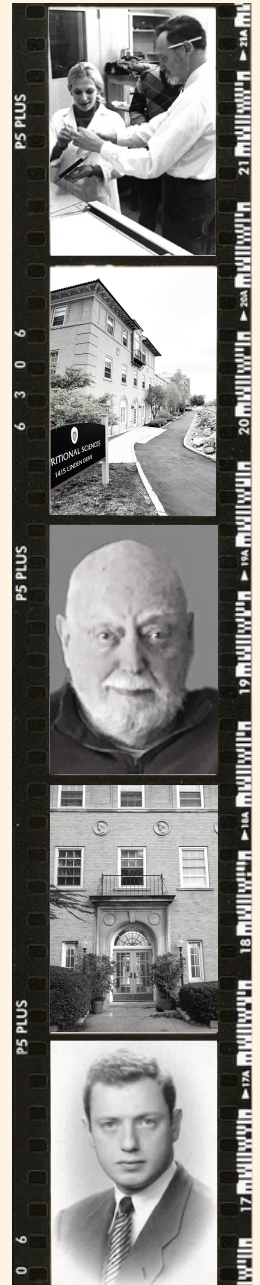
As a new faculty member, Earl initiated a series of investigations into the biochemistry of fatty acid metabolism that would progress throughout his career. His contributions to the field achieved international prominence and the more than 130 original scientific papers and numerous book chapters and reviews attest to his impact on the field. He was widely recognized both for his pioneering studies of the role of fatty acyl CoA thioesters in the regulation of cellular metabolism and his seminal findings on the hormonal regulation of gluconeogenesis.

Earl obtained extensive grant support from the National Institutes of Health over the course of his career including the prestigious accomplishment of serving as the Principal Investigator and Director of the NIH-funded Clinical Nutrition Research Unit at UW-Madison. Also, as Director of the University of Wisconsin Clinical Nutrition Center from 1978-1993, he helped provide invaluable research and education opportunities to many students and faculty conducting nutrition-related research. His many contributions to the field of nutritional sciences were ultimately recognized by his induction as a Fellow of the American Society for Nutrition in 1999. This is the highest honor the Society bestows to recognize individuals for significant discoveries and distinguished careers in the field.

In addition to his remarkable success in basic research, Earl served effectively as attending physician at the University Hospital and Clinics and the William S. Middleton Veterans Affairs Medical Center. As attending physician, he directed the clinical learning of numerous medical students and staff. Later in his career, he took on the task of serving as attending physician in the Outpatient Obesity Program of the Clinical Nutrition Center. His extensive and conscientious service in that capacity was greatly appreciated by both his patients and his colleagues.

Earl's expertise in diabetes and lipid disorders made him a valuable teacher at all levels of education. His extensive expertise in both clinical and basic aspects of nutrition led in 1971 to a joint appointment in the newly formed Department of Nutritional Sciences. In Nutritional Sciences, his teaching was primarily focused on the graduate program. He was an invaluable advisor to young faculty regarding the appropriate topics to include in a new intermediary metabolism class when the nutrition graduate curriculum was revised in the mid-1990s. For his entire career, Earl was a valued and unfailingly up-to-date source of knowledge regarding metabolism and metabolic control. Twelve graduate students earned doctoral degrees under his supervision. Earl's contributions to the Nutritional Sciences department helped make it one of the most prestigious research and educational programs in the country. He also provided invaluable service to his departments, the campus, and the nation during his career. One notable example was his service on the Metabolism Study Section of the National Institutes of Health.

Earl enjoyed the simple things in life; work, family, reading, having coffee with friends, the Green Bay Packers, and the NCAA basketball tournaments. He never really retired and continued to go to his campus office almost every weekday until COVID kept everyone at home. Earl was a remarkable, caring person with a heartwarming way of connecting to people with a smile and an unforgettable twinkle in his eye.





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