

Ma Ka Hana Ka `Ike, *Through Working One Learns*

Recommendations for a blended on-farm and virtual undergraduate degree for students on the north shores of Kaua'i, Hawai'i



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Introduction

Through a comprehensive and collaborative research process, we have co-created a paper that offers an in-depth exploration of several interrelated topics pertaining to Hawaiian place-based pedagogy and on-farm experiential learning. The paper begins by providing a detailed background on the Waipā Foundation, an organization located on the North Shore of Kaua'i that is dedicated to preserving Hawaiian cultural and environmental traditions. Following this, we present an overview of Arizona State University's Bachelor of Science program in Sustainable Food Systems, highlighting its relevance as a model for integrating sustainability education with practical, hands-on experiences.

Our research is guided by the following key question: What kind of hybrid higher education program—one that combines online coursework with experiential on-farm training—could best meet the needs of students on the North Shore of Kaua'i? To address this question, we first contextualize Hawaiian pedagogies and place-based learning within the broader educational landscape of Hawai'i. This section delves into how traditional knowledge systems, particularly those rooted in Hawaiian culture, can inform and enrich modern educational practices, providing a foundation for the development of hybrid educational models.

Next, we analyze the distinctions between active and passive learning, emphasizing the benefits of engaging students in hands-on, experiential learning environments. This analysis serves as a precursor to our exploration of practical applications of Hawaiian pedagogies. We provide examples of experiential on-farm learning opportunities, campus-based learning farms, and federal college work programs that embody the principles of "Ma ka hana ka 'ike," an epistemology that translates to "in doing one learns." These examples demonstrate how place-based learning can effectively bridge the gap between academic theory and real-world practice, fostering a deeper connection to the land and community.

In the final sections of our paper, we offer a series of recommendations for designing a hybrid higher education program tailored to the unique needs of students on the North Shore of Kaua'i. These recommendations are divided into two categories: coursework and financial and funding strategies.

In the coursework category, we propose the creation of 'āina-based coursework, including a new concentration titled Ahupua'a Ecology, and suggest modifications to critical course requirements to better serve Hawaiian students. We also emphasize the importance of culturally relevant internship opportunities and the use of online learning

tools to foster a sense of ‘ohana (family) that extends beyond the classroom, incorporating familial and communal perspectives. To illustrate these points, we provide examples of online learning tools, resources available at ASU, and a sample syllabus that demonstrates how to integrate these tools throughout a semester.

The financial and funding strategies section provides insights into potential funding opportunities that could support the integration of Waipā's mission with a Bachelor of Science in Sustainable Food Systems. We summarize USDA NIFA (United States Department of Agriculture—National Institute of Food and Agriculture) grants and other financial resources that could sustain this program. This section also discusses the potential impact of this proposal on the community and the long-term financial sustainability of the program.

By combining traditional Hawaiian knowledge with modern educational frameworks, our research aims to create a hybrid higher education program led in partnership with ASU's School of Sustainability and the Waipā Foundation and that is culturally relevant, academically rigorous, and practically oriented towards the needs of the community on the North Shore of Kaua'i.

Waipā Foundation

The Waipā Foundation was founded in 1994 with the mission of restoring Waipā's natural systems and supporting the health and vitality of communities dependent on their resources. The foundation manages 1,600 watershed acres on the north shores of Kaua'i, Hawai'i. Waipā welcomes lifelong learners from all over Hawai'i and beyond but targets services towards families with multigenerational ties to Kaua'i. Their work is deeply connected to traditional Hawaiian values promoting a connection to the ‘āina (that which feeds us - the land and resources) through the lifestyle of laulima (many hands working together).



A cornerstone of their work focuses on fostering a sense of connection to the ‘āina for the next generation of leaders. Waipā hosts over 100 youth annually through educational hands-on learning programs after-school, on weekends and during school breaks. They also offer internship and summer employment opportunities for older youth.

Their community centered programming includes a weekly poi day and farmers market, regular volunteer hours, and a new addition - food and farm tours. Every week, community volunteers grow and process roughly 800 pounds of poi to distribute to the

community at cost ensuring that this culturally important food is available and affordable for the Waipā community. They distribute the poi through a self-serve kiosk and weekly farmers market. The farmers market also features other local vendors and creates an access point for community members to find nourishing culturally significant foods and products.

Through this diverse array of programming, Waipā has become a staple for community learning, fellowship and support. Waipā is enhancing community based economic development while sharing knowledge about food and agriculture. Their youth programs and volunteer events involve environmental monitoring and restoration projects that are significantly improving the health of the stream and riparian areas. Finally, they are preserving culturally significant native plants and ensuring that the land will continue to sustain generations of vibrant communities on the north shore of Kauaʻi.

ASU Bachelor of Science in Sustainable Food Systems

The Bachelor of Science (BS) in Sustainable Food Systems is the fastest growing undergraduate major in the ASU School of Sustainability, which is within the College of Global Futures. The program trains students to understand food-related challenges using a food systems lens, encompassing the many aspects of food and agriculture within an integrated social and environmental context and empowering students to grapple with modern complexities. Currently, the BS degree is offered on the Tempe campus, Polytechnic campus, Downtown Phoenix campus, and through ASUOnline. Coursework includes topics on nutrition science, agricultural production, economics and social justice, as well as an internship, a chosen concentration area, and a culminating project-based course. Career areas for students after graduation include agricultural development and poverty alleviation, community food systems management, food entrepreneurship and marketing, food literacy, public policy and advocacy, and resource management for sustainable food production.

Kauaʻi Access to Higher Learning

A significant barrier to continuing education on the island of Kauaʻi is access to institutions of higher learning. As we seek to create opportunities for educational equity with the recommendations set forth in this project, it is important to include this context. The only accredited collegiate institution on the island is Kauaʻi Community College (KCC), which is a part of the University of Hawaiʻi system. KCC is located in the island's largest city, Lihue. Our target student population at Waipā is located on the north shore, which is upwards of two hours away from Lihue via bus.¹ The Waipā community's relative isolation presents a significant challenge and cost burden to traditional

education models. Our recommendations will cumulatively decrease the transportation gap for this population by blending traditional place-based experiential learning with online instruction so that these prospective scholars need not leave their community to earn a degree. Despite the potential for travel impacts, KCC could be a valuable partner in this project. Presently KCC offers two relevant degree programs, Hawaiian Studies Associate in Arts and a Hawaiian Studies Academic Subject Certificate.²

ASU and Waipā Partnership

Since its start, a strategic priority for the Swette Center for Sustainable Food Systems has been “empowering Indigenous foodways.” It is in this context that Swette Center Executive Director and School of Sustainability Professor Kathleen Merrigan first visited the Waipā Foundation in September 2022 to attend the organization’s Eat the Invasives dinner as a guest of the ASU Foundation. The dinner showcased what chefs – and consumers – can do to address invasive species by harnessing the power of deliciousness,” incidentally another strategic priority of the Swette Center. Merrigan left the event convinced that some sort of partnership with the Waipā Foundation would be advantageous and advance ASU work in Hawai‘i.

Over the course of several conversations and site visits, Waipā Executive Director Stacy Sproat and Merrigan hatched the idea of tailoring a new concentration within the existing ASU BS in Sustainable Food Systems to fit the needs of students on the north shores of Kaua‘i. Two big steps were taken to advance the partnership, understanding that it would take some time to launch a new degree program.

First, in summer 2024 Merrigan provided the Waipā Foundation a subaward of \$9,600 from the USDA NextGen grant that supports paid internships in food and agriculture organizations. As part of the grant commitment, ASU allocates no less than 75% of the funds to students from traditionally underrepresented populations and/or first-generation college students. Given the student population that Waipā serves, this is a very easy threshold to meet and this subaward is dedicated to supporting the hire of student interns who meet the grant criteria.

Second, also in summer 2024, six graduate students enrolled in SFS 595, Organizational Leadership, were assigned the task of working with Merrigan on a capstone project to take the idea of a concentration within the BS in Sustainable Food Systems to the next step – providing the background information, rationale, and curriculum ideas to advance the effort. Herein are the results of that effort.

In deciding upon the concentration of ahupua'a ecology, it may also make sense, as discussed in this paper, to consider how this degree might fit the needs of students on Hawai'i Island in the area around the 'Iole Stewardship Center. 'Iole is also an ahupua'a and ASU leadership is seeking to build an educational partnership with 'Iole as part of the university's investment in the organization. ASU President Michael Crow is one of two ASU representatives on the board of trustees and ASU, University of Hawai'i and the Hawai'i Community Foundation together have assumed ownership of the property.

Theoretical Framework: Indigenous Hawaiian Pedagogies

Overview of Indigenous Hawaiian Pedagogies

Hawaiian pedagogies offer a culturally rooted approach to education that values community, environmental stewardship, and ancestral knowledge. These principles create meaningful and transformative learning experiences for Native Hawaiian students while supporting the preservation and revitalization of Hawaiian culture. The researchers in this paper centered Indigenous Hawaiian pedagogies throughout our recommendations.



Importance of Indigenous Knowledge in Modern Education

Indigenous Hawaiian knowledge offers valuable insights to sustainability and environmental stewardship. Integrating these practices into modern education can provide students with practical skills and ethical frameworks for addressing contemporary environmental challenges. This approach not only enriches the

curriculum but also encourages students to develop a sense of responsibility and connection to the natural world.

Research Design

Research on Hawai'i and Hawaiian pedagogy has often been shaped by external perspectives, which can lead to the marginalization of indigenous knowledge systems, values, and voices. Recognizing and centering Hawaiian indigenous authors in academic discourse is crucial for ensuring that research accurately reflects the lived experiences, wisdom, and cultural practices of Hawai'i, particularly when focusing on specific areas such as on-farm and online learning environments. Honoring these voices goes beyond scholarly integrity; it is an ethical responsibility to respect and uplift the vast body of knowledge that already exists within Hawai'i.

To begin our research, we conducted a thorough review of existing literature on Hawaiian pedagogies, online learning tools, on-farm learning, and experiential education. Understanding that indigenous perspectives are foundational to grasping the complexities of Hawaiian culture and pedagogy, we centered our study on works by Hawaiian indigenous authors. This approach provided us with a nuanced understanding of the cultural and educational practices that have sustained Hawaiian communities for generations. The insights from these authors were instrumental in shaping our recommendations and suggestions, ensuring that our work was both culturally sensitive and academically rigorous.

In addition to the literature review, our research extended to an exploration of existing on-farm learning programs. We sought out examples of programs that have demonstrated success, focusing on those that are deeply rooted in indigenous practices and have been recognized for their effectiveness in fostering both educational and cultural outcomes.



A significant component of our research involved close collaboration with our client partner, Stacy Sproat, the Executive Director at Waipā Foundation. Stacy provided invaluable background and contextual information that informed our recommendations. Her insights ensured that our research was not only aligned with the specific needs and realities of the community but also respectful of the cultural context in which these educational practices are situated.

Research Questions

RQ1: What kind of hybrid higher education program--one that combines online coursework and experiential on-farm training--could best meet the needs of students on the north shore of Kaua'i?

RQ2: How can an online learning environment honor Hawaiian ways of learning and knowing and meet the needs of students on the north shore of Kaua'i?

Literature Review

Indigenous Hawaiian Pedagogies

Indigenous Hawaiian pedagogies are shown throughout Waipā's programming. In "Cultivating Aloha 'Aina Through Critical Indigenous Pedagogies of Place," Kana'iaupuni states that Indigenous Hawaiian Pedagogies encompass a holistic approach to education, emphasizing the interconnectedness of all life forms and the importance of community, environment, and identity in the learning process.³ Unlike Western educational models that often prioritize individual achievement, standardized testing, and linear logic models, Hawaiian pedagogies focus on collective well-being, experiential learning, and the transmission of ancestral knowledge.⁴

Central to Indigenous Hawaiian pedagogies is the concept of 'ohana (family), which extends beyond the nuclear family to include extended family, community members, and even ancestors.⁵ Maureen K. Porter and Nik Cristobal write:

"Piko is another robust concept that encodes many layers of significance in Native Hawaiian worldview and language. It points to the center, or the nexus, of mo'oku'auhau (genealogy, ancestral linkages, intergenerational connections) that span place and time. Having a strong piko enables students to remain centered within webs of relationships that can sustain and uphold them as learners and future community leaders."⁶

This collective approach fosters a supportive and nurturing learning environment where knowledge is shared across generations. The role of kūpuna (elders) is particularly significant, as they are revered as the primary custodians of wisdom and cultural traditions. Elders play a critical role in mentoring younger generations, ensuring that traditional practices and values are preserved and inherited.



Another key element is the land-based learning approach, which emphasizes the profound connection to the land, or 'āina.⁷ Hawaiians view the land as a living entity that provides sustenance and spiritual nourishment.⁸ Educational practices often involve hands-on experiences in natural settings, such as farming, fishing, and navigation, which teach not only practical skills but also instill a deep respect for the environment.⁹ This method reinforces the importance of sustainability and stewardship, encouraging students to live in harmony with nature.

Language and storytelling are also vital components of Indigenous Hawaiian pedagogies.¹⁰ The Hawaiian language, 'Ōlelo Hawai'i, carries cultural and historical significance, and its revitalization is a crucial aspect of educational efforts. Through mo'olelo (stories), mele (songs), and oli (chants), knowledge is passed down in a manner that is engaging and memorable.¹¹ These oral traditions serve as powerful tools for preserving history, teaching moral lessons, and fostering a sense of identity and belonging among learners.

Integrating Indigenous Hawaiian pedagogies into contemporary education systems can enhance cultural diversity, promote sustainability, and foster a more holistic understanding of the world.¹² This inclusion is crucial for creating educational environments that are equitable and inclusive, particularly for Native Hawaiian students, who may feel disconnected from curricula that do not reflect their cultural heritage or values.¹³

Incorporating Indigenous Hawaiian knowledge in the larger education system is a vital step towards addressing the historical and ongoing impacts of colonialism. Colonialism disrupted Indigenous Hawaiian ways of life, marginalizing their languages, traditions, and educational practices.¹⁴ Western education systems were often imposed on Indigenous communities, leading to the erosion of cultural identities and knowledge systems.¹⁵ By recognizing and honoring Indigenous Hawaiian knowledge, educators can help to subvert these historical injustices and support the cultural reconnection efforts of Native Hawaiians.

Across the literature on Hawaiian pedagogies, there is agreement that Indigenous Hawaiian pedagogies offer a rich, culturally grounded approach to education that prioritizes community, environmental stewardship, and the transmission of ancestral knowledge. Indigenous Hawaiian knowledge offers valuable insights to sustainability and environmental stewardship. Integrating these practices into modern education can provide students with practical skills and ethical frameworks for addressing contemporary environmental challenges. By embracing these principles, educators can create learning experiences that are deeply meaningful and transformative for Native Hawaiian students, while also contributing to the preservation and revitalization of Hawaiian culture.

Passive Learning vs. Active Learning

Passive learning is associated with traditional instructor-centered methods, including lectures and reading, and is designed for students to absorb information. Active learning

is a student-centered approach to learning in which students participate in activities and discussions to help better understand the topic.¹⁶ These two forms of teaching approach connect learning and memory with different outcomes.

Historically, passive learning has been an instructor-centered teaching method utilizing repetition, memorization, note taking, and dependent on instructors who pass on information and knowledge. Passive learning can lead to a very surface-level understanding of the key concepts, creating an 'illusion of knowledge' and results in information being stored in short-term memory.¹⁷

Student-centered active learning includes mindful participation in discussions, group or paired sharing of already learned knowledge or feedback, and hands-on practice. Interactive engagement internalizes learning by teaching the material to others or using the Anki (aka flashcard) method.¹⁸ Teaching to their peers allows students to practice connections of learned content, assisting in memory retention. Growing evidence has shown that techniques that get students to participate in the learning process... produce better educational outcomes at all levels.¹⁹ Adaptive learning techniques aid student participation in their learning process, revealing gaps in their knowledge that have prevented a full understanding of the content. By personalizing educational materials to each students' unique learning abilities, adaptive learning bridges these knowledge gaps and improves understanding. Arizona State University's Director of Adaptive Learning Initiatives in EdPlus, Dale Johnson states,

"We used to teach everyone the same thing at the same time. Now, we're connecting the right student to the right lesson. We are changing the structure of higher education from static to dynamic."²⁰

Other dynamic active learning modalities include engaging in problem-based learning, whereby students bring their intention in solving real-life complex problems and oversee their own learning, from setting goals to delivering the output. This setup allows for both a deeper understanding of the content and the opportunity to develop transferable skills that are very valuable during their studies and in their future careers.²¹ Technology provides another avenue for contemporary active learning. Online coursework has expanded options for both instructors and students to participate using various mediums. Although a vast majority of online learning is based on traditional instructor-centered methods (video lectures, reading assignments, quizzes, exams, etc.), there are opportunities for students to submit assignments in video or audio formats. Creativity and personalization of assignments brings entertainment-value to both teachers and students, resulting in long-term memory retention.

21st century teachers have also adapted gaming techniques in educational materials. Gamification is the process of using game mechanics in non-game contexts to engage and motivate individuals,²² utilizing immediate positive feedback encouraging robust participation. One of the most commonly used gamification methods is awarding points for specific behaviors (in learning). The awarded points are often used to provide feedback to the user, define levels, award badges, or create leaderboards.²³ To advance in the content, students must focus on filling gaps in their knowledge, receiving instant gratification for their efforts.

One platform for gamification is advanced technology in Virtual and Augmented Reality offering a first-person view and enhanced immersive learning that brings science, history and math to life. Forbes reported that, “A survey by the XR Association found that 77% of educators believe these technologies ignite curiosity and improve engagement in class.”²⁴ Igniting and maintaining curiosity in higher education is an added value to immersive, adaptive, and experiential learning. Education institutions around the world are more accepting of innovations to battle student disengagement in the 21st century. Arizona State University’s Director of Research in Action Labs, Tom Fikes, states, “If you are in a place that allows (students) to be engaged, or a place that invites (students) into engagement, (students) are more likely to stay, to persist, to retain, and in the case of a University, to graduate and earn a degree.”²⁵

Experiential Learning

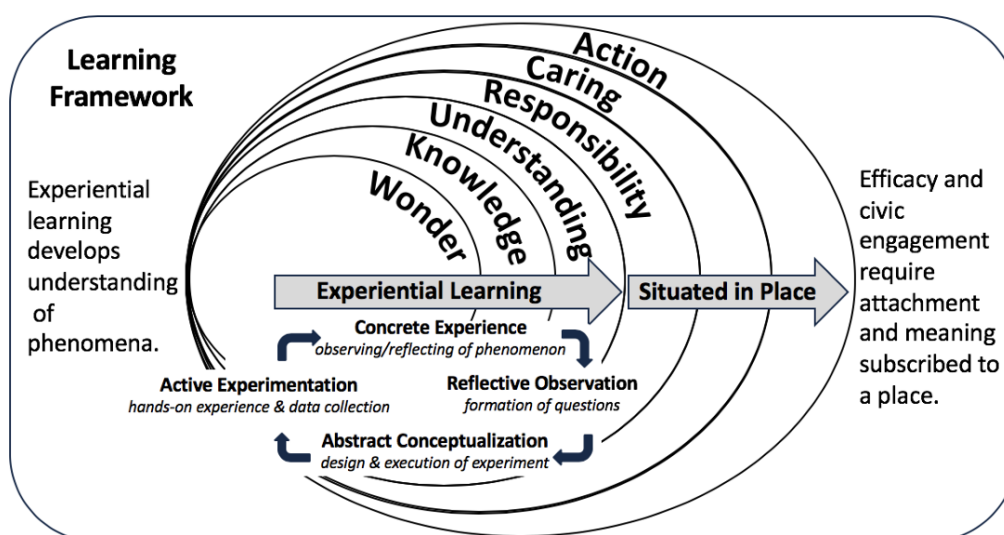
According to the Association for Experiential Education, experiential learning is “a philosophy and methodology in which educators purposefully engage with students in direct experience and focused reflection in order to increase knowledge, develop skills, and clarify values.”²⁶ Experiential learning places students in a semi-structured environment in which instructors take on the role of a facilitator, rather than a director.²⁷ Throughout school, students often ask themselves “when will we ever use this information in real life?” Experiential learning seeks to address this question by giving students direct experiences tied to real-world problems.²⁸ Through experiential learning, students gain the ability to “apply knowledge to complex new problems, the opportunity for creativity and reflection, seeing value in mistakes, and improved attitudes towards learning.”²⁹

The University of California Davis (UC Davis) has created a five-step experiential learning cycle (see Appendix K for UC’s written guide for 4-H). The guide points out that simply participating in an experience is not enough, and that students need to encompass the following elements:³⁰

- “EXPLORATION: ‘Do it’ - students perform the activity with little to no help from the teachers.
- SHARING: ‘What Happened’ - students share their experience and results.
- PROCESSING: ‘What’s Important?’ - students reflect and analyze their experience to pick out common themes
- GENERALIZING: ‘So What?’ - students connect their experience to real-world examples.
- APPLICATION: ‘Now What?’ - students apply what they have learned to similar/different situations.”

This framing of learning focuses on problem solving and critical thinking rather than memorization.

Figure 1



Angstmann, J. L., Rollings, A. J., Fore, G. A., & Sorge, B. H. (2019). A pedagogical framework for the design and utilization of place-based experiential learning curriculum on a campus farm. *Journal of Sustainability Education*, 20.

