

Fall 2022

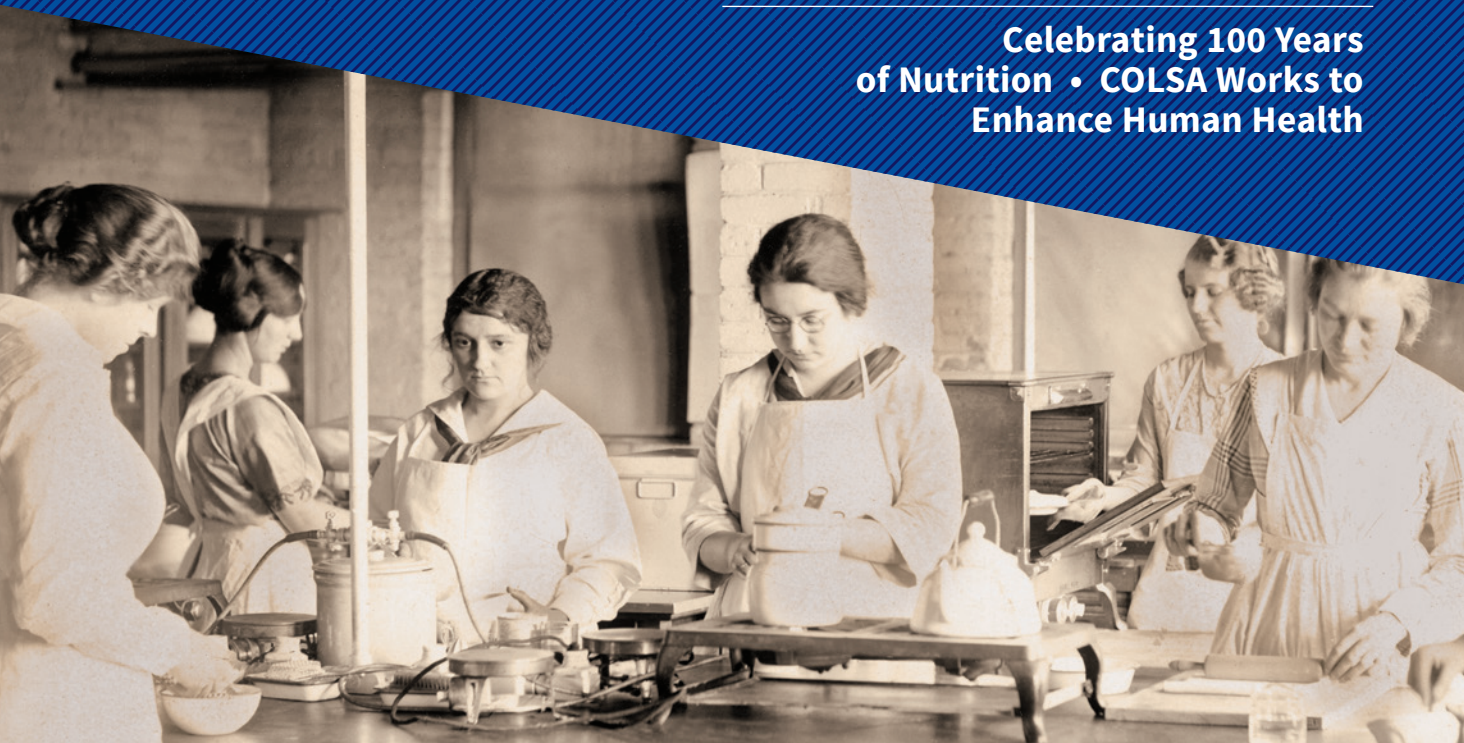


# THRIVE

NEWS FROM THE COLLEGE OF LIFE SCIENCES AND AGRICULTURE

IN THIS ISSUE

Celebrating 100 Years  
of Nutrition • COLSA Works to  
Enhance Human Health



University of  
New Hampshire



**COLSA students, alumni, faculty and staff are enabling access to healthier ways of living.**

#### ON THE COVER

Top photo: *UNH students in the cooking laboratory, part of the department of home economics, located in Thompson Hall, in 1921. Photo credit: University Archives, University of New Hampshire Library, Durham, NH*

Bottom photo: *Dietetics students **Sophia-Jo Blauvelt '22**, **Angeline Tandiono '22** and **Landon Babbitt '23** practice interacting with a "patient" in the nutrition program's simulation clinic.*

## BETTER LIVING THROUGH SCIENCE

This year, we are celebrating a centenary of improving the connection between healthy food and healthy people as we recognize 100 years of nutrition graduates at UNH. As I read this issue of THRIVE, I am inspired by and overwhelmingly proud of the ways that our students, alumni, faculty and staff, both within our university programs and across a wide range of fields and communities, are enabling access to healthier ways of living.

This group is leading in identifying new ways — and refining existing ways — of sustainably producing food, addressing food insecurity and incorporating climate change mitigation into our understanding of ecosystem and economic health. And with COLSA's commitment to hands-on experiential learning, our college is at the forefront of ensuring that students are learning from experts, developing novel ideas and growing their reasoning, creative thinking and problem-solving skills.

In this issue of THRIVE, we also devote space to some of the other ways COLSA researchers are impacting human health, whether it's discovering new ways to treat diseases by deciphering the cellular processes that affect their function or focusing on the wellness of our planet, whose fate is irrevocably linked to our own.

Thank you for being part of our community and for your support and partnership in championing the important work we all do.

Warm regards,

A handwritten signature in blue ink, appearing to read 'Anthony S. Davis'. The signature is fluid and cursive, with a long horizontal stroke extending to the right.

