FOOD SECURITY AND SUSTAINABILITY ON CAMPUS

Sustainable, Resilient, and Healthy Food and Water Systems (SFS) Dietetic Internship rotations in an academic setting

Kathi Trawver, Marie Spiker, and Leslie Redmond

HUNGER & HOMELESSNESS AMONG A SAMPLE OF ALASKAN POST-SECONDARY STUDENTS



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Presented Virtually to: The Society for Nutrition Education and Behavior Summer 2020

Background

- An estimated 74% of today's college students are defined as "nontraditional," (U.S. Department of Education, National Center for Education Statistics, 2015):
 - -Attend school part-time;
 - -Employed full-time;
 - -Have dependents;
 - -Financially independent of parents;
 - -Single caregiver; and/or
 - -No high school diploma

Today's College Student

- College students are increasingly balancing multiple roles and responsibilities that may increase stress and vulnerabilities that impact student success, including poverty related issues including food and housing insecurity and homelessness (Dubik, Mathews, & Cady, 2016).
- Further, College Students Have Become Increasingly Vulnerable to Food and Housing Insecurity Due to:
 - Limited Financial Resources;
 - Increased Demands on Available Funds;
 - Decreased Buying Power of Federal Aid; and
 - Rising Costs Of Tuition, Housing, and Food.

Estimating Food & Housing Insecurity Among College Students

• Food Insecurity

- -Currently no known systematic means for estimating food insecurity among college students.
- Housing Insecurity/Homelessness
 - –FAFSA data which is not intended to count homeless students is the only means for estimating national rates of student housing insecurity/homelessness.
 - The 2018/2019 FAFSA data identified 32,729 out of 10,046,590 independent students (< 0.3%) as homeless (National Center for Homeless Education, 2019).

Food & Housing Insecurity College Students Estimates

COMMUNITY COLLEGES

- Food Insecurity 24% to 50%
- Housing Insecurity 30% to 50%
- Homelessness 13% to 14%

4-YEAR UNIVERSITIES

- Food Insecurity 21% to 52%
- Housing Insecurity 40% to 52%
- Homelessness 5.4% to 10.9%

Risks increase in students who experience other disparities (e.g., students of color, 1st generation)

(e.g., Crutchfield, 2016; Crutchfield & Maguire, 2018; Goldrick-Rab et al., 2015; 2017; Silva et al., 2017; Tsui et al., 2011; Wood et al., 2016)

Study Context & Purpose: University of Alaska Anchorage





- Open enrollment unified community college/university includes main campus and five outlying community campuses
- Grants vocational certificates
 through doctoral degrees
- ~15,000 students
- Main campus located in Anchorage, Alaska's largest "city" (~300,000)
- "Most diverse city" in the US
- Study purpose
 - To explore the prevalence of food and housing insecurity on our campus and in an open-enrollment institution.

Methods: Fall & Spring 2019 Survey

Follow up to Fall 2017 pilot study

• 3000 randomly selected, degree-seeking students emailed electronic survey (N=193)

Design

 Administered 35-item paper and pencil survey based on Cruchfield/CSU's work and materials from Wisconsin Hope Lab (community college and combined community college and university campuses)

Sample

- Randomly selected on campus courses with enrollment of 20 or more
- Faculty contacted and permission received to administer survey in class
- Method yielded better return rate and allowed us to meet the needed sample size (N \geq 391)

Measure

Survey asked students about their demographic characteristics, food and housing insecurity, homelessness, and resources utilized

Data Collection/Analysis

- Data manually entered into SPSS for storage and analysis
- Conducted univariate, bivariate, and logistic regression analyses



Results: Student Characteristics

2019 UAA Survey Participants N=451



2019 UAA Survey Participants N=451





Results: Food Insecurity



According to the USDA, in 2018 a total of 11.1% of U.S. households were food insecure, including 4.3% that had very low food security.



A total of 35% of students reported experiencing some type of food insecurity

During the 30 Days Prior to Completing the Survey, UAA Students Reported That <u>Due</u> <u>To A Lack Of Food/Resources They</u>:

Experienced	Level of Insecurity	Manage Mea n=180	ed Own als (60%)	Shared n=271	Meals (40%)	Total % N=451
Worried food would run out	Mild	41	23%	60	22%	22%
Food did not last	Moderate	46	14%	63	32%	24%
Could not afford to eat balanced meals	Moderate	55	30%	48	15%	23%
Cut the size or skipped meals	Moderate	31	7%	27	10%	13%
Ate less than should	Moderate	26	6%	20	8%	7%
Hungry, but did not eat	Severe	20	11%	11	4%	7%
Skipped eating for a whole day	Severe	13	7%	6	2%	4%
Lost weight	Severe	11	6%	11	4%	3%
Food ran out	Severe	-	-	53	16%	n/a
Forced to steal food	Severe	-	-	3	7%	n/a

Characteristics of UAA Students Experiencing Food Insecurity

- Students Who Experienced Food Insecurity Were Significantly More Likely Than Other Students To:
 - Be a 1st Generation College Student
 - Have Had More Recent Moves
 - Be Housing Insecure
 - Have Lower GPAs
 - Experienced Homelessness
 - Have Parents With Less Education
 - Experience a Disability
 - Have a Lower Monthly Income
 - Accrued Credit Card Debt to Pay Education and Living Costs
- Strongest Predictor of Food Insecurity (Logistic Regression Model) Was:
 - Being Housing Insecure (*p*=.005);
 - Having a History of More Moves (p=.020); and
 - Being a 1st Generation Student (*p*=.029)





Results: Housing Insecurity

Where Students Slept Previous Night (N=406)

