Agriculture Individualized Curriculum and Sustainable Agriculture Program Review Self-Study
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I. Executive Summary

The Agriculture Individualized Curriculum Program (known internally as the AICU major) is a Bachelor of Science degree program offered through the college with the flexibility to serve three primary roles: testing out possible new degree programs (and perhaps refining their courses), designing unique curricula for highly motivated students with novel intentions, and as a degree completion plan for students who encounter programmatic obstacles. The program is helpful to a variety of students, allowing us to work with them as individuals or as small, emerging groups in order to provide well-designed undergraduate curricular alternatives to our established degree programs. One function of the program is to allow "incubator" arrangements for novel curricula as options under the degree program. This configuration has been especially successful for multi-disciplinary programs such as Agricultural and Medical Biotechnology, Natural Resources and Environmental Science, Equine Science and Management, and Sustainable Agriculture and Community Food Systems. There are currently four options incubating under the AICU major—Technical Systems Management, Entomology, Modern Agronomic Crop Productions, and Sustainable Agriculture. Descriptions of each option incubating under the major are provided below. In addition to this "incubator" function, our AICU major allows us to help students who come to us with aspirations for study that do not match any of our existing programs. With this individualized major, they work with their advisor to build a rigorous, focused curriculum that meets our college curricular expectations, yet satisfies their unique goals. Finally, we have some students who are approaching the end of their current programs and come to intractable course roadblocks (e.g., chemistry for an Animal Sciences major). After encouraging them to take all appropriate measures to succeed in that coursework, we would prefer to advise them to transition to an individualized major in order to complete this more general degree (sometimes they otherwise simply give up and do not complete a degree of any sort). Thus, our individualized degree program provides us with the flexibility to serve students in a variety of ways.

The Technical Systems Management (TSM) option under the AICU major first enrolled students in the Fall of 2015. The option provided a foundation of cross-disciplinary theoretical learning and work-based learning (apprenticeship) that could be utilized in multiple areas of industry, including agriculture, engineering, and business. The option combined technical skills, agribusiness management and management skills, and work-based learning to transform the learning culture and bridge the gap between educational theory and workplace expectations. Students enrolled in TSM to work with technical systems. However, unlike engineering students who wanted to focus on designing new systems, TSM students were interested in managing these systems within the context of their agricultural and industrial applications. The TSM option within AICU was started as a trial effort toward starting a new degree. The progress toward this new degree has been halted and new students are not permitted in the TSM option of AICU. There are currently four remaining TSM students who are expected to complete their requirements for graduation within the coming year.

The Entomology option area is a rigorous science-based curriculum that provides students who have a specialized interest in insects or other arthropods the opportunity to pursue a B.S. in Agriculture. First year students typically come into this program because they have searched nationally for programs in entomology, which are increasingly uncommon at the undergraduate level. Transfer students entering the program have often taken one of our introductory classes in Entomology, and subsequently discovered the possibility of getting a degree in this option area. Historically, Entomology was a regular major in the College before 1994, but low enrollments led to preserving the option through the AICU

mechanism. The program requirements were developed when it was a standard major, and have been adapted over time to give students as much flexibility as possible through their choices of specialty support courses. In addition to UK Core requirements, and College requirements, our students take two semesters of Chemistry and Biology, and College Algebra and/or Calculus. General Entomology and Insect Taxonomy are required. In addition, an additional 14 credit hours are taken from a list of 14 ENT courses at the 300, 400, or 500 level. Specialty Support courses are often drawn from other units in the College, or from Biology. Our Academic Enrichment Experience focuses on independent research (3 credit hours) under the supervision of a faculty mentor. Many of our students go on to pursue graduate school, or directly enter the work force as researchers or pest management specialists. Entomology will remain a viable option for students who discover an interest in insects.

The modern agronomic crop production (MACP) option was started in 2014-2015 to satisfy the needs of students who were specifically interested in understanding and applying diverse aspects of agronomics to row crop production systems. The MACP option gives students a solid foundation in agronomic principles paired with the flexibility to develop the degree to suit career goals as varied as hands-on production, crop consulting, extension service, agribusiness sales and marketing to government and lobby work, as well as preparation for graduate studies. Students work closely with an advisor to select classes to build competencies they need to achieve their life and career goals. This program emphasizes hands-on learning. The MACP AICU option will be replaced by the new AES AICU option being developed by faculty in the Department of Plant and Soil Sciences.

The new AES option is being created by faculty in the Department of Plant and Soil Sciences in response to dissolution of the HPLS undergraduate major in the Fall of 2018. The AES program combines the plant and soil science-specific elements from the Horticulture Plant and Soil Science degree with the MACP option into a new curriculum with the goal of equipping students with the knowledge and skills required for the responsible stewardship of agricultural production systems. Responsible stewardship in the context means the application of advanced methodologies that increase yields, multifunctionality, and societal benefits of agricultural ecosystems. The program starts with the UK Core requirements designed to build skills such as critical thinking, writing, reasoning, ethics, and global understanding that are necessary for our students to compete in a global marketplace, participate in democratic self-governance, and live a well-intentioned and meaningful life. UK Core and pre-major requirements include coursework designed to develop a firm foundation in the basic sciences (chemistry, math, biology) that is essential for constructing a thorough understanding of the interrelated processes defining agricultural ecosystem sciences. Following the UK Core and pre-major requirements, students will take coursework that will introduce them to several of the fundamental building blocks of farming operations (plants, soils, animals) where they will develop a broad level of understanding of the individual components of diversified farm production systems. In the summer after the junior year, students will attend a 3-week summer camp to learn about fundamental principles of modern food, fiber, feed and fuel production and management from CAFE researchers, extension specialists and farmers at CAFE and partner farm operations. Students will then move on to classes aimed at explaining how the fundamental farming system components are interrelated, and how understanding this interdependence is essential to the responsible stewardship of the food, fiber, feed, and fuel production system. To hone their skills into specific areas of interest, students will choose a Technical Concentration (TC) and an Agricultural Ecosystem Concentration (AEC) area. Classes taken in the TC (*Agricultural Economics & Policy, Applied Plant Biology, GIS and Technology Support, Sampling, Testing and Analysis,*

Agricultural Business Management) area will provide students with specific technical skills, which they will then apply to a chosen AEC (*Crop Production, Animal Production Systems (minor), Soil Use and Water Management, Pest Management (minor)*). For example, a student interested in precision agriculture could choose the *GIS and Technology Support* TC and then apply this to the *Crop Production* AEC to encompass data collection, mapping and analysis functions that occur in modern day row crop production. Students who are interested in agriculture but do not find a TC or AEC that fits their career goals do have the option of working with their advisor to develop an individualized concentration area.

The proposed new Sustainable Agriculture Undergraduate Degree Program (SAG) was submitted for approval as a stand-alone major ("New Program") in Spring 2018. This would move the program from the "Individualized" degree program umbrella it has been incubated under as an option since 2007. The proposed program is an interdisciplinary and interdepartmental program with major (Bachelor of Science) and minor program offering, housed within the College of Agriculture, Food and Environment (CAFE). Created in 2007 as an "Individualized Undergraduate Degree Program" in CAFE, the program was initiated to meet the growing need for academic degree programs that prepare students for careers in agriculture and community food systems through holistic, systems thinking and science-based, interdisciplinary, experiential education. The SAG program is overseen by a Steering Committee of faculty representing departments in which the students take courses, with representatives from departments in CAFE and the College of Arts and Sciences. The program conducts Periodic Review and other assessment activities as any other academic program in the College.

Key initiatives build upon the recommendations from the previous program review. Significant curriculum revision was undertaken in 2016, both to update the curriculum to reflect current course offerings and curricular refinements, as well as to address increasing student interest in food systems studies. Outcomes included some revised natural science-oriented requirements, and the creation of two Specialty Support (directed electives) areas, requiring students to declare a "Farming Systems" or "Community Food Systems" emphasis area. Additionally, the program was submitted for approval as a stand-alone major ("New Program") in Spring 2018. This would move the program from the "Individualized" degree program umbrella it has been incubated under to a stand-alone major. Related to the New Program submission, several of our SAG core courses required major course revisions, including elevating our 100-level intro course to a 200-level course, and the 200-level cultural perspectives course to a 300-level course. These major course revisions reflect a revision in learning outcomes and deepening of content knowledge since the courses were created with the launch of the program in 2007.

The SAG program continues to be supported by a passionate group of faculty across CAFE departments, with a relatively stable number of majors and consistent demand for SAG courses. There is strong growth potential for the program facilitated by increased exposure and recruitment once the major is formalized. Further, the Introductory class (SAG 101, now SAG 210) is a required course in the newly launched Food Systems and Hunger Studies Undergraduate Certificate, which has strong potential to expose new students to the SAG program and to the university.

Areas of concern for the program include reduced faculty and staff resources at this critical growth period. Two core program leaders have to reduce their involvement in the program; one through retirement, and the other due to promotion to department chair duties. The program has also

experienced a cut in program staffing, with the closing of the position of an Academic Coordinator who provided some support (25% effort) to the SAG program.

This self-study process was guided by the CAFE Office of Faculty Resources, Planning and Assessment, with the assistance of the CAFE Center for Student Success. The self-study document was assembled by Director of Undergraduate Studies Dr. Krista Jacobsen, Department of Horticulture, and reviewed by Steering Council Chair Dr. Mark Williams, Department of Horticulture. Data is presented here for the AICU major as a whole, and for each of the incubating options which fall under the major, but the study focuses primarily on the Sustainable Agriculture option—as it is the largest single option with respect to enrollment, and is currently proposed as a new stand-alone program.

We look forward to the external perspectives provided through this review process, and for the feedback to strengthen our program.

II. Sustainable Agriculture Undergraduate Degree Program (SAG) Overview

Created in 2007 as an "Individualized Undergraduate Degree Program" in CAFE, SAG was initiated to meet the growing need for academic degree programs that prepare students for careers in agriculture and community food systems through holistic, systems thinking and science-based, interdisciplinary, experiential education.