**ANTHONY S. DAVIS**  
Dean, College of Life Sciences and Agriculture

# THRIVE CONTENTS

Food Repurposing Project Update . . . . .	3
Big Discoveries, Microscopic Scale . . . . .	3
Soil Microbes in Thawing Arctic Permafrost . . . . .	3
Awards and Honors . . . . .	4
Nutrition Program at 100 . . . . .	5
Drugs to Treat Breast and Ovarian Cancers . . . . .	6
Neuronal Primary Cilia and Brain Disorders . . . . .	6
Hunger for Change . . . . .	7
A History of Nutrition Education . . . . .	9
Healthy Food for All . . . . .	11
Scialla! ( <i>Relax!</i> ) . . . . .	14
A Singular Influence . . . . .	15
Nutrition Training That Makes Cents . . . . .	17
Spaulding Biosciences Update . . . . .	18



**University of New Hampshire**  
College of Life Sciences and Agriculture



## COLSA's 2022 Food Drive Challenge

OCT. 31 TO NOV. 18

### *Helping food-insecure families and individuals in the Granite State*

In 2021, our food drive generated food and monetary donations to the New Hampshire Food Bank totaling the equivalent of **26,285 meals** for food-insecure individuals and families in the Granite State.

This year, we hope to set a record for donations and expand our ability to help people in need.

#### **WANT TO BE A PART OF THIS EVENT?**

- **Attend our Drive-Thru Drop-Off** on Monday, Oct. 31, from 9 to 11 a.m., in the parking lot of Barton and Cole Halls on North Drive. Meet our amazing Food Drive team, make a donation and help us make the strongest start to the drive ever – all without leaving your car!
- **Sign up to receive Food Drive Challenge emails** by scanning the QR code below for event updates and info on how to donate online.

**Thank you for being an important part of the COLSA community!**



Scan using camera app on your phone to access website [bit.ly/COLSA-food-drive](https://bit.ly/COLSA-food-drive)

## UPDATE: THE FOOD REPURPOSING PROJECT EXPANDS DISTRIBUTION

The Food Repurposing Project has expanded the distribution of its prepared meals to include delivery to the new Cats' Cupboard food pantry for students, which opened in early 2022. One floor below the bustling foot traffic of the MUB's Union Court, the brand-new resource is helping UNH address the food insecurity that is affecting an increasing portion of the student population.

COLSA and UNH Hospitality partnered with Gather, a community organization dedicated to ending hunger, to launch the Food Repurposing Project in April 2021. The volunteer team takes wholesome rescued food from UNH dining halls, food distributors and local farmers, as well as other edible food that would otherwise be disposed of, and repurposes it into nutritious ready-to-eat meals that are available to people in need.

In its first 12 months of operation, the project distributed:



**5,980**  
MEALS



**4,271**  
SIDES (EXAMPLES INCLUDE SOUP, PASTA SALAD)



**3,764**  
PORTIONS OF BAKED GOODS (EXAMPLES INCLUDE BANANA BREAD, 12 COOKIES)

## Big Discoveries, Microscopic Scale

Sponges in coral reefs are among the earliest animals on the planet. Research from COLSA published in the journal *Nature Ecology & Evolution* peers into coral reef ecosystems with a novel approach to understanding the complex evolution of sponges and the microbes that live in symbiosis with them. With this “genomic time machine,” researchers can predict aspects of reef and ocean ecosystems through hundreds of millions of years of dramatic evolutionary change.

The significance of the work transcends sponges, though, providing a new approach to understanding the past based on genomics. “If we can

reconstruct the evolutionary history of complex microbial communities like this, we can say a lot about Earth’s past,” says **David Plachetzki**, associate professor of molecular, cellular and biomedical sciences at UNH.



**Sabrina Pankey**, a postdoctoral researcher at UNH, is the lead author of the study and was joined by Plachetzki, UNH research professor emeritus **Michael Lesser**, former graduate

student **Keir Macartney** and co-authors from the University of Mississippi and Universidad Nacional del Comahue in Argentina.

*The project was funded by the National Science Foundation’s Dimensions of Biodiversity and Biological Oceanography programs.*

## Soil Microbes in Thawing Arctic Permafrost and Their Impact on Global Warming

In its frozen state, permafrost stores about one-third of Earth’s soil organic matter. But rising temperatures in the Arctic are causing permafrost to thaw, activating soil microbes that are resuming their work decomposing the soil organic matter, a process that produces carbon dioxide, methane and nitrous oxide. Emission of these gases into the atmosphere has the potential to significantly hasten global warming, which in turn will increase the rate of permafrost thaw and result in the emission of more greenhouse gases.

**Jessica Ernakovich**, associate professor of natural resources and the environment, is studying how soil

microbes behave as permafrost thaws and how the rate of their consumption of organic matter is impacting greenhouse gases in the atmosphere.

“Right now, none of the major climate projection models are accounting for the

gases released by thawing permafrost and how they are going to affect global warming,” she says.

As part of her work, Ernakovich is training the next generation of Arctic scholars at UNH and will continue to develop a global network of permafrost microbial

ecologists. Longer term, she hopes to develop ways to directly engage with Arctic communities.