93% Stayed in Stable Housing

- 27 (7%) Stayed in Temporary Housing/Location
 - 11 (~3%) Temp staying w/friend/family
 - 4 (~1%) Foster Care
 - 3 (~1%) Space not meant for human habitation
 - 2 (~1%) Hotel/motel Transitional Housing
 - 2 (~1%) Emergency Shelter
 - 2 (~1%) Group home
 - 2 (~1%) Outdoors
 - 1 (~0.5%) Tx Center



A total of 37% students reported experiencing some type of housing insecurity



Reported Housing Insecurity

Not Confident in Ability to Pay Rent on Time 72%
Cannot Afford Housing 27%
Housing is Only Temporary 20%
Dissatisfied With Current Housing Situation 16%
Housing Feels Unsafe 7%

Characteristics of Students Experiencing Housing Insecurity

- STUDENTS WHO EXPERIENCED HOUSING INSECURITY WERE SIGNIFICANTLY MORE LIKELY TO BE:
 - -Veterans
 - -Juniors
 - -Younger
 - -Lower income
 - -Experienced a higher number of recent moves
 - -Paying out of state tuition
 - -Food insecure



5.

Results: *Homelessness*

Homelessness Defined

- HOMELESS DEFINED AS: (A) INDIVIDUALS WHO LACK A FIXED, REGULAR, AND ADEQUATE NIGHTTIME RESIDENCE; AND (B) INCLUDES
 - -(i) individuals who are sharing the housing of other persons due to loss of housing, economic hardship, or a similar reason; are living in motels, hotels, trailer parks, or camping grounds due to the lack of alternative accommodations; are living in emergency or transitional shelters; are abandoned in hospitals; or are awaiting foster care placement;
 - (ii) individuals who have a primary nighttime residence that is a public or private place not designed for or ordinarily used as a regular sleeping accommodation for human beings; or
 - (iii) individuals who are living in cars, parks, public spaces, abandoned buildings, substandard housing, bus or train stations, or similar settings.



A total of 25 (5.6%) self-identified as meeting criteria at least once since beginning college.

However, 47 (10.4%) reported couch surfing, having to camp, staying in transitional housing, group homes, place not meant for human habitation, which meets the threshold of the above definition.

Characteristics of Students Who Had Experienced Homelessness Since Beginning College

- Food Insecure
- Single
- Out of State Student/Paying Out of State Tuition
- Meet Criteria For Housing Insecurity
- Had a Higher Number of Recent Moves
- Had Lower Incomes
- Accrued Credit Card Debt to Pay For Education
- International Student
- Financial Aid Did Not Cover Living Expenses

Discussion

Student Experience	2019 UAA Sample	Current Literature	Comparison
Food Insecurity	35%	21%-52%	Similar
Housing Insecurity	37%	30%-52%	Similar
Homelessness	10.4%	5%-14%	Similar

Our research validates previous findings that: Food and housing insecurity and homelessness is a reality on our Anchorage campus at levels consistent with national research

Limitations & Implications

- Limitations
 - It's a survey! Need to go beyond the numbers
 - Sample size limited
 - Sampling strategies e.g., only on campus, missed smaller classes
 - Selection bias e.g., not all professors allowed us into classes
 - Timing of survey e.g., earthquake in fall semester
 - Improvements over pilot (e.g., survey administered before add drop, better representation of overall student body with in-class method
- Implications For Education System:
 - K-12 schools and universities should continue to find ways to destigmatize financial needs
 - Need to better identify struggling students and quickly link them with university and/or community resources
 - Need for coordination across system, especially engaging with smaller community campuses
- Future Research: We Know It Is Happening, So What's Next?
 - Further research is needed to more fully understand how food and housing insecurity impacts students and academic success, as well as how to better meet their needs utilizing larger and multisite samples

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THANK YOU!

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eqt[®] Academy of Nutrition right. and Dietetics Foundation

Building Sustainable Food Systems: Educational opportunities in nutrition and dietetics

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Speaker Disclosures

FELLOW:

- Academy of Nutrition and Dietetics Foundation (2018-present)
 - Supported by an educational grant from National Dairy Council

BOARD MEMBER / ADVISORY PANEL:

• Academy of Nutrition and Dietetics Council on Future Practice (2019-2022)

SCHOLARSHIP SUPPORT:

- Johns Hopkins Center for a Livable Future-Lerner Fellowship (2014-2018)
 - Supported by the GRACE Communications Foundation
- Academy of Nutrition and Dietetics Foundation Scholarships (2014, 2015, 2017, 2018)

TRAVEL EXPENSES FOR SPEAKING ENGAGEMENTS:

- American Frozen Food Institute (2015)
- Academy of Nutrition and Dietetics Foundation, through an educational grant from Bayer Crop Science (2019)

Overview

1. Getting on the same page about **sustainability**

2. Sharing the Academy's **framework for action** about how nutrition professionals can leverage their skills to promote sustainable food systems

3. Sharing the Academy's sustainable food systems curriculum

4. Broader thoughts about **building capacity to work on sustainability and food security** across professions

Resource: Standards of Professional Performance (SOPPs) for RDNs in sustainable food systems

Addresses the questions:

What exactly do we mean by sustainable, resilient, and healthy food and water systems?

What does it look like for RDNs to build skills in this focus area?

