

Case Studies at Four University Sites

This section describes how four different dietetic education programs implemented the curriculum, to provide examples of how the curriculum can be adapted to different settings.

The Sustainable, Resilient, and Healthy Food and Water Systems (SFS) Curriculum was designed to prepare current and future nutrition and dietetics professionals with foundational knowledge in the nutritional, social, economic, and environmental drivers of sustainable food systems. The curriculum was developed by 24 content experts in nutrition and dietetics, food systems, and sustainability; pilot tested by 14 sites in 2017; and released by the Academy of Nutrition and Dietetics Foundation (Foundation) in 2018.¹

During the 2018-2019 academic year, the Foundation worked closely with four University Sites implementing the curriculum in order to inform the development of this guide and additional resources for students and professionals.

The four University Sites shown in **Figure 1** represented a variety of dietetic internship programs from across the United States:

- Iowa State University (ISU), distance dietetic internship (DI), 80 interns
- Northern Illinois University (NIU), combined MS/DI (2.5 years), 20 interns
- Oregon Health & Science University (OHSU), Dietetic Internship (11 months), 13 interns and Combined MS in Human Nutrition / Dietetic Internship (2 years), 10 interns
- University of Kentucky (UK), coordinated program and stand-alone dietetic internship, 20 interns

Faculty, preceptors, and students from these four University Sites, along with Foundation and National Dairy Council staff, formed a 20-member working group that met through monthly virtual meetings during the 2018-2019 academic year in order to share success stories and challenges of integrating the curriculum into their programs.

*It was energizing to have a time and place to bounce around ideas and hear from other students.
- Working group student*

Table 1 shows how each site implemented the various curriculum activities into their programs in the 2018-2019 academic year. The use of “programs” within this Guide references a variety of types of dietetics education, such as dietetic internships, coordinated programs, didactic programs, graduate, and additional settings.

It’s worth noting that each site incorporated the curriculum in a different way, and that the curriculum has value even when not all activities are implemented in a given year. Program directors made decisions about which activities to incorporate based on how much time they had for planning, how much time was available within the programs, and the feasibility of activities such as on-site tours at farms or manufacturing facilities.

Additional detail about how these four University Sites implemented the curriculum activities and other food systems content is available in the following section. These sites are diverse in their locations, sizes, and formats, and we hope these case studies demonstrate the versatility of the curriculum.

We anticipate that the curriculum will continue to be implemented in a variety of settings, and we hope that dietetics educators offering food systems content find ways to connect with each other similar to the working group that informed this Implementation Guide.

¹ For more information on how the curriculum was developed, see: Knoblock-Hahn A, Medrow L. Development and Implementation of a Sustainable, Resilient, and Healthy Food and Water Systems Curriculum for Dietetic Interns. *Journal of the Academy of Nutrition and Dietetics*. 2019.