One subset of experiential learning is place-based, experiential learning (PBEL) theory. Place-based, experiential learning theory has been found to be a successful strategy in K-12 settings for enhancing student content knowledge, engagement, critical thinking skills, and civic-mindedness, especially in the context of school gardens or campus farms.³¹ Angstmann et al. have created a framework for place-based, experiential learning education that they used to incorporate into Food Hub modules of courses at Butler University. All modules are required to:

- “Provide a broad introduction to sustainable or local agriculture that includes the diverse meanings of the farm space for instructor, students, and community;

socio-political and environmental aspects of agriculture; and the role of the campus farm in the local food system;

- Define a sustainable or local agriculture sub-theme that is tied to an authentic, real-world problem;
- Facilitate attachment and meaning to place for life-long learning, with a minimum of 4 hours of class or individual time interacting with the campus farm;
- Frame the module in PBEL theory to enhance critical thinking skills and content exploration via active inquiry;
- Promote personal and civic responsibility for the place by debriefing students via reflective questioning on what happened, what was learned, and how acquired knowledge inspires a personal change.³²

This framework is intended to create an environment that fosters deep place attachment and meaning to a location, such as a campus farm.

Campus Learning Farms

Inclusion of practical on-farm collegiate coursework into curricula at land grant or sustainability programs is a natural fit and is becoming more prevalent at universities. These on-farm enrichment opportunities introduce students to the agricultural field and build a foundation of skills required for advancing careers. Academic literature examining this type of coursework is relatively sparse but does offer a few clues as to their impact. For sustainability programs, on-farm experiences allow students to observe theoretical practices on display in real time, transforming book knowledge into real-world, tested experience. In this way, farm programming reinforces coursework like labs for science degrees.

Fransisca Williamson et al. write about using the campus farm as a tool to enhance socio-environmental change in student populations.³³ This in-depth article conducts a mixed-method study examining the change capacity of place attachment and pro-environmentalism amongst undergraduates within three courses that occurred at a farm place-based experiential learning intervention (PBEL). Authors conclude that the study, though limited, provided supporting evidence for the concept that sense of place and pro-environmentalism are related. Authors suggest that their work provides valuable insights into designing successful sustainability courses at farms or similar educational sites.

Kerri LaCherite examines the breadth of campus agriculture projects by surveying stakeholders via mixed-method survey.³⁴ In her article, LaCherite examines the divergent relationship of campus agriculture projects to traditional land grant agriculture

programs. Her data suggests that agriculture is inheriting new meaning in the context of higher education. Food systems sustainability is affecting university pedagogy at a departmental and institutional level. Her findings show that agriculture is re-inventing itself in the university system to teach sustainability, critical thinking, and as a tool to instill a sense of community. This article builds upon the notions set forth by Williamson, that community and connection to place are foundational to environmental concern.

Damian Parr et. al, begin their article by providing historical context about the land grant university system.³⁵ Parr discusses ways in which sustainable agriculture education and land grant programs have clashed due to the discipline-based versus interdisciplinary approach. Authors describe the process to design a sustainable agriculture curriculum at University of California Davis, due to the emerging belief that sustainable agriculture studies can address environmental and social issues. Surveys were conducted amongst faculty across the US university system, which highlighted a need for students to possess knowledge of natural and social sciences in the context of food systems. Additionally, the study highlighted the need for experiential learning opportunities and diverse applied experiences. Importantly, the study suggested that the pedagogical norms of land grant universities could conflict with the goals of sustainable agriculture initiatives. This work seeks to act as a guide for land grant universities on how to best design sustainable agriculture programs.

Lisa Rathke describes the agricultural program at Green Mountain College.³⁶ While defunct in 2019, Green Mountain College exemplified the on-farm experience. Students took an intensive 13-week program, providing 12 credit hours. This program taught students organic farming theory and application through working on the farm, homework, and research projects. Per the article, many colleges offer similar programs, but Green Mountain provided significant credit for completion, in addition to, the unique ability to work with oxen as a primary tool. Rathke provides a comprehensive overview of this program, in addition to student insights.

Tonia Moxley describes a 2-year Agriculture Technology program at Virginia Tech University.³⁷ The Ag Tech program at VT is the only associate program offered by the university. Students must complete 64 credit hours of both hands on and classroom instruction, with an internship to earn the degree certification. Additionally, program graduates are automatically accepted into a 4-year bachelor's program if they choose to pursue additional education. This program is described as filling the role of the traditional land grant university. Students are even considered for enrollment if they lack the required minimum GPA but have a demonstrated connection to agriculture. The article suggests that VT's program fills a need that community colleges cannot, due to

its size and funding level. This source summarizes the VT program, including student reactions.

Conclusion

In conclusion, the integration of Hawaiian pedagogical principles with active and experiential learning approaches presents a powerful educational model, particularly suited to the unique cultural and environmental context of Hawai'i. The convergence of these approaches in campus farm settings offers a transformative learning experience that prepares students to address complex, real-world challenges while honoring the cultural and ecological heritage of their communities.

Evidence and Examples of On-Farm Learning

The principle of “ma ka hana ka ‘ike,” meaning “in working one learns,” is central to Hawaiian pedagogy and emphasizes the importance of hands-on, experiential learning. This concept is particularly relevant and reflected in various on-farm models where knowledge is gained by direct engagement with farm management and practices. This section delves into the various on-farm educational models, from informal settings, like community gardens and farmer-to-farmer knowledge transfers, to more structured settings, like campus agricultural programs, farm training programs, and apprenticeships. The programs examined were selected for their proven impact in skill development, community engagement, and sustainability. By examining these models, we can understand their critical role in creating and fostering an immersive learning environment for food systems students. The insights gained from this section are essential in justifying the benefits of on-farm course modalities and for building effective educational strategies, particularly for proposed education at the Waipā Foundation, where the integration of traditional knowledge and contemporary learning practices can create impactful, real-world learning experiences.

Ma Ka Hana Ka ‘Ike & Experiential On-Farm and Campus Learning

On-farm experiential farming embodies the Hawaiian pedagogical principle of “ma ka hana ka ‘ike.”³⁸ This approach aligns closely with the experiential education philosophy, emphasizing hands-on learning and direct engagement with the subject matter. In Hawaiian culture, this concept is not just a method of teaching but a way of life, where knowledge is gained through practical application and active participation in activities such as farming. By immersing oneself in the process of planting, nurturing, and harvesting crops, individuals not only acquire agricultural skills but also develop a deep understanding of ecological systems, Hawaiian traditions, and sustainable practices. This section dives into the multiple forms of experiential on-farm learning models.

Informal Experiential On-Farm Learning

Informal experiential on-farm learning refers to learning programs taking place on farms that are not affiliated with formalized learning institutions. The following illustrates the informal settings in which agriculture and land stewardship knowledge is shared. In some cases, there are certifications or approvals earned through the on-farm programming, but none are credit earning opportunities at formal education institutions.

Farmer to Farmer Knowledge Transfer

The desire to build a more sustainable food system will require farmers to have an educational foundation that emphasizes new ways of sustainable farming practices.³⁹ Farmers utilize a diversity of methods for the transfer of knowledge and particularly value local, experiential knowledge.⁴⁰ Farmer networking and the ability to synthesize information from a variety of settings is crucial in changing behavior and adopting new techniques.⁴¹ The traditional linear forms of knowledge transfer will not be adequate to meet the needs of current and future farmers in the dynamic sustainable farming environment.⁴² Two types of farmer-to-farmer on-farm knowledge sharing are further illustrated below:

1. Demonstration Farms:

A successful format for farmer-to-farmer knowledge transfer can be through demonstration. Demonstration farms enable learning to happen in a more social environment conducive to incremental learning, collaboration, interaction, and participation.⁴³ This kind of learning builds skills and trust, both of which are crucial to the retention of information.⁴⁴ For example, when it comes to adopting new technologies, farmers are more likely to incorporate something new if they have seen it demonstrated and understand the economic value of implementation.⁴⁵ A demonstration farm allows for both to take place, the tangible example of the technology and the discussion of benefits.

Spotlight: Genesee River Watershed, New York American Farmland Trust [Demonstration in Farm Network](#)

With support from the Natural Resources Conservation Service, American Farmland Trust has developed a network of farms working to identify the most effective conservation practices in the Genesee River Watershed. This network facilitates farmer to farmer discussions and serves as a platform to share resources, technology and information that enhance efforts to build soil and improve water quality in the region. While farmer dialogue and demonstration are at the core of this network, scientists, conservation organizations, researchers and other agriculture stakeholders benefit from the demonstrations and findings.⁴⁶

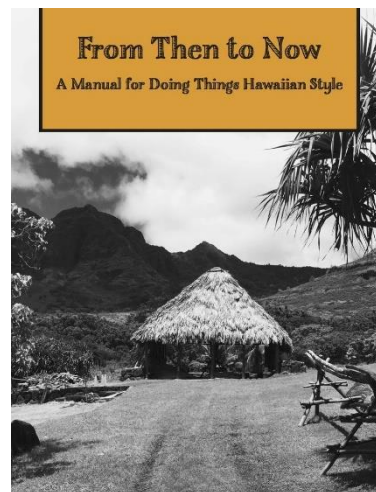


2. Oral History:

Mo'olelo or (Oral-Historical References) are central to sustaining and preserving Hawaiian tradition. Oral history has been crucial to land stewardship across Hawai'i. With language and literacy barriers that exist in Hawai'i and beyond, oral and experiential transfer of knowledge is essential to maintain indigenous farming practices, train the next generation of Hawaiian farmers and introduce new and better ways of sustainable farming.⁴⁷

Spotlight: [Ka'ala Farm](#), Wai'anae, Hawai'i

Ka'ala Farm was established in the early 1970's when a group of youth discovered traditional loi kai fields and set out to restore the land to the traditional and cultural practices of those that came before. Today, the farm is a community pillar and offers educational programming for elementary school students to learn traditional practices like planting kalo, making poi and creating kapa.⁴⁸ Many of these skills are taught by kupuna in the ancient oral tradition, learning as their ancestors would have. Their goal is to continue to connect the community with their cultural heritage and foster the spirit of Hawaiian tradition in new and innovative ways.⁴⁹



K-12 Farm to School

According to the USDA Farm to School Census of 2019, 42.8 million K-12 students are participating in farm to school programming across the country. 30% of these students are participating in farm field trips and another 20% participate in school garden learning.⁵⁰ Such programming has been shown to lead to improved knowledge of food and nutrition, more willingness to try fruits and vegetables and a tendency to make healthier choices at mealtimes for youth who participate in such activities.⁵¹ Farm to school activities receive federal, local and private funding to grow and sustain impactful experiences for students.

The Farm to School Network is a member-based advocacy organization that seeks to increase access to local food and nutrition education to improve children's health, strengthen family farms, and cultivate vibrant communities.⁵² Expanding youth on-farm experiential opportunities is a cornerstone of their work to build educational farm to school activities into the fabric of the school day.

Spotlight: [Friends of Great Kids Farm](#), Baltimore City, MD

The Friends of Great Kids Farm was established to provide experiential on-farm education opportunities for students in Baltimore City Public Schools. On their 33-acre farm, Great Kids hosts field trips, summits, summer camps and family farm hours, all at no cost to Baltimore City students. They have curriculum aligned programming available virtually as well. All programs are in service of their mission to prepare youth to be social changemakers by understanding, engaging with, and co-creating their food system in ways that can improve food security and sovereignty.⁵³

Farm Training Programs

Independent from universities or formalized learning institutions, there are many non-profit agriculture and community organizations that operate farmer training programs. These are mainly targeted at early career adults interested in agriculture, farming and land stewardship. Completion of some programs merits semi-formal, independent certifications or approvals. Commonalities among the programs include cohort learning, immersive, on-farm learning and classroom-based curriculum. Peer learning and network building is encouraged and advertised as a benefit of participation in farmer training programs. The on-farm learning element leaves participants with place-based knowledge, specifically relevant for farming within the same region. The classroom learning is also a crucial component and includes topics like crop planning, farm business management and marketing strategies.

Spotlight: [Organic Growers School](#), Asheville, North Carolina

The Organic Growers school runs a farm beginnings program aimed at training the next generation of farmers to start and build their own successful farm businesses. Active farmers and food systems mentors lead the participants through 200 hours of on-farm lessons, classroom learning, farm field trips and real-world modeling.⁵⁴ By the end of the year, participants build their own farm plan, and receive 15 hours of direct mentorship from experienced farmers. Students build a strong farming network by participating in multiple conferences and becoming a member of the CRAFT Farmer Network. The Organic Growers school is also a member of The Farm Beginnings Collaborative, a national alliance of 13+ farm training programs that are approved by the USDA Farm Service Agency (FSA).⁵⁵ All participants who



complete the Organic Growers School program are Farm Beginnings® graduates which counts as a year of farm management experience when applying for a farmland loan through the FSA.⁵⁶

Farm Apprenticeships

Apprenticeship opportunities are developed around the desire to learn or teach through experience. By observing, inquiring and practicing alongside a professional, one comes to master the skill at hand. Apprenticeships in farming are a particularly effective training format for aspirational farmers and can lead to a long career in agriculture.⁵⁷ Typically farm apprenticeships are 8–12-month commitments, most are unpaid, and some require tuition. Farms typically host small cohorts of apprentices consisting of five to 15 people and programs are led by farmers with at least five years of experience.⁵⁸ Farms offering apprenticeships are required to navigate US Department of Labor law regulations to ensure all formal and informal work arrangements are legal.⁵⁹ A successful apprenticeship in agriculture follows a structured program that includes factors like curriculum mapping, self-guided learning, goal setting and assessments. Setting expectations and executing a shared agreement also makes for a more seamless experience.⁶⁰ The following example illustrates organized apprenticeship opportunities.

Spotlight: National Agriculture Apprenticeship Learning Network (AgALN)

The National Agriculture Apprenticeship Learning Network was founded in 2016 by a collaboration of organizations invested in agriculture apprenticeship learning programs. The network aims to support and professionalize the diverse apprentice opportunities on farms across the country. They have developed toolkits, resources, trainings and mentoring networks to help working farms incorporate apprenticeships in their programming. They administer an annual survey that publicizes the impacts of on farm apprenticeships and host an annual gathering to convene members working towards the same goals. This network is supported by the Tufts University New Entry Sustainable Farming Project and part of the larger effort to support farmers in building strong, sustainable businesses.⁶¹

Community Gardens + U-Pick Farms

While the most informal of all on-farm learning experiences, social farms and community green spaces can lead to a plethora of social benefits for participants. This

type of informal social farming also raises public awareness in agriculture.⁶² Community connection is a key factor in shifting to a more sustainable food system and opportunities like community gardens and U-Pick farms are a great place to start.

Spotlight: [Green Thumb](#), New York City

The New York City Department of Parks and Recreation supports the nation's largest urban garden network, with 550 community gardens across all five boroughs.⁶³ It was established in 1978 as a way to improve vacant and abandoned lots following the city's financial crises.⁶⁴ Today, green thumb gardens are community hubs providing social, economic and environmental benefits. The gardens are managed by community members but supported by Green Thumb with centralized resources and operations to ensure short- and long-term success in all the various spaces. Individual gardens are recognized each year for outstanding work in a variety of categories to include environmental stewardship, building the next generation of gardeners, landscape design, community development, food distribution and public art.⁶⁵

Campus Agricultural Projects

Campus Agricultural Projects (CAPs) are campus farms or gardens where students learn to grow food. CAPs allow students to not only learn agricultural and horticultural knowledge and skills from hands-on learning (i.e., starting seeds in the greenhouse, harvesting produce), but also interpersonal skills (i.e., teamwork and communication) and practical skills (i.e., changing a tire).⁶⁶ CAPs exist to not only teach students about growing food, but also to engage with the community and promote issues of sustainability.⁶⁷

CAPs have grown in popularity exponentially at higher education institutions. In 1992, there were just 23.⁶⁸ Now, there are almost 300.⁶⁹ Most of this growth has occurred outside of land grant institutions as a result of increased student interest in sustainability and the value of experiential and community-based learning.⁷⁰

CAPs operate differently depending on their institutions and situations. Most CAPs are run by a few full-time, year-round staff members and are supported by student workers, student interns, and volunteers. Most CAPs include a mission statement to guide their work. Some examples of CAP mission states are in the following table.

CAP	Mission Statement/Goals
University of Georgia - UGarden	<ul style="list-style-type: none"> • “To empower students to grow their own food by teaching them the principles of organic farming through service and experiential learning. • To share fresh produce with local community members who are facing food insecurity, and to enhance collaboration between organizations pursuing a just and sustainable food system. • To serve as an interdisciplinary research site that provides diverse opportunities for exploration. • To promote leadership development, innovation, and social entrepreneurship among our students.”⁷¹
Duke University - Campus Farm	<p>“The Duke Campus Farm is a one-acre working farm owned and operated by Duke University that provides sustainably-grown produce and food systems education for Duke and its surrounding communities. More important than the thousands of pounds of food that we grow, however, are the opportunities the farm provides for engaging and reimagining the ways we cultivate, access, value, and think about food. Our mission is to catalyze positive change in the food system.”⁷²</p>
University of Minnesota - Student Organic Farm	<p>“The SOF’s mission is to supply safe, quality, organic food into the hands of our students, staff, and faculty members while using sustainable practices that utilize local resources, reflect natural ecosystems, and improve farmland quality.”⁷³</p>
UC Davis - Student Farm	<p>“The UC Davis Student Farm’s mission is to hold a space where students can learn, practice, and model an ecologically, socially, and economically sustainable agriculture and food system. The Student Farm welcomes all students to build this more equitable and just farm and food system by cultivating student initiatives, leadership, experiential learning, and inclusive communities.”⁷⁴</p>

Experiential Learning has become a popular approach to teaching sustainable agriculture and food systems education, especially at CAPs. CAPs are not only spaces to be used for experiential, hands-on agricultural experiences, but they also provide opportunities for food systems service learning.⁷⁵ For example, at the University of Georgia, service-learning courses include a service-learning project during the semester that either employs skills or knowledge learned in the course or teaches new skills or knowledge related to course objectives. Students are involved in the planning and implementation of the projects(s) and may spend time outside of the classroom. Students are engaged in the service-learning component for approximately 50-75% of

overall instructional time. A Sustainable Community Food Production class at UGArden falls under this category. In this class students participate in hands-on, service-learning activities working with local community garden projects.

Courses at CAPs

Most CAPs offer numerous ways to be involved: by volunteering, by joining a garden club, by completing an on-farm internship, or through coursework completed at the farm. CAPs courses focus on a variety of topics, from Sustainable Community Food Systems at The University of Georgia to Ecological and Organic Farming Practicum at The University of Michigan to Garden and Farm-based Experiential Education at UC Davis.

Many CAPs have courses across academic disciplines that utilize their farm space for teaching certain topics or modules. Some universities are using their CAPs not just for agricultural education, but also to cultivate environmental literacy, scientific reasoning, civic action, and place attachment and meaning. Butler University, for example, is using its campus farm (The Farm at Butler) as a learning hub by creating sustainable agriculture research modules to include in a range of Butler courses.⁷⁶ At Yale University's The Yale Farm, an International Environmental Economics class analyzed the embedded carbon in the farm's high tunnel poly covers and compared these metrics



to the carbon burned in produce transport.⁷⁷ Also at The Yale Farm, a Masterpieces of Russian Literature class threshed and winnowed Yale Farm-grown Ukranika wheat by hand for an experiential grounding in the agricultural work described in *Anna Karenina*. They then compared pre-mechanized threshing experience with video footage of mechanized threshing processes that were just taking hold in the timeframe depicted in *Anna Karenina*.⁷⁸ Duke University's Campus Farm takes a similar approach, collaborating with non-agricultural departments to offer courses at the farm such as African American Literature: From Origins to Experimentation and Engineering Design and Communication.⁷⁹ These are just a few examples of how widely differing academic areas can use CAPs as learning opportunities.

Internships at CAPs

Internships at CAPs offer students a more intensive experience than volunteering or a class visit. Most internship opportunities at CAPs require students to do a certain number of hours a week of on-farm work in exchange either for course credit toward their degree program or pay. UGArden at the University of Georgia, for example, offers a semester-long internship program for course credit. Through the internship program at

UGarden, students assist in the operation of a small, sustainable fruit, vegetable farm and herb farm under the direction of the farm director. The students are required to spend 10 hours a week for 15 weeks at UGarden, attend weekly staff meetings, and write a weekly post for the UGarden blog/social media. While there, students learn how to participate in the production and harvest of fruits, vegetables, and herbs; lead and supervise volunteer groups; and safely operate farm equipment and hand tools. The UGarden internship is for credit only. The University of Michigan Campus Farm also offers a paid internship program, but theirs is not limited to students at the University of Michigan (although interns must be enrolled in a college). The internship program at the Campus Farm runs full-time throughout the summer, requiring participants to work 40-hours a week. The internship includes a blend of in season farm management responsibilities related to crop production, distribution and sales including weekly work plan development and execution. Further, interns are able to select management focal areas such as Produce Sales & Distribution, Farm Stand, Seeding and Transplant Production, and Wash Pack & Post Harvest Handling. These internship opportunities at CAPs, among others, offer students an avenue to apply knowledge from their coursework and to gain real-life experience in farming and food systems.

Overview of Federal College Work Programs

Federal College Work Programs were established in 1964 by Congress as part of the Federal Work Study Program (FWSP) set forth by the Economic Opportunity Act of 1964, later included into the Higher Education Act of 1965.⁸⁰ As of 2020, the FWSP has grown to \$1.2 billion, employing nearly 600,000 students.⁸¹ The FWSP was created by Congress to provide grants for lower income students to reduce educational expenses and debt loads.⁸² Work Colleges are designed as four-year programs granting students degrees while integrating work into their college experience. The college work programs utilize community involvement to provide and encourage a work-learning program designed to provide relevant knowledge and skills to the degree program. A study by Columbia University suggests that participants of FWSP are 3.2% more likely to graduate and 2.4% more likely to find jobs upon graduation, however, the study also noted that participants are more likely to take on student debts.⁸³

One kind of FWSP is work colleges, although they predate the 1964 law. Work colleges are made possible through community involvement and financial support through donations, federal funding, and legacy real estate wills. In this section, two different federal work programs are analyzed in detail including program function, goals, outcomes, and funding. An additional two federal work colleges are introduced for their commitment to sustainable agriculture.