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Angie Tagtow, MS, RD, LD; Kim Robien, Ph Isa Dierks, RD, LD; Barbara E Hartman, MS Bettina Tahsin, RD, LDN, CDE; Teri Underwi	D, RD, CSO, FAND; Erin Bergquist, MPH, RD, L 5, RD, LD; Ramona Robinson-O'Brien, PhD, RD; bod, MS, RD, CD; Jennifer Wilkins, PhD, RD	D, CNSC, Meg Bruening, PhD, MPH, RD; Tamara Steinitz, MS, RD;
related to food and water systems, the Academy of Nutrition and Dietetics Quality tool for Registered Dietitian Nutritionists current skill levels and to identify areas	Hunger and Environmental Nutrition Dieteti Management Committee, has developed the working in sustainable, resilient, and health for further professional development in this	c Practice Group, with guidance from the Standards of Professional Performance as a ty food and water systems to assess their emerging practice area. This Standards o
related to food and water systems, the vachemy of Nutrition and Directics Quality tool for Registered Dietitian Nutritionistis urrent skill levels and to identify areas Professional. Performance document cow accountability, provision of services, appl management of resources. Within each st sustainable, resilient, and healthy food weeks (competent, proficient, and expert) and water systems. Anae Nor Die 2014/1475-488.	Hunger and Environmental Nutrition Dieteti Management Committee, has developed the working in sustainable; resilient, and health for further professional development in this ers six standards of professional performan- ication of research, communication and app tandard, specific indicators provide measure d water systems principles can be applied to for Registered Dietitian Nutritionists working	teer Decinal rearranges of mean successful and a successful and the standard of Professional Performance as a y food and water systems to assess their emerging practice area. This Standards o user quality in practice, competence and lication of knowledge, and utilization and practice. The indicators describe three skill in sustainable, resilient, and healthy food
related to food and water systems, the i vackerney of Nutrition and Directics Quality tool for Registered Dietitian Nutritionistis Professional Performance document cow usatianable, resident, and the statistical sys- registration of the sources. Within each a weeks (competent, proficient, and expert) and water systems. Acad Nutr Diet. 2014;11475-488. Y 2050, THE WORLD POPULA- tion is projected to exceed 9 billion, further stressing the iources needed to supply the im- reasing dermador supply the im- neeting the increased needs must do so with limited opportunities to ex- so with limited opportunities to ex-	Hunger and Environmental Nutrition Dieteit Management Committee, has developed the working in sustainable, resilient, and health for further professional development in this sers six standards of professional performant isation of research, communication and applicator thandard, specific indicators provide measure water systems principles can be applied to for Registered Dietitian Nutritionists working and as a mission for many professional organizations involved with public- health and the food systems ⁻¹ As the nation's largest group of food and untrition professionals, registered dietitian nutritionists (RDNs) play a unique and pivotal role in promoting Approved Cosober 2013 by the Quality Margoment Committee of the Academy	Concernant, want within such the and it such concernant, want within such the and the such standards of Myn, swith all Performs the size of food and water systems to assess the energing practice area. This Standards o nee: quality in practice, competence an able action statements that illustrate how able action statements that illustrate how able action statements that illustrate how practice. The indicators describe three skills is in sustainable, resilient, and healthy food and areas of dieterics are increasingly being called upon to address is susses o sustainability and resilience in their daily practice. In additions, some RNN- are now choosing to focus their prac- tice specifically on ensuing access to and availability of SRH food and water

Tagtow A, Robien K, Bergquist E, Bruening M, Dierks L, Hartman BE, Robinson-O'Brien R, Steinitz T, Tahsin B, Underwood T, Wilkins J. Academy of Nutrition and Dietetics: standards of professional performance for registered dietitian nutritionists (competent, proficient, and expert) in sustainable, resilient, and healthy food and water systems. Journal of the Academy of Nutrition and Dietetics. 2014 Mar 1;114(3):475-88.

Nutrition and food security are inseparable from sustainability

We recommend varied, balanced diets. But:

- People can't follow our recommendations if nutritious foods are not accessible or affordable.
- They also can't follow our recommendations if nutritious foods aren't available in the food supply.

For example:

- Vegetables:
 - The US food supply does not contain enough fruits, vegetables, and whole grains for all individuals to follow dietary recommendations (1)
 - Globally, 45% of the world lives in countries that do not produce or import the WHO target of 400 g/ fruits and vegetables / day (2)
- **Seafood:** For American consumers to meet the amount recommended in the Dietary Guidelines (8 oz/week), we would need to double the US seafood supply (3)

(1) Miller PE et al. The United States food supply is not consistent with dietary guidance: evidence from an evaluation using the Healthy Eating Index-2010. Journal of the Academy of Nutrition and Dietetics. 2015 Jan 1;115(1):95-100. (2) Mason-D'Croz D et al. Gaps between fruit and vegetable production, demand, and recommended consumption at global and national levels: an integrated modelling study. The Lancet Planetary Health. 2019 Jul 1;3(7):e318-29. (3) Love DC et al. Wasted seafood in the United States: Quantifying loss from production to consumption. Global Environmental Change. 2015 Nov 1;35:116-24.

Feeding people always involves an ecological footprint.

Agricultural practices account for:

- 34% of global land use (1)
- 70% of water use withdrawn for human purposes (2)
- 11% of global greenhouse gas emissions (3)

Globally, 1/3 of all food produced is ultimately lost or wasted (4)

So the question is:

How can we ensure the **long-term viability of the natural**, **economic**, **and social resources** needed to produce a nutritious food supply?

#SNEB2020: What Food Future?

(1) Ramankutty N et al. Farming the planet: 1. Geographic distribution of global agricultural lands in the year 2000. *Global Biogeochem Cycles*. 2008;22(1): 1-19. (2) Molden D et al. Pathways for increasing agricultural water productivity. London, UK: International Water Management Institute; 2007: 279-314. (3) Center for Climate and Energy Solutions website. <u>Accessed March 25, 2020</u>. (4) Gustavsson J et al Global food losses and food waste - Extent, causes and prevention. Rome, Italy:

Food and Agriculture Organization of the United Nations; 2011.

A sustainable, resilient, and healthy food and water system is one in which all individuals have equitable access to a safe, adequate, secure, and culturally appropriate supply of food and water that supports optimal health, both now and in the future.