Now in its 11th year, we have graduated ~50 majors since the program's inception, including 28 in the last 5 years. As a program under CAFE's Individualized Programs, we have been allowed to "incubate" the program, assess strengths and areas where the curriculum needs modification to meet student needs, and refine the curriculum. In Summer/Fall 2017, the Program Steering Council, with support of CAFE administration, began the process of "formalizing" the program as a stand-alone major. At the time of this writing, this "New Program" is pending approval at the level of the UK Senate. Program requirements and a 4-year plan are provided in Appendix A.

Program Mission, Vision, and Goals

The program is keenly aligned with the UK[1] and CAFE[2] Missions through our deep committed to improving the lives of our students through excellence in education, student mentorship, a deep commitment to our alumni, and a strong sense of service to the local agriculture and community food systems of the Commonwealth.

Further, as stated in the UK Strategic Plan[3], as Kentucky's flagship institution, the University plays a critical leadership role by promoting diversity, inclusion, economic development and human well-being. This program is designed to prepare students for careers across the agriculture and food systems sector, key areas of economic development and improved human health outcomes that are promoted via the growing local food and agricultural economy.

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[1] UK Mission: The University of Kentucky is a public, land grant university dedicated to improving people's lives through excellence in *education*, research and creative work, service and health care.

[2] CAFE Mission: The College of Agriculture, Food and Environment ***serves the people*** of the Commonwealth and across the world through education, outreach, service, and research by finding solutions to improve lives today and creating a sustainable future.

[3] http://www.uky.edu/sotu/2015-2020-strategic-plan

This program directly supports the UK 2015-2020 Strategic Plan Objective for Undergraduate Student Success: "To be the University of choice for aspiring undergraduate students, within the Commonwealth and beyond, seeking a transformational education that promotes self-discovery, experiential learning, and life-long achievement." Our vision is to, simply, provide a high-quality program that prepares students for careers across the farm-to-plate spectrum, and infuses the Commonwealth with change-makers in our food and agricultural system. Specifically, the program's aims are:

1. Provide the Commonwealth an academically rigorous program that has the potential to enhance farm profitability, reduce the environmental impacts of agriculture, and strengthen the social connections between farmers and consumers.
2. Provide students with fundamental knowledge, practical field experience, integrative skills and an understanding of agriculture and food systems in the broader society.
3. Prepare students for careers in production agriculture, allied industries, food and agriculture organizations at points beyond the "farm gate" in the value chain, and other public and private sector employment opportunities.
4. Engage non-agricultural students through the Sustainable Agriculture Minor so that agriculture enjoys a broader societal support base.
5. Augment courses of study for students in other agriculture majors through the Sustainable Agriculture and Community Food Systems Minor.

Our 5-year Program Goals include:

1. Creation of the Sustainable Agriculture and Community Food Systems Major as a stand-alone major.
2. Enhancement of recruitment and outreach efforts to meet enrollment targets as well as increase exposure to agriculture and non-agriculture students. Emphasis will be placed on branding and materials development, as well as increased web presence (e.g. website improvements, Facebook, Instagram) to increase program exposure.
3. Recruitment of additional instructional faculty and program Steering Council members to accommodate program growth and build a resilient academic program that can adapt to faculty appointment changes, rotation of course instructors, and cultivate additional program leadership.

SAG Program History

In 2007, UK joined Land Grant Universities (LGU's) across the country developing sustainable agriculture-oriented degree programs. At that time, only 5 LGU's offered BA/BS degrees in this area. Currently, the number LGU's offering sustainable agriculture and/or food systems has grown to 14 BA/BS degree-granting programs (Appendix B), and 11 minor programs. These programs are characterized by emphasis on the tripartite nature of sustainability, experiential learning, and real-world problem solving.

The UK SAG program is interdisciplinary and interdepartmental, housed within the College of Agriculture, Food and Environment (CAFE). The administrative home for the program has historically been in the Department of Horticulture, the academic home for two of the core faculty (Jacobsen and Williams). However, beginning in academic year 2018-2019, the program budget and financial management will be housed at the College-level, in the Center for Student Success.

Over the past 11 years of program development, we have improved our experiential teaching capacity by building a robust teaching farm, cultivating interdepartmental and intercollegiate faculty

engagement, and refining our curriculum in two "tracks" based on student input and career trajectories. In the 2017-2018 academic year, we initiated the “New Program” proposal to create the “Sustainable Agriculture and Community Food Systems” major as a stand-alone major to increase program visibility and recruitment resources to further our growth and development. At the time of this writing, the program has been approved at the CAFE Undergraduate Curriculum Committee, and is awaiting consideration at the University Senate.

This program does not have any consortium or contractual relationships with other institutions in Kentucky or otherwise.

Program Structure & Administration

The SAG program is overseen by a Steering Committee of faculty representing departments in which the students take courses, with representatives from departments in CAFE and the College of Arts and Sciences. Additional appointments include the Farm Manager for the program-affiliated UK Community Supported Agriculture Project (CSA), a program alum, and the Academic Coordinator with SAG responsibilities (note: this position has been eliminated, but was filled during a portion of the review period). Steering Committee appointments are for one year, and are made by the CAFE Associate Dean for Instruction with the approval of the CAFE Dean. The Steering Committee is chaired by the Program Director, and meets approximately once per semester. Meetings typically include programmatic updates, discussion/feedback on specific program issues, and is the forum for any formal voting or discussion of official program decisions. The Director of Undergraduate Studies (DUS) facilitates assessment, course and curriculum revisions and updates, is responsible for coordinating reporting activities, and represents the program on the CAFE Undergraduate Council. Current Steering Committee representation is presented in Appendix C. During this review period, Dr. Lee Meyer (Agricultural Economics) was Steering Committee Chair from 2012 – 2018. Dr. Mark Williams (Horticulture) assumed Chair duties in 2018. Dr. Williams was the DUS from the inception of the program to 6/30/2016. Dr. Krista Jacobsen (Horticulture) assumed the DUS role after Dr. Williams, and is the current DUS.

Student advising is conducted by program faculty and aided, when needed, by professional staff for advising and program recruitment in the Office of Student Success. For several years, recruitment and entry advising was aided by an Academic Coordinator shared with the Modern Agronomic Crop Production Individualized Degree program option (25% SAG/75% Modern Agronomy). However, the majority of on-campus recruitment and advising efforts are conducted by program faculty. Admissions are coordinated with the CAFE Office of Student Success.

Progress Since Previous Program Review

We primarily track program progress via the Implementation Plan Annual Reports, an annual reporting process detailing progress on the accepted recommendations from the previous Program Review. A summary of progress is presented in brief below. The most recent Implementation Plan Annual Report (2018) is available in Appendix D. Although we do not formally benchmark the SAG program with programs at peer institutions, we remain abreast of programs similar to ours via faculty involvement in the Sustainable Agriculture Education Association[i]. Similar programs at Land Grant Institutions, identified from the Association’s website, are listed in Appendix B.

Progress on Recommendations from Previous Periodic Review

Recommendation 1: Complement the Steering Committee with an Advisory Council comprised of a diverse mix of internal and external stakeholders which might include alumni, community based organizations, representatives of farm groups, etc. Such a Committee could provide for continuous improvement in program and curriculum.

Results: The SAG program underwent substantial change since our last programmatic review, based on student and faculty feedback. This change has resulted in several substantial programmatic developments, including a curriculum revision formalizing Specialty Support "emphasis areas" - Farming Systems and Community Food Systems", major course changes in three of our four SAG core courses, and submission of the major as a "new," stand-alone undergraduate degree program. These substantive program changes necessitated delaying the formation of a formal Advisory Council. We have continued to rely on community partners and alumni knowledge of the program for *ad hoc* feedback through these large programmatic developments.

Analysis of results and reflection: The original intention of this recommendation was to provide opportunity for external stakeholder input to the program to help shape program improvements as well as strengthen community connections for the program. Since our previous program review, we have actively chosen not to actualize this recommendation as written so as to "get our house in order" with regards to curriculum revisions, major SAG core course revisions, and efforts to formalize the degree program.

Recommendation 2: Additional faculty resources are needed for the program to continue to grow, particularly in animal and agronomic (row crop) agriculture. Consideration, as noted above, should be given to new faculty position announcements that include collaboration with programs such as SAG. Attracting additional faculty in the College and University would help overcome a perception that some may have suggesting that the SAG program is really a Horticultural Science program.

Results: As the program has been undergoing program formalization and course revision processes, we have actively worked to expand departmental representation on our Steering Committee. Steering Committee members include representation from Career and Technical Education, Plant Pathology (PPA), Philosophy (PHI), and Dietetics and Human Nutrition (DHN). The DHN appointment is, in part, to support relationships between the newly approved Food Systems and Hunger Studies certificate program, which requires the SAG Introductory course (SAG 101, now approved as SAG 210). We have also worked with the Agricultural Education (Ag Ed) program on mapping double-major options, and have seen ongoing increases in Ag Ed students in SAG core and affiliated courses.

Analysis of results and reflection: Faculty members from allied departments and programs have been added to the steering committee. Although the primary motivation is to facilitate faculty relationships and curriculum depth for our students in these areas, they also serve to broaden the perception of the SAG program as beyond a Horticulture or Organic major.

Recommendation 3: The Steering Committee (advisory committee, perhaps) along with the College and appropriate departmental administrators should address the quality/quantity tradeoffs and impacts of increasing student enrollment including resource needs for:

- Curriculum management – The curriculum includes significant experiential learning components. (Expansion may decrease the quality of the instruction and the ability to carry out such activities.)
- Advising
- Resources (faculty and staff)
- Line item operating budget

Results: Over the last 4 years, student enrollment in the program declined, due to a large "bump" in students we experienced ~5 years ago. We have stabilized our numbers of majors since that time. However, with an understanding that we are essentially at a fairly stable number that is lower than our capacity, our website was re-vamped a few years ago and we created some branded items (shirts, bags, hats), and leverage the support we receive for recruitment and initial advising. However, a recent staff departure in 2018, lack of a program operating budget, and delaying re-vamping materials due to program revisions, our staffing and other budgetary resources have essentially stagnated.