Model 1: Berea College

For nearly 130 years, Berea College has been paying for students' tuition. As student debt disproportionately impacts economically disadvantaged families, students attending Berea College graduate without paying any tuition. The Labor Program provides students relief from economic stress and provides benefits to educational, social and spiritual needs.⁸⁴ The Labor Program at Berea College is a monumental solution to guiding students' success while contributing to the cost of education and providing valuable work experiences serving the communities and Berea. The basic principles and functions of the Labor Program have allowed Berea College to be a self-sustaining institution allowing students to grow their own food and build and sustain their own livings.

Labor Work Program

All students are required to hold a primary labor position in which they are able to fulfill the duties and responsibilities of the Labor Program.⁸⁵ Each student attending Berea must contribute a minimum of ten hours of dedicated work for the College per week.⁸⁶ The primary labor positions are assigned in different increments based on the academic term (fall, spring, or summer).⁸⁷ The increments are given in sets of ten hours, twelve hours, fifteen hours, or 20 hours based on the student's ability, interests, department allocation, and classification.⁸⁸ Payment for positions if funded is based on the Work-Learning-Service Levels (WLS) pay chart (Appendix C). To qualify for pay levels from level 5 and 6, a 15-hour commitment is required.⁸⁹ Students enrolled during the fall and spring semesters are not allowed to work more than 40 hours per week.⁹⁰ However, during the summer semester, working more than 40 hours per week may be possible.⁹¹

For new students, new positions are available in an internal shared online location.⁹² Each labor department is required to post positions descriptions including the work performed, qualifications, and the learning opportunities available.⁹³ The Career Development Office, the Labor Program Office, and the students' academic advisor are available to support the students and offer consultations and advice.⁹⁴ Students may be required to prepare a job application or a resume for the desired program. Each student will go through a hiring process that will resemble the same hiring position as that of an off-campus job and be expected to go through an interview process.⁹⁵

Work Programs Related to Agriculture

Berea College boasts operation of the oldest continually operated education farm in the US, founded in 1871, and the farm celebrated its 150th year in operation in 2021.⁹⁶ As a part of the work program, students can elect to work in several distinct categories which include livestock, horticulture, composting, and pasture management/field crop.⁹⁷ Students can even work their way up to manage various components of the farm

enterprise as student managers.⁹⁸ Certified Organic fruits and vegetables are grown on over five acres, for sale to the dining hall and farm store.⁹⁹ The Berea Department of Agriculture and Natural Resources, operates the farm as a model for sustainable agriculture so that the farm becomes a living laboratory for students enrolled in applicable courses of study.¹⁰⁰

Funding

A main portion of financial aid at Berea College comes from the Student Labor Program. The Labor Program offers a work scholarship which is available to students enrolled in the Fall, Spring or Summer semester.¹⁰¹ The scholarship is applied directly to the student's tuition for each semester. For the Fall and Spring Semesters, \$4,500 is applied for each semester.¹⁰² In addition, an allotted amount from the work scholarship is applied to educational and personal expenses.¹⁰³ This amount can range from 2\$,050 to \$3,000 per year.¹⁰⁴ This funding is made possible through the Labor Grant.

Model 2: College of the Ozark

The College of the Ozark (CofO) provides the opportunity for full-time students to work at one of more than 100 campus jobs or industries to help pay for part of their tuition.¹⁰⁵ The remaining portion of the students' expenses is covered through scholarships provided by gifts and contributions from donors. Contributions from donors and the student work program allow students attending CofO to graduate debt free.

Requirements for the student work program require each full-time student to work 15-hours a week totaling at least 280 hours per semester.¹⁰⁶ The work program offers 80 different workstations tailored towards education cost and learning experiences.¹⁰⁷

Work Programs Related to Agriculture

Students are provided an opportunity to get practical experience in the care, management, showmanship and performance testing of registered livestock.¹⁰⁸ Students also gain experience in the processing of milk and meat products and operating and maintaining a feed mill.¹⁰⁹ Some of the divisions offered through the Work Program include:

Agronomy	Pasture renovation, hay production and the production and storage of fodder for silage
Beef Cattle	The College Polled Hereford and Angus herds
Dairy	The W. Alton Jones Holstein herd and College milk processing plant
Feed Mill	Feed production, delivery and general farm projects

Horticulture	Maintaining a teaching orchard, garden, and assisting in plant propagation and tissue culture laboratory
Processing Plant	Harvest, processing, and smoke curing of USDA inspected and approved beef and pork products
Swine	The Mary Straughn Hampshire and PIC/Cargill hybrid herds

Example of Job Description: Agronomy Technician

Appendix D showcases College of the Ozarks' job description for an Agronomy Technician. The job description states that students will work agronomic duties at various farms, possibly requiring weekends. General duties include equipment operation, upkeep, and maintenance, record keeping and upkeep of the farmland and animals, and general visitor relations duties. Students in this role should be dependable, motivated, and in good physical condition (able to lift up to 60 lbs), and would ideally be positive, flexible team players that take pride in the work they will be doing. These duties, when performed at a work college, provide the student with on-the-job experience and training in direct relation to their desired degrees and future careers. The student is able to choose their work with less concern about pay since the job they choose will be able to pay for their degree and offer some sort of benefit for personal expenses as well. This way, a student is able to fully focus on completing schoolwork and learning their work at the same time, without degrading either.

Funding

Students work 15 hours per week, and two 40-hour work weeks during the academic year.¹¹⁰ These hours are applied to the Tuition Assurance, which was \$19,800 annually for the 2022-23 academic year.¹¹¹ These work hours account for \$6,720 of the Tuition Assurance, with state and federal grants, and a scholarship from the College covering the remainder.¹¹² In the case of Berea College, the student work program is mandatory for attendance and fully covers the student's tuition and other expenses. Conversely, the College of the Ozarks student work program only pays for a portion of the student's tuition, depending on donations and gifts to cover any additional costs and expenses. Appendix E provides a line-by-line description of how student aid is distributed.

Additional Agricultural Work College: Sterling College

Sterling College in Vermont is the smallest of the ten federally recognized work colleges, with 126 registered students in 2021.¹¹³ Sterling offers ecological Associate and Bachelor-level degrees, though students can concentrate in the sustainable agriculture and food systems field.¹¹⁴ Students at Sterling are required to log 80 hours per semester or 5 hours per week at campus job placements.¹¹⁵ 30% of campus food

needs are provided directly by the farm, which is then prepared by students working on the culinary team.¹¹⁶ Students at Sterling are able to earn \$1,000 to \$3,500 on average per semester in tuition credits for participation in the work program.¹¹⁷ Formerly, Sterling College partnered with the Berry Center, named for renowned food systems author Wendell Berry, to provide a tuition-free 2-year agricultural program in Kentucky.¹¹⁸ However, as of last year that partnership has ended.¹¹⁹

Additional Agricultural Work College: Warren Wilson College

Warren Wilson College (WWC), in Western North Carolina, like Berea also has a historic farm program dating back to 1894.¹²⁰ Students at WWC have the opportunity to earn a degree in sustainable agriculture and food studies, while working in several food and agriculture related crews from the farm, garden, local foods, campus conservation corps, and community-oriented regeneration efforts.¹²¹ Students working on the farm are able to further refine their interests into general, cattle/sheep, pig, poultry, and marketing/business.¹²² WWC utilizes student-led draft horses to perform the majority of their farm groundwork, in lieu of a tractor as they can grow a majority of the feed for the animals in exchange for valuable soil fertility amendments in the form of manure.¹²³ In this way, WWC exemplifies closing the loop on their farm's inputs. Students at WWC can earn \$6,172 per year in tuition assistance for participation in the work program.¹²⁴ Students are required to work 8 hours per week per semester in their first two years and up to 16 hours per week per semester in years three and four.¹²⁵

Conclusion

Experiential on-farm learning offers invaluable experiences for students to connect to the land, develop agricultural skills, and engage with broader cultural and ecological systems. Whether it's through community gardens, campus agricultural projects, federal work colleges, or apprenticeships, these learning models empower students to meaningfully contribute to sustainable food systems. Based on the reviewed examples, the reformulated BS in Sustainable Food Systems at Waipā could incorporate the following in order to create meaningful, impactful learning experiences that align with the principles of "ma ka hana ka 'ike":

- Emphasize the "ma ka hana ka 'ike" principle by incorporating more hands-on learning opportunities into the curriculum. This could involve practical, on-site experiences such as fieldwork, assisting with farm operations, or community gardening projects directly linked to the BS in Sustainable Food Systems coursework.
- Incorporate traditional Hawaiian agricultural practices and cultural knowledge into the curriculum. Drawing inspiration from programs like Ka'ala Farm, Waipā could

integrate lessons on traditional farming techniques, crop varieties, and sustainable practices that are culturally significant.

- Build partnerships with local farms, community gardens, and agricultural organizations to create real-world learning experiences. Programs similar to those of Friends of Great Kids Farm or Green Thumb could be replicated or adapted to engage students with the local community and food system on the island of Kaua'i. This could be incorporated into courses through site visits.
- Integrate service-learning projects that connect students with local food security and sustainability initiatives, like the Sustainable Community Food Systems course at the University of Georgia. This approach can build practical skills and enhance students' understanding of the impacts of sustainable food systems on their community.
- Explore the potential for work-study models that could be adapted to Waipā and provide students with needed financial support while also gaining practical knowledge and experience. Inspired by the federal work programs, this could help reduce financial barriers while benefiting students learning through hands-on work.

By incorporating these points, a new BS concentration could create a more place-based and culturally aligned educational experience for students on the north shore of Kaua'i.

Recommendations

Coursework

Arizona State University offers a Bachelor of Science degree in Sustainable Food Systems through the College of Global Futures. During this program, students develop skills to understand food and agriculture challenges through the lens of current social and environmental contexts. They have opportunities to explore solutions to real world problems and emerge as agents for change in the food system. The coursework covers a wide range of topics from nutrition science and agricultural production to economics and social justice. The current major map can be found in appendix I. After completing 54 credit hours of critical course requirements, students must select a focus area (soon to become a concentration) that requires five additional classes to be chosen from a list of pre-approved classes that have been deemed suitable for that particular focus area. The current focus areas and example coursework are listed below:

Focus Area	Example Coursework
Procurement	Food Supply Networks (AGB 425), Food Retailing (AGB 370), Ethics of Eating (ASB 370), Food Service Purchasing (NTR 343)
Ecosystem Science	Sustainable Biological Systems (ABS 270), People and Plants (ASB 362), The Living World (BIO 100), Introduction to Urban Planning (PUP 301)
Business + Innovation	Economics of Resource Allocation: Food and Agriculture (AGB 250), Food Advertising and Promotion (AGB 420), Commodity Futures and Options Markets (AGB 435)
Educational Leadership	Human Development (CDE 232), Community Nutrition (NTR 448), Nutrition Management and Leadership (NTR 344) , Leading Organizational Innovation and Change (OGL 355)
Global Engagement	International Management and Agribusiness (ABG 302), World Geography (GCU 121), Geography of Natural Resources (GPH 381), Sustainable Tourism (TDM 480)
Policy and Governance	Ethical and Policy Issues in Biology (ABS 302), Economics and Public Policy (PAF 201), Introduction to Ethnic Studies (JUS 201)
Public Health and Nutrition	Introduction to Global Health (ASB 100), Food and Culture (ASB 300), Maternal and Child Health (ASB 448), Eating for Lifelong Health (HSC 355)

The following section includes a suggested course map with descriptions that offer a place-based and culturally relevant path to fulfilling the online BS in Sustainable Food Systems major. This course map is designed to integrate traditional knowledge and modern practices, emphasizing sustainability, community engagement, and cultural sensitivity. Each course is crafted to reflect the unique environmental, social, and cultural contexts of sustainable food systems, ensuring that students gain a comprehensive and relevant education.

Recommendation 1: Develop an ‘āina-based coursework to enrich the online BS in Sustainable Food Systems major

Online courses that honor Hawaiian ways of learning and knowing can incorporate several key elements of Hawaiian educational practices. Central to Hawaiian learning is the concept of ‘āina-based education, which emphasizes a deep connection to the land and environment. Online courses can integrate virtual field trips, interactive modules on native ecosystems, and projects that encourage students to engage with their local surroundings. For instance, students could participate in community-based assignments that involve mapping local resources, documenting traditional land use practices, or collaborating on conservation efforts, all while sharing their findings through online platforms.

Recommendation 2: Create a new concentration - Ahupua‘a Ecology

Through the Swette Center’s work in Hawai‘i and partnership with the Waipā Foundation, it has become clear that there is an opportunity to address the educational needs of students on the North Shore of Kaua‘i. Students in this community would benefit from a combined on-farm and classroom learning experience where they could stay in their community, focus their degree on Hawaiian studies and lower their college expenses through paid farm work. A concentration centered on Ahupua‘a Ecology could be of great benefit to the students ASU and Waipā intend to reach.

The Hawaiian word Ahupua‘a is a combination of ahu, meaning cairn or pile of rocks, and pua‘a meaning pig.¹²⁶ Ahupua‘a refers to the traditional Hawaiian way of dividing land with consideration for both political and ecological factors. These units of land were designed to ensure self-sufficiency for the community inhabiting it, containing all food, material and cultural needs within its boundaries. Generally speaking, these land divisions extend from Mauka (mountains) to Makai (sea) and create an ecosystem of

traditions, culture, food production and land stewardship that is unique to each Ahupua'a.¹²⁷ An Ahupua'a Ecology concentration would create an opportunity for students working in agriculture on Kaua'i to pursue a blended on-farm and classroom degree in food systems. The following are suggestions for five new courses that could meet the new concentration requirements:

1. *Ahupua'a and traditional Hawaiian food systems*

This course would focus on the food and water systems, land and waste management practices, and the values that drove pre-contact and early colonial food systems in Hawai'i. Students will be challenged to evaluate how the ecology of Hawai'i has been impacted over time.

2. *Anthropology of food in Hawai'i*

This course provides an understanding of the evolution of Hawai'i's foodscape from 1778 to present with a specific focus on the Hawaiian plate and plate lunch. Examining history of dishes, key ingredients and preparation techniques while cooking together and hearing from guest speakers. Students will learn from kūpuna about their memories of plantation communities and food-related stories (experiences with fishing, hunting, farming; family cooking traditions; eating at community gatherings).

3. *Food system infrastructure around Kaua'i*

Students will explore challenges to building a sustainable and culturally relevant infrastructure system to meet the demands of a modern food system. They will analyze traditional systems such as Waipā's poi day and Hui Maka`āinana community fish distribution as well as food hubs and commercial farming and distribution systems. Activities include reviewing current research, field trips to local farms, guest speakers and hands-on, service-learning activities working with local community agriculture projects.

4. *The politics of food in Hawai'i*

Students will be challenged to answer the question: *what food sovereignty means* in the Hawaiian context by understanding the external influences and interdependencies of the current import-dependent food system. They will do so, considering the increasing impacts of climate change and within the current political, economic and social contexts. Students will explore issues related to food sustainability and sovereignty. They will learn how different groups are working toward Hawaiian food sovereignty through visiting food systems stakeholders (farms, agroforestry sites, chefs, vendors, etc.) to learn about the challenges and opportunities to promote local food systems.

5. *Hawai'i's geography and ecology*

Students will learn about the soils, water, and invasive species in Hawai'i. They will engage in a high-level analysis of the natural systems that exist on Kaua'i

island and Statewide by assessing the opportunities and limitations on food production and distribution that they present. Topics will include restoration and invasive species management strategies that are central to Malama Aina, agriculture for food production and animal husbandry.

See appendix F for additional coursework content suggested by the Waipā Foundation.

On-Farm Coursework Modalities

To seamlessly incorporate on-farm coursework into the assessment systems used by ASU virtual students, courses could utilize the following modalities:

1. All coursework should remain organized and administered through Canvas. Students would find syllabus, readings, assignments and grades on this platform as they do with any other virtual course.
2. Each course should require an on-site advisor. This person could also serve as the professor for the course and would collaborate with students and mainland professors to build appropriate content related projects.
3. Professors and on-site advisors could use the following activities to track learning and develop assessments:
 - Relevant readings as assigned by professor/site advisor
 - Farm logs or photo journals
 - On farm experiments
 - Interviews with community members/farm colleagues
 - Community facing blog post submission
 - Internal discussion board posts

Recommendation 3: Make alterations to critical course requirements

To better serve Hawaiian students wishing to pursue a blended on-farm and virtual bachelor's degree in sustainable food systems, the College of Global Futures could consider making the following adjustments to the critical course requirements for students enrolled in the Ahupua'a Ecology concentration. See the following table for a mapping of current critical course requirements and replacement suggestions.

1. *Offering Hawaiian language courses:* The Hawaiian language was the dominant form of communication on the islands until 1898 when the state was subjugated to United States rule and supplanted by English, losing its status as an official language. While Hawaiian, Pidgin and over 100 other traditional dialects continued to be spoken in the home, the prevalence of these languages dwindled. In 1978 Hawaiian was reinstated as an official language and slowly

made its way back into government and public-school settings. Today the language is taught in schools and many efforts are underway to preserve, use and support Hawaiian and other native dialects. Hawaiian is the most studied Native American language, and it is one of the only Native American languages that is used officially by a state government.¹²⁸ At present, ASU does not offer Hawaiian as one of its over 20 language course offerings.¹²⁹ Offering Hawaiian language to students studying ahupua‘a ecology would contribute to their success both during and after the program. ASU could consider partnering with the University of Hawai‘i or an online language provider with Hawaiian expertise, like [Olelo](#), if resources at the ASU School of International Letters and Cultures do not allow for this additional offering.¹³⁰

2. *Farm business coursework:* To better prepare students to pursue successful careers in agriculture and community food systems, the College of Global Futures should consider including farm business management courses in the critical coursework offerings. This type of coursework is common in the farmer training certificate programs and agriculture studies programs across many farms and universities and provides a necessary foundation for students in this sector. The ASU WP Carey School of Business BA in Agribusiness could offer a helpful framework and pre-existing coursework for this major.
3. *Hawaiian History and Humanities:* While all the ahupua‘a ecology concentration coursework will be deeply rooted in the cultures and traditions of Hawai‘i, it would benefit students to have a more holistic understanding of Hawaiian history and how that affects the current political, social and economic dynamics of the region. Partnership with Waipā and other Hawaiian organizations will be critical in development of wholistic, relevant courses in this topic area.

Credit Hour Requirements	Current Critical Coursework	Suggested Equivalents (from ASU Course Catalog)
6	ENG 101 or ENG 102: First-Year Composition OR ENG 105: Advanced First-Year Composition OR ENG 107 or ENG 108: First-Year Composition	Persuasive Writing on Public Issues (ENG 216)
3	SOS 101: Introduction to Applied Mathematics for the Life and Social Sciences (MATH OR MA)	Introduction to Agribusiness (AGB 100)
3	SOS 211: Calculus and Probability for the Life and Social Sciences (MATH)	Economics of Resource Allocation: Food and Agriculture (AGB 250)

3	Social and Behavioral Sciences (SOBE)	Sociology of Race and Ethnicity (SOC 270) Ethnic and Indigenous Lives (ETH 100)
8	Second Language: Requirement satisfied through the following: * Completion of language course(s) at the 102 level.	Hawaiian*
6	Humanities, Arts and Design (HUAD)	Hawaiian History*

**Not currently offered at ASU, partner with relevant organizations in Hawai'i*

Existing Relevant Coursework

The current sustainable food systems major map includes 22 credit hours of skills electives. These are in addition to the focus/concentration area coursework that could be fulfilled by the suggestions above. Students can fulfill this requirement by selecting coursework from a pre-approved list or seeking advisor approval to enroll in a course outside the list. This system has some flexibility to provide an opportunity for students to take more Hawaiian focused coursework.

Similarly, the capstone is a 3 credit pro-seminar course that students take in their final semester. There is flexibility in how to fulfill this course requirement. Students can seek approval to enroll in a course that aligns with their focus area. Currently there are a variety of courses that have been offered that, if offered again and adapted for online learning, could align with an Ahupua'a Ecology concentration. The suggested, relevant course offerings from the school of sustainability are listed below:

- SOS 498: Indigenous Sustainability Solutions
- SOS 494: Indigenous Traditional Ecological Knowledge
- SOS 498: Coastal Resiliency Planning
- SOS 498: Indigenizing Food Systems

Internship Opportunities

To better incorporate on-farm learning throughout the duration of the undergraduate experience, inclusion of internship opportunities should be considered. Internships allow for hands-on skill development with local community organizations. Learning from community experts will better equip students to utilize resources in their own communities after completion of the program.

In its current form, the College of Global Futures allows internships as an elective opportunity. Incorporating internships into the required coursework for the ahupua'a ecology concentration would be an effective way to provide students with more opportunities to engage in hands-on learning. Students may engage in multiple

internships and receive credit for each individual internship experience. A brief overview of the current internship program is outlined below:

Course Number	Credit Hours	Purpose	Requirements
SOS 484: Elective Internship	3	Support the student's internship success through professional development assignments and reflections.	<ul style="list-style-type: none"> - Complete 135 hours of work. - Identify an internship supervisor to submit 2 performance evaluations. - Graded assignments include timesheets, discussion boards and final presentations.

Internship partnerships with the following organizations are recommended:

Community Organizations on Kaua'i	Descriptions - Adapted from Organization's Websites
Hui Maka`āinana o Makana	Our mission is dedicated to perpetuating and teaching the skills, knowledge, and practices of our kūpuna (ancestors) through the interpretation, restoration, care and protection of the natural and cultural resources that are located within the Hā'ena State Park. Hā'ena was designated as the first Community-Based Subsistence Fishing Area (CBSFA) in the State of Hawai'i. They feed families while preserving the cultural traditions of their ancestors.
`Aina Ho`okupu o Kilauea	Facilitating solutions to economic, social, and agricultural/food security challenges that the Kīlauea community and Kaua'i faces.
Limahuli Garden (NTBG)	National Tropical Botanical Garden (NTBG) is a nonprofit with a vision to restore flourishing relationships between plants, people, and places.
Mālama Kaua'i	Since 2006, Malama Kaua'i has been increasing food production and access on Kaua'i for a more resilient community.
Nomilo Fish Pond / Kauai Sea Farms	Kaua'i Sea Farm (KSF) is a Hawaiian family- owned and operated business. The Nomilo fishpond has been in the family for over 100 years. KSF marries modern technology with traditional Hawaiian fishing methods. Our mission is to preserve the integrity, health and well-being of Nomilo fishpond and surrounding coastline while developing sustainable production of shellfish and seafood products.