Figure 1. Description and location of the 2018-2019 SFS University Sites

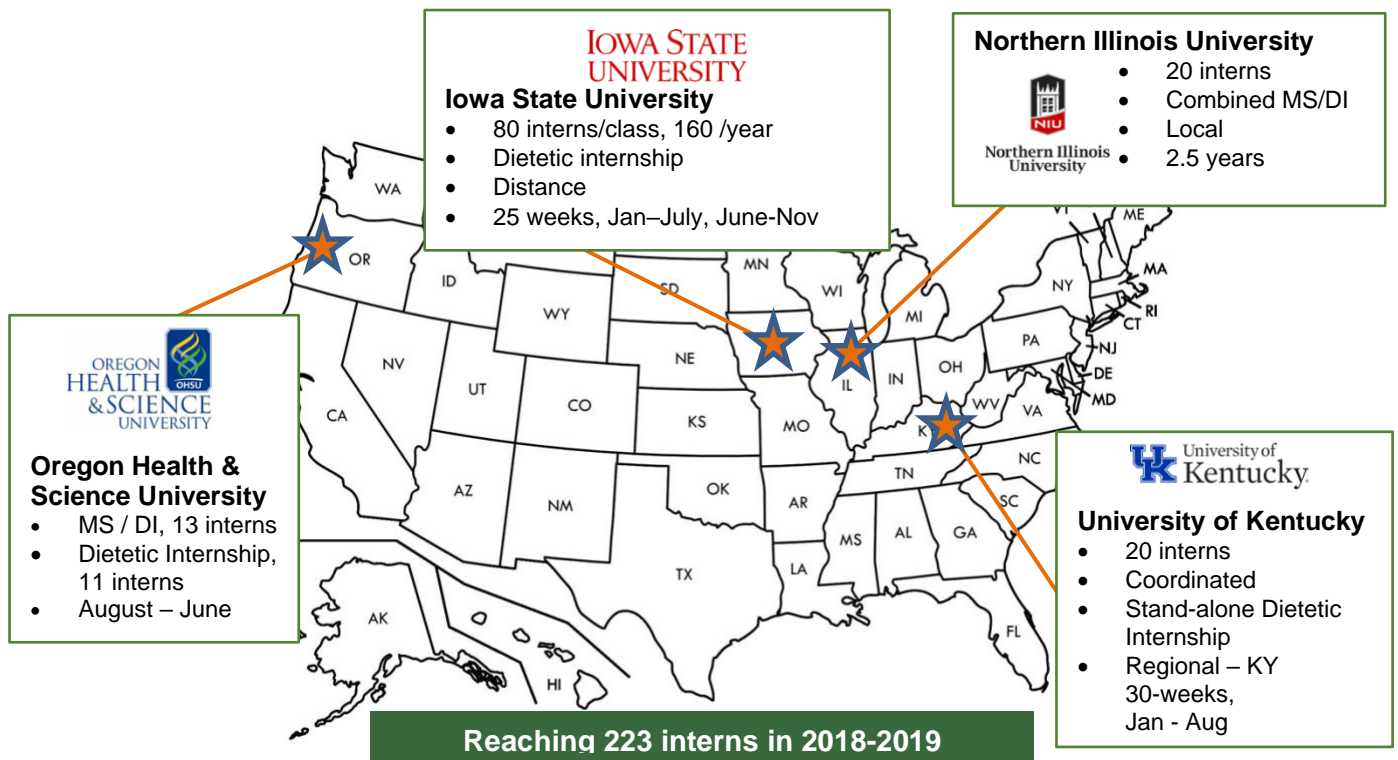


Table 1. Number of interns/students completing SFS activities at the 2018-2019 SFS University Sites

Activity Name	ISU (n=160)	NIU (n=16)	OHSU (n=23)	UK (n=20)
1 Foundational Activity	160	14-16		
2 Farm Tour		14-16	23	20
3 School Foodservice Program	160	14-16	3	
4 Food Manufacturing Tour		14-16	23	20
5 Federal Food Distribution		10		20
6 Menu Analysis			23	20
7 Food Preservation and Safety		5		20
8 CDC Healthier Food Retail Assessment	20	5	23	20
9 Merchandising				
10 Consumer Food Waste	20	14-16	23	9
11 Food Waste Audit	160	14-16		20
12 Food Policy and Nutrition Care	160	5		20
13 Capstone		5		5

Iowa State University (ISU)

Iowa State University's 25-week, distance dietetic internship supports up to 20 interns in Iowa and up to 60 additional interns across the nation (80 interns per cohort). The program supports two cohorts each year – one running January to July and another running June through November – totaling up to 160 interns per year. Because interns complete their supervised practice rotations asynchronously, the activities were woven throughout the internship.



Intern working on a farm

During the first week of internship, all students attended an in-person Professional Skills Workshop where their orientation included a 30-minute presentation introducing the SFS Curriculum. The presentation described the four principles of sustainable, resilient, and healthy food and water systems and engaged students in a brief activity (a modified version of the Orientation is in **Appendix A**).

The Foundational Activity was incorporated into students' clinical presentations (**Appendix B** offers an example of how the assignment was introduced at this site). After students completed the nutrition prescription of the Nutrition Care Process (NCP), students were instructed to consider the big picture of food systems and make a few recommendations

pertinent to the patient's case that incorporated the principles of sustainable food systems, drawing from the *Standards of Professional Performance (SOPP) for Sustainable, Resilient and Healthy Food and Water Systems*. For example, a rehab unit might revisit their standard menu depending on food waste from less popular dysphagia foods; an intensive care unit might look at their plastic waste and change policy; food service may consider decreasing food waste from patient/client trays or increase local purchasing; the healthcare facility might invest in a community garden or act as a Community Supported Agriculture drop off site.

During the management rotation, students completed the School Foodservice, Consumer Food Waste, and the Food Waste Audit activities. At the end of these three activities, the interns were excited and engaged about food waste reduction in a way that even sparked interest among preceptors. The CDC Healthier Food Retail Assessment and Food Policy activities were incorporated within the community rotation.