What does it mean for a food system to be:

- Sustainable? Meets current nutrition needs of individuals and communities, without jeopardizing the ability of future generations to meet their needs
- **Resilient?** Can withstand or rebound more quickly to disturbances in the system
- Healthy? Facilitates well-being and disease prevention of all individuals

Note that equity underlies each of these.



Tagtow A, Robien K, Bergquist E, Bruening M, Dierks L, Hartman BE, Robinson-O'Brien R, Steinitz T, Tahsin B, Underwood T, Wilkins J. Academy of Nutrition and Dietetics: standards of professional performance for registered dietitian nutritionists (competent, proficient, and expert) in sustainable, resilient, and healthy food and water systems. Journal of the Academy of Nutrition and Dietetics. 2014 Mar 1;114(3):475-88.
Getting on the same page about sustainability

Fred Kirschenman: "Sustainability is a process, not a prescription... it is a journey we embark upon together, not a formula upon which we agree."

Sustainability is:

- Comprised of multiple domains
- About now *and* the future
- About equity: all people, all places
- About root causes, including structural inequities
- Fundamental to the profession of nutrition

Sustainability is not:

- Exclusively about the environment
- Only about the future
- Only for those with financial means
- Only relevant to specialized practitioners



Sharing a framework for action

Resource: A Nutrition-Focused Framework for Action for Sustainable Food Systems

Addresses the questions:

What are concrete ways nutrition professionals promote sustainability throughout the food system?

How can we coordinate our efforts in education, research, practice, and policy to scale up our impact?

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rigm.		
Cultivating Sustai	nable, Resilient, ar	d Healthy
Food and Water S	Systems: A Nutritio	n-Focused
Framework for Ac	tion	-
Marie L. Seiver, PhD, MSPH, RDN; Amy Kno Amanda S, Hege, MPH, RDN, LD; Kevin Sau	eloric Hahn, PhD, MPH, MS, RDN: Katle Grown et: PhD, RDN, LD, FAND, Diane M, Lhos, MP	n, FalD, RDN: Janize Giddens, MS, RDN: J. RDN, FAND; Alison Steiber, PhD, RDN
When the second	(NDTRs) are trained to address the muttitional manifertations of these issues, and can also lead and support collaborative efforts along the spectrum of prevention" to address underlying issues that affect current and future populations. The vision of the Academy of Nutrifion and Disettics ("Academy") is "a strategic Plan includes a commitment to a global, system-wide impact and collaboration To solve the greatest of load and nutrifion." The Academy's Strategic Plan includes a commitment to a global, system-wide impact and collaboration To solve the greatest food and nutrifion to allenges now and in the future" in this light the action and breakers are not a global, system-wide impact and collaboration to solve the greatest be obtained to support sustainable food and water systems are not a specialized practice area, they are central to the profession. Plane I demonstrate the evolution of thinking with global agendas, including the burgets Coal 2 of the Sustainable food systems also aligns with global special is to "end hunger, achieve flood security and improved include the vevelopment Goals is in "intersects invition of the sustainable food systems issues of all 17 Sustainable food systems issues ross geopolitical borders, and elucation. A global scope is appropriate, given that many food systems issues cross geopolitical borders, fare example, politices are consumpted borders. Fare example, politices are consumpted borders, fare example, politices areanable food systems issues may extend prively food prediction or prices in another, and the effects of food systems may extend and borders. Fare example, politices areanable food prediction or prices in another, and the effects of food systems and set of a politices or consumption of predicts. The challenges of sustainable for a politices or consumption and provide the s	workforce capacity and collaboration across sectors. ^{19–21} RONs and NDTR across sectors. ^{19–21} RONs and NDTR across sectors. ^{19–21} RONs and NDTR and throughout he labels of a memory of the sector of the sector of the and throughout he labels across and throughout he labels across non-term sector of the NDNs an NDTRs-individually as a profession and in collaboration with other sec- tors-can cultivate sentalisable foo systems. PRAMEWORK FOR ACTION This framework for action was developed from a roundtable meeting of experts and subsequent ratakeholde input. The 2-day roundtable, title "Sustainable food Systems: Creating Nutrition-Focused Framework for Ac- tion," was convened in November 2001 by the Academy of Nutrition and Di- ertorics Foundation ('Foundation') a part of the Fourture of Food initiation which is funded through an educa- tional grant from the National Data Condition from the National Data Condition Foundation and Di- ertorics foundation ('Foundation') a included credentialed nutrition and directics practitiones and extern stakeholders regresenting segrets consent; actal equity, and foo- policy. Refore the roundable, participant reviewed boundational work in this reviewed boundational work in this person presentions, virtual remark

Cultivating Sustainable Food and Water Systems: A Nutrition-Focused Framework for Action

Education & Training

By developing knowledge and skills in sustainable food and water systems, RDNs and NDTRs can:

- Bring food systems knowledge to the many sites where they practice
- Critically interpret and translate findings from research on the multiple dimensions of sustainability
- Strengthen food systems **policy** initiatives from other sectors by identifying linkages to human nutrition and health

Research

As part of multi-sectoral research teams, RDNs and NDTRs can:

- Ensure the content of food systems education and training is current with an evolving evidence base
- Translate research into clear messaging for practitioners to share
- Lead and contribute to rigorous, transparent, and multi-sectoral research to inform evidence-based policy



ENTRY POINTS

that leverage the strengths of registered dietitian nutritionists (RDNs) and nutrition dietetics technicians, registered (NDTRs) to cultivate sustainable food and water systems:

- 1. Shape and deliver dietary guidance
- 2. Improve food and nutrition security and water security
- 3. Align food production and nutrition
 - 4. Optimize supply chains and food environments
 - 5. Reduce waste



Practice

RDNs and NDTRs work in diverse settings throughout the food system, which enables them to:

- Inform and strengthen the content of food systems education and training
- Bring experience and collaborative partners to the research process
- Lead and advocate for changes in organizational and public policy

Policy



RDNs and NDTRs can advocate for and evaluate organizational and public policies, including:

- Curriculum and credentialing decisions related to sustainable food and water systems education and training
- Research priorities and budgets within organizational plans or legislative appropriations
- Decisions that affect the daily activities of practitioners in all settings, including funding of programs

Cultivating Sustainable Food and Water Systems: A Nutrition-Focused Framework for Action

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Improve food and nutrition security and water security

Why is this important?

