

# A Taste of Tufts Nutrition

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Equity. Sustainability. Prosperity.  
Good lives start with good food.



# Changing Lives Starts at the Friedman School

Together, let's better the world through food and nutrition.

**T**HE GERALD J. AND DOROTHY R. FRIEDMAN SCHOOL OF NUTRITION SCIENCE AND POLICY AT TUFTS UNIVERSITY is one of the leading institutions in the world. Founded in 1978 by Dr. Jean Mayer, a visionary in nutrition science and translation who successfully led major efforts to improve national food policy, the Friedman School benefits from powerful and unique strengths.

Partnering with the Friedman School advances the future of food and nutrition—and the careers of today's most promising nutrition researchers and experts. At the Friedman School, you will:

- Learn with a focus on real-world, public impact to help us generate trusted science that will better the landscape of nutrition science and policy and solve some of the most pressing challenges of our time.
- Work in a vastly connected, multidisciplinary environment, with biomedical, socio-behavioral, policy, interventional, agricultural sustainability, and food systems experts just an email away.
- Engage in deeply translational work, beyond the boundaries of a typical "ivory tower" outlook. You'll join peers and mentors who are committed to and deeply involved in multiple community, national, and global efforts to create healthier, more equitable, and more sustainable food systems.
- Join highly innovative and entrepreneurial collaborations to ask the daunting questions that lead to finding new solutions to the problems that plague our food systems today.
- Become a member of a warm and collegial community in which students are respected colleagues.

In the coming pages, you will see the meaningful difference our students, alumni, and faculty are making for people throughout the world. The Friedman School is a family of leaders in academia, U.S. and international government, advocacy, industry, public health, community service, entrepreneurship, and more. Moving knowledge forward and taking action. Standing on the cutting edge of scientific discovery. And developing the best science that links to sound policy to foster a more resilient population.

Read on. And join us as we continue our legacy of bold ideas and fresh perspectives that define the future of nutrition and food.



## OUR U.S. RANKINGS

# #1

in doctoral  
programs (National  
Research Council,  
2010)

# #2

(#4 globally): in  
research (CWUR  
World University  
Rankings, 2017)

# #30

U.S. college  
ranking (2022  
*Wall Street  
Journal/Times  
Higher Education*)

The Friedman School's global reach has mitigated crises and changed policies for decades. But there is still so much more to accomplish.



## A Quarter Century of Tackling the World's Toughest Problems



Paul Howe

Mayer's vision: an international famine center at Tufts.

It became clear to John Hammock, F71, who led the center for seven years from its beginning in 1995, that many universities had programs focused on famine, but an academic center focused on the humanitarian response in complex emergencies was needed—with funding. Serendipity stepped in when philanthropist Alan Shawn Feinstein provided a landmark gift for the new Feinstein Famine Center in 1997.

**THE IDEA FOR A FAMINE CENTER** emerged from Tufts' 10th president, Jean Mayer, who died before his dream could become a reality. Longtime colleague Irwin Rosenberg, former dean of the Friedman School and Jean Mayer Professor, shepherded the launch of

In the years that followed, the Feinstein Famine Center combined research, field work, and education to fight famine and humanitarian crises, establishing protection of people's livelihoods as well as their lives. Graduates have gone on to work at countless NGOs and government organizations in their home countries. The early spirit of innovation and collaboration also fueled a vaccine that eradicated rinderpest, a virus that, until 2011, was killing cattle in Africa, and leading to human hunger, conflict, and even war.

Paul Howe, Irwin H. Rosenberg Professor and the center's director, says Feinstein will continue to pivot to address emerging challenges and embrace new technologies and creative approaches—such as artificial intelligence and predictive modeling. “My hope,” he adds, “is that we continue to make truly meaningful and significant contributions to achieving zero hunger and supporting human resilience on a global scale.”

## What Will It Take to Nourish Everyone on the Planet?

**T**HREE BILLION PEOPLE—nearly a third of the planet's population—can't afford a healthy diet. This stark number is what drives Patrick Webb to ensure everyone has enough nutritious food to eat. A \$40 million award from USAID has placed Webb, the Alexander McFarlane Professor of Nutrition, at the helm of the new, Tufts-based Feed the Future Innovation Lab for Food Systems for Nutrition.

From the mid-2000s to around 2014 the world was essentially free from famine, Webb explains. But conflicts, climate change, and COVID-19 have made it impossible for many countries to cope.