*"Helping interns complete activities within the SFS Curriculum has sparked a former passion in engaging in food systems and working to decrease food waste through changing policies and practices at our facility."
- 2018 Preceptor*

Students were also given the option to participate in the School to Farm Program, coordinated through the Hunger and Environmental Nutrition (HEN) Dietetic Practice Group, which provides opportunities for students to immerse themselves within a farming operation and work with diverse local food system activities. Interns live, learn and work in residence at Prairie Horizons Farm near Starbuck, MN. During the three-week rotation, interns cultivated a connection to the land, developed farm-to-table cooking skills, participated in the local and regional food systems, and ate from the seasonal abundance with preceptors Mary Jo Forbord, RDN, farmer & host and Lindsay Ganong, RDN.

A message from the Director

"Incorporating the SFS curriculum in the internship has been an educational experience, not just for the interns but all the DI faculty as well. It has also allowed us to build new partnerships for training interns and engaging in dialogues on sustainability with our community partners."

A message from our students

"The curriculum gives excellent ideas for how to incorporate sustainable, resilient and healthy food and water systems activities into any area of dietetics."

Northern Illinois University (NIU)

Northern Illinois University has a combined Master of Science and Dietetic Internship (MS/DI) with a focus on community and health promotion. In the 2018-2019 academic year, sixteen interns began their coursework in the fall, completing their graduate courses during the first year and supervised practice in the second. Four additional students were incorporated into supervised practice through a stand-alone dietetic internship, totaling 20 interns.



NIU students visit a farm to learn about sustainable agriculture practices

To begin integrating the curriculum, the internship director selected activities that could replace assignments the students were already doing. The SFS Curriculum was integrated across the coursework.

The Foundational Activity was part of students' pre-practicum course that occurred in the spring of the first year.

During the second year, the students took a graduate seminar course. The Federal Food Distribution activity was embedded within this seminar

Second year students also completed foodservice and lifecycle rotations. The School Foodservice activity was an assignment in the lifecycle rotation. Both the Consumer Food Waste and Food Waste Audit activities are built into the foodservice rotation.

During the final fall semester, the interns visited a dairy farm where they learned about farming practices and sustainability, as well as a second livestock farm (chicken, cattle, or pigs). The tour met similar competencies of a combined Farm Tour and Food Manufacturing Tour.

In addition to the Foundational Activity, first-year dietetic interns attended a webinar series hosted by the Foundation, "Gaining Ground: Applying Individual, Policy, System & Environmental Change to Sustainable Food System Initiatives." In the first webinar session, interns learned about a framework for how individual-level change can be complemented by policy, system, and environmental changes that support nutrition. Interns completed a hands-on activity where they brainstormed ideas at all levels of the framework for a local policy priority. In a follow-up webinar session, interns shared and received feedback on their ideas from the speaker and from students at other programs.

The SFS Curriculum was seamlessly woven into the general intern assignments. I think this is important in motivating interns to make the connection between SFS and the role of the dietitian in the food system.
- Dietetic Internship Preceptor

At the start of the second-year MNT rotation, interns attended another webinar series hosted by the Foundation, "Exploring Malnutrition through the Lens of Systems Thinking." In this series, the hands-on activity was an Impact Analysis where students explored ecological, economic, or social impacts of nutrition interventions. During the follow-up webinar, interns discussed how this new "lens" of systems thinking could carry over into their clinical practice.

A message from the Director

"Many interns expressed an interest in completing the full curriculum. We are continuously looking for ways to incorporate the remaining activities with all interns, rather than offering many of the activities as optional for students with an interest in sustainable food systems."

A message from our students

"I enjoyed thinking about food in a new, broader perspective."

Oregon Health & Science University (OHSU)

The Oregon Health & Science University program is centered in Portland, Oregon with 23 interns – 18 interns completing rotations in Portland, 2 in Bend, and 3 in Medford, OR. In addition to a stand-alone dietetic internship, the program also offers a combined Master of Science in Human Nutrition and dietetic internship (MS/DI).



OHSU students present about policies to reduce food waste

In the 2018-2019 academic year, students participated in a statewide farm tour, including visiting the Oregon State University Willamette Research and Extension Center, Mayfield Dairy, Pearmine Farms, and Marion-Polk Food Share. Students toured [Bob's Redmill](#) manufacturing facility and the Oregon State University Food Innovation Center.