Analysis of results and reflection: Funds were acquired from the college to help hire a website developer, and the re-vamped website went "live" in Summer 2016. With the support of a part-time recruiter (25% SAG), we printed some t-shirts and tote bags to increase program visibility. The program support staff had a majority appointment as the recruiter for the Individualized Program in Modern Agronomic Crop Production, but has also incorporated some SAG slides into the power point recruitment presentation, with the strategy of driving interested students to our new website. However, we never fully realized the potential of this staff position, nor did the SAG program leadership team feel that we received 25% of the efforts of this position, as her recruiting activities were directed toward efforts that were not noted for being high-yielding activities for potential SAG recruits (e.g. recruitment nights in high schools, FFA activities, etc.). Although we are grateful for the support, assistance in first contact advising, and program engagement with the CAFE Office of Student Success, during this review period we have seen a decline in supporting staff resources and SAG program faculty, who are already stretched thin, are the primary contacts for all advising, social media, recruitment, and other professional academic staff functions. As such, we look forward to our 2018 programmatic review as a systematic evaluation of program resource needs.

<u>Recommendation 4</u>: Strengthen formal development efforts.

Results: In 2017-2018, with the support of CAFE administration, the SAG Steering Committee elected to move forward with formalizing the program as a Bachelor of Science in Sustainable Agriculture and Community Food Systems. This would create a stand-alone major independent of the Individualized Degree Program in Agriculture that the major has existed under since its inception.

Analysis of results and reflection: Since our previous programmatic review, there has been much discussion of a minimum number of SAG majors needed to allow the program to proceed toward formalization as a stand-alone major. However, in 2016-2017, it became clear that we were losing opportunities for exposure and leveraging recruitment opportunities if we remained under Individualized program status. Specifically, we lack exposure opportunities at the University-level when combined with other Individualized degree programs in CAFE. Further, there are significant opportunities to recruit out-of-state students via the Academic Common Market that are only available to us as a formal, stand-alone major. As such, with the support of the CAFE administration,

we decided that to strengthen program development efforts, we needed to formalize the degree program. This is coincident with the periodic review, where we hope to systematically evaluate program development.

Recommendation 5: Develop an Organic Farm Unit incubator.

Results: We have spent substantial time traveling to and studying existing incubator programs around the country to assess the potential for developing such a program in Kentucky.

Analysis of results and reflection: Although it may be possible to develop an incubator program in the future, it has become clear that the focus of developments in this area would be better spent building a beginning farmer training program to generate students that could take advantage of the incubator. We have been applying for funding to create a beginning farmer training program, and have secured some initial funds to begin training farmers specifically in growing and marketing for a Community Supported Agriculture model (grant-funded work with Dr. Tim Woods and Dr. Mark Williams). We are also pursuing donors to help fund the training program and subsequent incubator efforts. Several SAG faculty are planning on a USDA Beginning Farmer and Rancher Development Program grant proposal for the Fiscal Year 2019 funding cycle.

Recommendation 6: Develop a certificate program in Organic Farming.

Results: Our assessment of other programs and our success with our apprenticeship (SAG 397 Apprenticeship in Sustainable Agriculture) has made it clear that we have many of the pieces already in place to develop a nationally recognized beginning farmer training program. We have been applying for grants and seeking donor funding to support the development of a beginning farmer training program. We will continue to pursue funding from as many appropriate sources as possible over the next period to make this program a reality, including the possibility of USDA Beginning Farmer and Rancher Development Program funds.

Analysis of results and reflection: Once funding is secured, we will develop a beginning farmer training program that will serve as an organic farming certificate. This year-long program will be available to UK students and the general public as a professional certificate program.

Recommendation 7: Develop partnerships and alliances with private farm owners to develop whole farm plans to help create jobs for graduates and to serve as outreach models for other producers to consider.

Results: Our students are gaining employment in a wide range of jobs and we are developing strategies to track these jobs.

Analysis of results and reflection: We are placing more students in a range jobs related to sustainable agriculture and the number of students developing their own farms is increasing.

III. Documentation and Implementation of Policies and Procedures

Evidence of Adherence to Academic Policies and Procedures. The College of Agriculture, Food and Environment, including the Sustainable Agriculture Undergraduate Degree Program adheres to all

University Senate rules. The relevant rules, Section IV: Rules Relating to Admission to the University and Section V: Rules Relating to Attending the University, may be found at the following link: http://www.uky.edu/Faculty/Senate/rules_regulations/index.htm
All accepted students must have completed the pre-college curriculum and earned at least a 2.0 cumulative high school GPA. Transfer students must meet the requirement of a 2.0 GPA. Program admission is handled in concert with the CAFE Office of Student Success, which is the main CAFE point of contact for new students entering the University.

Evidence of Consistent Review and Monitoring of Course Credits and Degree Requirements.

Course substitutions requested by students are reviewed by faculty members. Once approved by a faculty member, the department chair or DUS signs the course substitution form before it is submitted to the Center for Student Success, where the request is further vetted. Equivalency credit and course transfers are reviewed by the DUS, in consultation with the instructor of the related course when needed. Decisions are then forwarded to the Center for Student Success, who will forward to the University Registrar, if needed.

Degree requirements are reviewed with each student by their advisor, a SAG program faculty member. Course substitutions are approved by the advisor and DUS or Steering Council Chair, and forwarded to the Center for Student Success to be reflected in the degree audit. Vetting of exceptions is conducted by the advisor, DUS and Steering Committee Chair, and submitted to the Center for Student Success for approval. There are no exceptions to university-level requirements, such as number of hours to degree completion or fulfillment of UK General Education Core requirements.

Adherence to Procedures on Faculty Personnel Actions.

The Sustainable Agriculture Undergraduate Degree Program adheres to the Rules of Procedure as established and approved by the College of Agriculture, Food and Environment on May 27, 2015. Faculty personnel actions are coordinated through the college and the department in which the faculty member holds an academic appointment. The relevant rule may be found at the following link: https://administration.ca.uky.edu/sites/administration.ca.uky.edu/files/2015_cafe_rop_for_web.pdf

Evidence of course scheduling and teaching assignments.

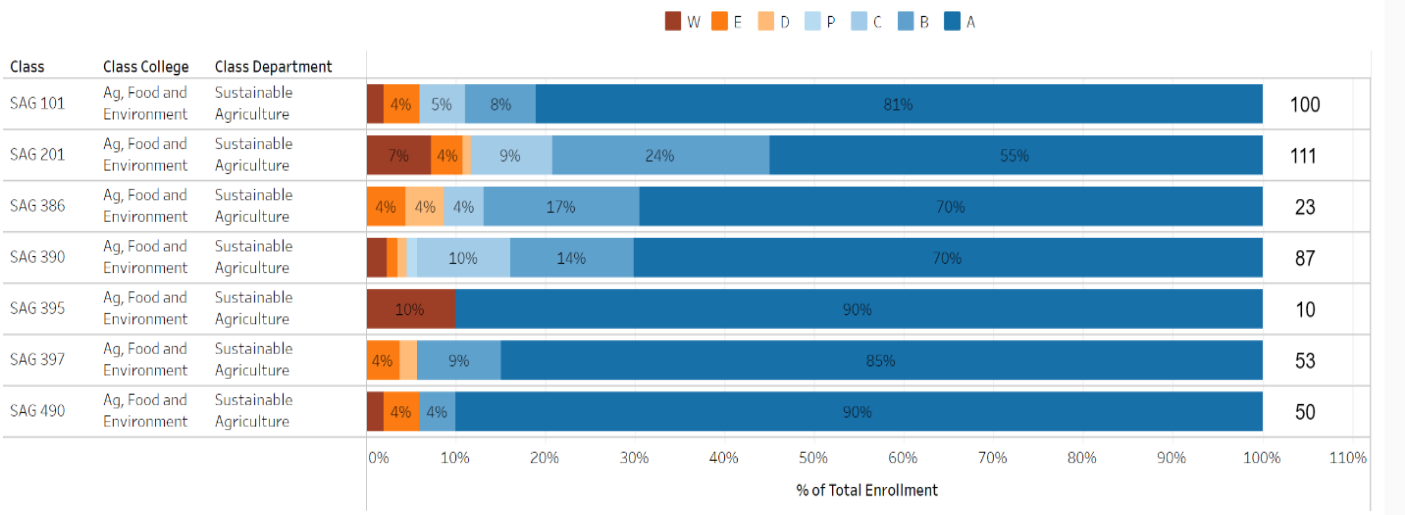
Course scheduling and teaching assignments are discussed writ large at Steering Council meetings, with specific details discussed on an ongoing basis with affected faculty. All courses required for a degree are offered during a scheduled four-year plan.

As an example of course scheduling for a typical year, class offerings and teaching responsibilities for 2017-2018 are offered below. Course listings include all classes with a SAG prefix (including cross-listed courses), but does not include independent research (395) or experiential learning (399) course credit offered on an individualized basis.

Course Offerings for SAG-Prefix Courses, 2017-2018		
Semester	**Course**	**Instructor**
Fall 2017	SAG 101	Jacobsen
	SAG 397	Williams
	PLS/SAG 386	Jacobsen and Williams
Spring 2018	SAG 201	Rignall
	PLS/SAG 390	Jacobsen
	SAG 490	Williams

Grade Distribution. Grade distribution for SAG-prefix courses for the review period are detailed below. The faculty in the program are extremely mindful of grade deflation/inflation. As such, we regularly evaluate course grading structure to determine if and how we balance awarding credit for participatory- versus content-oriented aspects of courses.