“Food lies at the core of many of the world's problems. We need to resolve hunger to resolve the underlying dissatisfaction that fuels many major conflicts,” he says. “Feeding people is not enough; we must nourish them. Innovating in the food space will help address planetary challenges while locally producing millions of jobs.”

The lab will hone in on a select number of low-income countries, focusing on identifying and promoting technology and practice innovations that can better protect nutrient-rich foods as they travel from farm to fork, improve food safety, and significantly reduce food loss and waste. Adds Webb, “We will serve as a catalyst to these best-practice ideas and disseminate them to entrepreneurs and policymakers who can facilitate their wide-scale adoption.”



**GLOBALLY, DIETS ARE NOT MUCH HEALTHIER TODAY THAN THEY WERE 30 YEARS AGO**

**In one of the most comprehensive estimates of global dietary quality, Friedman School researchers studied children and adults in 185 countries. On a scale from 0 to 100 of how well people stick to recommended diets with 0 being poor (think sugar and processed meats) and 100 representing the recommended balance of fruits and vegetables—most countries earned a 40.3. Globally, this represents a small, but meaningful, 1.5-point gain between 1990 and 2018. Next up: plans to look at estimating how different aspects of poor diets directly contribute to major disease conditions around the world.**

For the everyday consumer, Friedman School researchers are sharing science that's accessible—and vital for good health.

## How to Eat a More Sustainable Diet

Growing crops and raising animals for food creates about a quarter of the world's greenhouse gas emissions and—accounts for about 70% of all freshwater use and the vast majority of tropical deforestation. Professor Timothy Griffin has some tips for small changes that make a big difference.



### BUY LOCAL

Support the local economy and cut back on air pollution caused by shipping. Buying local also allows you to engage with the food system. You can even grow your own garden! Herbs and a number of veggies do very well in containers, so you don't need a yard.

### EAT LESS

As a population here in the United States, we eat too much. Try eating off a smaller plate, eating without distractions, chewing your food well, putting your fork down between bites or every few bites, sharing with someone, and packing some food up for the next day.

### CUT FOOD WASTE

One-third or more of food is thrown away in the United States and much of this waste is at the household level. It's a waste of money, water, oil, and natural resources. Try to plan meals, be realistic when buying, store food properly, freeze leftovers, donate pantry extras, or repurpose (think: stale bread into croutons). When all else fails, compost.

### MAKE SMART SWAPS

Some foods, like meat, have a bigger environmental impact than others. Replacing animal proteins with soy and other legumes, nuts/seeds, and whole grains would have the biggest

environmental benefit. Small swaps like peanuts for almonds can also make a difference, and a new study showed that choosing pork or poultry over beef could lower your carbon footprint by over 48%.

### REDUCE, REUSE, RECYCLE

Plastic is filling landfills and clogging our oceans. Next time, try carrying a reusable water bottle, ask your coffee shop to refill your reusable cup, buy your produce unbagged or bring your own bag, and buy fewer prepared foods. Consider glass bottles and jars for storage, and take full advantage of recycling programs in your area.

## Food Safety Tips for the Climate Change Era

**R**ISING HEAT and increasingly prevalent summer storms mean power outages—and more attention to foodborne illnesses.

Every year, almost one in six Americans gets a foodborne illness and about 3,000 people die from it, according to Centers for Disease Control and Prevention (CDC) estimates. Picnics and parties where food sits out for hours are a common source, but heat waves and power outages are another silently growing threat.

As global temperatures rise, the risk of foods going bad during blackouts in homes or stores or during transit in hot weather rises with them. Elena Naumova, professor and former chair of the Division of Nutrition Data Sciences, says, "Safety measures like warning labels and product recalls can help slow the spread of harmful bacteria and parasites, but these measures

don't always evolve rapidly enough to keep pace with the changing risk."

Naumova's advice: Watch out for perishable products, including meat, poultry, fish, dairy, and eggs, along with anything labeled as requiring refrigeration. Check product recalls in the summer months. In the event of a power outage, keep the refrigerator and freezer doors closed. After four hours without power or a cooling source, the CDC recommends that most meat, dairy, leftovers, and cut fruits and vegetables in the refrigerator be thrown out. "When in doubt, throw it out," she says.

If you think you have food poisoning, Naumova suggests you check with your doctor. "Get tested so your case will be reported," she adds. "That helps public health authorities get a better sense of the extent of infections."