*Ernakovich’s research, teaching and outreach are supported by a National Science Foundation CAREER award.*



# AWARDS & HONORS

## University and College Awards

2022 COLSA Teaching Excellence Award

**Patricia Jarema**, senior lecturer in the department of biological sciences

2022 UNH Faculty Excellence in Research Award

**Scott Ollinger**, professor in the department of natural resources and the environment

## Dean's Awards for Distinction 2022 Winners

**Dean Elder**, director of the Animal Resources Office

**Curtis Johnson**, finish carpenter

**David Plachetzki**, associate professor in the department of molecular, cellular, and biomedical sciences

**Michael Simmons '07, '10, '13G, '23G**, lecturer in the department of natural resources and the environment and the Thompson School of Applied Science

**Laurie Westover**, instructional laboratory specialist in the department of molecular, cellular, and biomedical sciences

## COLSA Community of Teaching and Research Scholars Award

**Elizabeth Harvey**, assistant professor in the department of biological sciences

## Shive and Elizabeth Nanda Award for Innovation

**David Moore**, doctoral candidate in the natural resources and Earth systems science Ph.D. program

## Honors Faculty Award

**Leslie Curren**, senior lecturer in the department of biological sciences

## National Science Foundation CAREER Award

**Jessica Ernakovich**, assistant professor in the department of natural resources and the environment

## 2021 Gold Quality Award from the CROPP Cooperative

**Ryan Courtright**, farm manager, Organic Dairy Research Farm

## 2021 Gold Quality Award from Dairy Farmers of America

**Jon Whitehouse**, farm manager, Fairchild Dairy Teaching and Research Center

## Graduate Student Awards

**Kelsey Meyer '25G**, UNH Graduate Student Public Engagement and Outreach Award

**Jordan Bader '22G**, UNH Graduate Student Teaching Award

## UNH Sustainability Awards

### Research

Gold: **Gregg Moore**, associate professor in the department of biological sciences

Bronze: **Catherine Ashcraft**, assistant professor in the department of natural resources and the environment

### Engagement

Gold: **David Mortensen**, chair and professor in the department of agriculture, nutrition, and food systems

### Campus Culture and Operations

Platinum: **Basic Needs Food Programs**: Swipe It Forward, Cats' Cupboard, and the Food Repurposing Project

### Engagement

Silver: COLSA Food Drive Challenge (**Curtis Johnson**, finish carpenter; **Wendy Rose**, program manager, department of natural resources and the environment; **Jen Surina**, program manager, department of agriculture, nutrition, and food systems; **Kim Babbitt '84**, associate dean of academic affairs; **Bob Mooney**, instrumentation scientist emeritus)

## Undergraduate Research

**Emily Abrusci '25**

**Jeffrey Allen '23**

**Justine Cassel '22**

**Taylor Grant '22**

**Chloe Gross '24**

**Catherine Taylor '22**

## Graduate Research

Graduate Poster Award: **Chloe Pearson '23G**

Graduate Oral Presentation Award: **Natalie Lord '22G**

## Undergraduate Campus Culture, Operations & Engagement

Silver: **Chloe Gross '23**, environmental conservation and sustainability dual major

## National Fellowship and Scholarship Recipients

**Lauren McDowell '24**, NOAA Hollings Scholarship

**Emily Pratt '23, '24G**, Barry M. Goldwater Scholarship

**Joy O'Brien '23G**, Science, Mathematics and Research for Transformation (SMART) Scholarship from the Department of Defense

**Natalie Lord '22G**, Switzer Fellowship

**Natalie Lounsbury**, USDA-NIFA Postdoctoral Fellowship

**Grace McCulloch '21, '24G**, Davidson Fellows Scholarship

# NUTRITION PROGRAM AT 100: FROM 1922 TO 2022, WE'VE COME A LONG WAY

# 1922



LEARNING FACILITIES LOOKED DIFFERENT, AND SO DID THE CLASSES!

**2** THERE WERE ONLY TWO NUTRITION GRADUATES



Dietetics was added as a track within the home economics major in 1919 — the original curriculum included courses like:

- Organic chemistry
- Bacteriology
- Personal hygiene
- House management
- House decoration



# 2022



## “Farm to Fork to Wellness”

is the program’s overarching approach to nutrition education

**>1600** GRADUATES OF THE NUTRITION PROGRAM TO DATE

**3** CURRICULUM OPTIONS: DIETETICS, NUTRITION AND WELLNESS, AND NUTRITIONAL SCIENCES



THE WIDE VARIETY OF CLASSES INCLUDE:

- Nutritional Epidemiology
- From Seed to Sea: Examining Sustainable Food Systems
- Mediterranean Diet & Culture



ADVANCED LEARNING SPACES:

- Nutrition Assessment & Teaching Lab with BOD POD (biometric measurement system)
- Clinical Simulation Lab
- Professional Teaching Kitchen



CAREERS PURSUED AFTER GRADUATION:

Biotechnologist

Clinical dietician

Public health nutritionist

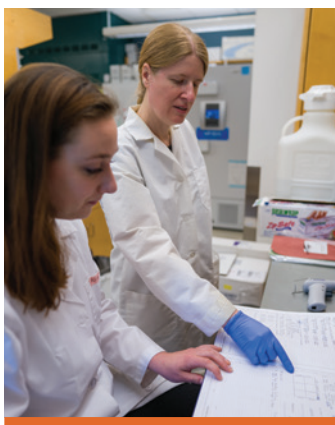
Food product development scientist

## TO TREAT BREAST AND OVARIAN CANCERS, A LOOK AT DRUGS PRESCRIBED FOR OTHER ILLNESSES

**Sarah Walker**, assistant professor in the department of molecular, cellular and biomedical sciences, and her team are researching new ways to treat triple-negative breast cancer and ovarian cancer, both very aggressive cancers for which there are limited treatment options. The team is focused on identifying FDA-approved drugs currently used for other ailments that disrupt the function of specific proteins that help the cancers grow and spread.

Triple-negative breast cancer, which accounts for about 12 percent of all invasive breast cancers, lacks the hormone and gene receptors that are targeted in treatments of other breast cancers.

**Emily Pratt '23, '24G**, a biochemistry, molecular and cellular biology major and accelerated biochemistry master's student in Walker's lab, is using a computational strategy to find existing drugs that, when used together, impact the cancer cells.



Walker's ovarian cancer research includes studying the effects of a cholesterol-lowering drug to determine whether it could be used to target the cancer and a drug that's prescribed to prevent a type of pneumonia in people who get stem cell transplants as part of cancer treatment. She and her team found that both drugs seem to affect the STAT3 protein often found in ovarian cancer cells but in different ways.