Grade Distribution for SAG-prefix courses averaged over the review period.



Dissemination and transparency. Dissemination and transparency of the aforementioned policies are ensured by posting the policies and evidences on our university senate and college websites. They may be accessed at the following links:

Governing Regulations

Administrative Regulations

College and Unit Rules and Statements of Evidence

CAFE Rules of Procedure http://administration.ca.uky.edu/faculty-administration

IV. Academic Program Description

Student Enrollment

Enrollment and degrees awarded for SAG and other CAFE Individualized Undergraduate Degree Programs during this review period are provided in the tables below.

Individualized Major Enrollment During Review Period, Including SAG							
Enrollment	**Fall 2012**	**Fall 2013**	**Fall 2014**	**Fall 2015**	**Fall 2016**	**Fall 2017**	**Fall 2018**
Pure Individualized Curriculum (no associated option)	2	2	7	4	3	12	25
Entomology	5	5	5	1	2	4	7
Modern Agronomic Production				2	6	6	5
Sustainable Agriculture	**35**	**23**	**15**	**21**	**19**	**20**	**21**
Technical Systems Management				16	18	13	4
Total (All Indiv. Curriculum Options)	**42**	**30**	**27**	**44**	**48**	**55**	**62**

Degrees Awarded by Individualized Program Major During Review Period					
Degrees Awarded	**2013-14**	**2014-15**	**2015-16**	**2016-17**	**2017-18**
Pure Individualized Curriculum (no associated option)	5		8	8	3
Entomology	2	1			1
Modern Agronomic Production				1	1
Sustainable Agriculture	6	5	6	8	4
Technical Systems Management			1	1	6
Total (All Indiv. Curriculum Options)	**13**	**10**	**15**	**18**	**15**

Contribution to Statewide Postsecondary Education

Kentucky HB1 sets forward the strategic agenda that guides postsecondary educational goals and policy from 2016-2021, delineated in the Council for Postsecondary Education's Stronger by Degrees 2016-2021[4]. This framework provides high-level goals (Opportunity, Success and Impact) supported by policy objectives to achieve these goals. The SAG program Impact Goal, stated as "Kentucky will be stronger by training a globally competitive, entrepreneurial workforce; educating an engaged, informed citizenry; improving the health and well-being of families; and producing new research and discoveries that fuel job creation and economic growth." The program does this by contributing to the following policy objectives.

- *Improve the career readiness and employability of postsecondary education graduates*. The program provides high-quality degree production and career readiness across the farm-to-plate spectrum. We have a consistent record of placing our students in positions in agriculture and allied- industries, as well as in graduate school.
- *Expand regional partnerships, outreach and public service that improve the health and quality of life of Kentucky communities.* The SAG program is explicitly focused on increasing quality of life for graduates and citizens of the Commonwealth by increasing communities' capacity to sustain

[4] http://cpe.ky.gov/ourwork/documents/201621strategicagenda.pdf

rural livelihoods through agricultural activities and build community food systems. Our program encompasses sustainable land stewardship, a focus on economic profitability across the farm-to-plate spectrum, and addresses issues of food access and social justice in rural and urban contexts.

Program Demand and Uniqueness in Kentucky

The Sustainable Agriculture major is the singular program that integrates the production of food, fiber, and fuel in the broader fabric of the ecosystems, economies, and communities in which our agricultural systems are woven. This interdisciplinary program is unique within UK's sustainability-oriented programs due to the emphasis on agriculture and food systems; within environmental programs due to the emphasis on economic viability and cultural context; and within discipline-oriented majors with its consideration of whole systems rather than components. More practically, the Program Core Courses represent a broad foundation in economic viability in farming and food enterprises, environmental responsibility within agricultural production systems, and social responsibility and food access that are not required in any other major. The program has unique experiential learning capacity, including our Community Supported Agriculture project on the Horticulture Research Farm, where students in the SAG 397 course produce organic vegetables and fruits for over 200 UK families. Service learning, community-based projects and field trips, and applied laboratories are emphasized throughout the SAG courses and all students are encouraged to conduct independent, applied research or experiential learning in their Specialty Support (Guided Electives) coursework. There are no similar programs at other Kentucky public institutions at this time.

Non-UK Collaborations

There are no formal collaborative relationships with other institutions, but we do regularly accept transfer students from regional institutions, as well as institutions within the Kentucky Community and Technical College System. There are additional opportunities to further collaborations with KCTCS to 1) ensure advisors at KCTCS institutions are aware of the SAG program and develop a stronger pipeline of transfer students into the UK SAG program, and 2) ensure advisors are aware of program requirements so they may appropriately advise and prepare students for transfer into the program.

Program Faculty

Faculty Recruitment and Development. There is no formal faculty recruitment or development plan for the SAG program. Our faculty recruitment efforts have been ad hoc, to fill instructional roles and gain broad representation on our Steering Committee. Contributing departments could be encouraged to link SAG teaching support to new hires or re-orient existing positions to support the program. Although the program enjoys strong relationships with the departments in the college, such targeted teaching assignments have not been linked to new hires or to reorient existing appointment. There are no unfilled faculty lines, as there are no SAG-dedicated lines.

Faculty Attrition. Steering Council Chair Lee Meyer has been on a part-time post retirement appointment since Fall 2015. Dr. Meyer's Steering Council Chair position was taken on by Dr. Mark Williams for the 2018-2019 academic year. Although Meyer had relatively minor teaching and advising duties in the major, the SAG program has benefitted from his deep social networks in the agriculture and sustainability communities, in bringing new faculty to the Steering Council, as well having leadership

representing departments outside of the Horticulture and Community and Leadership Development Departments.

Dr. Mark Williams was promoted to Department Chair of Horticulture on July 1, 2018. He remains Steering Council chair, but his promotion necessitates shifting his courses to another instructor. At the time of this writing, Dr. Krista Jacobsen is assuming some of these responsibilities for PLS/SAG 386 and the SAG 490 (Capstone). However, this is an unsustainable course load and narrows the instructional base for the program, particularly if courses are slated to add additional sections (increased frequency, online sections, etc.). The program would benefit from additional faculty from a variety of departments.

Postdoctoral Fellows/Scholars and Graduate Assistants. We do not have standing GTA lines for instruction, although we have provided GTA supplements to tenure-track faculty going on family leave. However, this was funded by the individual faculty member's program. All GRA's with affiliated faculty members are funded by the faculty member's research program and extramural grants and are not SAG-program affiliated.

Student Recruitment

We do not have a formal student recruitment or program development plan. To date, we have received ad hoc support for the program to fund website updates and for the Academic Coordinator. The Steering Council and core SAG teaching faculty believe that a strong web-presence and targeted recruitment through the Academic Common Market (ACM) could yield strong growth in student numbers. However, we lack designated staff resources to support these efforts, and we are not able to recruit through the ACM until the program is formalized, which is in process but will not be in place until Fall 2019.

We do believe the increased exposure and some additional marketing resources will help us grow the program, as we have maintained relatively stable student numbers with no line-item budget or targeted recruitment effort. After approval as a new, stand-alone major, we have estimated the program student demand for the first five years following implementation as follows:

Estimated Majors and Degrees Conferred in the 5 Years Following New Program Establishment		
Academic Year	**No. Degrees Conferred**	**Majors (headcount) Fall Semester**
2019-2020	7	25
2020-2021	8	30
2021-2022	10	35
2022-2023	10	40-50
2023-2024	10	40-50

Program Delivery and Administration

The SAG program is a traditional, face-to-face instructional curriculum. Although some program requirements may be met through courses with flexible scheduling (e.g. evening courses) or distance learning course sections (e.g. DHN 212, AEC 305), SAG-prefix courses are traditional course offerings at this time.

Review of Distance Learning Course Offerings. At this time the SAG program does not have any Distance Learning offerings. An online section of the Introduction to Sustainable Agriculture and Community Food Systems course (SAG 101) is in development to support the Food Systems and Hunger Studies undergraduate certificate, and is slated for launch in Fall 2019.

Flexibility of Program Delivery. The Agriculture Individualized Curriculum program serves primarily full-time, traditional students who are able to attend daytime classes. The demand for evening or distance courses among SAG majors was not sufficient during this review period to warrant the creation of these options. Between Academic Years 2013 and 2018, there were a minimum of 85% and a maximum of 100% full time students enrolled, with an average of 94% full time enrollment across the review period (comparison of fall terms only). Thus, for the review period the vast majority of courses were offered on a traditional basis.

Agriculture Individualized Curriculum Majors by Full-time/Part-time Status				
Fall Term of Academic Year	**Full Time**	**Part Time**	**Grand Total**	**Percent Full Time**
2013	38	2	40	95%
2014	26	2	28	93%
2015	26	0	26	100%
2016	33	6	39	85%
2017	42	2	44	95%
2018	50	3	53	94%
Grand Total	215	15	230	94%

Contributions to the UK General Education Core. The Cultural Perspectives on Sustainability (SAG 201) course contributes to the Global Dynamics UK Core program. This course serves approximately 25 students per year.

Quality and Effectiveness of Advising and Orientation. All incoming students are encouraged to fully participate in all College and University orientation activities. AICU majors with no specialized option selected, are assigned an advisor through the CAFE Center for Student Success. As a part of the new student orientation, all SAG students meet with their faculty advisor, with rare exception of scheduling conflicts, when a Center for Student Success staff member provides assistance. Ongoing faculty advising is conducted each semester on a one-to-one basis with each student. SAG advisors strive to get to know our students personally, and to guide the student through curriculum choices that best support their professional or personal development goals. Students are encouraged to seek additional advising appointments whenever needed, and many email or text their faculty advisors when issues arise. We have limited quantitative data on advising effectiveness. Although the Center for Student Success has initiated an advising services survey, we need to encourage our students to complete them.