<p>Common Ground</p>	<p>Common Ground is building a regenerative community around food. It started with planting a tropical agroforest, mimicking a wild forest with multiple tiers of crops, from ‘ulu (breadfruit) to kava, leading to greater biodiversity and more resilience, especially in the face of climate change. Common Ground hopes the agroforest can be a model of regenerative agriculture, a beyond-organic holistic system that builds thriving soil, plants, and humans, with the idea that what is good for one is good for all. This, in essence, is the mission of Common Ground.</p>
<p>Kaua’i Food Hub</p>	<p>The Kaua’i Food Hub seeks to provide fresh exclusively grown or made in Hawai’i products. They are creating a bridge from farmers to residents, restaurants, hotels, hospitals & schools and aim to improve community resilience and food security on the island of Kaua’i through supporting the development of local food systems.</p>

Mainland Immersive Experience

Drawing from the experience of the Sustainable Food Systems Master’s Program: Food and Farm Immersion Course (SFS 561), similar coursework could offer the Waipā students a first-hand look at the broader mainland US food system as embodied by Arizona’s vast desert agriculture. Stacy Sproat, of the Waipā Foundation, expressed how many of the Kaua’i youth rarely get off-island experiences. Offering this type of learning would be critical to opening the students’ world views and expanding their knowledge of the food system beyond Hawai’i. A unique opportunity also exists to create cross-cultural connections to Arizona Indigenous Peoples to compare and exchange ideas on traditional methods of food cultivation.

Recommendation 4: Utilize online learning tools to foster a sense of ‘ohana that extends beyond the learning environment and includes familial and communal stories and voices

Hawaiian culture values collaborative and communal learning, which can be facilitated through online tools that promote interaction and teamwork. Group projects, peer review sessions, and discussion forums can be designed to foster a sense of ‘ohana (family) among students, encouraging them to support and learn from one another. Incorporating storytelling, a vital aspect of Hawaiian knowledge transmission, can also be achieved through multimedia assignments where students create and share digital stories, oral histories, or cultural narratives. By leveraging technology to create

interactive, community-oriented, and place-based learning experiences, online courses can effectively honor and integrate Hawaiian ways of learning and knowing.

The following section provides an overview of just how vital online learning tools became after the COVID-19 pandemic and how they can be utilized to foster a sense of 'ohana within the educational experience. It also includes an example syllabus demonstrating how each tool can be effectively integrated into a semester's coursework. By leveraging these tools, educators can create a supportive, interactive, and culturally relevant learning environment that extends beyond the virtual classroom and nurtures connections among students.

Online Learning Tools & COVID-19

Effective education methodologies shifted during the COVID-19 pandemic when 18 months of remote learning changed students' learning behaviors. During the pandemic, low-income families tended to have less access to reliable internet and devices to access online work compared to high-income families living in the same city. Consequently, children from less privileged households spent fewer hours learning and were more likely to drop out of school. In addition, students in rural areas faced significant tech-support challenges in remote learning compared with students from large cities. Remote learning has increased the learning gap between students, including those with intellectual disabilities who face a more significant challenge.¹³¹

In 2021, the National Institutes of Health conducted a study researching the effect of the Covid-19 lockdown on children's learning performances. Some contributing factors were identified: socioeconomic status (type of household and family income), access to technology, learning environment, quality of innovative remote resources, and teachers' feedback. As a result of the pandemic, new learning strategies have been developed to improve assessment as well as interactive pedagogical tools for improving children's attention, motivation, and willingness to study.¹³² Online learning strategies continue to evolve sophisticated technology to engage student's learning capacity.

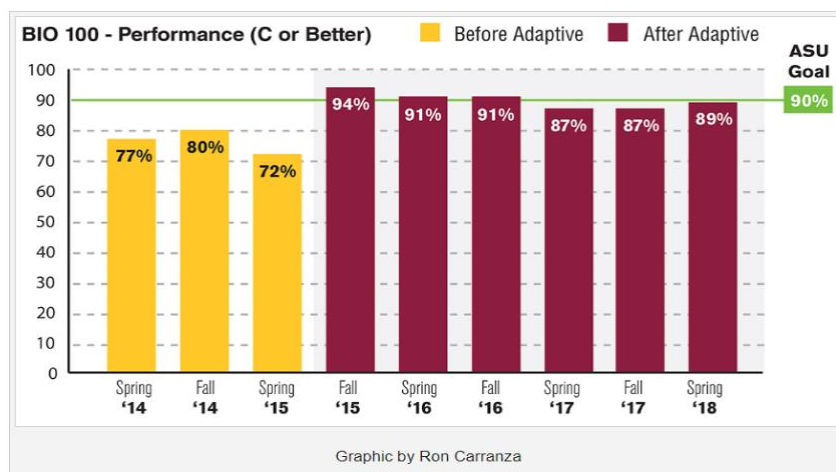
Online Learning Tools & Active Learning

With technological advances in education even the best teachers are challenged to maintain the attention of new cohorts of 'digital natives' and feel the need to find innovative ways to engage them.¹³³ Higher education is no exception. Challenging the traditional learning pedagogies, Michael Crow, President of Arizona State University, describes ASU as "a national laboratory for learning innovation," dedicated to "fundamentally transforming the educational ecosystem to be more inclusive, adaptive and effective."¹³⁴ Adaptive learning has been a central force in student success rates by individualizing each student's learning abilities in order to fill in knowledge gaps. An

innovative method that ASU developed in partnership with CogBooks for its biological science undergraduate degree is an adaptive learning platform called BioSpine. "Whether online or on campus, students using this platform will encounter a "scaffolded" support structure that personalizes each student's learning throughout their four years in the degree program...with a highly interactive format that will adjust to the student's learning needs in real time."¹³⁵ Faculty members can link learning activities to the platform, allowing students to progress through more challenging coursework when they are ready, or to step back and get support in relearning something from a previous course or chapter.¹³⁶

Dale Johnson, Director of Adaptive-Learning Initiatives at ASU, states, "In its first semester, we saw student pass rates, in a nonmajors' Biology 100 course called The Living World, improve by 24% and dropout rates reduce by 90%. This level of success from such a modest investment convinced us we were doing something right.

These results have been replicated at other schools, over multiple years, and have been validated by large-scale, independent studies."¹³⁷



Creating a curriculum that includes adaptive learning is in part how the YouTube content, *Crash Course*, gained popularity through storytelling and empathy. In 2023, content creators Hank and John Green, embarked on a new enterprise, partnering with YouTube and Arizona State University to create [Study Hall](#), an online education initiative that lets high schoolers and other prospective university students earn up to a year of college credit by taking classes online. It is part of YouTube's efforts to make quality education accessible to all — and Green believes it is a powerful opportunity to give high schoolers a taste of college education at an affordable price. "We want to help students understand how higher ed works so they can avoid expensive mistakes," he said, "and we want to help get them some early credits for cheap so the whole journey is just less expensive."¹³⁸

All of the classes, which are designed in conjunction with ASU faculty, can be previewed on the Study Hall YouTube channel and taken in full for just \$25. Once the course is complete, students have the option to pay \$400 to receive transferable college

credit for their work. That tuition is nearly 90% less than they would pay at a private four-year university, allowing recent high school graduates — or current high schoolers planning for their future — to complete an entire year of study without the expense or commitment demanded by a traditional program. “Arizona State University has a lot of experience making systems like this,” said Green. “The credits students get through Study Hall are transferable to hundreds of universities in the U.S.”¹³⁹

To make these courses even more helpful, Study Hall is presenting free, informative series like “[How to College](#)” and “[Fast Guides to Electives and Majors](#)” designed to demystify the college experience for the curious teen and help break down barriers for prospective first-generation students and ensure that college feels accessible to everyone. Concepts that some students may take for granted, like choosing a major or planning for their post-graduation finances, are explained in a way that is clear even to those considering them for the first time. Students who lack this fundamental knowledge have long felt excluded. With Study Hall, access to college information is accessible.



As part of ASU’s innovative approach, in partnership with Google DeepMind, Study Hall is providing students with a first look at experimental new AI tools that have been specially tailored to suit their needs, such as Hallmate, a conversational AI tutor designed to serve as a “virtual TA” for Study Hall courses. Inclusion of these AI tools in Study Hall courses could help further the goal of reducing the cost of education and making it more accessible than before.

Advanced on-line learning technology is a central vision for ASU. Dreamscape Learn, ASU’s digital immersive classroom, is a collaborative partnership with Steven Spielberg’s Hollywood production company, Dreamworks. Virtual Reality technology merges storytelling and science-based observation techniques where students have direct participation in problem-solving in their disciplines, transporting the student into a digital world of hands-on experiential learning.

ASU President Michael Crow states, “We’ve always known there is huge potential to unlock new learning realms for students by merging virtual reality — and all that it empowers educationally and socially — with advanced, adaptive educational experiences. Through Dreamscape Learn, students of all ages can explore completely different worlds and perform complex learning, discovery and problem-solving tasks that they wouldn’t be able to do in a traditional learning environment or lab in a campus setting.”¹⁴⁰ Innovation Learning Labs on the Tempe campus offer a 3-D version of

immersive classes. Students wear goggles, digital tracking equipment, and conduct lessons in rooms draped with projection screens on walls for a fully immersive, 360° viewing experience. Remote on-line students have access to the immersive classes in a 2-D version on computer desk or laptops.

Recommendations for online learning include:

YouTube - Study Hall	Arizona State University, Crash Course, and YouTube have partnered to create video series for navigating college, plus online courses that are eligible for college credit. ¹⁴¹
Hawai'i based online Tutorials, Webinars, Workshops, and Videos	Webpages are free and accessible to anyone. Partnerships with Hawai'i based non-profit organizations are a low cost and an effective way for students to gain native insight from locals and gain credit for Ahupua'a concentration.
Hawai'i Institute of Pacific Agriculture - 'Āina Lessons	This 17-episode series on their website educates on local agriculture, regenerative gardening, tropical starch crop cooking, and increasing food security in Hawai'i with topics on composting, gardening, agroforestry, plant medicine, and cooking techniques with crops like breadfruit, taro, cassava and plantains. ¹⁴²
University of Hawai'i - Advanced Pollinator Training	A YouTube 12-part educational series on local Hawaiian honeybee production and life-cycles, pollination biology, medicinal uses, examples of pollinator decline, and also identification and conservation of Native Hawaiian butterflies. ¹⁴³
He'eia National Estuarine Research Reserve - Hanauma Talks series	He'eia NERR staff and researchers give three public talks on research and development of native fishponds. ¹⁴⁴
Kumukahi	Modern point-of-view and community-based video series of Hawaiian culture and ancestral teachings and pedagogies. From ahupua'a to 'ai pono, loina to lāhui, mo'olelo to mo'okū'auhau—explained by cultural practitioners and community experts from across the pae 'āina who have deep association with place and subject matter. Engaging videos, text pieces, and other educational activities and resources. ¹⁴⁵

Arizona State University - CANVAS	<p>A learning management system and digital learning platform that serves as the landing space for students to access course content, view course announcements, submit assignments, collaborate with peers, and message their teacher.¹⁴⁶</p> <p>Possible media outputs for student assignments include:</p> <ul style="list-style-type: none"> • Videos - TikTok/Instagram style • Audio - Podcast style
Arizona State University - Virtual Reality Dreamscape Learn Immersive Courses	<p>Online and on campus immersive and adaptive classes fulfilling undergraduate general studies courses.</p> <p>Below are on-line virtual classes available for enrollment at ASU:</p>
BIO 100 - The Living World 4 units credit	<p>Explore concepts in general biology, including biodiversity, evolution, cellular biology, molecular biology, ecology, and human anatomy and physiology.¹⁴⁷</p>
BIO 181 - General Biology I 4 units credit	<p>Biological concepts emphasizing principles and the interplay of structure and function at the molecular, cellular, and organismal levels.</p>
BIO 182 - General Biology II 4 units credit	<p>Fulfills the ASU Scientific Thinking in Natural Sciences General Studies requirement.¹⁴⁸</p>
CGF 194 - Climate Science *Fall 2025 Launch TBD units credit	<p>The course allows students to consider complex systems, discover legacies of past decision-making, and envision scenarios of alternative futures and their implications. By the conclusion of the course, students will be able to:</p> <ul style="list-style-type: none"> • Demonstrate an understanding of the earth and its ecosphere, including the measures that indicate their capacities and limits. • Trace historical impacts of a range of socio-economic, political or cultural choices on integrated human-environmental wellbeing. • Envision pathways toward futures characterized by integrated human-environmental wellbeing. • Articulate an approach to addressing contemporary questions or challenges that employs concepts or practices of sustainability. • Fulfills ASU Sustainability General Studies requirement¹⁴⁹

Example Syllabus for New ASU BS in SFS Course

SFS (#TBD): The ahupua‘a and traditional Hawaiian food systems (pre-contact and early colonial period)

Instructor(s)

This course will require an on-site advisor who may also serve as the course professor. This advisor will collaborate with students and mainland professors to develop relevant content-related projects.

Pre-Requisite(s) and Academic Level

Upper-division standing or approval of instructor.

Enrollment Capacity

TBD

Course Description and Objectives

This course will explore the traditional Hawaiian ahupua‘a system, an integrated and sustainable approach to managing land and resources practiced before, during, and after the colonial period. Students will examine the interconnectedness of values, food and water systems, planting techniques, soil management, and waste management within the ahupua‘a.

Through a combination of lectures, fieldwork, and hands-on activities, students will gain a deep understanding of traditional and native plants, including their cultural significance and practical uses. The course will also delve into waterway management, emphasizing the importance of rivers, ponds, and oceans in supporting fishing culture and ecological balance in Kaua‘i.

Course Outcomes

- *History of ahupua‘a*
 - Understand the historical development of the ahupua‘a system, including its role in pre-colonial Hawaiian society, changes during the colonial era, and its relevance and adaptation in modern times.
 - Demonstrate an intermediate level comprehension of the historical, ecological, and sociological aspects of the native Hawaiian ahupua‘a system.
- *Traditional Crop Production and Plant Use*
 - Understand the uses and cultural significance of traditional and native Hawaiian plants.
 - Develop skills in growing native plants for production.
 - Master harvesting, production, and preparation practices for culturally important plants.
- *Waterway Management and Ocean Education*
 - Explore traditional and modern practices for managing waterways in the ahupua‘a system.
 - Learn techniques for fishpond cultivation and the restoration of fishing culture in Kaua‘i.

- Engage with local communities to gain practical knowledge and experience in waterway protection and management.

Course Delivery

This course will be delivered in person at Waipā with field trips to various locations on the island. Assessments will include written papers, discussion board participation and content, and quizzes. Course content and assignments will be accessed online in Canvas, which can be accessed through my.asu.edu.

Assessment Types

To seamlessly integrate on-farm coursework into the assessment systems used by ASU virtual students, this course will utilize the following modalities. All coursework will be organized and administered through Canvas, where students will find the syllabus, readings, assignments, and grades, similar to other virtual courses.

- *Relevant readings* as assigned by the professor/site advisor.
- *Farm logs or photo journals* documenting on-farm activities.
- *On-farm experiments* to apply theoretical knowledge.
- *Interviews with community members and farm colleagues* to gain insights.
- *Community-facing blog post submissions* to share experiences and learning.
- *Internal discussion board posts* for reflection and engagement with peers.

Textbook and Other Relevant Materials

Readings will provided in each module on Canvas.

Grading

TBD

Grading Scale

Points	%	Grade
97 - 100	97 - 100%	A+
93 - 96	93 - 96%	A
90 - 92	90 - 92%	A-
87 - 89	87 - 89%	B+
83 - 86	83 - 86%	B
80 - 82	80 - 82%	B-
77 - 79	77 - 79%	C+
70 - 76	70 - 76%	C
60 - 69	60 - 69%	D

0 - 59	59% or <	E
	-	EN - Failing for Not Participating
		EU - Failing for Incomplete or Partial Participation
	-	XE - Academic Dishonesty

Modules and Content

Module 1: Introduction to the course and course expectations, student introductions

Module Objectives:

- Understand the course structure, objectives, and expectations.
- Familiarize yourself with the key themes and concepts of the course.
- Introduce yourself to your peers and begin building a learning community.

Module 2: History of Ahupua‘a (Pre-Colonial Era)

Module Objectives:

- Gain an understanding of the origins and development of the ahupua‘a system in pre-colonial Hawai‘i.
- Explore the cultural, social, and ecological significance of ahupua‘a in traditional Hawaiian society.
- Analyze how the ahupua‘a system supported sustainable food and resource management.

Module 3: History of Ahupua‘a (Colonial Era)

Module Objectives:

- Examine the impact of colonialism on the ahupua‘a system and traditional Hawaiian practices.
- Understand the changes in land use, resource management, and social structures during the colonial period.
- Discuss the long-term effects of these changes on Hawaiian culture and sustainability.

Module 4: Ahupua‘a Today

Module Objectives:

- Explore the contemporary relevance of the ahupua‘a system in Hawai‘i.
- Investigate how traditional practices have been adapted or revived in modern times.
- Assess the role of the ahupua‘a system in contemporary sustainable food systems and resource management.

Module 5: Hawai‘i’s Food System and Abundance

Module Objectives:

- Understand the components of Hawai‘i’s current food system, including challenges and opportunities.

- Explore the concept of abundance in traditional Hawaiian culture and its implications for modern food systems.
- Discuss strategies for integrating traditional practices into modern agricultural and food systems.

Module 6: Site Visit - [Common Ground Kauai](#)

Module Objectives:

- Observe and analyze the application of sustainable practices at Common Ground Kauai.
- Relate the site's practices to the traditional principles of the ahupua'a system.
- Reflect on how the site visit enhances your understanding of sustainable food systems in Hawaii.

Module 7: Traditional Crop Production

Module Objectives:

- Learn about the traditional crops grown within the ahupua'a system.
- Develop practical skills in cultivating traditional Hawaiian crops.
- Understand the cultural significance of these crops and their role in the ahupua'a system.

Module 8: Traditional Plants: Harvesting and Preparation

Module Objectives:

- Master the techniques of harvesting traditional Hawaiian plants.
- Learn preparation methods for traditional crops, including Poi and Taro.
- Explore the cultural importance of these practices in Hawaiian society.

Module 9: Traditional Plant Uses and Technologies

Module Objectives:

- Investigate the various uses of traditional Hawaiian plants for food, medicine, and other purposes.
- Understand the cultural and spiritual significance of plant use in Hawaiian traditions.
- Apply knowledge of traditional plant uses to contemporary sustainability practices.

Module 10: Site Visit - [Hui Maka'ainana o Makana](#)

Module Objectives:

- Engage with the community at Hui Maka'ainana o Makana to learn about their efforts in cultural preservation and sustainability.
- Observe traditional practices in action and relate them to course content.
- Reflect on the role of community organizations in maintaining traditional knowledge and practices.

Module 11: Introduction to Ahupua'a Waterways

Module Objectives:

- Understand the role of waterways in the ahupua'a system, including their ecological and cultural significance.
- Explore traditional water management practices and their relevance to modern sustainability efforts.
- Analyze the relationship between waterways and food production within the ahupua'a.

Module 12: Fishpond Cultivation

Module Objectives:

- Learn about traditional fishpond cultivation practices in Hawai'i.
- Understand the ecological principles behind fishpond management and their role in food sustainability.
- Explore the cultural significance of fishponds in Hawaiian society.

Module 13: Site Visit - [Nomilo Fishpond/Kauai Sea Farms](#)

Module Objectives:

- Observe traditional fishpond management practices at Nomilo Fishpond and Kaua'i Sea Farms.
- Analyze the integration of traditional practices with modern techniques in sustainable aquaculture.
- Reflect on how this site visit deepens your understanding of fishpond cultivation and its relevance today.

Module 14: Course Wrap Up

Module Objectives:

- Reflect on the key concepts and knowledge gained throughout the course.
- Discuss how the ahupua'a system can inform and inspire modern sustainable practices.
- Evaluate your personal growth and understanding of traditional Hawaiian food systems and their relevance to contemporary issues.

Many ideas for this syllabus were inspired by or taken from a similar course at the University of Hawai'i, West O'ahu titled "SCFS 370: Ahupua'a – Hawaiian Natural Resource Management from Mountain to Sea" taught by Matthew Kekoa Lau. The syllabus for that course can be found [here](#).

Recommendation 5: Implement an Indigenous Hawaiian place-based framework for CAPs

To create Campus Agricultural Projects (CAPs) for Hawaiian students within an Indigenous Hawaiian place-based framework, it is essential to integrate traditional Hawaiian agricultural practices and values. This can include incorporating techniques such as lo'i kalo (taro patch) cultivation, loko i'a (fishpond) restoration, and native plant reforestation. These activities not only provide practical agricultural skills but also reconnect students with ancestral knowledge and sustainable land management practices. By emphasizing mālama 'āina (care for the land), CAPs can teach students the importance of environmental stewardship, community responsibility, and cultural heritage.

Furthermore, an Indigenous Hawaiian place-based framework should include collaboration with local Hawaiian communities, elders, and cultural practitioners who

can offer guidance and mentorship. This partnership ensures that the projects are culturally authentic and respectful of traditional wisdom. Educational activities could involve storytelling, chants, and rituals that convey the spiritual significance of agricultural practices. Integrating these cultural elements creates a holistic learning environment that respects and uplifts Hawaiian traditions.