"We discovered that when you add this drug, you either shrink or completely disrupt the cancer cells," says Walker. **Kayli Neil '20** and **David Walker '20** discovered that when the cancer cells are pre-treated with the drug, there is also a significant decrease in the cells' ability to metastasize. Sarah Walker is now working with collaborators at Emory University to design a clinical trial for testing it in patients.

The other members of Walker's lab are doctoral candidates **Brendan Reilly, Alexandra Temple** and **Allison Kloeckner** and undergraduates **Harrison Parent '22, Samantha Schultz '22, Sarah Bourgoin '23, Michael Lawson '23, Quinn Beek '23** and **Jaxson Libby '23**.

*Walker's cancer research is supported in part by the UNH Center of Integrated Biomedical and Bioengineering Research and a supplement for women's health from the National Institutes of Health, as well as the Hamel Center for Undergraduate Research.*

## NEURONAL PRIMARY CILIA AND THE TREATMENT OF BRAIN DISORDERS

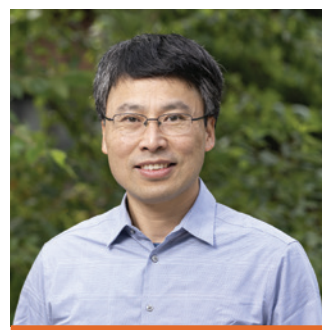
UNH researchers are studying the tiny antenna-like projections on the surface of brain cells, called neuronal primary cilia, to better understand how they regulate hippocampus-dependent memory formation and why their defects lead to brain disorders, including neurodevelopmental disorders, mental retardation, obesity, neurodegeneration and cognitive impairment — many of which are associated with memory formation. The ultimate goal of the research is to uncover new targeting pathways to treat these disorders.

"While cilia are associated with numerous diseases, the physiological function of neuronal primary cilia is poorly understood," says **Xuanmao Chen**, associate professor of neurobiology and the project's principal investigator. "Elucidating the fundamentals of primary cilia in the hippocampus and cilia regulation of neuronal function will advance our understanding of memory formation and help us develop new treatments for cognitive disorders."

Recent research by Chen and his team revealed that neuronal primary cilia undergo marked changes in directionality during early postnatal development. They are investigating how cilia orientation influences the positioning of neurons in the hippocampus, which can affect the construction of synaptic connectivity and memory formation.

The primary contributing author on this project is doctoral student **Juan Yang**. Research scientist **Liyan Qiu, Dina Bicja '23, Shannon Roselli '24** and **Lewis Brendon '24** have also participated in this work.

*The research is supported by the Cole Neuroscience and Behavior Faculty Research Fund and two R15 Academic Research Enhancement Awards from the National Institutes of Health.*



# HUNGER FOR CHANGE

## Alana Davidson '17 wants to end food insecurity in the U.S.

Since graduating from UNH in 2017 with a degree in dietetics, Alana Davidson has been continuing the work she began as an undergraduate to reduce food insecurity and building a career committed to sustainable and equitable access to food for all.

### Discovering passion and determining a path

When Davidson arrived at UNH in August 2013, she was interested in sports nutrition, but by her sophomore year she realized that she wanted to focus on food insecurity. That year, she conducted a research project on food insecurity among college students that included a campus survey. The results were eye-opening: Of the nearly 1,000 students who responded, 25 percent reported being food insecure — they did not have reliable access to enough affordable, nutritious food.

Not content to simply share her results, Davidson worked with the UNH faculty and administration to create Swipe It Forward, a program that makes donated money for meals available to UNH students who qualify. Students can scan their fingerprints or use their meal cards to access meal credits that have been donated to the “swipe bank.”

The experience taught Davidson the importance of designing food security programs that are as non-stigmatizing and respectful as possible, and it continues to influence her.

“There is a quote by Nelson Mandela that I thought about a lot when I was at UNH: ‘Education is the most powerful weapon that you can use to change the world,’” she says. “UNH really exemplifies this idea. Through the research opportunities and the mentorship of Jesse Stabile Morrell and others, my time at UNH set me on my path to use food policy and research to effect change, both small and large.”



Beyond starting Swipe It Forward, the list of Davidson’s accomplishments at UNH is long. She is a Hamel Scholar and a recipient of the Presidential Scholarship and has won multiple awards for excellence and research at both the university and program levels.

“It is not hard for those of us who know Alana to appreciate her exceptional dedication to social change, her thoughtful leadership style and her impeccable academic excellence,” says **Jesse Stabile Morrell '99, '04G, '13G**. “In my 20 years of teaching, I don’t believe I’ve met another student like her.”

After graduating from UNH, Davidson studied food policy at the Tufts University Friedman School of Nutrition Science and Policy, and in 2019 she earned her master’s degree in food policy and applied nutrition with a concentration in law and justice. While at Tufts, she interned at the Massachusetts Department of Transitional Assistance (DTA), an agency that administers economic benefits, food assistance and workforce

training to the state’s low-income residents. Her internship turned into a full-time job as the outreach interagency specialist for DTA’s Supplemental Nutrition Assistance Program (SNAP).

Davidson has been DTA’s director of communications since 2020 and oversees external communications, including the department’s website and social media, press releases, press inquiries and events. She also assists with client communications and outreach materials, some of which are produced in 11 different languages.

### An unexpected challenge

Shortly after Davidson began her job at DTA, she was faced with a new set of challenges brought by the global pandemic.



She and her colleagues redoubled their efforts to bring new resources to their clients. The department launched a multilingual mobile-friendly website, made updates to the “DTA Connect” app, started online grocery shopping for SNAP participants, initiated the use of text messages in six languages and joined forces with community partners and other agencies to share information via text about COVID-specific resources.