Malnutrition is critically linked with hunger and food insecurity.

These issues are also connected to water security. We need clean, safe water for drinking, sanitation, and agriculture.

Sustainability underpins many concerns related to the availability, access, utilization, and stability of food and water supplies.



education



research

Developing familiarity with existing programs that provide benefits and services to underresourced individuals (including federal, state, and municipal programs)

What could this entry point look like? A few examples:

Using food security screening tools and other instruments to assess the extent of food and nutrition insecurity among specific populations



practice

policy

Leading, supporting, and advocating for new services to meet the needs of underresourced individuals (e.g., food pharmacies, mobile markets)

Bringing nutrition expertise to food policy councils and other coalitions that can advocate for policy changes that affect structural factors such as poverty and built environments

- Nutrition scientists
- Food scientists
- Nutrition associations and practitioners
- Medical associations and practitioners
- Government agencies and policymakers
- Food producers, including:
- Crop, livestock, and marine producers
- All scales of production
- A diversity of production methods
- Rural, peri-urban, and urban settings
- Agricultural laborers
- Extension and advisory service agents (including) Cooperative Extension Service, agricultural extension)
- Farm bureaus, commodity and trade organizations
- Government agencies and policymakers
- Scientists, including specialists in agronomy, agricultural economics, climate, environmental science, animal nutrition and health, zoonotic disease
- Input producers and suppliers
- Agricultural technology and biotechnology companies
- Communities of and near food producers (in both rural and urban settings)
- Bioethicists

Educators at all levels

- Culinary community
- Specialists in communications,
- messaging, and marketing Social and behavior change communications strategists

Improve food and nater security and water nutrition ba. ba. ba. ba. ba. Shape and deliver Collaborators common to all entry points: Other credentialed nutrition and dietetics practitioners from around the globe Scientists from all domains of sustainability: Nutrition and health Environment, including research on

food production and its impacts Economics

- Social, cultural, and ethical capital
- Government agencies and policymakers
- Healthcare and culinary professionals
- Business and communications specialists The technology sector
- Social and behavior change strategists
- Organizations that can ensure accountability for equity, ethics, and cultural competence Eaters, caregivers, and communities

Optimize supply chains and food environments

Food producers

Trade associations, including consumer packaged goods organizations

Align food production

and nutrition

- Group purchasing organizations
- Scientists, including specialists in behavioral economics, operations and logistics
- Specialists in communications, messaging, and marketing
- Caregivers

Government agencies and social service programs

- Emergency food assistance and
- food banking organizations
- ▶ Faith-based organizations
- ▶ Food justice, racial equity
- organizations
- Labor organizations
- ▶ Foundations and community-
- based organizations
- Social workers

Reduce waste

- School nutrition programs Commercial and
- noncommercial
- foodservice organizations
- Universities
- Scientists, includina
- specialists in poverty, health disparities

- Food producers and supply chain stakeholders Commercial foodservice, including restaurants and retailers
- Noncommercial foodservice, including hospitals, long-term care facilities, workplaces, and schools
- Food recovery organizations, including food banking organizations, gleaning groups, and new food distribution channels
- Scientists, including specialists in food safety, food science, waste management, water, environmental science, social scientists, behavioral economists
- Developers of new technologies to track and reduce waste of food at the pre- and postconsumer stage

Commercial foodservice, including restaurants and retailers Noncommercial foodservice, including hospitals, long-term care facilities, workplaces, and schools

Processors, manufacturers, and distributors of commodities, ingredients, and food products

- Nutrition scientists
- Food scientists
- Nutrition associations and practitioners
- Medical associations and practitioners
- Government agencies and policymakers

- Educators at all levels
- Culinary community
- Specialists in communications,
- messaging, and marketing Social and behavior change
- communications strategists

Food producers, including:

- Crop, livestock, and marine producers
- All scales of production
- A diversity of production methods
- Rural, peri-urban, and urban settings
- Agricultural laborers
- Extension and advisory service agents (including) Cooperative Extension Service, agricultural extension)
- ▶ Farm bureaus, commodity and trade organizations
- Government agencies and policymakers
- Scientists, including specialists in agronomy, agricultural economics, climate, environmental science, animal nutrition and health, zoonotic disease
- Input producers and suppliers
- Agricultural technology and biotechnology companies
- Communities of and near food producers (in both rural and urban settings)
- Bioethicists

Shape and deliver

Improve food and nut ity and water securition ba. improve toos security and water nutrition voints: security Collaborators common to all entry points: Other credentialed nutrition and dietetics practitioners from around the globe Scientists from all domains of sustainability: Nutrition and health

Environment, including research on food production and its impacts Economics

- Social, cultural, and ethical capital
- Government agencies and policymakers
- Healthcare and culinary professionals
- Business and communications specialists The technology sector
- Social and behavior change strategists
- Organizations that can ensure accountability
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- facilities, workplaces, and schools

Reduce waste

Processors, manufacturers, and distributors of commodities, ingredients, and food products

Sustainable Food Systems Curriculum

Resource: The Academy Foundation's Sustainable, Resilient, and Healthy Food and Water Systems Curriculum

Addresses the question:

What does it look like for dietetics interns and students to learn about sustainable food systems within their clinical, foodservice, and community rotations?