# Medically Tailored Meals Could Save the U.S. Nearly \$13.6B Per Year

**A**DOPTING MORE PROGRAMS that make and deliver medically tailored meals (MTMs) to people with serious, diet-sensitive diseases could result not only in improved health outcomes in the form of fewer hospitalizations nationally, but also in huge savings, according to new research from the Friedman School.

MTMs are healthy, home-delivered meals customized and fully prepared for individuals living with advanced illnesses, including diabetes, heart failure, HIV, and cancer. The meals—typically 10 per week—often serve to support those with lower incomes and limited mobility as well as individuals who regularly experience food insecurity.

Friedman School researchers found that implementing additional MTM programs across the country could help prevent 1.6 million hospitalizations and save insurers \$13.6 billion per year after paying for the cost of food, with most savings occurring within Medicare and Medicaid. Over a 10-year period, that's a



savings of \$185.1 billion in health care and nearly 18.3 million hospitalizations averted.

The study, published in *JAMA Network Open*, was funded by the National Institutes of Health and led by Kurt Hager, N19, a PhD candidate in the Food and Nutrition Policy and Programs.

"Currently, MTMs are not a covered benefit under Medicare or Medicaid, so they remain unavailable to the vast majority of patients who might benefit from them," says Hager, a 2020 recipient of the Horowitz Foundation for Social Policy grant. In 2022, the majority of MTM programs around the country were run by nonprofits and largely supported by grants, donations, and ad hoc funds. Recently launched tests are underway in California, North Carolina, Oregon, and Massachusetts.

According to Hager, while compelling, the costs savings must not overshadow their significant human health implications. "The goal of MTMs is first and foremost to improve health and well-being. At the same time, the results are pretty extraordinary."

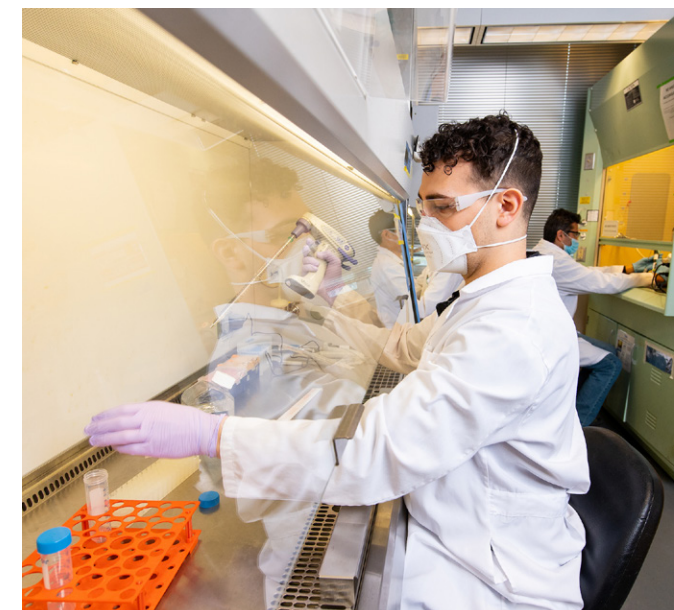
**HISTORIC CONFERENCE** Fifty-three years after former Tufts President Jean Mayer chaired the first *White House Conference on Hunger, Nutrition, and Health*, a new White House convening brought together farmers, researchers, youth advocates, and state and local leaders to hear President Biden's new national strategy for combating hunger, improving healthy eating, and reducing diet-related disease by 2030 in the United States. The presentation included recommendations from a task force co-chaired by Jean Mayer Professor of Nutrition Dariush Mozaffarian, a senior author on the MTM study (above). "Food is not just for prevention," says Mozaffarian. "Our study suggests that expanding medically tailored meal programs nationwide—one key recommendation of the new Biden-Harris national strategy—would help reverse our 'sick care' system."

## New Cellular Agriculture Consortium Will Help Develop Foods of the Future

**S**TARTUPS AND ACADEMIC LABS have begun to produce cultivated meat, grown from cells, that replicates lamb, pork, fish, and chicken, but the field of cellular agriculture is still very young. Getting to the point when it can feed millions or even billions of people has many hurdles. In 2021, Tufts was awarded a \$10 million grant from the USDA to help establish a National Institute for Cellular Agriculture to train the next generation of professionals in the field and to combine physical, biological, and social sciences toward building a new cellular agriculture industry.