Three students completed the School Food Service activity in their school-based food service rotation. All students participated in a modified Menu Analysis. In the spring, the Consumer Food Waste activity was completed during RD Day at the State Capital Building while legislators were in session.

The CDC Retail Assessment was incorporated in the public health nutrition course with a focus on retail settings across Oregon. Students defined the neighborhood within which the food retail site is situated, described methods for collecting the assessment information (direct or indirect) and summarized the results for how the retail setting impacts the neighborhood (a sample rubric can be found in **Appendix C**).

*The food waste audit was tremendously beneficial because it is a perfect fit. I was able to present information to my facility regarding new laws, observed waste, and tie everything together.
- 2018 Dietetic Intern*

In the spring, OHSU hosted a Food and Farm symposium designed to explore food systems, sustainability, food access and nutrition. Presenters included researchers, farmers, nonprofit organizations, and entrepreneurs. Attendees included students from OHSU's graduate program in human nutrition, internship preceptors, community members, and faculty, and staff.

The symposium was designed to:

- Explore food systems, sustainability, access, and nutrition
- Discuss the different elements of food and agricultural systems
- Define and discuss approaches to increasing healthy food access
- Discuss how food production and processing can contribute to the health of the community
- Identify how diverse stakeholders can collaborate to develop innovative, equitable programs

A message from the Director

"Participating in the SFS program established the foundation for our program to incorporate sustainable food systems content within our graduate courses and experiential learning within our supervised practice rotations. Our interns loved the farm and food manufacturing tours. One of our new goals is to incorporate the full curriculum into our internship and to have each intern complete a rotation on a produce farm to strengthen their appreciation for local, sustainable and healthy food and water systems."

A message from our students

"I enjoyed the opportunity to get outside and partner with other stakeholders in the food system that directly affect both my livelihood and the livelihood of my nutrition clients."

University of Kentucky (UK)

The University of Kentucky offers two options for students to complete a supervised practice in dietetics: an undergraduate coordinated program and a stand-alone dietetic internship. The supervised practice components of both programs are 7 months in length, beginning in January and concluding in August, and offer 20 interns with rotations across Kentucky in addition to 21 -credit hours of coursework.



UK coordinated program and dietetic internship students at graduation

The 2018-2019 year at UK kicked off with a combined Farm Tour and Food Manufacturing Tour at an indoor aquaponics farm and restaurant, FoodChain, during the in-person orientation.

The Federal Food Distribution assignment was modified and incorporated in the community course. The Menu Analysis, Consumer Food Waste, and Food Waste Audits were completed during the food service rotation.

All students attended a Legislative Day at the state capitol, which included a modified version of the Food Policy assignment. In preparation for the event, students reviewed the Academy's white paper "Healthy Land, Healthy People," a report from the United Nations "Special Rapporteur on the right to food", and the Academy's advocacy resources. They located the legislators for their home districts and then scheduled an appointment with a Kentucky legislator. If they were not from Kentucky, the student picked a legislator they were interested in meeting or joined another student in meeting their legislator. To prepare for the meeting, students identified a key issue that impacts food, sustainability, or health – such as strategies to reduce food waste in Kentucky – and wrote a 2-page policy brief on the topic. After legislative day, students wrote a short reflection summarizing their conversation with their legislator and sent a hand-written thank you note (see **Appendix D** for assignment instructions and a rubric).

[The curriculum] allowed the students to view a different side of issues and broaden their perspectives about the role of a dietitian.
– Dietetic Internship Director

The Capstone Project was an option for students to do in place of their final research project. Many students integrated sustainable food systems research activities, such as the impact of the food system on food insecurity.

UK also partnered with the UK Interior Design department to take a group of students on a field trip to a farmers' market where they learned about sustainable food systems initiatives at the Findlay Market, home to more than 40 indoor merchants selling meat, fish, poultry, produce, flowers, cheese, deli, and ethnic foods. The group completed a modified version of the Merchandising curriculum activity. They explored branding, architectural project mapping, and signage installation. Students incorporated what they learned into design projects to promote healthy food access with food insecurity concepts.

A message from the Director

"We were able to work with each student individually to tailor the assignments to their specific sites with minimal problems. We place students at 40-45 different sites around the state and worked hard to engage students in the same or similar assignments across our program."

A message from our students

"This was a very valuable experiential and knowledge building education on the role of the dietitian in promoting, implementing, and analyzing SFS in everyday practice. It also was a great introduction for the nutrition professional interested in expanding to the public health field."