The increased access to information and support helped lead to a 34 percent increase in the agency’s caseload. Now, DTA is serving more than a million residents, many of whom are receiving SNAP benefits for the first time.

“The pandemic has truly shown the importance of federal nutrition programs and how the federal and state governments and local partners must work together to expand dignified, equitable access to these critical programs,” says Davidson.

In the early days of the pandemic, Davidson was selected to manage the Massachusetts COVID-19 Command Center’s Food Security Task Force, which was charged with ensuring that food insecurity and food supply needs were addressed during the public health emergency. The task force’s successes include spurring Gov. Charlie Baker to invest \$100 million to support food security and build a more equitable food system.

### What’s next

When you talk to Davidson, it’s hard not to notice her expressions of gratitude. She often begins responses to questions about her achievements with the words “I was really lucky to ...” or “I had the privilege to...” Perhaps it’s

UNH set me on my path  
to use food policy and  
research to effect change,  
both small and large.

because she recognizes that access to success — like access to food — isn’t always equitable. Combined with hard work, drive and intelligence, there’s a certain amount of serendipity sprinkled in.

“I’m fortunate to have found my passion in college,” she says. “But I never expected to be in a communications role. I was interested in food policy, data, research, and advocacy, and I’ve realized that this role can be used to do a lot of what I want to do.”

As DTA’s communications director, Davidson has a hand in research and policy, including assisting with the submission of public comments during federal rulemaking and tracking relevant legislation. She has not ruled out the possibility of seeking elected office someday.

“Something I think about all the time is where can I make the biggest difference? Where can I be that will help the most people? And so that kind of drives wherever I am,” she says.

When asked what she hopes to have achieved by the end of her career, Davidson pauses thoughtfully. “I think I will have had a hand in helping us, as a country, see the day when every person has access to healthy and culturally appropriate food in a sustainable and equitable way. We have the tools and resources. I do think we can get there. We need to get there.”

# A HISTORY OF NUTRITION EDUCATION

**1891**

Lucy Swallow, from Hollis, N.H., requests to enroll in a chemistry course and is admitted as the first woman student at the New Hampshire College of Agriculture and the Mechanic Arts.



**1918**

The first teaching kitchen at the college opens in Craft Cottage, with cooking done on a wood stove.

**1919**

Dietetics is added as a formal track within the department of home economics.

**1920**

The U.S. government establishes professional regulations for dietitians and creates a pathway for dietitians to earn military status and help ensure soldiers are fed a proper diet.



**1922**

Janice Marjorie Leonard, from Worcester, Mass., and Nathalie Emerson Marshall, from Henniker, N.H., become the first at UNH to earn a degree in dietetics.

**1902**

The *New Hampshire College Monthly* posts an essay emphasizing the need for studies in the domestic sciences. Sarah Pettee urges her father, Dean Charles Pettee, to establish a domestic science program for women students.

**1900**

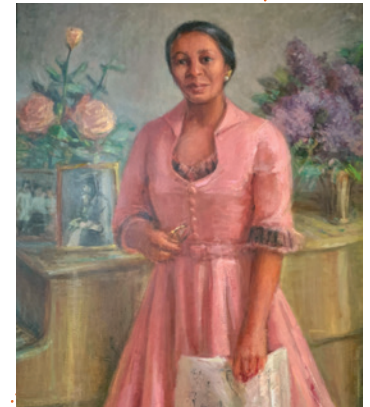
**1910**

**1920**



**1913**

The department of home economics is formed, and within a short time two-thirds of all women students at UNH are enrolled in the program.



**1893**

Ellen Swallow Richards (Lucy Swallow's aunt) teaches the first course at the New Hampshire College of Agriculture and the Mechanic Arts to integrate fields of chemistry, management, nutrition and economics. The first female MIT graduate, Richards is credited as the national founder of the fields of home economics and nutrition.



**1917**

Helen Fitch McLaughlin is hired by the college as a home demonstration agent. She would go on to be the supervisor of the dietetics program for more than 30 years. After her retirement in 1953, McLaughlin Hall is named for her.

**1926**

Home economics student Elizabeth Virgil, from Portsmouth, N.H., is the first Black graduate of UNH. Unable to find work in the Northeast, she spends her teaching career in the segregated South.

**1923**

The New Hampshire College of Agriculture and the Mechanic Arts is renamed the University of New Hampshire.

The American Dietetic Association requires all members to receive a four-year degree plus six months of hospital training. Only medicine and dietetics require a four-year college degree at the time.

# AT THE UNIVERSITY OF NEW HAMPSHIRE



**1970**

Kendall Hall opens. The new, cutting-edge facility features modern equipment such as an ultracentrifuge, an electron microscope, an amino acid analyzer and gas chromatography, as well as laboratories and classrooms for the department of animal sciences.

The first general education course in nutrition was taught by Professor Samuel Smith. First titled Animal Crackers, the course would change its name multiple times. Smith's popular course Food & People was taught throughout the 1980s and 1990s before it was updated to the current offering: Nutrition in Health and Well Being.

**2007**

As part of the college's reorganization, nutrition is relocated into the department of molecular, cellular, and biomedical sciences.

**2010**

A wellness option is added to the B.S. in nutrition, providing students three curricular tracks, along with dietetics and nutritional sciences options.

**2018**

Graduate offerings in nutrition expand to include 4+1 bachelor's plus master's, master's with dietetic internship, and certificate in dietetics.

The Clinical Simulation Lab with a high-fidelity mannequin opens, providing students a controlled environment for hands-on learning experiences.



1970

1980

1990

2000

2010

2020



**1983**

The nutrition major is established and joins the department of animal sciences.

**1969**

The registered dietitian (RD) credential is first granted to members of the American Dietetic Association.

**1991**

The dietetic internship is approved and gains full accreditation status in 1994. The post-baccalaureate program offers a pathway to become a registered dietitian.