About the sustainable food systems curriculum

Who:

- Developed by 24 subject matter experts convened by Nutrition Dietetics Educators and Preceptors (NDEP), and released through the Academy's Foundation
- Developed for dietetics interns and students, but is adaptable to different settings

What:

- Consists of 12 activities that span seven sectors of the food system
- The 12 activities encompass a total of 120 supervised practice hours
- They can be implemented as stand-alone activities, within rotations, or as a concentration
- Can be modified for different contexts, including virtually

Where:

• <u>https://eatrightfoundation.org/why-it-matters/public-education/future-of-food/sfs/</u>

When:

• Developed 2015-2016, pilot tested 2017-2018 at 19 sites, released online in October 2018



Cross-cutting skills for sustainable food systems work

Skills related to evidence:

- Staying current with an evolving evidence base and upholding standards of evidence-based practice.
- Translating population-level guidance into recommendations that are appropriate for subpopulations and individuals.
- **Communicating** clear, evidence-based messaging with the public on topics that involve complexity, uncertainty, and emotion.



Cross-cutting skills for sustainable food systems work

Skills related to interprofessional collaboration:

- Collaborating as part of an interprofessional team.
- Getting nutrition on the agenda. Ensuring that efforts from other sectors also prioritize nutrition.
- **Being a champion** of critical issues. Collaborating with others who have complementary skills.



Cross-cutting skills for sustainable food systems work

Skills related to systems thinking:

- Thinking about both immediate and **underlying** causes of nutritional issues.
- Initiating collaborative efforts with other sectors, professions, and scientific disciplines to address underlying causes.
- Learning from people with **different perspectives** – whether those are your collaborators, or populations you serve.



Building capacity for food systems more broadly

Within nutrition and dietetics education:

- Harmon and colleagues, 2011: In a survey of 265 dietetics education programs,
 - 68% of educators interested in sustainability, but felt inadequately prepared (1)
- Webber and Sarjahani, 2011: In a survey of 237 dietetic internship directors,
 - 50% incorporated SFS activities, 50% reported interest but lacked time and resources (2)

Within nutrition education for a global workforce to address the SDGs:

- Shrimpton and colleagues, 2014: Framework for building global nutrition capacity requires action at four levels, including system, organization, workforce, and community (3)
- **Fanzo and colleagues, 2015:** From a workshop on building global nutrition capacity (4):
 - **Key skills** include: Multisectoral collaboration, engaging decisionmakers through communication and leadership, and technical skills.
 - **Opportunities** include: Consortia to link universities, more online training for managers, and more hands-on experience for frontline workers

#SNEB2020: What Food Future?

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Building capacity for food systems more broadly

Within public health education:

- Wegener and colleagues, 2015: In a scoping review of SFS-oriented education and training among public health trainees and practitioners, emerging practices included:
 - Curriculum-based considerations
 - Incorporating sustainability into professional competencies
 - Self-reflection related to sustainable food systems

Food systems education more broadly:

- Hartle and colleagues, 2015: In a formative study, found:
 - 82 interdisciplinary food-related undergraduate programs
 - 19 focusing on sustainable agriculture, 15 focusing on food studies or food systems

- 58 interdisciplinary food-related graduate programs
- **Sipos and colleagues, 2008:** Transformative sustainability learning involves head, hands, and heart (cognitive, psychomotor, and affective domains)

⁽¹⁾ Wegener J et al. Education, practical training and professional development for public health practitioners: a scoping review of the literature and insights for sustainable food system capacity-building. Public health nutrition. 2018 Jun;21(9):1771-80. (2) Hartle JC et al. Interdisciplinary food-related academic programs: A 2015 snapshot of the United States landscape. Journal of agriculture, food systems, and community development. 2017;7(4):35. (3) Sipos et al. Achieving transformative sustainability learning: engaging head, hands and heart. International Journal of Sustainability in Higher Education. 2008 Jan 11.

right. and Dietetics Foundation

Questions?

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IMPLEMENTATION OF AN SFS DIETETIC INTERNSHIP ROTATION AT UAA

Leslie C. Redmond, PhD, MS RDN University of Alaska Anchorage

DISCLOSURES

 I have no financial disclosure or conflicts of interest with the material presented herein

RELEVANCE TO ALASKA



• "GROUND ZERO" OF CLIMATE CHANGE

-Arctic is warming twice as fast as the rest of the planet

- Alaskans are already facing the reality of warmer climates, rising sea levels, and changes to subsistence harvests:
 - Reduced populations, invasive species, shifting migration patterns, unpredictable travel conditions, problems using traditional gear and harvest methods, and food processing and storage challenges¹

"WHATEVER IS GOING TO HAPPEN IN THE REST OF THE WORLD HAPPENS FIRST AND TO THE GREATEST EXTENT IN THE ARCTIC. THE ARCTIC IS THE MIRROR OF THE WORLD."