V. Program Quality and Student Success

Student Learning Outcomes (SLO) Assessment

Student learning outcomes and the assessment process was revised in 2016 as part of required updates to the Program Assessment Plan. SLO's were revised to incorporate GCCR activities into Program-level assessment and incorporate holistic and integrative thought processes along with content knowledge into the SLO's.

SLO's from the program inception to the end of the 2015-2016 academic year are listed below.

1. Describe and apply the environmental stewardship component of sustainable agriculture;
2. Describe and apply the social well-being component of sustainable agriculture;
3. Describe and apply the economic viability/responsibility component of sustainable agriculture;
4. Assess food systems using an integrated understanding of sustainable agriculture;
5. Evaluate the sustainability of a site specific situation by applying a fundamental understanding of sustainable agriculture principles.

Current SLO's (2016 – current) are listed below.

1. Demonstrate an understanding of the economic profitability, social responsibility and environmental stewardship components of sustainable agriculture.
2. Explain how the concept of sustainability is applied and practiced in local and global food systems.
3. Evaluate the sustainability of a site-specific situation by applying an integrated, interdisciplinary understanding of sustainability in agriculture and food systems.
4. Articulate his/her own understanding of agricultural sustainability through oral and written communication.

The SLO Plan and SLO reports from the review period are provided in Appendix E.

SLO's were assessed using formative and summative assessment artifacts from the Introductory course (SAG 101) and Capstone course (SAG 490) respectively. Rubrics are used to guide scoring of formative and summative artifacts/assignments for each SLO. In general, at least three SAG core teaching faculty are involved in the assessment process. This generally includes the DUS, Program Chair, and an additional faculty member. The scoring faculty briefly discuss the assessment process, then independently score each student/artifact. Reported values in the SLO report are mean values of all evaluating faculty.

Not all program SLO's were evaluated during the reporting period, as the program underwent curriculum and assessment plan revisions during the review period. In brief, we consistently evaluated the synthetic SLO's focused on student's ability to assess the sustainability of a site-specific situation in farming and food systems (previous program SLO's 4 and 5, current SLO 3). In these assessments, mean rubric scores increased 22% - 30% between formative and summative assessment points. For the first two years of this review cycle, the program received constructive feedback on how to improve our assessment process to make better use of our data, set improvement benchmarks, and generally improve our assessment process. We reflected upon this feedback, and consistently made improvements to our SLO assessment process, which has resulted in our current plan and process.

Program Assessment Plans, SLO reports, and evaluation from the review period are provided in Appendix E.

Teaching Effectiveness

Teaching effectiveness is evaluated from multiple measures. Teacher Course Evaluations will be used for quantitative, formal feedback for courses and instructors. As SAG core courses maintain a relatively small classroom size (under 40), instructors have frequent opportunities to interact with students. Informal interviews/discussion with students throughout their undergraduate degree is used to evaluate effectiveness and areas of improvement. Finally, instructors of SAG core courses conduct self-reflection based upon evidence of student learning from assignments considered central to the given course.

Efforts to improve teaching effectiveness are based upon the particular course and feedback received. However, we have found through utilizing these methods that methods include, but are not limited to: revision of course workload and content; diversification of instructional methods, especially efforts to augment traditional lecture structure with active learning strategies; and generally increasing opportunities for active and experiential learning, as appropriate to the course content.
It should also be noted that many of the core SAG teaching faculty are actively engaged in professional teaching societies, including the Sustainable Agriculture Education Association, and the National Association of Collegiate Teachers of Agriculture. The faculty regularly attend Association conferences, which offer opportunities to exchange best practices with colleagues around the country.

External Awards

SAG faculty have received a total of four teaching awards during the review period. Dr. Jacobsen was awarded the following: UK College of Education Teacher Who Made a Difference Award (2016), UK CAFE Women's Instructional Empowerment Award (2016), Gamma Sigma Delta CAFE Master Teacher Award (2016). Dr. Williams was awarded the University of Kentucky Provost's Award for Outstanding Teaching (2015).

Average Time to Degree

The SAG major requires completion of 120 hours total, or 108 hours excluding UK Core credits that do not also fulfill pre-major requirements. Time to degree completion averaged 4.4 years for students beginning the program upon initial admission as a freshman, and 3.0 years for transfer students. The Average Credits-to-Degree are higher than the minimum credits to degree for the SAG major in all years in the review period for both Transfer and Freshman-entering students. Transfer students typically transfer into the program in their upper class years, and routinely require additional credits to complete the program, particularly due to the tri-partite nature of our curriculum, which requires courses in economics, social sciences and humanities, and the natural sciences. Particularly at the early portion of this program review cycle, students entering the program as Freshmen routinely have multiple minors or a double major, increasing their credit count. That trend has become less pronounced with recent graduates. With a relatively low number of students we are cautious to over interpret such data, though it is helpful in complementing the qualitative data from the students.

Average Years- and Credits-to-Degree for Freshman and Transfer Students for Each Year of the Review Period.

		Freshman or Transfer					
		Freshman			Transfer		
Academic Year Formatted ..	AG Options	Number of Students	Avg. Years to Degree (Version 2)	Avg. Credits Earned Cumulative..	Number of Students	Avg. Years to Degree (Version 2)	Avg. Credits Earned Cumulative..
2013-14	Other Options				1	2.3	120.0
	SAG	2	4.5	153.0	2	2.3	170.5
2014-15	Individualized Curriculum	1	4.7	132.0	1	3.7	126.0
	Other Options				1	3.3	120.0
	SAG	1	5.0	142.0	3	3.3	141.3
2015-16	Individualized Curriculum	2	4.0	134.5	3	4.6	142.3
	Other Options	1	3.7	161.0			
	SAG	3	4.2	154.8	2	3.1	162.5
2016-17	Individualized Curriculum	3	5.9	126.7	3	1.8	132.3
	Other Options	1	4.7	149.0	1	2.3	123.0
	SAG	6	4.1	140.8	1	1.7	128.0
2017-18	Individualized Curriculum	3	3.4	124.7	1	4.3	141.0
	Other Options	5	4.9	151.5	1	1.7	133.0
	SAG	2	3.2	124.0	1	2.7	150.0
		30	4.4	141.7	21	3.0	140.7

Post-Graduation Student Success

The SAG program provides an academic home for students with a variety of professional aspirations. Given the size of the program and the close faculty-student connections, we have post-graduation and current employment for 86% of students graduating in this review period (24/28).

Post-graduation employment data for SAG major alumni during this review period are listed below. Additional information on a student-by-student or categorical basis is available upon request, as the program faculty maintain ongoing relationships with our alumni.

Employment Outcomes for Graduates During Review Period					
	2013-2014	**2014-2015**	**2015-2016**	**2016-2017**	**2017-2018**
Number of graduating students who sought employment	6	5	5	8	3
Percentage of students who sought employment	83%*	100%	100%	75% known, remaining 25% unknown**	100%
Number of graduating students who gained employment	5	100%	100%	75% known, remaining 25% unknown	100%
Percentage of graduating students who gained employment	83%	100%	100%	75% known, remaining 25% unknown	100%

*The one student not seeking employment in this cohort had significant medical issues requiring ongoing treatment.

**We are missing alumni data on two of these graduates.

Employment Placement for SAG Graduates During Review Period by Bureau of Labor Statistics Position Categories					
Job Category	**2013-2014**	**2014-2015**	**2015-2016**	**2016-2017**	**2017-2018**
Agriculture Managers (Including Primary Owner /Operator)		20%	60%	12.5%	
Agriculture Workers (Employee)	40%	40%	20%	12.5%	33%
Production Technician and Assistants (Non-farm workers in allied agriculture industries, e.g. grain elevator, etc.)				25%	
Food Systems (Restaurant/Local food)		20%		12.5%	
Food Systems (Non-profit Sector)	20%			12.5%	
Government (University Extension, local government, other)	20%		20%		33%

Employment Locations for SAG Program Graduates During Review Period					
	2013-2014	**2014-2015**	**2015-2016**	**2016-2017**	**2017-2018**
Percentage of students finding employment in Kentucky	66.3%	60%	60%	37.5%	66.7%
Percentage of students finding employment outside of Kentucky	16.7%	40%	40%	37.5%	33.3%

Graduate School Applications and Acceptance Rates for SAG Program Graduates During Review Period					
	2013-2014	**2014-2015**	**2015-2016**	**2016-2017**	**2017-2018**
Number of graduating students who sought graduate school admission	2	0	0	1	1
Percentage of graduating students who sought graduate school admission	33%	0	0	12.5%	33%
Number of graduating students who attained graduate school admission	2	0	0	1	1
Percentage of graduating students who attained graduate school admission	33%	0	0	12.5%	33%

Current and Future Demand for SAG Graduates. The program alumni employment data from this review period indicate strong demand for graduates in the field. This is consistent with Burning Glass employment sector analysis for graduates of majors coded similarly to the SAG program (CIP code Agroecology and Sustainable Agriculture 01.0308). Employment potential for students in this field nation-wide has increased steadily during the review period, based on Bureau of Labor Statistics data, and is projected to continue to grow at an average pace beyond the next review period. *Note: These data are based on agriculture worker and management positions and other natural science careers, and do not encompass jobs in the NGO or food systems sector.*

Number of Open Positions Nationally for Graduates of SAG-related Programs*						
	2012	**2013**	**2014**	**2015**	**2016**	**2026**
Employment (BLS)	35,930	38,170	39,110	39,290	39,180	40,707

*Employment data between years 2018 and 2026 are projected figures. Data from Program Impact Report using Burning Glass Analytics.