Additionally, the CAPs curriculum can be designed to align with the seasonal cycles and natural rhythms observed in Hawaiian culture. For example, students can learn about lunar planting calendars, traditional harvesting methods, and the ecological relationships between different species. This place-based approach ensures that students develop a deep, culturally grounded understanding of agriculture that is relevant to their own lives and communities. By honoring Indigenous Hawaiian knowledge systems, CAPs can empower Hawaiian students to become leaders in sustainable agriculture and advocates for their cultural heritage.

Financial Implications and Funding Strategies

The proposed Bachelor of Science in Sustainable Food Systems course of study augmentation for the Waipā initiative is innovative in scope and potential impact. Despite the framework provided by this project, design and implementation will require significant financial resources from Arizona State University (ASU), not to mention any costs incurred by the Waipā Foundation or the student enrollees.

Impact to ASU

Tuition recapture is unlikely to offset the initial investments made by the University, particularly when it is the aim of this project to establish equitable tuition and financial assistance for prospective students. Collegiate online course design and development can range from \$10,000 to \$60,000 per course.¹⁵⁰ For the proposed five course concentration track, Arizona State University can expect to incur costs ranging from \$50,000 to \$300,000 given this estimate. Swette Center Professor and Executive Director, Dr. Merrigan verbally estimated that the course design would likely be on the higher end of this range, with most costs coming from paying professors to create course curricula and recording lectures. While Schiffman's estimate is dated, it provides a starting point for assigning project costs. Given the current inflationary environment, per the US Department of Labor Statistics inflation calculator, Schiffman's costs would likely be more in the range of \$16,000 to \$96,500 per course.¹⁵¹ Therefore, a modern cost estimate would put development of this concentration at a cost of \$80,000-\$482,500. As this is proposed to be a hybrid of hands-on and online learning, faculty augmentation would traditionally require additional investment and hiring of local adjunct professors to oversee the local hands-on programming. Waipā will not require significant infrastructure investment to become positioned for coursework. Despite this, ASU will have to hire an additional adjunct professor staff to manage the hands-on programming at Waipā and potentially to teach proposed online coursework. To offset the startup costs of this proposed course of study, ASU should seek additional funding.

Impact to Waipā Foundation

Stacy Sproat has indicated that the primary need for Waipā with administering this program is personnel to oversee the programming. Funding must offset increases in staff hours or new hires to administer and work with students in carrying out their coursework. Stacy has indicated that \$40 an hour is an acceptable rate for budgeting purposes with a 25% fringe benefit rate.¹⁵² An additional consideration is transportation costs to take students to other partners on the island of Kaua'i for internships or field work opportunities. This support would be to rent or purchase vans and necessary drivers. Depending on potential grant funding allowable costs, the strategy could differ.

Grant Opportunities

Several USDA NIFA (United States Department of Agriculture- National Institute of Food and Agriculture) grants are available, which align with the spirit and intent of this proposal. Unfortunately, RFAs (Request for Applications) for the grants most likely to fit the project narrative have closed for this fiscal year's funding cycle. Potential grantmaking programs with NIFA include the HECG (Higher Education Challenge Grant), NLGC (Capacity Building Program for Non-Land Grant Colleges of Agriculture), and AFRI (Agriculture and Food Research Initiative- Sustainable Agricultural Systems). See Appendix I for Sample Grant Budget Narrative for the HECG program. The United States Department of Education's Office of Postsecondary Education is also a potentially advantageous source of grant opportunities, applicable past funding programs include the Strengthening Institutions Program and the Post-Secondary Student Success Program. Additional non-government grant opportunities are the Kubota Hometown Proud Grant and the Mellon Foundation Higher Learning Grant Program. There is less detailed information on the two private foundation grants, but for the Mellon Foundation an inquiry must be made in order to be invited to submit a proposal.

NIFA grants that offer the greatest financial resources will require partnerships, though this project already features a partnership with the Waipā Foundation. Unless a third partner is identified, funding for NIFA grants would be capped at \$300,000. Potential other collaborators could include Kaua'i organizations listed above as internship sites, the University of Hawai'i, or the Kaua'i Community College. Each grant requires various percentage splits in partner funding, see appendix H for breakdown and key information on each opportunity. Due to ASU's high indirect cost rates, to maximize grant funds, it may be more fortuitous for the Waipā Foundation to be the lead applicant where eligible, with ASU as a supporting partner. No singular grant opportunity will be enough to meet all the proposal's goals, it is recommended to apply to multiple RFAs to bridge the gap. The NIFA grants listed are not mutually exclusive, meaning that it is possible to be awarded multiple in the same funding year.

Financial Sustainability

Another consideration for this opportunity is long-term financial sustainability. ASU may not be particularly inclined to invest in programs without long-term growth potential. Will the prospective students of Kaua'i be interested in this course of study for the long term? Will enrollments grow and be maintained at sustainable levels? Those are but a few of the questions that will need to be addressed moving forward as this concept becomes reality. While ASU is interested in education and innovation, there must be some level of return on its sustained investment. While helpful in establishing the program, grant dollars are ephemeral and not typically available for ongoing operations.

ASU and Waipā will need to market this program to students on Kauaʻi to ensure ongoing enrollment numbers. While not the immediate focus, eventually, the opportunity could extend to students on the other Hawaiian Islands or even the mainland US. Obviously, costs would be greater for students not in the community that surrounds Waipā, but another possibility is a work study program that aids students in room and board. If the interest merited it, ASU or Waipā could invest in dormitory style housing for the semesters that incorporate hands-on coursework.

Impact to Students

As the program passes the start-up phase, grants can support student tuition and costs in the form of stipends or scholarships, depending on a particular RFA. Given this proposal's intent, additional funding should be sought regularly to ensure affordability for the students. Academic equity should be a paramount consideration moving forward. Per the provided tuition calculator at ASU, an out-of-state online student can expect to pay upwards of \$7,719 for the BS in Sustainable Food Systems Degree per semester at 12 credit hours for full-time enrollment. At 12 credits per semester, it will take a student approximately 10 semesters to earn the degree, costing upwards of \$77,190.¹⁵³ That number is only reflective of tuition and no other related educational expenses. This could be a significant cost-burden that many students may not be able to meet without adequate financial aid and support. While many Waipā program students would likely qualify for US Department of Education financial assistance, that determination would be individualized. In the short-term, ASU's existing USDA Next-Gen Grant Program award could be a tool to provide financial support to prospective students.

As discussed in background research for this project, Federal Work College modeling could be used to provide meaningful assistance to students while they learn practical hands-on work skills. It is this earn and learn model that can provide a foundation of practical and theoretical knowledge, while effectively subsidizing the cost burden of education. However, for this to succeed, additional funding would likely still be required. Importantly, implementing a Federal College Work Program model in Hawai'i requires a culturally sensitive approach that honors Hawaiian ways of learning and knowing. Hawaiian culture places a strong emphasis on community, collaboration, and the interconnectedness of all things, which can be seamlessly integrated into the Working College model. One way to achieve this is by incorporating traditional Hawaiian practices and values into the work programs. For example, students could engage in aloha 'āina (caring for the land) activities, such as sustainable agriculture, fish population restoration, and native plant reforestation. These activities not only provide practical work experience but also deepen students' connection to their heritage and the environment, fostering a sense of stewardship and responsibility.

Additionally, Hawaiian ways of learning prioritize experiential and place-based education, which can be reflected in the work-study curriculum. Partnering with local Hawaiian organizations and businesses can offer students opportunities to learn and work within their communities, applying their skills in real-world settings while contributing to local economic and social development. This approach supports a holistic education that values both academic knowledge and cultural wisdom. By integrating traditional Hawaiian values and practices into the Working College model, through the partnership with Waipā and ASU's online BS in Sustainable Food Systems lies the potential to co-create an educational environment that respects and uplifts Hawaiian cultural heritage while providing students with the means to afford their education.

While not a major consideration, the inclusion of an Arizona immersive experience course, like what is provided for the ASU Sustainable Food Systems Master Program would have additional cost complexities. The inclusion of this component would be critical in providing a mainland experience for the Waipā students, that many would not have had. Tuition rates for these types of immersion courses are slightly greater due to the costs incurred on transportation and lodging. Additionally, students would have to secure their own airfare from Hawai'i to Tempe, which can be expensive. The research team feels that this experience would be exceptionally valuable to the Waipā cohort as they would get to see their university in person, as well as connect with Arizona agriculture broadly and notably agricultural systems of the Indigenous Peoples of Arizona. Connecting Waipā students to the rich cultural heritage of the Hopi, Navajo, and other local tribes would be a profound cross-cultural experience. Grant funds could support student transportation costs to ease the initial travel burden, but long-term solutions must be examined.

Conclusion

In conclusion, the integration of Hawaiian pedagogical principles with active and experiential learning approaches presents a powerful and culturally resonant educational model, uniquely suited to the distinct cultural and environmental context of Hawai'i. By converging these approaches within campus farm settings, educators can offer students a transformative learning experience that not only equips them to tackle complex, real-world challenges but also instills a deep respect for and connection to the cultural and ecological heritage of their communities. This model emphasizes the importance of hands-on, place-based learning in higher education, where students actively engage with their environment, embodying the Hawaiian concept of aloha 'āina in their educational journey.

The research presented here explores and expands upon these integrative educational models, offering detailed recommendations for the development of Arizona State University's online Bachelor of Science in Sustainable Food Systems program, specifically tailored for implementation on the North Shore of Kaua'i. These recommendations aim to create a hybrid educational experience that blends the strengths of online learning with the immersive, experiential opportunities provided by on-farm training. By doing so, the proposed program seeks to honor and preserve Hawaiian cultural values while preparing students for leadership in sustainable food systems, both locally and globally.

We recognize that our research and the information presented in this paper may not fully address all the needs and perspectives of students on the North Shore of Kaua'i. This limitation arises from our positionality—our backgrounds, experiences, and the lenses through which we view the world—which inevitably influence the scope and focus of our work. While we have strived to approach this research with cultural sensitivity and a deep respect for the local context, we acknowledge that our outsider perspectives may not capture the full depth and nuance of the lived experiences, values, and aspirations of the Kaua'i community.

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Appendices

Appendix A: University of Georgia UGarden Internship Syllabus

Course Description

This is a field-based course where students assist in the operation of a small, sustainable fruit, vegetable farm and herb farm under the direction of the farm director and manager. Students receive frequent instruction, but often work independently, or in small groups.

Course Learning Objectives

In this course students will learn to:

- Safely operate standard farm equipment and use a wide-range of hand tools
- Demonstrate effective volunteer supervision
- Appreciate the seasonal cycles of a sustainable farm operation.

Intern Expectations

- Work 15 weeks for ~ 10 hours a week (total of 150 hours) during fall
- Term: Jan 8- April 29
- Weekly staff meeting: Time to TBD (counts toward required hrs.)
- Post to UGarden Blog/Instagram at least once a week (7posts)
- Final evaluation: Due by last day of classes
- Final reflection paper: Due by the posted final exam day/time for this class
- Work at least one weekend watering (takes ~2-3 hrs. and counts toward total hrs.)
- Supervise volunteer work groups as needed

Appendix B: University of Michigan CAP Internship Syllabus

Duties

- Organic transplant seeding, watering and care
- Crop planting, weeding, irrigation, pest and disease management
- Organic and ecological soil management
- Small farm-equipment and hand tool use and operation
- Harvest, post-harvest handling, food safety, sales and distribution

Key skills and attributes:

- Candidates should enjoy physical and at times strenuous work, being outdoors, and reaping the physical and metaphorical fruits (and vegetables) of their labor.
- Ability and willingness to work in an inclusive and team-oriented way with diverse audiences, partner organizations, and programs involved with the Campus Farm.
- This position may require a valid driver's license and a motor vehicle record check in order to operate MBGNA vehicles.

Additional Details:

- Internships are full time farm work 40 hours/week, Monday-Friday, from May 1 through August 25 with some required weekends.
- 4 positions available
- Compensation: \$15/hr
- Positions include a blend of in season farm management responsibilities related to crop production, distribution and sales including weekly work plan development and execution.
- Management focal areas for individual interns may include: Produce Sales & Distribution, Farm Stand, Seeding and Transplant Production, and Wash Pack & Post Harvest Handling.
- Potential for continuation part time into fall term exists as do opportunities for possible advancement into student management team roles.
- Internships will follow a scaffolded structure for increasing knowledge, skills and management over the course of the summer allowing increased agency over farm management towards the end of the internship.

Appendix C: Berea College Work-Learning-Service Levels (WLS) Pay Chart

Function Levels	Learning Objectives
<p>Entry Level: WLS 1</p> <ul style="list-style-type: none"> • Unskilled work • Under supervision or structure • Repetitive or routine in training 	<p>Basic Work Habits and Attitudes:</p> <ul style="list-style-type: none"> • Meeting schedules • Under supervision or structure • Meeting standards of performance • Repetitive or routine in training • Efficient use of time • Healthy attitudes toward work and supervision • Working with others • Sharing responsibility • Recognition of importance of work • Learning basic skills and information
<p>Intermediate Level: WLS 2</p> <ul style="list-style-type: none"> • Semi-skilled work • Less direct supervision • Some independent judgment • Semi- independent knowledge of position • Some work variety 	<p>Responsibility and Skill Development:</p> <ul style="list-style-type: none"> • Taking personal responsibility • Application of knowledge to situation • Self-identification of skills, talents, interests, and limitations • Learning and developing confidence in skills • Appreciation of work as a process as well as in terms of product
<p>Skilled Level: WLS 3</p> <ul style="list-style-type: none"> • Skilled work • Little direct supervision • Independent judgment of procedures • Variety and depth • Contributes to improvement 	<p>Creativity and Awareness:</p> <ul style="list-style-type: none"> • Importance of initiative • Awareness of needs • Problem identification • Analytical ability • Problem solving • Role of standards and leadership
<p>Advanced Level: WLS 4</p> <ul style="list-style-type: none"> • Program or skill competence at senior level 	<p>Understanding and Commitment:</p> <ul style="list-style-type: none"> • Understanding relationships between individuals, institutions, and processes

<ul style="list-style-type: none"> • Only general supervision received • Either provides supervision to others or exercises other skills and judgment 	<ul style="list-style-type: none"> • Comprehension of values, realities, and goals • Ability to articulate and interpret observations, experiences, and understanding • Commitment to service essential to the department
<p>Management Level: WLS 5</p> <ul style="list-style-type: none"> • Senior-level autonomy • Makes independent judgments on application of Policy • Accepts management responsibility • High technical or skill training 	<p>Supervision and Management:</p> <ul style="list-style-type: none"> • Understanding of departmental management • Taking responsibility for the effectiveness of others • Awareness of departmental and institutional relationships • Teaching and instruction techniques • Communication and interpersonal skills • Evaluation of workers and procedures
<p>Director Level: WLS 6</p> <ul style="list-style-type: none"> • Assumes program directing role • Significant management responsibility • Substantial supervisory responsibility • Responsible for planning, training, and instruction • Serves as role model for Berea community 	<p>Leadership and Autonomy:</p> <ul style="list-style-type: none"> • Understanding of leadership in community context • Development of responsible autonomy • Ability to transmit values and interpretations to others • Confidence of self-knowledge and value commitments • Living the values of Berea's commitments • High degree of independence

Source: <https://bera.smartcatalogiq.com/en/current/tools/work-learning-service-levels-wls/>

Appendix D: College of the Ozarks Agronomy Technician Description

Required Schedule Flexibility
(1-5 scale with 5 as most flexible): 4

Job Description:

Students will be scheduled to work on agronomic duties at the dairy and at various beef farms. This workstation may require some weekends depending on the field work that is needed at the time. General duties may include: spraying, planting, and harvesting forage crops, maintaining equipment, and fence lines.

Primary duties and responsibilities:

- Operate tractors, brush hog, no-till drill, sprayers, hay mowers, hay rake, balers, baling wrappers, mowers, weed eater and chainsaw,
- Upkeep and maintenance of the above mentioned equipment,
- Keep record of forage pasture growth, chemical application and production,
- Up keep fence lines, electric fences and pastures,
- Communicate with the work supervisor and work well as part of a team.

Secondary duties and responsibilities:

- Set out irrigation,
- Care for animals at various farms when help is needed,
- Build or assist with building fences,
- Talk to visitors and give tours when needed.

Basic Qualifications:

- Ability to learn new skills,
- Dependable, reliable, and responsible,
- Like to be outside in all types of weather,
- Motivated worker,
- General good physical condition,
- Ability to read, write, and communicate,
- Lift 60 pounds,
- Not allergic to plants or dust

Desirable Qualifications:

- Positive attitude,
- Flexible,
- Trustworthy,
- Gets along with others well,
- Can think on the job and apply knowledge,
- Performs quality work and takes pride in a job well done.

Additional Remarks

Students working at the Agronomy workstation may be working at various beef farms, dairy or hay grounds during the week. This will require travel to the various

locations. Students must be safety conscious at all times when traveling to and from work locations and when operating equipment. Students must be trainable and dependable. They must be able to communicate with and work closely with the work supervisor and other students.

Learning Objectives:

The student will:

- Become knowledgeable and demonstrate competencies in soil and land management issues, soil sampling, soil fertility, crop and forage production, and pesticide application.
Learn and perform basic construction, repair and fence-building skills needed to successfully maintain a livestock production operation,
- Learn how to operate and/or show improvement with various pieces of equipment. Equipment may include: tractors, farm truck, weed eaters, chainsaws, brush-hog, hay rake, hay mower, hay baler, hay tedder, skid steer, manure spreader, bale hauling trailer, flatbed trailers and irrigation equipment,
- Learn how to keep adequate production records, including soil fertility, nutrient management, pesticide application and production records,
- Learn and demonstrate the ability to work both independently, and as a team player while at the various school-owned farms and in the Agriculture Department,
- Demonstrate necessary safety skills as they perform various tasks,
- Learn the importance of being punctual and ability to complete and show improvement in various farm duties and chores assigned by the agronomy supervisor,
- Strive to perform all tasks adequately with attention to detail and in a timely manner,
- Strive to cooperate and work as a team not just with each other but also with other Agriculture or campus work stations,
- Exhibit the ability to maintain a clean, safe and orderly work environment at all farms

Appendix E: College of the Ozark Tuition Breakdown

Tuition Assurance for students who receive federal and state aid (2024-2025)		
	Tuition	\$21,800
	C of O Work Program	-7,840
	Pell Grant (based on eligibility)	0 to -7,395
	Supplemental Educational Opportunity Grant (based on eligibility)	-4,000
	Missouri State Grants (based on eligibility)	-2,850
	C of O Tuition Assurance Scholarship	0 to -13,960
	Cash Cost to Student	\$0.00

Tuition Assurance for students who do not receive federal and/or state aid (2024-2025)		
	Tuition	\$21,800
	C of O Work Program	-7,840
	C of O Tuition Assurance Scholarship	0 -13,960
	Cash Cost to Student	\$0.00

*Does not include housing and food, books or Health/Technology/Services fees. Please see the [Costs webpage](#) for more information on these expenses.

Appendix F: Coursework Suggestions from Waipā Foundation

Waipā Draft Course Suggestions

8/3/24

Stacy Sproat & Amber Chong (Waipā Summer Intern, UCLA PhD candidate in Anthropology focusing on food sovereignty)

- A. The ahupua`a and traditional Hawaiian food systems (pre contact and early colonial period).** More focus on systems including values, food and water systems, planting and soil amending, plants, waste management, etc.
- B. The anthropology of food in Hawai'i? The Hawaiian plate and plate lunch.** Understanding the evolution of Hawai'i's foodscape from 1778 to present.
- C. Current food sourcing and distribution systems around Kaua'i.** Analyze traditional type systems like Waipā's poi day and Hui Maka`āinana community fish distribution study to import, food hubs and commercial farming and distribution systems.
- D. The politics of food in Hawai'i.** Land, water, shipping etc. Understanding the external influences and interdependencies of the current import-dependent food system including political, economic and social. Exploring issues related to food sustainability and sovereignty.
- E. Hawai'i's geography and ecology, soils, water, invasive species.** A high-level analysis of the natural systems island and Statewide and the opportunities and limitations on food production and distribution that they present.

B. The Anthropology of Food in Hawai'i

Core inquiries:

- What is a foodscape? How does it relate to local cultural systems?
- What can plate lunch and other "quintessential Hawaiian foods" tell us about Hawai'i's unique cultural history?
- How do we study culture? What methods does this require?

Content objective:

- Identify the key cultural groups and historical processes that have shaped Hawai'i's foodscape, with a focus on the enduring effects of the colonial plantation industry

Skill development objective:

- Develop literacy with qualitative research through review of academic scholarship, food journalism, and digital media
- Evaluate functions of different qualitative methods, with specific attention to usages in food studies

- Build basic proficiency with at least one qualitative method (such as ethnographic observation, document analysis, oral history or interview)

•

Project:

- Conduct a mini fieldwork project that includes:
 - A central research question
 - An explanation of methods
 - A brief writeup describing main themes or findings

Place-based engagement options:

- Site or guest speaker visits focused on plate lunch component, or other popular dish
 - Cook dish together, examining key ingredients and preparation techniques
 - Discuss history of dish and relationship to cultural group(s) in Hawai'i
 - Ex: Kalua pig/laulau and imu, poi versus rice, malasadas
- Q&A's with kūpuna about their memories of plantation communities and food-related stories (experiences with fishing, hunting, farming; family cooking traditions; eating at community gatherings)

D. The Political Economy of Food in Hawai'i

Core inquiries:

- What are the key historical factors that contributed to Hawai'i's reliance on imports for about 90% of its food supply?
- What are the current consequences of near-total import dependency, and what macro-scale structures continue to hinder food self-sufficiency?
- What does *food sovereignty* mean, in the Hawai'i context? How are different groups working toward Hawaiian food sovereignty?