> Dan Endres, National Oceanic and Atmospheric Administration Earth System Research Laboratories Station Chief, Utqiagvik (<u>Smithsonian Magazine</u>)

1. Fall and Kostick (2018)

CASE STUDY: NEWTOK

• RELOCATING AN ENTIRE VILLAGE

- -Region inhabited for over 2,000 years
- Record high temperatures, rising seawater levels, and melted permafrost have resulted in loss of 70 feet of coastline annually
- -Forced to relocate village 9 miles away on higher ground

Newtok residents will be the first Americans to be relocated because of the effects of climate change





Source: NPR

ALASKA FOOD SYSTEM

- LOCAL FOODS
 - Main source is subsistence and personal use gathering 52 million pounds of fish and game each year $^{\rm 1}$
 - Agriculture is growing number of farms increased 30% from 2012-2017
- CHALLENGES TO SUSTAINABILITY
 - Unique food security challenges because of remoteness, high costs of transportation, limited agricultural production, and high reliance on imported food²
 - Less expensive to bring food from Lower 48 than to grow own
 - Ex: cost to grow barley is 75% greater in Alaska vs. Lower 48³
 - Deep dependence on oil for food supply
 - \$1.9 billion spent on buying food produced outside of Alaska³
 - 2/3 of harvested seafood is exported³
- FOOD INSECURITY

- 14% of Alaskans are food insecure, up to 27% in rural villages⁴



Source: Alaska Flour Company





UAA STUDENT CHARACTERISTICS

• ENROLLMENT

-11,879 students-9% are first time freshmen-43% full time

• DIVERSITY

-36% identify as an ethnic minority-58% are non-traditional age (25+)

• FINANCIAL AID



-70% of new students receive financial aid in the form of grants, scholarships, and loans

UAA DI PROGRAM



CHARACTERISTICS

- -Began in 1994 with max enrollment of 4 interns per year
- -Continues to grow, max enrollment now 10 interns per year
- -Focus on rural health care
- Rotations include: rural, clinical, outpatient, food service, management, public health/community
- FOCUS ON SUSTAINABILITY?
 - Nutrition professionals are poised to provide education, resources, and support for sustainable food systems in the midst of global climate change, yet not included in current DI curriculum
 - -Where/how to incorporate this new skillset into existing DI program?

DAILY DEN

- WHAT IS IT?
 - Free student-run meal service within UAA Commuter Student Services
 - Provides one free meal, four days a week to any UAA student
 - Relies on small budget and donations from community
- PURPOSE
 - -Connect
 - -Community
 - -Create



BUILDING A PARTNERSHIP

• POTENTIAL BENEFIT TO DAILY DEN

- -Food safety expertise: Daily Den does not have to comply to regular food service regulations due to technical status as a student club
- -More nutritious meals: nutritional quality of meals was never a priority -Sustainability focus: support local food system, potential cost savings

• POTENTIAL BENEFIT TO DIETETIC INTERNS

- -Interact with students
- -Gain experience in community setting
- -Develop complementary skills

SFS ROTATION ACTIVITIES

• MENU ANALYSIS

-Analyze an existing menu at a foodservice establishment

-Provide recommendations for improvements

-Develop an educational tool to promote the revised menu items

• FOOD PRESERVATION AND FOOD SAFETY WORKSHOP

 Develop and present a workshop on food preservation and food safety techniques using seasonal foods

NUTRITION EDUCATION

 Deliver nutrition education to Daily Den clients with focus on sustainability



UAA Dietetic Internship SFS Rotation at the Daily Den

Week at a Glance Breakdown & Deliverables

Project Planning & Presentation

This time will be designated towards preparing the materials necessary to provide a one hour educational session on a given dietetics topic with an emphasis on sustainability. Topic ideas include:

- How to count macronutrients
- Different diets: Ketogenic, Paleo, whole-foods
- Nutrition Q&A
- From the farm to your table
- Politics of food pricing why are chicken nuggets so cheap?
- Agriculture in Alaska
 - Possibly bring a local farmer to talk about it
- Protein and fitness/sports
- How to read nutrition information
- Why is organic food expensive? Is it worth the expense?
- Mental health and nutrition
- Chronic disease management
- Food chemistry could collaborate with the chemistry club on campus
- How have nutritional facts evolved in the past 100 years?
- Help plan cultural weeks

Collaborations with other organizations or clubs are encouraged and there's a lot of room for creativity. Whatever topic interests you as it relates to dietetics and educating the students about it is fair game!

Deliverables:

• Deliver 1-2 group nutrition education presentations to include lesson plan, handouts, and evaluation

What are the opportunities for improvements related to sustainable food production practices?

- Recycle cans from canned foods.
- Recycle plastics from packaging.
- Date "Opened on..." any leftover ingredients before putting them back in the fridge.
- Procure a dishwasher and multi-use plates/utensils.
- Keep a journal log of how much of certain ingredients were used for some common recipes (e.g. tomato soup, salad) to know the amount needed to be purchased next time the meal is prepared.
- Develop a month-long/ two-months long menu for rotation. It will allow us to have fixed amounts of food to buy and will decrease waste.
- Work towards collaboration with local farmers, bakers, and other food manufactures on
 opportunities of buying locally produced foods at discounted rates.

Recommendations:

- There were no whole grains used in throughout the weekly meals; swap out the white rice for brown rice and/or switch to whole wheat tortillas.
- Add whole grain granola to the fruit salad to make the meal more nutrient dense and increase the caloric content.
- Buy fruits and vegetables while they are in season for a decreased cost, freeze them so they are available for future use.
- Incorporate a small side of fruits/and or vegetables as often as possible; use canned or frozen food items to be more cost effective.
- Add a salsa/pico de gallo to the quesadilla to provide fresh vegetables.
- Add any left-over vegetables, like mushrooms or onions, to the scrambled eggs to increase the variety of vegetables offered.
- Use the donated green beans as a side for the beans and rice dish.

What are the plans for leftovers/reduced food waste for the menu?

Bread can be made into sandwiches later, feta can be used in salads and soups, tomatoes for salad, salsa and on sandwiches, avocado can be used in salads and on sandwiches.

What are the opportunities for improvements related to sustainable food production practices?

- Use California grown avocado as opposed to Mexican grown.
- Use locally grown, Bells Nursery tomatoes when in season.
- If tomato is out of season, replace with hydroponically grown greens and herbs.