Employer satisfaction. The College of Agriculture, Food and Environment (CAFE) and the academic departments and multi-disciplinary programs strive to maintain employer satisfaction through interactions with stakeholder employers through a variety of methods, including advisory boards, on-campus employment fairs, discipline-based accreditation site visits and reports, and involvement in periodic program reviews. The feedback provided from employers through these mechanisms influences curricula and ensures that students are provided the course content that leads to successful employment. Collection of feedback from employers who provide undergraduate students with internship and experiential education opportunities is another way that professors and department chairs can interact with employers and learn what knowledge and skills the undergraduates need for successful careers. CAFE, by virtue of being a land-grant agricultural college, has close ties with industry and business. This leads to a consistent exchange of information between the disciplines and the employers. The feedback is collected through both informal and formal but confidential settings with various groups.

Student/Alumni Satisfaction. The College of Agriculture, Food and Environment 2015-2020 Strategic Plan Goal 1B is to track the perceptions and assessments of college graduates' preparation to be competitive in a global economy. The college has begun conducting an annual graduating student exit survey. Of the graduating Agricultural Sustainability students surveyed, we received only one response per year in the last two years. The responses are not shared here to preserve the privacy of the individual respondent since we are not able to aggregate multiple responses. Additionally, the college is working with university administration to participate in two university wide surveys of graduates that will collect student satisfaction data and employment data going forward.

Student Internships

For-credit internships are supported and encouraged as Specialty Support credits for the major, and are completed under PLS/EXP 399 credit. As SAG faculty may advise any major under these course numbers, data accounting for the number of SAG majors completing internships is not available. All SAG majors and minors are required to completed the Apprenticeship in Sustainable Agriculture (SAG 397) course. During the review period, 79 students were enrolled in the course.

Student Involvement in Research Initiatives

The majority of SAG students participating in undergraduate research activities do so through SAG/PLS 395 activities. These are largely conducted so that a student may research a particular topic of interest under the direct guidance of a faculty member. Seldom do SAG majors participate in research through the Office of Undergraduate Research, or present research posters, etc. During the review period, two SAG majors participated in funded undergraduate research through the Office of Undergraduate Research. However, SAG faculty often supervise undergraduate research in sustainable agriculture by non-major students.

Curriculum Currency

SAG program work to ensure the curriculum and topics presented in courses through bringing out extensive professional involvement in the sustainable agriculture field from our research and service arms of our positions into the classroom. This, coupled with the issues- and participatory nature of SAG classes ensures our students are knowledgeable of current trends in agriculture and food systems and are able to articulate their informed perspectives on these topics. The presence of faculty from multi-departments and fields on our Steering Council also helps us to keep up-to-date on new and special topics courses that may be of interest to our students for Specialty Support or elective credit. Finally, the Director of Undergraduate Studies regularly has a seat on the CAFE Undergraduate Curriculum Committee, which keeps the program apprised of broad changes in curricular requirements and broad-reaching pre-requisite courses that affect multiple majors (e.g. Math, Biology, Chemistry and other borrowed courses for the SAG major).

VI. Program Resources

Instructional Support. This interdisciplinary program receives support for instruction in the SAG Core courses by faculty with appointments in the Departments of Horticulture, Agricultural Economics, and Community and Leadership Development. It is supported by UK Core courses and Pre-Major requirements taught from other departments across the University, including the Departments of Biology, Chemistry, Math, Statistics, Writing, Rhetoric and Digital Media, and the CAFE GEN 100 program. It is supported by Departments with CAFE by required courses in CLD, AEC, and Plant and Soil Sciences. Emphasis area courses are offered by the above mentioned departments, as well as Anthropology. The SAG Program supports specialty support electives in the Horticulture, Plant and Soil Science, Agriculture and Technical Education, and Natural Resources and Environmental Studies majors through instructional support for directed electives in these majors, including SAG 210, 310, and 397.

Funding and Staff Resources. No extramural program-level funding for has been applied for, or obtained, for the last 5 years. Internal support from CAFE was provided for the Academic Coordinator, but has since been revoked due to program shifts in the primary major supporting the AC (Plant and Soil Sciences). Although the SAG program was grateful for the AC's services, we, too, believe that limited funds for our programs could be used more efficiently for program needs than through funding of an AC position. Additional support for the SAG 490 (Capstone) study tour has been requested from various UK funding sources, such as the Barnhart Fund for Excellence (CAFE) and the UK Student Sustainability Council.

Budget Summary. There is no formal budget for this program, with the exception of what is collected for course fees and the faculty salary associated with the SAG core instructional faculty whom are housed in individual departments in the College. The financial commitments to instructional faculty, based on their distribution of effort (DOE) for SAG-affiliated courses total $70,559 (2017-2018 salaries), and are a product of teaching DOE for Jacobsen (0.41 FTE), Williams (0.16 FTE), Tanaka (0.10FTE), and Rignall (0.10 FTE).

As a point of reflection for the purpose of this self-study document, this lack of a standing program budget is significant. Although we are grateful for the financial support for ad hoc projects such as website updates, student study tours, and student enrichment experiences, a lack of standing budget or support staff is a substantial limitation. In previous years, SAG has shared a recruiter/academic coordinator with the Department of Plant and Soil Sciences (25% SAG, 75% PSS). In 2018, this position was eliminated, and as such, there is currently no staff or resources for basic program functions such as recruitment, promotion/outreach, social media, or website maintenance, to name a few. The affiliated faculty are highly committed and attend events and give their best effort to meet the program needs, but are limited by their other demands.

Student Credit Hour per Instructional Faculty FTE. Instructional effort is quantified as student credit hour (SCH) per instructional faculty FTE, defined as credit hours taught by program faculty in a unit, department, or discipline, divided by the number of instruction FTE of those program faculty. Student credit hour per instructional faculty FTE for the past 5 years are provided in the table below. As SAG instructors share instructional duties with their home departments, SCH for SAG as a portion of SAG faculty SCH are also presented.

Average SAG specific Student Credit Hours taught by program associated faculty FTE (includes only faculty teaching SAG courses in the given year)					
	2014	**2015**	**2016**	**2017**	**2018**
SCH	630	546	436	439	355
SCH/FTE	157.5	182.0	145.3	146.3	118.3

SAG vs. All course SCH per SAG faculty										
	2014		**2015**		**2016**		**2017**		**2018**	
	SAG SCH	**All SCH**	**SAG SCH**	**All SCH**	**SAG SCH**	**All SCH**	**SAG SCH**	**All SCH**	**SAG SCH**	**All SCH**
Jacobsen	129	149	135	143	147	156	144	160	298	316
Williams	219	243	222	254	220	237	223	256	57	63
Tanaka	90	186	0	177	69	211	72	570	0	362
Rignall	0	0	0	0	0	267	0	252	69	252
Meyer*	192	214	189	201	0*	9*	0*	3*	0*	4*

*Dr. Meyer teaching part-time in post-retirement appointment in 2016-2018

Facilities Summary. Facilities for on-campus instruction are primarily classrooms in the Agriculture Science Center and Garrigus Buildings. Classrooms in these buildings are outfitted with sufficient

computer and projector technologies, and are of appropriate size for the classes taught in these spaces. The Organic Farming Unit at the UK Horticulture Research Farm also has buildings that serve as three-season classrooms and experiential learning spaces. These facilities are adequate for seasonal instruction and provide a unique instructional environment for the program. Although there is not sufficient IT capacity in these buildings for computer-based instruction, there is a classroom on the farm that has projector capabilities if such facilities are needed.

Equipment Summary. The Organic Farming Unit has a complete array of farming-related machinery. It is fully equipped to allow student apprentices to experience and learn a large spectrum of techniques associated with operating a highly diverse vegetable and fruit farm. This equipment includes tractors, tillage implements, cultivation tools, pesticide application equipment, trucks, wagons, buildings, wash/pack infrastructure and coolers.
Personnel Summary Information. Demographic and salary information are not provided at this time. Due to the small number of SAG core personnel, such data cannot be provided and maintain anonymity.

VII. Input from Affected Constituents

Evaluation Data

Evaluation Data from Program Faculty, Staff and Students. As SAG is a multidisciplinary, individualized academic program, data are not available from work-life surveys, quarterly reports, accreditation visits, or other institution-level measures to obtain input from affected constituents. No additional formal input for these purposes has been sought from contributing faculty or staff at this time. Student input on quality of courses and instruction is collected regularly using Teacher Course Evaluations (TCE).

VIII. Evaluation of Program Effectiveness

Quality of collegial environment

The University of Kentucky is committed to diversity as a vital characteristic of an optimal education and workplace. The University maintains a firm conviction that it must strengthen the diversity of its communities, support free expression, reasoned discourse and diversity of ideas; and take into account a wide range of considerations, including but not limited to, ethnicity, race, disability, and sex, when making personnel and policy decisions. In addition, the College of Agriculture, Food, and Environment prioritizes the implementation of best practices for developing a diverse faculty, staff, and student body through the college strategic plan, and with leadership from of the CAFE Office of Diversity http://diversity.ca.uky.edu/. The college conducts unconscious bias training workshops to ensure equality in the faculty search process. UK human resources policy and procedure 2.0, https://www.uky.edu/hr/policies/equal-opportunity-discrimination-and-harassment , states that equal opportunities shall be provided for all persons throughout the University in recruitment, appointment, promotion, payment, training, and other employment practices.

At this time, the SAG program does not have policies in place to attract and retain students, faculty and staff of diverse backgrounds. We look forward to additional recruiting capacity and potential for additional faculty lines affiliated with the program, and would welcome the opportunity to work with the CAFE Office of Diversity on recruitment strategies, perhaps leveraging opportunities to recruit out-of-state students through the Academic Common Market once the program is approved as a stand-alone major.

Although the program does not have formal equity and diversity policies, the nature of the program is focused on community and diversity of thought and disciplinary background. Further, as the program only has one faculty line tied to the program (Jacobsen) and currently no program staff, we simply must have a collegial, invitational, and often lively environment in order to function as a program. This is no substitute for formal diversity initiatives and programming, but the faculty in the program are deeply committed to the an inclusive and equitable environment for teaching and learning. We look forward to having the capacity to formally address these issues in a proactive way as we grow the program.