**1994**

The dietetic technician program is initiated. Housed in the Thompson School of Applied Science, the two-year associate's degree is offered until 2016.

**2003**

The state of New Hampshire begins issuing licenses to registered dietitians. In recognition of her dedication to the profession, UNH Dietetics Director Colette Janson-Sand is issued license #1.

**2006**

The UNH-in-Italy study abroad program for nutrition students is first offered.



**2017**

The nutrition program joins the department of agriculture, nutrition, and food systems.

**2019**

The culinary nutrition and food studies minor is launched, integrating food skills preparation and appreciation of the food environment as it applies to human health.



**2022**

New Hampshire Gov. Christopher Sununu issues a commendation to UNH, recognizing a century of successfully preparing nutrition professionals.



# HEALTHY FOOD FOR ALL

## **A focus on the nutritional needs of historically marginalized communities**

How does food and nutrition insecurity affect physical, mental and social well-being? How does it vary by race, ethnicity, gender and sexuality?

These are questions that researchers in the agriculture, nutrition, and food systems (ANFS) department at COLSA ask themselves daily, and they seek to find the answers through their research. Below, we've highlighted how the work of three ANFS professors serves and supports communities that are marginalized based on their race and ethnicity, socioeconomic status, sexuality and gender identity.

## Identifying food insufficiency in the LGBTQ+ community

Sociologist and Assistant Professor **Analena Bruce** leads the Food Systems Lab at UNH, where she examines food supply chains and how to make them more equitable and resilient. Bruce recently collaborated with **Jess Carson**, research assistant professor at the Carsey School of Public Policy, and postdoctoral research associate **Isaac Leslie** to look at food insufficiency (defined as lacking adequate food in the past seven days) among LGBTQ+ (lesbian, gay, bisexual, transgender and queer, plus other sexual and gender identities) people living in New England. Using data from the U.S. Census Bureau's Household Pulse Survey, they found that 13 percent of lesbian, gay and bisexual people experience food insufficiency — more than twice the rate of heterosexual people. They also found that more than 26 percent of transgender New England residents experience food insufficiency — more than four times the rate of cisgender people (people whose personal identity or gender corresponds with their birth sex).

However, it was at the intersection of gender identity, sexuality and race that they found some of the most concerning findings, says Bruce. For example, one in three Black transgender New Englanders reported not having enough food in the past week.

“What this means is that addressing food insecurity needs to be done with explicit attention to the intersections of structural racism, discrimination and marginalization based on race, gender identity and sexuality,” Bruce explains. “There’s an assumption that increasing the availability of nutritious foods will solve the problem, but it’s clear we need to dig deeper to understand why we have these very stark disparities in our food system.”

## Examining the nutrition and well-being of Hispanics

Nutrition researcher and Assistant Professor **Maria Carlota Dao** investigates the interaction between human health, diet and the gut microbiome — the trillions of microorganisms living in our intestinal tracts.

A diet rich in micronutrients and healthy fats and a variety of fiber sources often leads to a more diverse gut microbiome and a healthier person, says Dao. And quality of diet plays just as important a role as quantity of diet, especially when it comes to gut microbiome diversity, she adds, as do many other factors — including age, the environment and medication use, to name a few.



Dao is especially interested in the interplay of diet and gut microbiome diversity in ethnic minority populations in the U.S., like Hispanics, who make up more than 18 percent of the total U.S. population. The interdisciplinary nature of her research ensures that she’s accounting for factors like behavior and demography in addition to considering gut microbiome health. For example, Dao and her team recently concluded a phone-based survey of more than 138 Hispanic New Hampshire residents to assess different aspects of physical and psychosocial well-being, examining how Hispanic residents were coping mentally and physically during the pandemic.

“The goal is for all of this information to feed into the development of nutrition strategies that support living healthy lifestyles,” says Dao. “We need to holistically consider the characteristics of the people seeking these interventions and tailor the strategies to their specific situations.”

## Improving nutrition education for refugees

Nutritional epidemiologist and Assistant Professor **Sherman Bigornia** studies how diet can influence our risk for chronic health conditions, like cardiovascular disease and diabetes, and he uses the findings to inform intervention programs designed to improve or maintain health and wellness. For the past few years, he's worked closely with New Hampshire's Bhutanese refugees through a collaborative relationship with Building Community in New Hampshire to identify how federal educational initiatives meet their needs.



Sherman Bigornia

It's estimated that between 2,000 and 3,000 Bhutanese people live in the Granite State. Refugee adults in the U.S. are one of the groups eligible for the Supplemental Nutrition Assistance Program (SNAP) and the SNAP Education (SNAP-Ed) initiative aimed at helping SNAP beneficiaries consume a diet in line with federal dietary guidelines. Bigornia wanted to know if SNAP-Ed considered the cultural aspects of Bhutanese refugees.

“Our preliminary evidence suggests that SNAP Education doesn't appear to have a significant impact on dietary quality or cardiometabolic risk factors for the Bhutanese refugees,” says Bigornia. “To me, what that indicates is that

just translating the lessons to the appropriate language isn't enough — you also need to take into consideration the cultural context of the audience.”

He adds, “I'm really fortunate that I can use my platform and resources to inform dietary prevention or treatment efforts tailored to communities that are not well represented in nutrition research. That's why the research that I'm doing, that Carlota is doing and that Analena is doing is so important. We're examining appropriate ways to reduce the health disparities, in a more personalized manner, in the different communities we're working with — all of which are underrepresented.”



## NEW HAMPSHIRE GOVERNOR ISSUES COMMENDATION

Thank you, Governor Sununu, for honoring the 100-year anniversary of the UNH Nutrition Program.





## SCIALLA! (RELAX!)

### What one UNH student learned about eating during her study abroad

Slow down, take time to enjoy your meals and really think carefully about your food choices.