The new Tufts University Center for Cellular Agriculture (TUCCA) consortium's nine founding members represent companies and nonprofits in cellular agriculture worldwide, such as BioFeyn, the Good Food Institute, and ThermoFisher Scientific.

The consortium will be aided by faculty and resources at several Tufts schools, including the Friedman School as well as the Food and Nutrition Innovation Institute (see sidebar), with internship opportunities for current students.



## THE FOOD AND NUTRITION INNOVATION INSTITUTE

Last fall, a summit on new challenges and opportunities for nutrition innovation was hosted by the Food and Nutrition Innovation Institute (FNII) at the Friedman School. Friedman School researchers, industry leaders, and government officials offered thought leadership on the path ahead. Topics ranged from labor in food systems to resiliency in the face of climate change. The FNII fosters a robust, science-driven ecosystem of food, agricultural, and wellness innovation and entrepreneurship for a healthier, equitable, and sustainable food system. Activities conceived or supported through the FNII are driven by the Innovation Council, faculty, students, policy makers, and other external stakeholders.

Support for entrepreneurial pursuits and deep-dive scholarship is as vast as the many backgrounds of our community.

## The Complex Intersections of Food, Health, and History in Latino Communities

**F**OR MELISSA FUSTER, NG13, our relationship with eating isn't as simple as sitting down for a meal.

An associate professor of social, behavioral, and population sciences at Tulane University's School of Public Health and Tropical Medicine, Fuster (pictured below) explores that complexity in looking at the role food plays in Hispanic Caribbean communities in New York City and across the country. It's a passion that's been evolving since her Friedman School days.

Inspired by her discoveries and lived experience migrating from Puerto Rico to Miami at age 21, she released her book *Caribeños at the Table: How Migration, Health, and Race Intersect in New York City* last year. "Our class, race, gender, age—it all shapes our views and practices around food," she says.

While studies show that U.S. Hispanic Caribbeans are at greater risk of developing diet-related diseases than non-Hispanic whites, *Caribeños* steps back to look at the bigger picture. It analyzes social and environmental factors that contribute to these health inequities, like loss of land, proximity to violence, and other political conflict, as well as institutional barriers to resources such as job opportunities, education, and high-quality health care.

As part of her response to these issues, Fuster founded the Latin American Restaurants in Action (LARIA) Project, an initiative that

collaborates with Hispanic Caribbean and Latin American restaurants to develop strategies aimed at boosting cultural visibility and improving unity, health, and trust among Latin American communities through the lens of food. It's funded by the National Institutes of Health.

"Something we forget is that we need to make a healthy choice a desirable one," says Fuster. "I see restaurants as a vehicle for that. I also see that, historically, restaurants and food in general are a vehicle for new immigrants to enter the economy."

Fuster's plan is to grow the network of chefs and restaurants and expand the work to address how policies and regulations can help inspire Latinx communities to consider healthy and tasty cooking habits and, above all, to embrace their multifaceted identity.



**A**NA MAAFS-RODRÍGUEZ, NG18, recalls the first time she recognized "the gap": the space between advice on healthy eating and an individual's change in behavior.

She was working as a nutritionist in her hometown, Mexico City, when she met with a young woman who suffered from diabetes and renal failure. Guided by research, Maafs-Rodríguez suggested fish. All seemed well. However, numerous factors—price, availability, time, cooking experience—were leading the patient to disregard her advice.

For her doctorate, Maafs-Rodríguez is working on three distinct assessments as to why some messages about healthy eating fail, especially among Latino populations, and how communication strategies can be improved to help guide people to better nutrition choices. The first is part of Tufts' ChildObesity180 initiative, pinpointing which messages shared via social media are most effective with mothers in supporting their children's healthy eating habits.

The second is an ethnically tailored dietary intervention to better understand how culturally adapted messaging might influence quality of diet among those of Caribbean or non-Caribbean Latino heritage. Although both groups tend to eat unhealthy food, Caribbean participants were more likely to choose these in response to cravings, while non-Caribbeans did so during special social occasions.

Maafs-Rodríguez has also devised her own study in which she will analyze internet videos that feature advice about healthy eating aimed at older Latino adults and assess the videos' messages based on their cultural relevance, consistency with U.S. dietary guidelines, and persuasive power for older Latinos.

"The pandemic made clear the importance of effective communication about health issues—and its power to drive opinions and behavior," she says. "Now our focus can be on improving and customizing what we communicate."