VIII. Evidence of Program Quality & Productivity

Operations

The SAG Steering Council meet face-to-face at least once per semester to discuss curriculum updates and program activities. These meetings include CSA Farm Manager representation and did include the Academic Coordinator. Faculty teaching SAG pre-fix courses communicate on a much more regular basis on issues of course scheduling, student performance, and curricular matters presented by the DUS. Given the small number of affected faculty in these courses, these communications are often via email or phone. Staff communicate directly and regularly (multiple times per week) with faculty in their home department.

Instruction

An overview of the current instructional program is presented in Section II. Quality of instruction is maintained through low class sizes, regular faculty support of supervised internship/independent studies, and teacher course evaluations. These are detailed below.

Class Size. Historically the SAG Program has prioritized a low faculty to student in major ratio, that trend is anticipated to continue with the formalized program. Class size for SAG core courses for the review period are listed below.

Class Size for SAG-Prefix Courses During Review Period		
Academic Year	**Course**	**Class Size**
2012-2013	SAG 101	31
	SAG 201	25
	SAG 397	13
	SAG 490	12
2013-2014	SAG 101	24
	SAG 201	31
	SAG 397	13
	SAG 490	10
2014-2015	SAG 101	28
	SAG 201	Not offered
	SAG 397	13
	SAG 490	14
2015-2016	SAG 101	25
	SAG 201	25
	SAG 397	18
	SAG 490	9

2016-2017	SAG 101	21
	SAG 201	24
	SAG 397	14
	SAG 490	8
2017-2018	SAG 101	26
	SAG 201	24
	SAG 397	8
	SAG 490	8

Faculty credentialing to support core/elective course offerings. The Steering Council Chair works closely with faculty members to ensure that instructors of record are fully qualified to teach the courses to which they are assigned. Additionally, student teaching evaluations are closely monitored by the department chair to determine the quality of teaching, as seen by the students enrolled in the classes. The department chair also assesses teaching quality through informal discussions with students and faculty, as well as the directors of undergraduate and graduate studies. Newer faculty members might have senior faculty visit their classes. Faculty members might be counseled to use the services of the university's teaching and learning center, as needed.

At the college level, the assistant director of faculty resources enters all faculty credentials, including terminal degree transcript information, into the university's Faculty Database credentialing module. This module matches the faculty member's terminal degree Classification of Instructional Programs (CIP) code with the CIP identified with the academic program. Each course also has one or more CIPS associated with it. If the CIPs do not match, the assistant director enters what the university calls a "justification." This justification is based on prior academic experience, additional academic degrees, post-doctoral scholar appointments, and other scholarly records that support the faculty member's credentials for teaching a particular course. An example might be a tenured faculty member whose doctoral degree is in zoology, but who has an academic appointment in and teaches a course for the Department of Entomology. The degree CIP might not "match" the program and course CIPs, but the faculty member clearly has the knowledge and experience to teach the course. The assistant director checks all courses each term to ensure the faculty members are qualified to teach the courses to which they are assigned.

High-Impact, Experiential Learning. A signature, highly marketable and high-impact element of the SAG program is our emphasis on experiential learning, be it through our Apprenticeship course (SAG 397), optional internships or independent studies, or education abroad courses. Brief description of these curricular offerings are below:

SAG 397 is a required course for all major and minor students, and is a hands-on apprenticeship consisting of over 50 hours of faculty instruction and 200 hours of supervised work on the UK CSA farm at the Organic Farming Unit.

Internships or Independent Studies based on student interests are highly encouraged, and may provide Specialty Support (directed elective) credit. SAG faculty members regularly supervises students in these efforts. Learning Contracts defining learning objectives, working hours, products, and communication expectations structure these courses.

Education Abroad is highly encouraged for SAG majors. We regularly work with students to integrate Education Abroad courses into their curriculum requirements as required course substitutions when

appropriate, or as Specialty Support. Tanaka and Jacobsen have developed a 6-credit, interdisciplinary sustainable agriculture Education Abroad course, "Tropical Agroecology and Sustainable Development in Indonesia", which has been offered twice during the review period. Williams regularly supervises international study tours for student club service, which recently has been offered for Education Abroad course credit (Sustainable Agriculture in Cuba).

Research

The Sustainable Agriculture Undergraduate Degree Program is an instructional degree program. Research effort and productivity of contributing faculty are reported via departments in which the faculty is appointed.

IX. Service

The Sustainable Agriculture Undergraduate Degree Program is an instructional degree program. Service of contributing faculty are reported via departments in which the faculty appointed. However, there are a few appointments for SAG core faculty that directly relate to their involvement in the SAG Program. Jacobsen, Meyer and Williams have all served on, and at times led the President's Sustainability Advisory Council, a UK President-appointed committee advising the President's office on issues related to sustainability that are primarily facilities- and operations-oriented (Jacobsen co-chair 2016-present, Meyer co-chair 2012-2016). Jacobsen and Meyer co-chair the Provost's Faculty Sustainability Council (2017-current), a group charged with advising the Provost's office on goals and strategies by which sustainability may be further supported in curricular and research activities.

X. Program Impact

Quality Enhancement Plan. The University of Kentucky's Quality Enhancement Plan (QEP) has a primary emphasis on improving student communication skills (e.g., writing, public speaking, etc.). To accomplish this major goal, the University has implemented a new Graduation Composition and Communication Requirement (GCCR), which replaces the former Graduation Writing Requirement (GWR). In addition to attaining proficiency in written communication (i.e., the old GWR), students will also be required to show competence in oral communication and information literacy in their discipline. For this periodic review cycle, the Sustainable Agriculture Program used SAG 201 (Cultural Perspectives on Sustainability) to meet this requirement. SAG 201 Examines cultural dimensions within the concept of sustainability through a close reading of texts addressing the relationship between people and nature. The application of cultural constructs used by individuals and societies in experiencing, interpreting and impacting the natural world are studied. Insights and observations of noted writers on environmental issues are discussed in relation to the interdependence between individuals, civilizations, and nature. SAG 101 is a pre-requisite for this course.

Given the heavy writing and presentation requirement for the GCCR, in 2017-2018, we began to split the GCCR written and oral communication requirements. Moving forward, we will continue to use SAG 201 (renumbered as SAG 310) to fulfill the written communication requirement. The oral communication requirement will be fulfilled by presentations in the SAG Capstone course (SAG 490).

Community Engagement. Consistent with the University's commitment to community engagement, the SAG program actively partners with local non-profit organizations working on agriculture and food systems issues. We routinely place student interns and promote service with local organizations such as Greenhouse 17 (a domestic violence shelter with horticulture therapy program), Seedleaf (a community

gardening organization), Food Chain (an urban agriculture and aquaponics organization), among others. Further, SAG Capstone projects regularly support research for local NGO's.

XI. Additional Comments

In these additional comments we wish to convey to the Review Committee planned work for the SAG program in the upcoming year, as these issues may be relevant to the Review.

1) Major program revisions regarding the role of credit-bearing experiential learning in the program (e.g. SAG 397: Apprenticeship in Sustainable Agriculture). We are prompted to re-evaluate the role of our signature experiential learning opportunity that takes place primarily with our programs Community Supported Agriculture Project[5], due to a number of factors, including the requirement that students pay summer tuition for the course offered in its current format;
2) Updating of the SAG minor to reflect current course offering; and
3) Creation of a Distance Learning course section for SAG 101 (now SAG 210) for a Fall 2019 launch, to support the new Food Systems and Hunger Studies certificate. We hope this new course development will not only support new, online students to UK and generate revenue for the program, but also increase exposure of the SAG program.

XI. Appendices

Appendix A: SAG Program Major Requirements

SUSTAINABLE AGRICULTURE & COMMUNITY FOOD SYSTEMS UNDERGRADUATE CURRICULUM

DEPT.	COURSE	DESCRIPTION	CREDITS
UK CORE REQUIREMENTS			
I. INTELLECTUAL INQUIRY –Arts and Creativity: Three hours from approved list			3
II. INTELLECTUAL INQUIRY - Humanities: Three hours from approved list			3
III. INTELLECTUAL INQUIRY - Social Sciences: CLD 102 or SOC 101 (satisfies Pre-Major requirement)			3
IV. INTELLECTUAL INQUIRY – Natural, Physical and Mathematical Sciences: Three hours from approved list			3
V, VI. COMPOSITION AND COMMUNICATION I and II: CIS 110 or WRD 110 *and* CIS 111 or WRD 111			6
VII. QUANTITATIVE REASONING - Quantitative Foundations: MA 109 (satisfies Pre-Major requirement) or PHI 120			3
VIII. QUANTITATIVE REASONING - Statistical Inferential Reasoning: STA 210 (satisfies Pre-Major requirement)			3
IX. CITIZENSHIP - Community, Culture and Citizenship in the United States: Satisfied by GEN 100			3
X. CITIZENSHIP - Global Dynamics: Satisfied by SAG 310, satisfies GCCR requirement			-
		SUB-TOTAL	**27**
COLLEGE OF AGRICULTURE REQUIREMENT			
GEN	100	Issues in Agriculture (Satisfies Gen Education IX)	-
PRE-MAJOR REQUIRMENTS			
These are CLD 102 *or* SOC 101; MA 109 or equivalent; STA 210 *and* the following courses:			
ECO	201	Principles of Economics I	3
CHE	104	Introductory General Chemistry	3
CHE	108	Intro to Inorganic, Organic, and Biochemistry	3
BIO	148	Principles of Biology I	3
BIO	152	Principles of Biology II	3
DHN	212	Introductory Nutrition	3
		SUB-TOTAL 48	**18**
MAJOR REQUIREMENTS			
Environmental Stewardship Cluster			
ASC	382	Principles of Livestock Production	3
PLS	366	Fundamentals of Soil Science	4
PLLS/SAG	386	Plant Production Systems	4
Economic Profitability Cluster			
AEC	302	Agricultural Management Principles	4
AEC	305	Food and Agricultural Marketing Principles	3
AEC	445G	Introduction to Resource and Environmental Economics	3
Social Responsibility Cluster			
PHI	205	Food Ethics	3
SOC	360	Environmental Sociology (Satisfies Gen Education IX)	3
SOC/CLD	420 *or* 517	Community Analysis *or* Rural Sociology	3
		SUB-TOTAL 75	**30**
SUSTAINABLE AGRICULTURE CORE			
SAG	210	Introduction to Sustainable Agriculture	3
SAG	310	Cultural Perspectives on Sustainability (Satisfies Gen Education X)	3
SAG	397	Apprenticeship in Sustainable Agriculture	3
SAG	490	Integration of Sustainable Agriculture Principles	3
		SUB-TOTAL 87	**12**
SPECIALTY SUPPORT			
Students must declare one Emphasis Area and complete a minimum of 12 hours from approved courses in this Emphasis Area.			21
		SUB-TOTAL 108	**21**
FREE ELECTIVES			
As needed to achieve at least 120 credit hours			12
		SUB-TOTAL 120	
		TOTAL CREDITS FOR B.S. DEGREE	**120**