Those are just a few of the lessons that **Julia Landcastle '23** took away from her participation in COLSA's UNH-in-Italy study abroad program in the spring of 2022. Landcastle, who's pursuing a dual major in nutrition and wellness and ecogastronomy, said one of the most impactful parts of her three-month study abroad was the daily tradition of siesta. The practice — common in many Mediterranean and Southern European countries — allowed her to really analyze her food selection and truly enjoy the flavors and the company she dined with.

"In Italy, siesta is a period just for lunch, family and rest," says Landcastle. "Stores close, kids go home from school and some adults go home from work. All of this really emphasizes how important it is to take time for food — it's a practice very different from our food values in the U.S."

The UNH-in-Italy program, which is offered during the fall and spring semesters and as an intensive five-week



summer term, allows students to fully explore Italy's rich culture and history while emphasizing Italian food and food system-related traditions, agriculture and sustainable practices. Students stay in Ascoli Piceno, a bustling medieval city on the Adriatic Coast in Italy's diverse agricultural region of Marche.

Living and studying in one of Italy's food and agriculture hubs allowed Landcastle to experience and appreciate the local residents' emphasis on fresh, local and affordable foods and the sustainable practices they use to bring regional crops and livestock to market.

"Seeing these food practices in action, thriving and welcomed by the people of Italy, gave me insight to apply these methods to our own food system in the future," she says. "I am passionate about creating a society where the food we eat is good for our bodies, our communities and our planet."

You can learn more about the UNH-in-Italy study abroad program at [colsa.unh.edu/study-abroad](https://colsa.unh.edu/study-abroad). 🇮🇹



# A SINGULAR INFLUENCE

## Professor emerita reflects on triumphs and changes during a decades-long career

From introducing hands-on clinical experiences to designing courses to launching the UNH dietetic internship, Colette Janson-Sand, professor emerita of nutrition and dietetics, has had a transformative impact on the UNH dietetics program and the more than 500 students she has taught during her impressive career.

Janson-Sand doesn't remember exactly what propelled her away from a career in animal science and toward a career in dietetics, but she gives at least some credit to the work she was doing at UNH while pursuing her doctorate in zoology and studying an equine disease called laminitis. To support her research on the disease, which has a nutrition component, she received a scholarship to spend time studying with "all the nutrition greats" at the Massachusetts Institute of Technology.

Following that experience, she says, "I fell in love with nutrition and started taking undergraduate courses and everything that was needed for me to become a dietitian."

After she earned her doctorate, Janson-Sand was briefly diverted to Washington, D.C., where her husband was working for the National Institutes of Health. While there, she landed a job as the chief dietitian at Montgomery General Hospital, but she returned to Durham in 1981 after being offered a

position as an assistant professor of home economics, where, she says, “nutrition resided in those days.”

“One of the things that I think got me the position was my belief that students should have some hands-on experience and go to hospitals and interview patients and read charts before they graduate,” she says, recalling how the dietitians who reported to her at the Washington, D.C. hospital said they wished they’d had clinical experience while still in school. “When I did my presentation before the faculty, they thought that was a great idea. So when I got the position I immediately started designing a course where the students would go to the hospital.”

Under Janson-Sand’s direction, students in the dietetics program started seeing patients at four local participating hospitals. The experience, she says, gave them an important edge when applying for the dietetic internships that they were required to complete after graduation. In 1990, she took the experiences available to students at UNH one step further when she designed and launched UNH’s own dietetic internship program.

Beginning in 1984, Janson-Sand also became involved in a camp for children with type 1 diabetes called Camp Carefree, and she continued to work at the camp, which hosted about 120 kids for two weeks every summer, for 30 years.

“I answered an ad in the newspaper for someone to create the menu and order food and everything,” she says. “But then the next year they said, ‘We don’t have any more money.’ And I said, ‘If I can bring my students, can I continue to come?’ And they said, ‘Sure.’”

From then on, about a dozen of Janson-Sand’s UNH dietetics students volunteered at the camp each summer, helping campers count carbohydrates, preparing and serving three meals and three snacks each day and participating in nutrition education.

But Janson-Sand’s remarkable impact did not stop there. While maintaining her role as director of the dietetics program at UNH, she also spent several years as a UNH Cooperative

**“My valued education was made possible by Dr. Janson-Sand. She was always supportive of my learning, and she went above and beyond to ensure her students received a high-quality education.”**

**Daniel Kahn ’09, MSN, NP, RD**

**“Dr. Colette Janson-Sand has been a professor, counselor, mentor, friend and colleague to hundreds of nutrition students and dietitians in the state of New Hampshire. Her leadership abilities and accomplishments in the field of nutrition and dietetics, and the special attention she has devoted throughout her career to children with diabetes and special needs, have made a significant impact in the community.”**

**Caroline F. Giles, MA, RD, director of the UNH dietetic internship from 1990 to 2003**

Extension specialist. As part of her work, she helped educate teachers in New Hampshire about healthy eating and physical activity for children, under a USDA Food and Nutrition Service program called Team Nutrition.

In 2003, more than 20 years after Janson-Sand joined the faculty at UNH, the state of New Hampshire began issuing licenses to registered dietitians. She was issued the first license in recognition of her unwavering advocacy for licensure of practitioners in the field.

In 2017, she received the Award for Excellence in Public Service in recognition of her efforts training UNH students to deliver nutrition education to New Hampshire’s youth. She retired the same year.

Looking back on her decades-long career, Janson-Sand says it’s her students that she misses most.

“I love my students,” she says. “I love the crazy answers I would get on exams. And, you know, I miss those students who were struggling and would come and see me, and I’d work with them and then all of a sudden, a light would go on and they would do well. So I miss those successes, too.”

During her career, Janson-Sand has witnessed many changes in the field of nutrition, including what is now known about how food impacts the body and how the right foods can have a real impact on health and well-being, whether a person has celiac disease or is seeking optimal athletic performance.