** Along with Course A, Course D might be framed as a precursor to the other 3 courses. The historical background and overview of contemporary issues provides necessary context for the contents of the other courses*

Content objective:

- Examine three levels of Hawai'i's food system: production, distribution, and consumption
- Identify the major structural issues relevant to each level and their connection to US colonialism
 - Production: land and water access; plantation and visitor industries, lasting effects on local agriculture
 - Distribution: shipping system; energy and resource costs; climate change, Covid-19, and the stakes of supply chain disruption
 - Consumption: spatial and economic access constraints; Geography of food retailers and fresh food availability; grocery and meal prices; influences on taste preferences
- Describe important areas of the food system that people are actively working to transform and how their work might relate to the concept of food sovereignty

Skill development objective:

- Reflect on personal food consumption practices in relation to structures outlined above
- Build connections between macro-scale structures and specific challenges surrounding local food production and access, as described by different stakeholders during site and guest speaker visits

Project:

- Keep a food diary that logs food consumed over three days and where each food/ingredient came from (whatever production information is available)
 - Create a reflection (written composition or visual media) on food consumption patterns and how personal habits or preferences might be linked to political and economic structures explored in the course

Place-based engagement options:

- Visit farms and/or agroforestry sites and hear directly from producers about challenges of local food production; learn about their approaches and solutions to limiting import dependency
- Meet with restaurateurs or food vendors prioritizing locally sourced ingredients to discuss the challenges of local food availability, cost, seasonality, etc.; learn about their approaches and solutions to limiting import dependency

Appendix G: Grant Summaries

NIFA Opportunities

Name of Funding Opportunity	<i>HECG (Higher Education Challenge Grant)</i>	<i>NLGC (Capacity Building Program for Non-Land Grant Colleges of Agriculture)</i>	<i>AFRI (Agriculture and Food Research Initiative-Sustainable Agricultural Systems)</i>
Last RFA Deadline Date	March 5, 2024	January 16, 2024	June 6, 2024
Maximum Funding	<ul style="list-style-type: none"> · Planning (\$30,000) · Standard (\$150,000) · Collaborative 1 Partner (\$300,000) · Collaborative 2+ Partner (\$750,000) 	<ul style="list-style-type: none"> · Planning (\$30,000) · Standard (\$150,000) · Collaborative 1 Partner (\$300,000) · Collaborative 2+ Partner (\$750,000) 	\$10,000,000 (Integrated Project inclusive of Research, Education, and Extension)
Funding Duration	<ul style="list-style-type: none"> · Planning (36 Month) · Standard (36 to 48 Month) · Collaborative 1 Partner (36 to 48 Month) · Collaborative 2+ Partners (36 to 48 Month) 	<ul style="list-style-type: none"> · Planning (36 Month) · Standard (36 to 48 Month) · Collaborative 1 Partner (36 to 48 Month) · Collaborative 2+ Partners (36 to 48 Month) 	60 Months
Letter of Intent in FY24	No	No	No
Management Plan	No	No	Yes
Data Management Plan	Yes	Yes	Yes
Logic Model	Yes	Yes	Yes

Mentoring Plan	Yes	Yes (For Stipend and Fellowship Recipients)	Yes
Indirect Cost Cap	30% of federal award	30% of federal award	30% of federal award
Match	No	No	Dollar for Dollar (If Applied Research or Integrated Project and Not National Scope or Commodity Specific)
Partner Funding Split	Collaborative 1 Partner (50% each) Collaborative 2+ Partner (Applicant Must Retain at Least 30% but not more than 70% of award- no listed partner less than 10%)	Applicant Must Retain at Least 30% but not more than 70% of award- no listed partner less than 10%	N/A

US Department of Education Opportunities

Name of Funding Opportunity	<i>Strengthening Institutions Program</i>	<i>Post-Secondary Student Success Program</i>
Last RFA Deadline Date	May 22, 2023 (Open RFA every odd numbered year)	September 25, 2023
Maximum Funding	<ul style="list-style-type: none"> · Individual Project (\$450,000 per year) · Cooperative Arrangement (\$550,000 per year) 	<ul style="list-style-type: none"> · Early Phase (\$4,000,000) · Mid Phase/Expansion (\$8,000,000)
Funding Duration	Up to 60 Months	Up to 48 Months
Indirect Cost Cap	No	8% of Modified Total Direct Cost
Match	No (unless funds are used for an endowment)	Yes (10% can include other federal sources, state, local, or private/in-kind)
Subgrantees	No	Yes
Supplement-Not-Supplant	Yes	Yes

Appendix H: Sample Grant Budget

Sample Project Budget: Ahupua'a Ecology Concentration Program FY25

NIFA- Higher Education Challenge Grant

1. PERSONNEL	FEDERAL REQUEST	MATCH/IN-KIND	TOTAL	NARRATIVE EXPLANATION
<i>Personnel Total</i>	\$0	\$0	\$0	N/A
2. FRINGE BENEFITS	FEDERAL REQUEST	MATCH/IN-KIND	TOTAL	NARRATIVE EXPLANATION
<i>Fringe Benefits Total</i>	\$0	\$0	\$0	N/A
3. TRAVEL	FEDERAL REQUEST	MATCH/IN-KIND	TOTAL	NARRATIVE EXPLANATION
<i>Travel Total</i>	\$0	\$0	\$0	N/A
4. SUPPLIES (Less than or equal to a unit cost of \$4,000. NOTE: Allowable costs are located at 2 CFR Part 200, Subpart E)	FEDERAL REQUEST	MATCH/IN-KIND	TOTAL	NARRATIVE EXPLANATION
<i>Supplies Total</i>	\$0	\$0	\$0	N/A
5. EQUIPMENT	FEDERAL REQUEST	MATCH/IN-KIND	TOTAL	NARRATIVE EXPLANATION
<i>Equipment Total</i>	\$0	\$0	\$0	N/A
6. CONTRACTUAL	FEDERAL REQUEST	MATCH/IN-KIND	TOTAL	NARRATIVE EXPLANATION

6a. Waipa Foundation (Subaward)	\$368,750	\$0	\$368,750	49.2% of Project Award- Personnel 0.5 FTE @ 40\$/Hour x 4 years [\$166,400] + Fringe Rate \$166,400 x.25 [\$41,600] + 10% Indirect Cost [\$33,750] + Student Support Stipends 10 students x \$9,125 [\$91,250] + Student Travel 10 students x \$3,575 [\$35,750]
6b. Additional Partner (Subaward)	\$75,000	\$0	\$75,000	10% of Project Award- Student Work Placement Wages 10 Students X \$7,125 [\$71,250] + 5% Indirect Cost [\$3,750]
Contractual Total	\$443,750	\$0	\$443,750	
7. OTHER	FEDERAL REQUEST	MATCH/IN-KIND	TOTAL	NARRATIVE EXPLANATION
Other Total	\$269,318	\$0	\$269,318	Course Development: 5 Courses x ~\$53,864 = [\$269,318]
8. TOTAL COSTS	FEDERAL REQUEST	MATCH/IN-KIND	TOTAL	NARRATIVE EXPLANATION
8a. Total Direct Costs	\$713,068	\$0	\$713,068	
8b. Total Indirect Costs [or maximum Administrative Costs % allowed]	\$36,932	\$0	\$36,932	\$50,000(subaward 1) + \$50,000 (subaward 2) + \$269,318 (course development) x 10% indirect cost rate
Total costs (Budget categories 7+8)	\$750,000	\$0	\$750,000	

Appendix I: Current Major Map for ASU’s Bachelor of Science in Sustainable Food Systems (On-Campus)

Major Map







2024 - 2025 Catalog Year General Studies Gold

Degree: BS

College/School: College of Global Futures

SUSFOSYSBS

Hide Course List(s)/Track Group(s)

Term 1	0 - 14 Credit Hours Critical course signified by 	Hours	Minimum Grade	Notes
	SOS 101: Introduction to Applied Mathematics for the Life and Social Sciences (MATH OR MA)	3	C	<ul style="list-style-type: none"> SOS 191 or college-specific equivalent First-Year Seminar required of all first-year students. SOS 201 required of all Sustainability transfer students. ASU Language Placement: Only true beginners are eligible for 101-level courses. All other students are required to take a placement or proficiency exam, regardless of prior credit earned. CLEP and AP credit are also viable options for fulfilling the second language requirement.
	SOS 191: Introduction to ASU & SOS for First Year Students OR SOS 201: Introduction to ASU and School of Sustainability for Transfer Students	1	C	
	ENG 101 or ENG 102: First-Year Composition OR ENG 105: Advanced First-Year Composition OR ENG 107 or ENG 108: First-Year Composition	3	C	
	SOS 111: Sustainable Cities (SUST OR (HU or SB) & G)	3	C	
	Second Language: Requirement satisfied through the following: * Completion of language course(s) at the 102 level.	4	C	
	Minimum 2.50 GPA in SFS and SOS.			
	Minimum 2.50 GPA ASU Cumulative.			
	Term hours subtotal:	14		
Term 2	14 - 30 Credit Hours Critical course signified by 	Hours	Minimum Grade	Notes

ENG 101 or ENG 102: First-Year Composition OR ENG 105: Advanced First-Year Composition OR ENG 107 or ENG 108: First-Year Composition	3	C
SOS 110: Sustainable World (SUST OR SB)	3	C
SOS 211: Calculus and Probability for the Life and Social Sciences (MATH)	3	C
Second Language: Requirement satisfied through the following: * Completion of language course(s) at the 102 level.	4	C
Social and Behavioral Sciences (SOBE)	3	
❖ Complete ENG 101 OR ENG 105 OR ENG 107 course(s).		
❖ Complete SOS 110 AND SOS 111 course(s).		
❖ Minimum 2.50 GPA in SFS and SOS.		
❖ Minimum 2.50 GPA ASU Cumulative.		
Term hours subtotal:	16	

- ASU Language Placement: Only true beginners are eligible for 101-level courses. All other students are required to take a placement or proficiency exam, regardless of prior credit earned. CLEP and AP credit are also viable options for fulfilling the second language requirement.
- Join a student club or professional organization.

Term 3 30 - 46 Credit Hours Critical course signified by ❖	Hours	Minimum Grade	Notes
❖ SOS 220: Systems Thinking	3	C	<ul style="list-style-type: none"> Create a first draft resume and start attending Global Futures career-related workshops and lectures.
CHM 101: Introductory Chemistry (SCIT OR SQ) OR CHM 113: General Chemistry I (SCIT OR SQ) OR CHM 114: General Chemistry for Engineers (SCIT OR SQ)	4		
SFS 215: Fundamentals of Sustainable Food Systems (SUST OR L)	3	C	
SOS 212: Systems, Dynamics and Sustainability (QTRS)	3	C	
Humanities, Arts and Design (HUAD)	3		
❖ Complete First-Year Composition requirement.			
❖ Minimum 2.50 GPA in SFS and SOS.			
❖ Minimum 2.50 GPA ASU Cumulative.			
Complete Mathematics (MATH) requirement.			
Term hours subtotal:	16		

Term 4 46 - 62 Credit Hours Critical course signified by ❖	Hours	Minimum Grade	Notes
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NTR 241: Human Nutrition	3	C
SFS 216: The Sustainable Plate (SUST)	3	C
SOS 182: Water Planet (SCIT OR SQ)	4	C
American Institutions (AMIT)	3	
Humanities, Arts and Design (HUAD)	3	
❗ Complete SFS 215 AND SFS 216 course(s).		
❗ Complete SOS 211 AND SOS 212 course(s).		
❗ Minimum 2.50 GPA in SFS and SOS.		
❗ Minimum 2.50 GPA ASU Cumulative.		
Term hours subtotal:	16	

- Get involved with mentorship opportunities to learn from alumni about career paths.

Term 5 62 - 77 Credit Hours Necessary course signified by ★	Hours	Minimum Grade	Notes
SOS 310: Equity, Justice and Sustainability	3	C	<ul style="list-style-type: none"> • Begin exploring internship opportunities and meet with the College of Global Futures Internship Advisor to discuss your interests.
SOS 311: Future Thinking and Strategies	3	C	
SOS 326: Sustainable Ecosystems	3	C	
SOS 327: Sustainable Food and Farms	3	C	
Skills Elective	3	C	
★ Minimum 2.50 GPA in SFS and SOS.			
★ Minimum 2.50 GPA ASU Cumulative.			
Term hours subtotal:	15		

Term 6 77 - 92 Credit Hours Necessary course signified by ★	Hours	Minimum Grade	Notes
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Upper Division Focus Area Course	3	C
Upper Division Skills Elective	3	C
Focus Area Course	3	C
Global Communities, Societies and Individuals (GCSI)	3	
Governance and Civic Engagement (CIVI)	3	
★ Minimum 2.50 GPA in SFS and SOS.		
★ Minimum 2.50 GPA ASU Cumulative.		
Term hours subtotal:	15	

- Students will select one focus area and complete 12 credit hours of courses from that area. Students may also talk with their academic advisor to craft a unique focus area.
- Meet with the College of Global Futures Career Advisor to review your resume and LinkedIn profile.

Term 7 92 - 107 Credit Hours Necessary course signified by ★	Hours	Minimum Grade	Notes
Upper Division Focus Area Course	3	C	<ul style="list-style-type: none"> • Students will select one focus area and complete 12 credit hours of courses from that area. Students may also talk with their academic advisor to craft a unique focus area. • Meet with the College of Global Futures Career Advisor to discuss and refine your career search process.
CGF 484: Internship OR Upper Division Elective	3		
Complete 3 courses: Upper Division Elective	9		
★ Minimum 2.50 GPA in SFS and SOS.			
★ Minimum 2.50 GPA ASU Cumulative.			
Term hours subtotal:	15		

Term 8 107 - 120 Credit Hours Necessary course signified by ★	Hours	Minimum Grade	Notes
SFS 498: Pro-Seminar (L)	3	B-	<ul style="list-style-type: none"> • Students will select one focus area and complete 12 credit hours of courses from that area. Students may also talk with their academic advisor to craft a unique focus area. • Complete an in-person or virtual practice interview.
Upper Division Focus Area Course	3	C	
Complete 2 courses: Upper Division Elective	6		
Elective	1		
★ Minimum 2.50 GPA in SFS and SOS.			
★ Minimum 2.50 GPA ASU Cumulative.			
Term hours subtotal:	13		

Appendix J: Rutgers University Entrepreneurial Agriculture Class Syllabus



COURSE SYLLABUS

COURSE NAME; NUMBER; SEMESTER; MEETING DAYS, TIMES, AND PLACE.

Entrepreneurial Agriculture
11-020-442 Fall 2017
Tuesday/Friday, 9.15-10.35a
Location: Foran Hall Room 138B

CONTACT INFORMATION:

Instructors: Albert Ayeni, Tung-Ching Lee, Christopher Pflaum, Mark Robson, and Bill Sciarappa,
Office Location for Albert Ayeni: Foran Hall Rm 268
Phone for Albert Ayeni: 848-932-6289 Email: aayeni@sebs.rutgers.edu
Office Hours: Tuesday/Friday 11.00a-12.00 noon

COURSE WEBSITE, RESOURCES AND MATERIALS:

- Sakai is the primary mode of communication in this course. Class lectures, announcements and Q&A will be posted regularly throughout the semester
- **Recommended texts:** Lectures will be based on current scientific information drawn from recent Entrepreneurship texts, reputable journal articles and credible/authoritative Internet websites. Textbook to consult:
Alsos, GA, Carter, S., Ljunggren, E., and Welter, F (Ed.) 2011. The Handbook of Research on Entrepreneurship in Agriculture & Rural Development. ISBN 978 1 84844 625 0. Edward Elgar Publishing, Inc., Northampton, MA. 320pp. This textbook will be placed on reservation at the Lucy Chang Library in Foran Hall.01

COURSE DESCRIPTION:

Entrepreneurial Agriculture (EA) is a 3-credit course intended primarily to provide Rutgers' students (junior, senior undergraduate and/or graduate) who have interest in Production Agriculture and Food (PA & F) with the ingredients that are essential to engaging in or setting up of profitable and sustainable PA & F ventures in New Jersey and the Mid-Atlantic United States. Real life field experiences are emphasized and students are engaged in the practical development of their own virtual PA & F enterprise with simulated business and marketing plans. Students will present PA & F project plans to the class. At the end of class the student should be able to develop a potentially bankable and viable small/medium scale PA & F enterprise capable of creating jobs and enhancing community development. Entrepreneurial Agriculture has three modules: Module1: Theoretical principles; Module 2: Practical applications; and Module 3: Student presentations. Successful completion of the three modules earns the student three (3) credits.

LEARNING GOALS:

- Understand how to identify and pursue business opportunities in an area of interest in sustainable production agriculture and food.
- Learn how to develop bankable business and marketing plans for a start-up company in sustainable production agriculture and food
- Acquire the basic elements of small business management skills in the production agriculture and food industry
- Cultivate the leadership qualities and intellectual soundness expected of a successful entrepreneur
- Develop the ability to communicate effectively in front of a live audience

ASSIGNMENTS/RESPONSIBILITIES & ASSESSMENT:

Examinations: There will be two take home exams, each worth 30% of the class grade. Take Home Exams will be short answer questions using a mixture of multiple choice, true/false and short note questions.

Grading: Class performance is based on (i) two Exams (60%), (ii) Class presentation (30%), and (iii) Class participation based on attendance and contribution in class discussions (10%). Student letter grade is awarded based on total score out of 100 points following Rutgers guidelines.

Class presentation: Student teams (2-4 per team) will be formed early in the semester. Each team will work on an entrepreneurship project selected from a list suggested by the instructor at the beginning of class. Each group will give a presentation on the selected project towards the end of semester.

ACCOMODATIONS FOR STUDENTS WITH DISABILITIES

Please follow the procedures outlined at <https://ods.rutgers.edu/students/registration-form>. Full policies and procedures are at <https://ods.rutgers.edu/>

ABSENCE POLICY

Students are expected to attend all classes; if you expect to miss one or two classes, please use the University absence reporting website <https://sims.rutgers.edu/ssra/> to indicate the date and reason for your absence. An email is automatically sent to me.

COURSE SCHEDULE:

Date	Topic	Instructor(s)
Module 1: Background & Theoretical Principles		
Tue. 09/05	Introductions, Course overview, Definitions & Examples (Entrepreneurship, Entrepreneur, Entrepreneurial Success)	Albert Ayeni
Fri. 09/08	State of Production Ag& Food (PA&F in NJ and the Mid-Atlantic)	Mark Robson/Albert Ayeni
Tue. 09/12	Entrepreneurial Ag: What it is and what it is not	Deborah Perez
Fri. 09/15	Business and Marketing Plan Development: Case Studies	Deborah Perez
Tue. 09/19	Rutgers New Venture and Entrepreneurship Office	Christopher Pflaum
Fri. 09/22	Government Policy Impact on PA & F in NJ	Brian Schilling
Tue. 09/26	The Company Incubation Concept: How it works	Diane Holtaway
Fri 09/29	Grant Writing tips for the Young Entrepreneur	Elaine Griffin
Tue. 10/03	Sustainable PA &F: Major factors to consider	Serpil Guran
Fri. 10/06	Field Trip: Grocery Stores (Mainstream & Ethnic); <i>Take Home Exam 1, Due Friday October 13</i>	Albert Ayeni
Module 2: Practical Applications		

Tue. 10/10	Entrepreneurship Opportunities: Food Focussed PA in NJ and Mid-Atlantic Region (Non-processed and Processed)	Bill Sciarappa
Fri. 10/13	Entrepreneurship Opportunities: Non-Food –focussed PA in NJ & Mid-Atlantic Region (Non-processed and Processed)	Nick Polanin
Tue. 10/17	Entrepreneurship Opportunities: Controlled Environment Agriculture	David Specca
Fri. 10/20	The Farmers Market Experience, Rutgers Gardens	Albert Ayeni
Tue. 10/24	Entrepreneurship Opportunities: The Wine Industry	Dan Ward
Fri. 10/27	Entrepreneurship Opportunities: The Turf Industry	Bill Meyer
Tue. 10/31	A Plant Breeder’s Experience with Intellectual Propoerty Commercialization at Rutgers	Joe Goffreda
Fri 11/03	Trends in Food Preferences at Rutgers University	Joe Charette
Tue. 11/07	Entrepreneurship Opportunities: Ethnic Crops	Ramu Govindasamy/Albert Ayeni
Fri 11/10	Entrepreneurship Opportunities: Livestock Industry: <u>Final Take Home Exam. Due November 17</u>	Michael Westendorf/ Albert Ayeni
Sat. 11/11	Field trip to Ag & Food Enterprises in NJ	Albert Ayeni
Tue. 11/14	Entrepreneurship Opportunities: Urban Agriculture	Laura Lawson
Friday 11/17	Entrepreneurship Opportunities: Indoor Crop Cultivation	Albert Ayeni
Tue. 11/21	No Class ---- Thanksgiving travel	
Fri. 11/24	Thanksgiving Weekend	
Module 3: Class presentations*		
Tue. 11/28	Class Presentation Team 1	Albert Ayeni
Fri. 12/01	Class Presentation Team 2	Albert Ayeni
Tue. 12/05	Class Presentation Team 3	Albert Ayeni
Fri. 12/08	Class Presentation Team 4	Albert Ayeni
Tue. 12/12	Class presentation Team 5	Albert Ayeni
Fri. 12/15	Class Review & Evaluation	Albert Ayeni

***Class presentation carries 30% It is focused on the topic selected by each team at the beginning of class.**

FINAL EXAM/PAPER DATE AND TIME

There is no final exam paper in this course. The final exam is the second Take Home Exam to be handed out to students on Friday November 10 and due on Friday November 17.

ACADEMIC INTEGRITY

The university's policy on Academic Integrity is available at <http://academicintegrity.rutgers.edu/academic-integrity-policy>. The principles of academic integrity require that a student:

- properly acknowledge and cite all use of the ideas, results, or words of others.
- properly acknowledge all contributors to a given piece of work.
- make sure that all work submitted as his or her own in a course or other academic activity is produced without the aid of impermissible materials or impermissible collaboration.
- obtain all data or results by ethical means and report them accurately without suppressing any results inconsistent with his or her interpretation or conclusions.