**DASHA AGOULNIK, N19: DIETICIAN AND CONSULTANT ON THE MOVE**  
As the CEO of CorePerform, a nutritional coaching platform and maker of an original allergen-free, plant-based protein supplement, the 2019 graduate received a \$10,000 prize at the Friedman School's 2021 \$100K New Ventures Competition.

Fostering healthy habits, and focusing on preventative action to prevent chronic disease is core to our mission.



## How Changing School Lunches Could Help the Environment

**A** **S A FEDERALLY FUNDED PROGRAM** with a \$14 billion budget in 2019, the U.S. National School Lunch Program (NSLP) provides free or low-cost nutritionally balanced meals to 40% of U.S. children each day.

In her dissertation on the sustainability of the NSLP, Alexandra Stern, N22, examined 2.2 million lunches from 1,207 schools across the country serving 1,300 unique food items. She then classified them as highest impact and low-est impact when considering each meal's effect on climate change, water consumption, land use, eutrophication potential, and water pollution.

Her findings: High-impact lunches contained an ounce more beef than low-impact lunches, and beef is the greatest contributor to climate change, land use, and water pollution.

Stern's recommendations are simple: Add more whole grains into meals and limit the frequency of serving beef. "But let's say we take meat off the menu. That will lower greenhouse gas emissions," she says, "but will kids eat meatless meals?"

Stern's research also includes ways for schools to partner with local governments and nonprofits to begin serving more sustainable lunches. The NSLP requires half of grains served to be considered whole grains (made up of 50% or more whole grains). Stern wants schools to think outside the box and consider recipes containing amaranth, spelt, einkorn, emmer, and rye. "Our system right now supports us just growing a few varieties of wheat, which is not phenomenal for the environment and agriculture," she says. "If something were to happen, it becomes dangerous for our food security."

She adds, "Schools just need support from their communities and local and federal government to embrace change."

## To Raise Healthy Eaters, Go Beyond Breaking the Rules

Eating isn't what it used to be. Below, a Q&A with nutrition experts Dan Hatfield and Erin Hennessy, both from the Friedman School's Division of Nutrition Communications and Behavior Change, on new practices well-supported by decades of research.

### IS IT TRUE THAT THE "CLEAN PLATE CLUB" RULES MANY OF TODAY'S PARENTS GREW UP WITH NO LONGER HOLD?

**ERIN HENNESSY:** That concept is a practice we call "pressure to eat"—a form of coercive control, meaning that a parent uses pressure, intrusion, and dominance to control their child's feelings and thoughts as well as their behaviors. Food parenting practices like these are now known to be detrimental to the development of a child's ability to self-regulate their intake.

**DAN HATFIELD:** So often when we think about dietary behavior or health behavior, our inclination is to wag our finger and tell people to change what they're doing. Parenting practices are one piece of the puzzle, but we also want to be intervening at other levels to promote healthier behaviors for kids.

### WHAT IS THE CURRENT SCIENCE AROUND WHAT PARENTS SHOULD FEED THEIR KIDS?

**HENNESSY:** A style known as authoritative parenting, meaning you're both nurturing and demanding, generates the most positive child outcomes. You're a parent who listens and responds to your child's wants and needs but who also sets clear, consistent expectations and boundaries.

### WHAT ARE SOME STRATEGIES YOU RECOMMEND FOR RAISING HEALTHY EATERS?

**HENNESSY:** The two areas we want to emphasize with parents are structure and autonomy support. It's about providing clear, consistent—that's key—rules and limits, meal and snack routines, and access to healthy options, and also about role-modeling the healthy-eating behavior you seek in your child. Much of the research says that in creating a healthy family dynamic, let's intervene with the parent first: How do you, the parent, feel about these foods? Why are they taboo to you?

**HATFIELD:** When it comes down to it, we really need empathy in our approach to conversations with parents. Most of the time, parents are doing the best they can with the resources and information and tools that they have. Part of our job as nutrition scientists is to listen to parents' needs and to share guidance that's evidence-based but also reflects an empathetic understanding of where people are at.



Renewed support from the National Institutes of Health (NIH) demonstrates the depth of expertise in food and nutrition at the Friedman School.

## HNRCA Launches National Center for Precision Nutrition

**N**ATIONAL NUTRITION GUIDANCE is on track to become much more individualized, thanks to research that will soon begin at the Jean Mayer USDA Human Nutrition Research Center on Aging (HNRCA) at Tufts. This undertaking is part of a five-year national effort supported by the NIH.