“Hippocrates said, ‘Let food be thy medicine,’ and that’s so true,” she says. “If people ate better, we probably wouldn’t need all of these — we’ll call them ‘artificial’ — medicines. Because food can really help with most conditions. Eating well can prevent a lot of chronic illnesses. And if people are sick, it can be a remedy for them.”

# NUTRITION TRAINING THAT MAKES CENTS

COLSA master's degree with dietetic internship offers career-ready education



Registered dietitian nutritionists (RDNs) are professionals trained to translate the science of nutrition into practical solutions for healthy living. RDNs help individuals make positive dietary and lifestyle changes suited to their unique needs. Data from the U.S. Bureau of Labor Statistics predicts a faster than average growth rate in this profession over the next eight years. COLSA's 21-month Master of Science in nutritional science with dietetic internship (MSDI) program is unique: Very few nutritional science programs offer the same level of practicum training, breadth of skills development and opportunity to network and learn one on one. COLSA graduates truly stand out when seeking employment opportunities.

"It's an incredibly hands-on program aimed at fully preparing dietitians to succeed in a variety of settings," says **Amy Taetzsch '09**, director of the program and a clinical assistant professor at COLSA. "Just within the first year of classes, students counsel their own patients and perform nutrition assessments, conduct their own research and help teach undergraduate courses." MSDI students train in a state-of-the-art simulation lab, where they can hone their clinical and counseling skills before even starting at rotation sites.


The program is structured to support students financially by providing a stipend as a teaching assistant in the first year,

and students may opt to work during program breaks over the summer and during the January term.

During the second year, students benefit from a unique one-on-one mentorship, ensuring that they're carefully matched to internship sites that align with their professional goals. This year consists of more than 1,000 hours of rotations with skilled nutrition professionals in the community, Taetzsch says. The degree offers a strong didactic foundation and internship rotations in three primary areas: the food services sector (dining halls, hospital kitchens, etc.), community services (ranging from wellness clinics and in-school education to telehealth and farming), and clinical hospital services (with an opportunity to work in specialty areas, such as dialysis centers).

The results of the MSDI program speak for themselves. Alumni actively support the program and its students, helping connect them to opportunities, and their high pass rates on the registered dietitian nutritionist examination suggest that MSDI students are taught the right skills.

"Our 2021 graduates achieved a 100 percent pass rate on the national RDN exam on their first try," adds Taetzsch. "That's almost unheard of!"

You can learn more about the MSDI program at COLSA at [colsa.unh.edu/MSDI](https://colsa.unh.edu/MSDI). 



## AN UPDATE ON THE SPAULDING BIOSCIENCES EXPANSION AND RENOVATION

The new 47,000-square-foot addition to COLSA's Spaulding biosciences building was completed this spring and began hosting classes and research in summer 2022. The addition is part of a \$95.5 million expansion and renovation of the building, originally built in 1960, that includes state-of-the-art research laboratories and vivarium, classrooms, offices and meeting and breakout spaces, and will support teaching, research, new public and private partnerships and workforce development. It's one of the many ways COLSA is preparing students to meet and constructively address the challenges of the 21st century. The 83,000-square-foot renovation of the original building began in June 2022 and is expected to be completed by spring 2024.

### DEAN

Anthony S. Davis

### EDITOR-IN-CHIEF

Sarah Schaier

### EDITORIAL ADVISORY COMMITTEE

Anton Bekkerman

Rick Cote

Lori Dameron

Riane Metcalfe

### CONTRIBUTORS

Nicholas Gosling '06

Alexandra Hatch

Rebecca Irelan

Jesse Stabile Morrell '99, '04G, '13G

Beth Potier

Sarah Schaier

### PHOTOGRAPHER

Jeremy Gasowski

### DESIGN

Five Line Creative

## Questions?

### CONTACT:

Sarah Schaier

Communications Director

[colsa.thrive@unh.edu](mailto:colsa.thrive@unh.edu)

**THRIVE** is published by the UNH College of Life Sciences and Agriculture. Our goal is to inspire and inform our alumni, friends, faculty, staff and partners by sharing college news and celebrating faculty, alumni and student achievements as we work to continuously strengthen our commitment to research, teaching and public service. We appreciate the generosity of alumni and friends who have funded this publication.

Interested in receiving THRIVE by mail? Sign up for a free subscription at [colsa.unh.edu/thrive-subscription](https://colsa.unh.edu/thrive-subscription).

Copyright ©2022 University of New Hampshire. All rights reserved.





# NEWS ABOUT NITROGEN

An important study by UNH researchers indicates that nitrogen levels — which often lead to problems if they are too high in the soil, air and water — are actually declining in some regions of the world. This includes the remote forests of New Hampshire's White Mountains, which aren't exposed to excessive nitrogen input from human activities.

**Scott Ollinger**, professor of natural resources and the environment and director of the UNH Earth Systems Research Center, has been keeping tabs on nitrogen levels in northeastern U.S. forests for decades, and he joined forces with international scientists to pore through data from the past 250 years for this study.

The research has wide-ranging implications — decreases in nitrogen can alter the growth and nutrient content of plants, which leads to a suite of consequences, like decreased body size and reproduction rates for the insects and herbivores that feed on plant foliage.

Alternatively, too much nitrogen in a system, like a river that receives nitrogen pollution from wastewater or agricultural runoff, can cause algal blooms that choke out aquatic life. The duality of nitrogen levels that are both too high and too low throughout the globe underscores the number of



ways in which human activities can cause ecosystems to become imbalanced.

“We’re still really struggling in many areas to bring nitrogen pollution levels down,” says Ollinger. “But it’s important to note that many aspects of the environment are changing at once, and we have a long way to go before we understand the full range of consequences.”