- treat all other students in an ethical manner, respecting their integrity and right to pursue their educational goals without interference. This requires that a student neither facilitate academic dishonesty by others nor obstruct their academic progress.
 - uphold the canons of the ethical or professional code of the profession for which he or she is preparing.
- Adherence to these principles is necessary in order to ensure that
- everyone is given proper credit for his or her ideas, words, results, and other scholarly accomplishments.
 - all student work is fairly evaluated and no student has an inappropriate advantage over others.
 - the academic and ethical development of all students is fostered.
 - the reputation of the University for integrity in its teaching, research, and scholarship is maintained and enhanced.

Failure to uphold these principles of academic integrity threatens both the reputation of the University and the value of the degrees awarded to its students. Every member of the University community therefore bears a responsibility for ensuring that the highest standards of academic integrity are upheld.

STUDENT WELLNESS SERVICES

Just In Case Web App <http://codu.co/cee05e>

Access helpful mental health information and resources for yourself or a friend in a mental health crisis on your smartphone or tablet and easily contact CAPS or RUPD.

Counseling, ADAP & Psychiatric Services (CAPS)

(848) 932-7884 / 17 Senior Street, New Brunswick, NJ 08901 / www.rhscaps.rutgers.edu/

CAPS is a University mental health support service that includes counseling, alcohol and other drug assistance, and psychiatric services staffed by a team of professional within Rutgers Health services to support students' efforts to succeed at Rutgers University. CAPS offers a variety of services that include: individual therapy, group therapy and workshops, crisis intervention, referral to specialists in the community and consultation and collaboration with campus partners.

Violence Prevention & Victim Assistance (VPVA)

(848) 932-1181 / 3 Bartlett Street, New Brunswick, NJ 08901 / www.vpva.rutgers.edu/

The Office for Violence Prevention and Victim Assistance provides confidential crisis intervention, counseling and advocacy for victims of sexual and relationship violence and stalking to students, staff and faculty. To reach staff during office hours when the university is open or to reach an advocate after hours, call 848-932-1181.

Disability Services

(848) 445-6800 / Lucy Stone Hall, Suite A145, Livingston Campus, 54 Joyce Kilmer Avenue, Piscataway, NJ 08854 / <https://ods.rutgers.edu/>

Rutgers University welcomes students with disabilities into all of the University's educational programs. In order to receive consideration for reasonable accommodations, a student with a disability must contact the appropriate disability services office at the campus where you are officially enrolled, participate in an intake interview, and provide documentation: <https://ods.rutgers.edu/students/documentation-guidelines>. If the documentation supports your request for reasonable accommodations, your campus's disability services office will provide you with a Letter of Accommodations. Please share this letter with your instructors and discuss the accommodations with them as early in your courses as possible. To begin this process, please complete the Registration form on the ODS web site at: <https://ods.rutgers.edu/students/registration-form>.

Appendix K: UC Davis 5-Step Experiential Learning Cycle Definition



UNIVERSITY OF CALIFORNIA
Agriculture and Natural Resources

4-H Youth Development Program

5-Step Experiential Learning Cycle Definitions

EXPLORATION: “Do it”

Perform or do an activity with little to no help from the facilitator/teacher. Examples might include making products or models; role-playing; giving a presentation; problem-solving; playing a game.

Features of experiences include:

- i) May be an individual or group experience but involves doing.
- ii) Most likely will be unfamiliar to the learners – a first-time activity.
- iii) Pushes the learner beyond previous performance levels.
- iv) May be “uncomfortable” to the learner.

SHARING: “What Happened”

Publicly share the results, reactions and observations. Get the participants to talk about their experience. Share reactions and observations. Discuss feelings generated by the experience. Let the group (or individual) talk freely and acknowledge the ideas they generate.

Examples of sharing questions:

- i) What did you do?
- ii) What happened?
- iii) What did you see, feel, hear, taste?
- iv) What was the most difficult? Easiest?

PROCESSING: “What’s Important?”

Discussing, analyzing, reflecting, looking at the experience. Discuss how the experience was carried out. Discuss how themes, problems, and issues are brought out by the experience. Discuss how specific problems or issues were addressed. Discuss personal experiences of members. Encourage the group to look for recurring themes.

Examples of processing questions:

- i) What problems or issues seemed to occur over and over?
- ii) What similar experience(s) have you had?

GENERALIZING: “So What?”

Connect the experience with real world examples. Find general trends or common truths in the experience. Identify “real life” principles that surfaced. List key terms that capture the learning.

Examples of generalizing questions:

- i) What did you learn about yourself through this activity?
- ii) Why is (life skill) important in your daily life?
- iii) How does what you learned relate to other parts of your life?

APPLICATION: “Now What?”

Apply what was learned to a similar or different situation, learn from past experiences, practice. Discuss how new learning can be applied to other situations. Discuss how issues raised can be useful in the future. Discuss how more effective behaviors can develop from the new learnings. Help everyone feel a sense of ownership for what was learned.

Example questions about applying the experience:

- i) How can you apply what you learned to a new situation?
- ii) How will you act differently in the future?
- iii) How could you apply “X” (insert skill) learned through this practice in the future?

Adapted from the work of David Kolb (1984) by Pfeiffer and Jones (1985).

Appendix L: University of Hawai'i, West O'ahu B.A.S. Sustainable Community Food Systems

UH West O'ahu Student Program Sheet for Academic Year 2023-24

Bachelor of Applied Science, Sustainable Community Food Systems

The goal of academic advising is to further enhance the educational mission of the university, and create quality, accessible advising partnerships with all students in a positive environment that supports student success. This advising sheet is for tracking purposes toward degree completion and is subject to change. Students also may track their academic progress via STAR Degree Check through STAR GPS at <https://www.star.hawaii.edu/>. Academic Advising appointments may be scheduled by calling 808-689-2689 or toll-free from neighbor islands at 866-299-8656.

Graduation Requirements (see the 2023-24 catalog for any additional graduation requirements):

- 45 Upper Division Credits Minimum 3 Upper Division Writing Intensive Courses 2.0 UHWO GPA
 120 Total Credits Minimum Focus Requirements (OC, HAP, ETH) 2.0 CONCENTRATION GPA
 30 UHWO Credits

**Note: Some courses may be applied more than once to fulfill General Education, Core, or Concentration Requirements. Double counted courses do not reduce the number of credits required for the concentration. Students are still responsible for meeting the minimum number of credits in the concentration and the overall total credits for graduation.*

General Education Requirements: 31 credits (*25 credits see note above)

Credits	Course Alpha / Number / Title
3	Foundations Written Communications (FW) ENG 100 Composition I
0*	Foundations of Quantitative Reasoning (FQ) MATH 100, 103, 103M/L, 115, 115M/L, 135 or higher-level Math
6	Foundations Global and Multicultural Perspectives (FG): 6 credits from two different groups (A, B, C): *Group A: Primarily before 1500 CE (e.g., HIST 151 or ANTH 151) *Group B: Primarily after 1500 CE (e.g., HIST 152 or ANTH 152) *Group C: Pre-history to present
6	Diversification Arts, Humanities & Literature (DA, DH, DL): 6 credits from two different areas
0*	Diversification Social Sciences (DS): SSCI 301
3	Diversification Social Sciences (DS): Different area from above.
3	Diversification Natural Sciences (DB, DP, DY): 3 credits from the biological sciences (DB):
3	3 credits from the physical sciences (DP):
1	1 credit of laboratory (DY):

Writing Skills Requirement: 3 credits

Select one course from the following:

- ENG 200 Composition II
 ENG 209 Business Writing
 ENG 210 Writing Term Papers
 ENG 215 Research/Argumentative Writing

Credits	Course Alpha / Number / Title
3	

Lower Division Math Requirement: 3 credits

Credits	Course Alpha / Number / Title
3	MATH 100, 103 115, 135 or higher (<i>Will satisfy FQ General Ed above</i>)

Applied Science Core Requirements: 12 credits

Credits	Course Alpha / Number / Title
3	ICS 101 Intro to Digital Tools for the Information World OR PUBA 335 Technology for Public Administration
3	SSCI 301 Methods & Techniques in Social Science Research (<i>Will satisfy DS General Ed above</i>)

Select one course from the following: (Check Prerequisites)

- SSCI 210 Statistical Analysis I
- PUBA 341 Statistics for Decision-Making in Public Administration
- BUSA 320 Statistics for Decision-Making

Credits	Course Alpha / Number / Title
3	

Select one Ethics course from the following:

- PHIL 482 Environmental Ethics
- SCFS 484 Agriculture, Food and Human Values
- SCFS 485 Cross-Cultural Environmental Ethics

Credits	Course Alpha / Number / Title
3	

SCFS Concentration Requirements: 24 credits

Credits	Course Alpha / Number / Title
3	SCFS 300 Survey of Sustainable Community Food Systems of Hawai'i
3	SCFS 310 Introduction to Agroecology
3	SCFS 320 Theory and Practice of Sustainable Agriculture
3	SCFS/POLS 335 Politics of Food
3	SCFS 370 Ahupua'a- Hawaiian Natural Resource Management from Mountain to Sea
3	SCFS 385 Loko i'a and Near Shore Fisheries Management of Hawaii OR SCFS 415 Mahi'ai Kalo- Hawaiian Taro Production
3	SCFS 455 Traditional Ecological Knowledge and Food Systems Management
3	SCFS 490 Sustainable Agriculture Practicum

SCFS Elective Requirements: 6 credits

Select two courses from the list below:

- **MET 209 Introduction to Climate Studies
- SCFS 315 Wild Game Management and Processing
- SCFS 336 Politics of Water (cross-listed POLS 336)
- SCFS 340 Food Sovereignty, Nutrition & Human Well-Being Reconnecting Food, Nature and Community
- SCFS 345 Native Planters-Traditional Agriculture Systems of Hawai'i and the Pacific
- SCFS 350 Natural History of Bees, Beekeeping, and Honey Hunting
- SCFS 360 Survey of Literature on Agriculture, Food, and the Environment
- SCFS 415 Mahi'ai Kalo: Hawaiian Taro Production
- Any 300-400 level SCFS Course not used for another requirement
- ** Note: Lower division course.

Credits	Course Alpha / Number / Title
3	
3	

SCFS Interdisciplinary Requirements: 9 credits

Select three courses from the list below:

- | | |
|--|--|
| <ul style="list-style-type: none"> EDUC 120 'Aina and Place-Based Education HAW 101/102 Beginning Hawaiian I/II HAW 201/202 Intermediate Hawaiian I/II HAW 301/302 Third-Level Hawaiian HPST 304 Hawaiian-Pacific Traditions GEOG/HPST 328 Culture and Environment HPST/POLS 342 Indigenous Peoples & Modernity GEOG/HPST 365 Geography of the Pacific POLS/HPST 381 Hawai'i Politics BAS Sustainable Community Food Systems 2023-24 | <ul style="list-style-type: none"> HPST/POLS 440 Native Hawaiian Law HIST/HPST 471 Polynesia Before European Contact HIST/HPST 384 Hawai'i from European Contact to the Overthrow ANTH/HIST/HPST 483 Archaeology of Hawai'i HIST/HPST 488 Twentieth Century Hawai'i POLS 326 Environmental Politics POLS 371 Global Futures |
|--|--|

UH West O'ahu Student Program Sheet for Academic Year 2023-24

Credits	Course Alpha / Number / Title
3	
3	
3	

Capstone Requirement: 3 credits

Credits	Course Alpha / Number / Title
3	APSC 490X Senior Practicum--Sustainable and Community Food Systems

Elective Requirements: 35 credits

***Please note Upper and Lower Division electives may vary depending on your course selection. See a College Success Advisor to determine how many electives are needed.**

Credits	Course Alpha / Number / Title
3	<i>Possible Upper Division (300-400 level)</i>
3	<i>Possible Upper Division (300-400 level)</i>
3	<i>Possible Upper Division (300-400 level)</i>
3	
3	
3	
3	
3	
3	
3	
3	
3	
2	

NOTES: Dr. Albie Miles is the faculty contact for this program. For additional information, Dr. Miles may be reached at albie@hawaii.edu or at (808) 689-2376.

Appendix M: University of Hawai'i, West O'ahu SCFS 370 Course Syllabus, Spring 2024

SCFS 370: Ahupua'a – Hawaiian Natural Resource Management from Mountain to Sea

University of Hawai'i, West O'ahu
Course Syllabus: Spring 2024



Professor:

[Matthew Kekoa Lau](mailto:mklau3@hawaii.edu)

E-mail: mklau3@hawaii.edu

Class period: M 0800-1050p

Class: UHWO A-215

Office: UHWO D-131

Office hours: Mon, 14:00-15:30 pm or by apt.

Description: This course provides an in-depth understanding of Hawaiian natural resource management through the study of connections found between land and sea. Exploring historic as well as current documentation and case studies students will learn about pre-European contact Hawaiian resource management. In addition, students will learn how Hawai'i-based environmental management practices are still alive today and can provide valuable insights into today's multifaceted environmental issues. The

course is designed to examine many different facets of Hawaiian natural resource understandings and knowledge. A few of the areas that will be included in this course include the importance of place names, mo'olelo, chant and songs, and environmental relationships as a means to exploring and incorporating diverse perspectives in science-based land management practices. In the process, students will become familiar with various methods of knowing a place and researching through Hawaiian sources online and in the library. It will help to lay a foundation of understanding through the concept of ahupua'a as it was developed by Hawaiian ancestors and set the stage for exploration into how this concept is still relevant to modern Hawaiians and contemporary mainstream society.

Prerequisites: ENG 100 and upper division standing, or approval of instructor.

Learning objectives:

- Demonstrate an intermediate-level comprehension of the key historical, ecological, and sociological aspects of the native Hawaiian relationship to ecosystem dynamics and processes, commonly referred to as the “ahupua'a system” (ILO2, DLO2, CLO5);
- Demonstrate an ability to understand and simultaneously evaluate multiple perspectives and ways of knowing (ILO2, DLO5, CLO3);
- Understand the systemic and proximal impacts of the transition away from native Hawaiian food systems on diet-related health disparities (ILO1 DLO5, CLO2);
- Apply the academic concept of “sustainable community food systems” to assess key social and ecological costs, benefits and risks of the contemporary agri-food system in Hawai'i (ILO2, DLO1-5, CLO4);
- Implement research approaches in mālama 'āina through an examination of sources in online sites, physical repositories, and observational skills (ILO3, DLO4, CLO4).

Grading:

Attendance and class participation (25 pts)	10%
11 700-word weekly written responses (88 pts)*	36%
Midterm: Research Paper Draft (35 pts)	14%
Final Presentation (50 pts)	17%
Research Paper (100 pts)	34%

Grading scale:

<u>Percentage</u>	<u>Letter Grade</u>
94-100	A
90-93.9	A-
87-89.9	B+

84-86.9	B
80-83.9	B-
77-79.9	C+
73-76.9	C
70-72.9	C-
67-69.9	D+
64-66.9	D
60-63.9	D-
0-59.9	F

Weekly written responses to reading assignments: Students write and submit via Word.doc or PDF (to Laulima) an approximately 700-word (double-spaced, Times New Roman, 12 pt. font) summary and analysis of the reading assignment(s), video and/or study questions. Note: ~700-words is the total number of words required whether there is 1 article/video or more assigned (not 700 words/article). Write-ups must include the title (in APA format), 1 paragraph narrative summary, and identification of 3 themes and 5-7 key points of each article (see model student assignment). Summaries are submitted to Laulima 'Assignments' by each due date and time for full credit. **Late assignments will receive only partial credit (1/2 pts. max.).** Bring a hard copy or your computer to each class to refer to your notes during in-class discussion. See model student summary for a template/reference when developing weekly summaries.

Action Research Paper and Presentation: the goal of this class is to provide the skills necessary to critically assess the underlying causes and potential solutions to systemic challenges. The primary tool we will be using is Action Oriented Research that we will develop and share through writing and formal presentations. This course will take a scaffolded approach, starting with identifying a research question, [creating an outline](#), researching literature addressing this topic, [writing a complete draft](#) that will be reviewed and integrating edits from both the instructor and the [No'eau Center](#). Papers will be at least **10 pages** in length (not including the title page, citations, figures or appendices) **double spaced** using **standard 1" margins** and **12-pt Times New Roman font**. Presentations will be **10 minutes** with 5 minutes for questions and comments presented **without reading directly from notes** and with visual aids in the form of a **slide deck presentation** (Powerpoint, PDF or Keynote formats; [example](#)).

Due Dates and Late Submissions: due dates are as stated in the syllabus, unless otherwise noted by the instructor. Any submission made after the due date will be accepted at 50% of awarded points. Exceptions will be made using the same criteria as valid absences (see Participation section below).

Academic Honesty

All students are expected to demonstrate integrity and honesty in completion of class assignments. Students must give credit to appropriate sources utilized in their work. Copying the work of professional writers or other students and then turning it in as one's own constitutes [plagiarism](#) and are not allowed. Plagiarism and cheating are serious offenses and, at the discretion of the instructor, may be punished by failure on the exam, paper, or project; failure in the course; and/or expulsion from the university. Integrity is expected of every student in all academic work. The guiding principle of academic integrity is that a student's submitted work must be the student's own. For additional information, please refer to the student [Academic Responsibilities](#) and [Student Code of Conduct](#) sections (pp. 17-18) of the UHWO Student Handbook and visit the No'eau Center to attend a [workshop on how to avoid plagiarism](#). In addition, the primary activities for this and other SCFS courses is to develop critical thinking and communication skills. The process for the students to learn and receive meaningful feedback is through analytical writing. Therefore, no tools beyond spelling and syntactical/grammatical correction features in word processors should be used to complete assignments. This includes any artificial intelligence natural language processing, such as ChatGPT, as they are likely to inhibit rather than help with learning and have issues with correct attribution, increasing the likelihood of plagiarism.

Credit Hour Statement: This is a 3 credit-hour course. Each course credit is equivalent to three hours of work/week. You should anticipate this class requiring 9 hours of work each week (on average). This includes completing readings, attending lectures and discussions, producing written responses to readings, conducting research and writing papers, preparing for exams, field trips, and reviewing instructor feedback on assignments.

Participation: Attendance is non-negotiable and the only excused absences will be for: (1) medical situations that have proof of a doctor's note; and (2) University sponsored events with proof of a note (i.e. academic events, department events, or athletic competitions). Students must minimally attend two-thirds of classes in order to pass and get credit for the course. Failure to uphold these standards will result in no credit for the course. This class requirement is consistent with financial aid policies of attending 60% or more of the classes in a course per semester.

University Statement on Non-Discrimination: The University of Hawai'i - West O'ahu (UHWO) strives to provide an environment that emphasizes the dignity and worth of every member of its community and that is free from harassment and discrimination. Such an environment is necessary to a healthy learning, working, and living atmosphere because discrimination and harassment undermine human dignity and the positive connection among all members in our UHWO community.

UHWO can help to provide valuable information. Examples of behavior that may be considered sex or gender-based discrimination may include, but is not limited to, the

following: sexual harassment, harassment of LGBTQ students, sexual assault, stalking, and domestic and dating violence.

If you or someone you know is experiencing sex or gender-based discrimination, or if you have any questions regarding UHWO's process or policies, please feel free to contact the UHWO Title IX Coordinator via email at: uhwot9c@hawaii.edu, or you can visit the UHWO Title IX website for more information at: <https://westoahu.hawaii.edu/compliance/title-ix/>.

Learning Challenges and Accommodations:

In keeping with University policy, any student with a disability who requires academic accommodation for testing, note taking, reading, classroom seating, etc., is to contact the [Disability Services Office](#).

The No'eau Center: The No'eau Center offers services designed to help students improve their overall academic performance. Tutoring is available on-campus and through Zoom for math, statistics, accounting, and more, and via email for writing. Video workshops are also offered on topics including avoiding plagiarism, literature reviews, and oral presentations. On-campus and remote test proctoring is available for make-up exams, ADA accommodations, placement testing, CLEP, and ATI-TEAS. For more information, visit on-campus (current location: A224; permanent location: B203), stop by the No'eau Center's virtual front desk (bit.ly/noeaucenter), online (<https://westoahu.hawaii.edu/noeaucenter/>), or call 808-689-2750. Hours for Fall 2023 are Monday-Friday 8:00-4:30 Saturday 10:00-12:00 (online and by appointment only).

Test Proctor Services: available both in-person/on-campus and remote via Zoom. Visit the Disability Services page for more information and clarification on ADA test accommodations by clicking [here](#). For more information, stop by the No'eau Center's virtual front desk (bit.ly/noeaucenter), visit the website by clicking [here](#), or call 808-689-2752.

Extra credit workshops: An additional **20 points** will be given to any student who completes one of the center's [workshops](#): Study Skills, Stress and Time Management, Improving Reading and Grammar, etc., during the semester. A complete list of workshops can be found at the [No'eau Center's Workshop Information Webpage](#).

Texts: Readings are provided via online links. See assignment details below.

Week 1 (Jan 8) – [Introduction: Personal introductions, Course Overview, Syllabus Review, Introduction to Action Research.](#)

- **Activity: Huaka'i – UH West Campus**
 - **Kilo i ke Ahupua'a (Due Next Week)**

Week 2 (Jan 15): Huaka'i – Kilo i ke Ahupua'a

- **No in-class meeting (Holiday - [Martin Luther King, Jr. Day](#))**
- **Readings:**
 - *I recommend doing the first two readings for Week 3 this week.*
- **Huaka'i – E Kilo i ka Ahupua'a**
 - Observe the ahupua'a that you live in. See [Laulima Assignment](#) for details.
- **Writing assignments:** Please submit the writing assignment for you Huaka'i to Laulima by the end of day on Friday Jan 19.