Designated by the NIH as one of six clinical centers in the country for the initiative, the HNRCA will receive \$8.23 million to develop algorithms to

predict individual responses to food and dietary patterns. The funding will support the NIH Common Fund's Nutrition for Precision Health (NPH), powered by the All of Us Research Program to improve the understanding of nutrition and inform more personalized nutrition recommendations.

The goal is to combine the many factors that affect how individuals respond to diet into a personalized nutrition regimen. These include dietary intake; microbiome, the community of bacteria that live in our gut; metabolism;

nutritional status; genetics; and the environment.

The HNRCA will collect data from a cohort of 2,000 people. This initiative has a goal of building a diverse health database from one million people across the United States—with All of Us program partners Massachusetts General Hospital, Brigham and Women's Hospital, and Boston Medical Center.

In phase one, the HNRCA will help design and lead research studies that collect basic measurements of people's diets and their nutritional status. Phase two: Participants will adhere to a prescribed diet in their own living environment before residing at the HNRCA while on the prescribed diet, which is phase three.

José Ordovás, lead scientist of the HNRCA's Nutrition and Genomics team says, "For the first time, these studies will be conducted with a sample size large enough to develop solid predictive algorithms and answer many burning questions related to precision nutrition." Also called nutrigenomics, precision nutrition is a field founded, in part, by Ordovás.

"Forty years of scientific discovery at the HNRCA has brought us to a place where we are taking a leadership position in moving the study of precision nutrition to the next level," says HNRCA Center Director Sarah Booth.



## Collaborative Food Is Medicine Initiative Launches in Mississippi Delta

**A** NEW \$6.6 MILLION GRANT from the NIH to the Friedman School—in collaboration with the Reuben V. Anderson Institute for Social Justice at Tougaloo College, Delta Health Center, and the Center for Science in the Public Interest (CSPI)—will fund the development of community-based programs to increase local production and consumption of fruits and vegetables in the Mississippi Delta.

If successful, it is believed the effort will simultaneously lower risk factors that result in the region having some of the highest rates of obesity and diabetes in the United States—and ultimately save billions of dollars in health care costs.

Although the Mississippi Delta has some of the country's most fertile soil and is deeply rooted in cultural values, generations of communities in Mississippi have experienced health inequities intertwined with discrimination, poverty, and racial exclusion. Over 77% of Mississippi counties meet the U.S. Department of Agriculture's definition of a food desert.

The project focuses on three counties in which over 65% of the 100,000 residents identify as Black or African American

and about 30% live at or below the poverty level. More than 50% of women and 40% of men living in these counties have obesity, and the rate of diabetes is almost double the national average.

To develop the program, the team from the four institutions—as well as Tufts University School of Medicine and Tufts Medical Center—will engage a variety of local stakeholders, including growers, health and agriculture educators, food retailers, and community-based organizations.

Tufts' involvement in the Mississippi Delta region dates back to the mid-1960s, when the late Dr. H. Jack Geiger, a physician, human rights activist, and professor emeritus at the School of Medicine, teamed up with Tufts to create the country's first community health centers in Mississippi and Boston. Senator Edward Kennedy visited the Boston location and was so impressed by the progress that he lobbied for funding to start a national network of health centers, which was granted soon after. Now, the baton has been passed to this collaborative research team, which is proud to carry on the work.





## HOW WILL A FRIEDMAN SCHOOL DEGREE IMPACT MY CAREER?

The Ellie Block and Family Career Services Center offers career coaching, opportunities for full-time and part-time post-doc employment and internships, and a full array of career development resources. Our office works with students and alumni of the Friedman School to clarify career goals, identify opportunities, and offer support at every stage of career planning and development.

### THE CLASSES OF 2018-2020 RATE THEIR FRIEDMAN SCHOOL EXPERIENCE

**99%**

view the skills they gained  
at Friedman as useful,  
important, or critical in  
their applicability to their  
current work

**95%**

consider their  
Friedman degree  
to be important for  
finding jobs

**89%**

work in jobs related to  
their Friedman School  
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further education



Gerald J. and Dorothy R.  
Friedman School of  
Nutrition Science and Policy

150 Harrison Avenue, Boston, MA 02111

Connect with Us  
[NUTRITION.TUFTS.EDU](https://nutrition.tufts.edu)