What are the opportunities for improvements related to sustainable food production practices?

Some opportunities observed with this menu are as follows:

- 1. To assist in financial aspects, along with sustainability, the Nachos meal (initially recipe supposed to have ground meat) could have replaced the ground meat (store bought) for the canned beans (donation) that were already in the pantry.
- 2. With all meals, including a canned vegetable or fruit (donation) could assist in preventing canned goods from expiring and being thrown away, along with assisting students in meeting the vegetable or fruit intake as specified in the Dietary Guidelines.
- 3. For the seafood meal, it is suggested that meals containing tuna and/or other seafood that is donated be used versus purchasing, since shrimp is typically something that is considered expensive. Such things as a tuna salad or fettucine would be better options as those typically include things that are donated and/or are less expensive to purchase.
- 4. With the Grilled Cheese meal, it is suggested that the sandwich be paired with another food choice(s) to create a more nutritional meal, along with using whole wheat bread versus white. A suggestion would be to make a tomato soup and have a side of beans to provide a vegetable and protein source, all typically can be used via donated goods. Another idea, if possible, is to thicken tomato soup with navy (white) bean with an immersion blender. This would avoid the need for creating a bean dish on the side, and the need for additional ingredients.
- 5. The Meatball and Mashed Potato meal would have been an opportunity to provide a rice or pasta option to fill the need for the grains, along with pairing the mashed potatoes with a canned vegetable or fruit to increase the intake of those food groups.
- 6. Some meals, such as Nachos and Grilled Cheese were high in sodium for one serving. Try to limit sodium to ~700mg per meal. Per the Dietary Guidelines 2015-2020, healthy eating patterns limit sodium to 2300mg per day for an average adult, while those with prehypertension/hypertension are suggested to limit their intake to 1500mg per day.



GOOD FOR THE ENVIRONMENT Compared to conventional

farming, hydroponics:

- Requires less landmass
- Uses 90% less water
- Reduces soil degradation and erosion
- Grown without chemicals, fertilizers and pesticides

GOOD FOR YOU

- Just as nutritious as conventionally grown produce
- Fresh produce year-round
- Reduced risk of foodborne illness

SUSTAINABLE

- Uses fewer resources
- Grows quickly with higher yield
- Supports local economy and food systems
- Minimal carbon foodprint



	Storage	Times 3-5 weeks	GUIDE TO S PRODUCE IN	EASONAL
Milk Cheese Yogurt Poultry Bacon Sausage Lunch Sausage	hard-cooked opened soft, unopened hard, unopened unopened raw cooked raw hamburger cooked raw cooked unopened fully cooked raw/patties smoked breakfast links or patties	1 week 7 days 1-2 weeks 6 months 1-2 weeks 3-5 days 3-5 days 3-5 days 1-2 days 3-4 days 1-2 days 3-4 days 7 days 5-7 days 1-2 days 2 weeks	Early Summer(May - July)• Arugala• Mushroom• Asparagus• Onion• Asparagus• Onion• Basil• Potato• Broccoli• Radish• Chard• Rhubarb• Chives• Rosemary• Collard• Spinach• Greens• Tarragon• Kale• Tomatoes	Late Summer (July - October) Apples Green Blackberry Beans Blueberry Green Blueberry Green Brussel Onion Sprouts Leeks Cabbage Pears Cabbage Peapers Cauliflower Pumpkin Celery Raspberry Chile Snap Pea
Deli salads Soups	unopened unopened cooked, with meat or vegetables added	3-5 days 3-5 days 3-4 days	• Lettuce • Watercress <u>Wir</u> (October Chicoru	 Currants Zucchini <u>hter</u> May) Padicchio
Leftovers (cooked)	pizza, patties chicken nuggets gov; www.fsis.usda.gov; ww mage source: <u>Clipart</u>	3-4 days 3-4 days w foodsafety.gov	EndiveMushroom	SproutsSunchokes



"Several students stopped by the table to check it out. I didn't have a whole lot of people interested in talking, but the handful that did were very interested, asked questions, and one even gave me a high-five regarding the topic."

- Kim, Dietetic Intern class of 2020

"I have also been thinking about your UAA rotation – I got about 5-7 questions on sustainability! I did not expect that! So I think that new sustainability rotation definitely needs evolvement being a set part of the internship."

- Oksana, Dietetic Intern class of 2020





"I was presenting on food insecurity amongst college students and providing info on where students could go to get food if needed. It happened to be right before Thanksgiving, so perfect timing for the topic. The students that I was having the discussion with were actually 3 "middle college" students (high schoolers taking college courses). The three of them started talking to me about how they go hungry and sometimes can't concentrate on school work because of hunger. Even though they live at home with their parents, they understand the struggle their parents are financially in, so they don't discuss it and just stay hungry. They relied on the Den for some of those meals to get them through the day. They felt as if it was a topic that should be discussed more and felt it could be something that a table/class could discuss regularly. I gave them a bag of food donated by the Emergency Food Cache, which made a couple of them slightly emotional and happy. They asked for hugs and went to get their Den meal. It was heart warming, but also an eye opener on how many people are hungry and just don't say anything."

- Kim, Dietetic Intern class of 2020

IMPLEMENTING AN SFS ROTATION

• TYPE OF ROTATION

–Dedicated SFS rotation or incorporate elements into other rotations?

POTENTIAL PARTNERS

-Academic, community, etc.

- STAKEHOLDERS
 - -Who else might benefit from this rotation?

• EXISTING RESOURCES

-Webinars and trainings, programs already in place, campus and community initiatives

• MEASURABLE OUTCOMES

 –KAB related to SFS and dietetics practice, implementation of suggested changes, etc.

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THANK YOU!

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