Week 3 (Jan 22): ['Āina Momona](#)

- This class will be an examination of Hawai'i's food system and abundance.
- **Readings:**
 - Kurashima, Natalie, Lucas Fortini, and Tamara Ticktin. "The potential of indigenous agricultural food production under climate change in Hawai'i." *Nature Sustainability* 2.3 (2019): 191-199. [Google Drive](#).
 - Young, Y. (2021) Hawaii Has A Lot Of Agricultural Land. Very Little Of It Is Used For Growing Food. <https://www.civilbeat.org/2021/02/hawaii-grown-maps/>.
 - Kame'eleihiwa, L.K. 2016. Kaulana Oahu me he Aina Momona. In Kimura, A.H., Suryanata, K., Yano, C.R., Ku, R.J.S., Lowry, K. and Kent, G., 2016. *Food and Power in Hawai'i: Visions of Food Democracy*. University of Hawai'i Press. [Google Drive](#).
 - Fujikane, C. 2023. Mapping Abundance for a Planetary Future. Duke University Press. [Google Drive](#). (**ONLY pg. 18-51**)
- **Writing assignments:** Please develop a 700-word summary of the readings. Submit to Laulima by the due date. *[See model student summary](#).

Week 4 (Jan 29): [Ahupua'a Systems I](#)

- We'll be covering important historical events that lead to the creation of what we understand as the ahupua'a system.
- **Readings:**

- The Ahupua'a: Life in Early Hawai'i (pg. v-7). [Google Drive](#).
- The Ahupua'a: Life in Early Hawai'i (pg. 8-9). [Google Drive](#).
- The Ahupua'a: Life in Early Hawai'i (pg. 38-41). [Google Drive](#).
- Winter KB, Beamer K, Vaughan MB, Friedlander AM, Kido MH, Whitehead AN, Akutagawa MKH, Kurashima N, Lucas MP, Nyberg B. The *Moku* System: Managing Biocultural Resources for Abundance within Social-Ecological Regions in Hawai'i. *Sustainability*. 2018; 10(10):3554. [Google Drive](#). (ONLY pages 11-15, stop at the end of "Aspect 1")
- **Writing assignments:** Please develop a 700-word summary of the readings. Submit to Lulima by the due date. *[See model student summary](#).

Week 5 (Feb 05): [Ahupua'a Systems II](#)

- **Readings:**
 - Winter KB, Beamer K, Vaughan MB, Friedlander AM, Kido MH, Whitehead AN, Akutagawa MKH, Kurashima N, Lucas MP, Nyberg B. The *Moku* System: Managing Biocultural Resources for Abundance within Social-Ecological Regions in Hawai'i. *Sustainability*. 2018; 10(10):3554. [Google Drive](#). (ONLY pages 15-17, stop at the end of "Aspect 2")
 - Lincoln, N.K. and Vitousek, P. 2017. Indigenous Polynesian Agriculture. Oxford Research Encyclopedia of Environmental Science. [Google Drive](#). (ONLY pages 1-16).
- **Writing assignments:** Please develop a 700-word summary of the readings. Submit to Lulima by the due date. *[See model student summary](#).
- **"Action Research Projects" – Discuss topics.**

Week 6 (Feb 12): [The Māhele - Ahupua'a Impacts](#)

- This class will unpack the historical context and impacts of The Māhele on the ahupua'a system and how it set the stage for contemporary land ownership.
- **Readings:**
 - Beamer, K. and Tong, N.W. (2016) The Māhele Did What? Native Interest Remains. *In Hūlili: Multidisciplinary Research on Hawaiian Well-Being* Vol. 10. Kamehameha Publishing. [Google Drive](#).
 - Winter KB, Beamer K, Vaughan MB, Friedlander AM, Kido MH, Whitehead AN, Akutagawa MKH, Kurashima N, Lucas MP, Nyberg B. The *Moku* System: Managing Biocultural Resources for Abundance within

Social-Ecological Regions in Hawai'i. *Sustainability*. 2018; 10(10):3554.

[Google Drive](#). (Remaining content, pages 17-29).

- **Writing assignments:** Please develop a 700-word summary of the readings. Submit to Laulima by the due date. *[See model student summary](#).
- **“Action Research Projects” – Topics due.**

Week 7 (Feb 19): Submit Outlines for Feedback

- **No in-class meeting (Holiday – Presidents' Day)**
- **“Action Research Projects” – Outline with 5 references due Feb 22 11:59pm**

Week 8 (Feb 26): [Research Tools](#)

- Today's class will be an examination of data driven tools for exploring ahupua'a and landscapes.
- **Readings:**
 - About AVA Konohiki <http://avakonohiki.weebly.com/about-ava.html>
 - City and County Real Estate Search
 - [Instructions](#) (Read and summarize the tools)
 - [GIS Mapping Tool](#) (Only take a look and play around)
 - Hunt D. and Stevenson, S.A. (2016) Decolonizing geographies of power: indigenous digital counter-mapping practices on turtle Island. *Settler Colonialism Studies*. 7:3, 372-392. ([Google Drive](#)).
 - Gon SM, Tom SL, Woodside U. 'Āina Momona, Honua Au Loli—Productive Lands, Changing World: Using the Hawaiian Footprint to Inform Biocultural Restoration and Future Sustainability in Hawai'i. *Sustainability*. 2018; 10(10):3420. ([Google Drive](#)).
- **In-Class:**
 - Ki Puka Database: <https://kipukadatabase.com/kipuka/>
- **Writing assignments:** Please develop a 700-word summary of the readings. Submit to Laulima by the due date. *[See model student summary](#).

Week 9 (Mar 04): [Ahupua'a and Contemporary Land Management](#)

- This class will focus on the comparison of ahupua'a practices with contemporary management approaches.
- **Readings:**
 - Winter, K.B. et al. (2020) Ecomimicry in Indigenous resource management: optimizing ecosystem services to achieve resource abundance, with examples from Hawai'i. *Ecology and Society* 25(2):26. ([Google Drive](#)).

- Kurashima N, Jeremiah J, Whitehead AN, Tulchin J, Browning M, Duarte T. 'Āina Kaumaha: The Maintenance of Ancestral Principles for 21st Century Indigenous Resource Management. *Sustainability*. 2018; 10(11):3975. ([Google Drive](#)). (pages 53-75).
- **Writing assignments:** Please develop a 700-word summary of the readings. Submit to Laulima by the due date. *[See model student summary](#).

Week 10 (Mar 11): Mālama 'Āina

- Today, we will explore the concept of Mālama 'Āina and examine its role in contemporary land management.
- **Readings:**
 - Kealiikanakaolehailani, K. *et al.* (2018) Ritual+SustainabilityScience? A Portal into the Science of Aloha Sustainability,10,3478 ([Google Drive](#)) (Only pg. 75-89).
 - Osorio, JH (2021) Remembering Our Intimacies – Mo'olelo, Aloha 'Aina, and Ea. University of Minnesota Press. ([Google Drive](#)) (Chapter 1).
 - [Nā Loea: The Masters | Ed Wendt: The Great Heart of Waiokāne](#)
- **Writing assignments:** Please develop a 700-word summary of the readings. Submit to Laulima by the due date. *[See model student summary](#).
- **Action Research Projects: Midterm papers due.**

Spring Break (Mar 18-22): No Classes

Week 11 (Mar 25): [Ahupua'a Systems III - Wai and Kai](#)

- **Readings:**
 - McDermid K.J. *et al.* (2019) Seaweed resources of the Hawaiian Islands. *Botanica Marina* 2019; 62(5): 443–462. ([Google Drive](#)).
 - Ahupua'a, Fishponds and Lo'i: The uniqueness of the Hawaiian land use systems. *Nā Maka o ka 'Āina* (2005): <https://vimeo.com/57394037> (Watch the Full Movie).
 - 'Āina of Ka'ōnohi, et al. (2023) Urban 'Āina: An Indigenous, Biocultural Pathway to Transforming Urban Spaces. *Sustainability*. 2023; 15(13):9937. ([Google Drive](#)).
- **Writing assignments:** Please develop a 700-word summary of the readings. Submit to Laulima by the due date. *[See model student summary](#).
- **“Action Research Projects” – Integrate feedback from instructor.**

Week 12 (Apr 01): [Makai i Mauka – Site Visit Ahupua'a Hakipu'u](#)

- Today, our focus will be on the activities in the uplands of ahupua'a.

- We will be visiting Ahupua'a Hakipu'u with Taylor Kellerman (Director of Diversified Agriculture at Kualoa Ranch).
- Visit details can be found [here](#).
- **Readings:**
 - Lincoln, N.K. and Vitousek, P. 2017. Indigenous Polynesian Agriculture. Oxford Research Encyclopedia of Environmental Science. [Google Drive](#). (ONLY pages 17-31).
 - [Kualoa Grown Agriculture](#)
 - [Talk Story with Joey Palupe in Hakipu'u](#)
 - Review maps of Ahupua'a Hakipu'u and Kualoa: <http://avakonohiki.weebly.com/maps-koolaupoko.html>.
- **Writing assignments:** Please develop a 700-word summary of the readings. Submit to Lailima by the due date. *[See model student summary](#).
- **Action Research Projects: Submit to No'eau Center for feedback.**

Week 13 (Apr 08): ['Aha Ahupua'a Mā'ona and 'Āina Momona](#)

- We'll be conducting a World Café to investigate important changes to key contemporary management practices and documenting this in a collaborative product.
- [World Café Document can be accessed here](#).
- **Readings:**
 - Steier, F., Brown, J., & Mesquita da Silva, F. (2015). The World Cafe in Action Research Settings. Chapter 20: The world cafe in action research settings. In H. Bradbury (Ed.), *The SAGE handbook of action research* (third). London ; Thousand Oaks: SAGE Publications. ([Google Drive](#))
 - Connely, S. (2021) Our City as Ahupua'a. In *The Value of Hawai'i 3*. ([Google Drive](#)).

Writing assignments: No Writing Assignment Due.

Week 14 (Apr 15): [Ahupua'a Thinking and Ecosystem Modeling](#)

- In this class, we'll have a guest speaker, Dr. Jill Stefanek (UH West), who will be talking about student research of Ka'ala Farm's Lo'i system. We will do an activity with Dr. Stefanek to analyze the systems-level impacts of lo'i kalo at Ka'ala Farm.
- **Readings:**
 - Ka'ala Farms:
 - [Mo'olelo](#)
 - [Mo'okū'auhau](#)

- Bremer LL, Falinski K, Ching C, Wada CA, Burnett KM, Kukea-Shultz K, Reppun N, Chun G, Oleson KLL, Ticktin T. (2018) Biocultural Restoration of Traditional Agriculture: Cultural, Environmental, and Economic Outcomes of Lo'i Kalo Restoration in He'eia, O'ahu. *Sustainability*. 10(12):4502. ([Google Drive](#))
- **Writing assignments:** Please develop a 700-word summary of the readings. Submit to Lulima by the due date. *[See model student summary.](#)

Week 15 (Apr 22): Final Presentations and Discussion

- **Action Research Projects: Final Oral Presentation and Discussion of Action Research Projects (please prepare 7-10 slides to support your presentation, and practice). Submit to Lulima by 7:00am.**
- **Action Research Projects: No'eau Center comments and edits should be incorporated. Students must respond to all suggestions made by No'eau Center staff re: improvements and necessary corrections to the paper.**
- **Writing assignments:** No Writing Assignment Due.

Finals Week (Apr 29): Final Papers Due

- **Final Action Research Papers Due to Lulima by 10:50 am.**

Class Resources

Online

- Wehe² Hawaiian Online Dictionary: hilo.hawaii.edu/wehe/
- Ulukau Hawaiian Electronic Library: www.ulukau.org
- OHA Papakilo Database: www.papakilodatabase.com
- OHA Kīpuka Database: www.kipukadatabase.com
- AVA Konohiki: www.avakonohiki.org
- State of Hawaii DAGS: <http://ags.hawaii.gov/survey/map-search/>
- Waihona 'Āina: www.waihona.com
- Libguide (Hawaii-Pacific): <https://westoahu.hawaii.edu/library/research/research-support/hawaii-pacific-research/>
- Libguide (Place Names): <http://guides.library.manoa.hawaii.edu/hawaiiplaces>
- Libguide (Māhele): <http://guides.library.manoa.hawaii.edu/maheleindexes>
- Libguide (Thrum): <http://guides.library.manoa.hawaii.edu/hawaiithrums>
- 'Āina Hono'uli'uli: www.uhwestoahuonlineexhibitshonouliuli.com/about
- 'Olelo No'eau Database: <https://trussel2.com/HAW/haw-conc-a.htm>

For further reading

- Abbott, I. 1992. *Lā'au Hawai'i: Traditional Hawaiian Uses of Plants*. Bishop Museum Press, Honolulu.

- Andrade, C. 2008. *Hā'ena: Through the Eyes of the Ancestors*. University of Hawai'i Press, Honolulu.
- Barrerre, D. B. 1994. *The King's Māhele: The Awardees and their lands*. Materials extracted from various public records and translated from Hawaiian.
- Beckwith, M. W. 1970. *Hawaiian Mythology*. University of Hawaii Press, Honolulu.
- Beckwith, M. W. 1951. *The Kumulipo: A Hawaiian Creation Chant*. University of Hawaii Press, Honolulu.
- Chinen, J. J. 1958. *The Great Māhele: Hawai'i's Land Division of 1848*. University of Hawaii Press, Honolulu.
- Cummings, P. & M. M. Cummings. 2006. *Surveying the Former Kingdom of Hawai'i*. The American Surveyor: Elbert, S. 1951 *Connotative Values of Hawaiian Place Names*.
- Franco, R. W. 1995. *Water: Its meaning and management in pre-contact Hawai'i*. University of Hawai'i at Mānoa.
- Handy, E. S. C. and M. K. Pukui. 1998. *The Polynesian Family System in Ka'ū, Hawai'i*. Mutual Publishing, Honolulu.
- Handy, E.S., Handy, E.G. and Pukui M.K. (1972) *Native Planters in Old Hawai'i*. Bishop Museum Press.
- Hommon, R. J. 2013. *The Ancient Hawaiian State: Origins of a Political Society*. Oxford University Press, New York.
- Kamakau, S. M. *Ka po'e kahiko: Tales and traditions of the people of old*. Kamakau, S. M. *Na hana o ka po'e kahiko*.
- Kame'eleihiwa, L. 1992. *Native Lands and Foreign Desires: Pehea Lā E Pono Ai*. Bishop Museum Press, Honolulu.
- Kawaharada, D. 2006. *Hawaiian Fishing Traditions*. Kalamakū Press, Honolulu.
- Kepelino, 1978. *Kepelino's Traditions of Hawaii*. Edited by M. W. Beckwith. Kraus Print Co, Millwood, N. Y.
- Kosaki, R. H. *Konohiki Fishing Rights*. 1954. Honolulu. Legislative Reference Bureau. 41 (1). Inc. maps.
- Linnekin, J. 1985. *Children of the Land: Exchange and Status in a Hawaiian Community*. Rutgers University Press, New Jersey.
- Look, M. A., Soong S., & Kaholokula, J. K. (2020). *Assessment and priorities for health and well-being in native hawaiians and other pacific peoples*. Honolulu, HI: Dept. of Native Hawaiian Health, John A. Burns School of Medicine, University of Hawai'i). [Google Drive](#).
- Malo, D. 1951. *Hawaiian Antiquities: Mo'olelo Hawai'i*. transl. by N.B Emerson. B. P. Bishop Museum Special Publication 2, 2nd Edition. Bishop Museum Press, Honolulu.
- McGregor, D. 1996 *An Introduction to Hoā'āina and Their Rights*. The Hawaiian
- *Journal of History* 30: 1-27.
- Nakuina, E. M. 1893. *Ancient Water Rights and Some Customs Pertaining to Them*. Hawaiian Annual. T. G. Thrum, Honolulu: 79-84.
- Oliveria, K. R. K. 2014. *Ancestral Places: Understanding Kanaka Geographies*.

- Oregon State University Press, Corvallis.
- Pukui, M. K. 1974. Place names of Hawaii. University of Hawai'i Press, Honolulu.
- Pukui, M. K. 1983. 'Ōlelo No'eau: Hawaiian Proverbs & Poetic Sayings. Bishop Museum Press, Honolulu.
- Silva, N. 2010. Lawe I ke 'Ō: An Analysis of Joseph Mokuohai Poepoe's Account of Pele Calling the Winds. *Hūlili: Multidisciplinary research on Hawaiian Well being* 6 (2010): 237-266.
- Wichman F. B. 1998. Kaua'i: Ancient Place Names and their Stories. University of Hawai'i Press, Honolulu.
- Garovoy, J. B. (2005). Ua Koe Ke Kuleana O Na Kanaka (Reserving the Rights of Native Tenants): Integrating Kuleana Rights and Land Trust Priorities in Hawaii. *Harv. Envtl. L. Rev.*, 29, 523.

About the Authors

Matthew Hargis

Matt, a North Carolina native, was interested in the environment and agriculture from a young age. While in high school, Matt created a farm stand, selling fresh produce to neighbors. When Matt attended Appalachian State University, he was drawn to the field of sustainability and sustainable agriculture. In 2012, Matt graduated from Appalachian State University with a BS in Sustainable Development concentrating in Environmental Studies and a Minor in Geology. Upon graduation in 2013, Matt moved to Detroit Michigan. During a career spanning over a decade in Detroit, Matt has become a school food systems leader with Detroit Public Schools Community District (DPSCD). Matt worked his way up to lead the Farm and Garden Program within the Office of School Nutrition. In his time with the district, Matt helped to establish DPSCD's Drew Farm as one of the premier K-12 school farms in the country. As the Farm to School Supervisor for DPSCD, Matt focuses on ensuring that Detroit students have access to nutritious local food as well as garden, nutrition, and wellness educational opportunities. In his spare time, Matt is also an urban farmer. Amalgam Farms, an acre farm on Detroit's East Side, is owned and operated by Matt and his partner. The couple organically grow fruits, vegetables, cut flowers, and produce honey for sale to local food businesses and the community.

Hayley Hunter

Hayley is a Georgia native and the granddaughter of a farmer. She graduated from the University of Georgia with a bachelor's degree in International Affairs, a minor in Horticulture, and a certificate in Sustainability. During her time at UGA, she was heavily involved with UGArden, an organic campus and community farm. Over her 3 years at UGArden, she volunteered there, interned there, became President of UGArden Club, and did an AmeriCorps VISTA service term there. After graduation, Hayley worked for Concrete Jungle, a Georgia-based food non-profit, where she managed produce logistics and outreach efforts to increase food access in the state. Currently, she is the Garden Coordinator at Camp Twin Lakes, a non-profit camp serving kids with serious illnesses, diseases, and life hardships. At Camp Twin Lakes, Hayley manages the 6 acres of garden space to grow produce for campers and the local community. Food justice and education have been core themes throughout her various roles. In her free time, Hayley likes hiking, camping, knitting, and hanging out with her cat Willow.

Carla Manuel

Carla is a first-generation Filipina immigrant who now resides in Portland, Oregon after living most of her life in California. Her first food inspirations are from her grandmother's

rural village in Culasi, Philippines. She carries with her vivid memories of walking through sugarcane and rice fields and later her grandfather's abundant vegetable garden in Silicon Valley California.

Carla's chef management journey has taken her from luxury hotel properties in Santa Monica to corporate dining, to being an early childhood education school nutrition provider for NIKE and Atlas Immersion Academies. While working for over a decade for Portland Parks & Recreation, she piloted, developed, and was the lead instructor for an innovative Farm-To-School program. After completing a 2-year service commitment with FoodCorps, she is now an educator in the Youth Grow division of Growing Gardens.

A professionally trained chef, her schooling in French-based instruction taught her the essence of terroir: how the land and farming techniques have a direct relationship to the nutrition and flavor of what we eat and drink. Carla's lasting message from her culinary instructors was to "respect the land." Carla's dream is to help plant seeds of relationship-building with the land, solutions to climate shifts, and aligning families with food sovereignty. Indigenous regenerative land stewardship is a particular interest.

Jocelyn Moguin

Jocelyn was born and raised in Oklahoma and lived there until she married her husband in 2018. Soon after, Jocelyn moved to Italy with her husband and lived there for three years. From there, they moved to their current location in Washington State. Jocelyn recently graduated from Arizona State University with a Bachelor of Science in Sustainability and a certificate in Sustainable Food Systems. In 2022, Jocelyn began working with Catholic Charities Food for All program to focus on farm to early childhood education aimed at addressing food insecurity and building healthy futures. She was recently recognized as an Unsung Hero by Congresswoman Cathy McMorris Rodgers and Congressman Sanford Bishop for her efforts to combat the rising food insecurity issues our military families face. In her free time, you can find Jocelyn enjoying the outdoors, going for long walks, and spending time with her husband and her dogs. She is an enrolled member of the Muscogee Nation.

Maddie Morales

Maddie came to study at Arizona State University after a decade of work across the food system at the intersection of people and systems. She is passionate about improving the systems that fuel our population and inspired by innovative solutions to food systems challenges each unique community faces.

She received a bachelor's degree in International Affairs from The George Washington University and has an affinity for travel and connecting over a shared meal. Since then,

she has worked across the food system for non-profit organizations, federal agencies and in the private sector, holding positions with FoodCorps, the USDA and sweetgreen. Today, she works for Washington DC Public Schools' Food and Nutrition Services department. In this role, she strives to enhance the student experience with school meals through operational and policy improvements that are implemented across the 117 schools in Washington, DC.

Alexandra Rivas

Alexandra was born in South Central Los Angeles. She completed her Bachelor of Arts at Colorado College and a Master of Arts in Latin American Studies at the University of New Mexico. She believes in the innate connection between our bodies and nature & the reciprocal relationship humans have with the Earth. She is grounded in the belief that nature takes care of us as long as we take care of nature.



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Swette Center for Sustainable Food Systems is a unit of the ASU School of Sustainability