Bachelor of Science in Agriculture
Individualized Curriculum – Sustainable Agriculture
4-Year Plan
Effective Fall 2019

UNIVERSITY OF KENTUCKY
College of Agriculture, Food and Environment

Fall First Year			Spring First Year		
CIS/WRD 110	Comp & Comm I	3	CIS/WRD 111	Comp & Comm II	3
CHE 104	Intro General Chemistry	3	CHE 108	Intro Inorganic, Organic & Biochemistry	3
MA 109	College Algebra **OR**		CLD 102	Intro to Rural Social Life	3
PHI 120	Introductory Logic	3-4	STA 210	Intro to Stat Reasoning	3
GEN 100	Current Issues in Ag & NRE	3	UK Core	Natural Science	3
SAG 210	Introduction to Sustainable Ag.	3			15
		15-16			
Fall Second Year			**Spring Second Year**		
BIO 148	Introductory Biology I	3	AEC 305	Food & Agricultural Mktg	3
ECO 201	Principles of Economics I	3	BIO 152	Principles of Biology II	3
PLS 366	Fundamentals of Soil Science	4	DHN 212	Introductory Nutrition	3
SAG 310	Cultural Persp on Sustainability	3		Specialty Support[1]	3
UK Core	Humanities	3	UK Core	Arts & Creativity	3
		16			15
Fall Third Year			**Spring Third Year**		
AEC 302	Agricultural Mgmt Principles	4	ASC 382	Principles of Livestock Prod	3
PLS 386	Plant Production Systems	4		Ethics Course	3
SOC 360	Environmental Sociology	3		Specialty Support	9
	Specialty Support	3			15
		14			
Fall Fourth Year			**Spring Fourth Year**		
SAG 397	Apprenticeship in SAG	3	AEC 445G	Intro to Resource & Env Econ	3
SOC 420	Community Analysis	3	SAG 490	Integration of SAG Principles	3
	Specialty Support	3		Specialty Support	3
	Electives	6		Electives	5
		15			14
				Total Credits	120

[1]Students must declare either a Farming Systems or Community Food Systems Emphasis Area, and complete a minimum of 12 hours from a list of approved courses in the Emphasis Area.

Appendix B: Sustainable Agriculture-Oriented Degree Programs at Land-Grant Universities.

Data sourced from the Sustainable Agriculture Education Association Program Listings; updated from Jacobsen et al., 2011**.*

Land Grant University	Program Name	Degree	Year Established	Program URL
Major Degree Programs				
Clemson University	Soils and Sustainable Crop Systems	B.S. Majoro	2007	https://www.clemson.edu/public/sustainableag/
Montana State University	Sustainable Food & Bioenergy Systems	B.S. Major	2009	http://sfbs.montana.edu/
University of California-Davis	Sustainable Agriculture & Food Systems	B.S. Major	2011	https://www.ucdavis.edu/majors/sustainable-agriculture-and-food-systems/
University of Hawaii	Sustainable Community Food Systems	B.A.S. Major	ca. 2016	http://www.uhwo.hawaii.edu/academics/degrees-and-certificates/bachelor-of-applied-sciences/food-systems/
University of Kentucky	Sustainable Agriculture	B.S. Major, Individ. Curriculum	2007	https://sustainableag.ca.uky.edu/
University of Maine	Sustainable Agriculture	B.S. Major	1988	https://umaine.edu/foodandagriculture/bs-sustag/
University of Massachusetts	Sustainable Food & Farming	B.S. Major	2013	https://stockbridge.cns.umass.edu/SFF-BS
University of Minnesota	Food Systems	B.S. Major	2013	https://www.cfans.umn.edu/academics/majors-minors/food-systems
University of Missouri	Sustainable Agriculture	B.S. Major	2014	https://cafnr.missouri.edu/degrees-and-programs/sustainable-ag/
University of New Hampshire	Ecogastronomy	Dual Major	2008	https://www.unh.edu/ecogastronomy/homepage
University of New Hampshire	Sustainable Agriculture and Food Systems	B.A. and B.S. Majors	ca. 2011	https://sustainableag.unh.edu/anfs/safs

University of Vermont	Ecological Agriculture	B.S. Major	2004	http://www.uvm.edu/~pss/?Page=EcAg.html&SM=under_prog_menu.html
University of Wyoming	Agroecology	B.S. Major	ca. 1998	http://www.uwyo.edu/esm/undergraduate-programs/majors/agroecology/
Washington State University	Organic Agriculture	B.S. Major	ca. 2010	http://afs.wsu.edu/majors/organic-ag-systems/

* http://www.sustainableaged.org/projects/degree-programs/; last accessed 11/26/2017.

** Jacobsen, K.L. *, K.L. Niewolny, M.S. Schroeder-Moreno, M. Van Horn, A.H. Harmon, Y.H. Chen Faslow, M. Williams, D. Parr. 2012. Sustainable Agriculture Undergraduate Degree Programs: A Land-Grant University Mission. Journal of Agriculture, Food Systems and Community Development 2(3): 13-26.

Appendix C: Current Steering Council Composition

University of Kentucky | College of Agriculture, Food and Environment
Center for Student Success

July 17, 2018

MEMORANDUM

TO: Mark Williams, Horticulture, SC Chair
Krista Jacobsen, Horticulture, DUS
Kristi Durbin, CSA Manager
Michael Goodin, Plant Pathology
Erin Haramoto, Plant and Soil Sciences
Ann Leed, Animal and Food Sciences
Karen Rignall, Community and Leadership Development
Robert Sandmeyer, Philosophy
Tammy Stephenson, Dietetics and Human Nutrition
Stacy Vincent, Community and Leadership Development

FROM: Larry Grabau, Associate Dean for Instruction

RE: Your appointment to the Steering Committee (SC) for the Individualized Program in Sustainable Agriculture for AY 2018-19 in the College of Agriculture, Food and Environment.

C: Deans Cox and Kornbluh; Chairs/Interim Chairs Coffey, Harrison, Look, McCulley, Mullins, Schardl, and Williams.

Thank you for agreeing to serve as members of this Steering Committee for the 2018-19 academic year under the leadership of SC Chair Mark Williams and DUS Krista Jacobsen. Dean Cox and I very much appreciate your service to this emerging undergraduate program. Note that we anticipate that this program will become an official B.S. program during this coming academic year, under the new title "Sustainable Agriculture and Community Food Systems."

Appendix D: SAG IP Annual Report 2018

Sustainable Agriculture (SAG) Undergraduate Program
Implementation Plan 2018 Annual Report

Prepared by Krista Jacobsen, Director of Undergraduate Studies, 10/08/2018

Note: Only accepted recommendations are listed here.

Recommendation 1: Complement the Steering Committee with an Advisory Council comprised of a diverse mix of internal and external stakeholders which might include alumni, community based organizations, representatives of farm groups, etc. Such a Committee could provide for continuous improvement in program and curriculum.

Assessment method: Identification of appropriate stakeholders and community members to serve on the Advisory Council, and organization of a biannual meeting to gain feedback on existing curricular activities and recommendations for programmatic development.

Results: The SAG program underwent substantial change since our last programmatic review, based on student and faculty feedback and student job placement. This change has resulted in several substantial programmatic developments, including a curriculum revision formalizing Specialty Support "emphasis areas" - Farming Systems and Community Food Systems", major course changes in three of our four SAG core courses, and submission of the major as a "new," stand-alone undergraduate degree program. We previously reported that substantive program changes necessitated delaying the formation of a formal Advisory Council. As we reported in 2017, we have continued to rely on community partners and alumni knowledge of the program for *ad hoc* feedback through these large programmatic developments.

Analysis of results and reflection:
The original intention of this recommendation was to provide opportunity for external stakeholder input to the program to help shape program improvements as well as strengthen community connections for the program. Since our previous program review, we have actively chosen not to actualize this recommendation as written so as to "get our house in order" with regards to curriculum revisions, major SAG core course revisions, and efforts to formalize the degree program. These have been ongoing, evolving efforts over the last three (+) years, and have resulted in substantive developments indicative of maturation of the program. Stakeholders, including alumni, graduating students, and members of our agricultural community have been consulted with on an *ad hoc* basis since our previous review, but the SAG Curriculum Steering Committee has not viewed it as prudent to formalize an external advisory board at this time, pending these developments. As the program is slated for periodic review in 2018, this recommendation will likely be reviewed and considered.

Ongoing improvement actions:
Although we have decided to somewhat limit formal external stakeholder feedback via the Advisory Council, we have continued to expand our Curriculum Steering Council, which functions as the Faculty of Record for the program. We have continued to recruit new hires on CAFÉ in the social sciences (CLD) and natural sciences (PSS and ENT). These faculty increase both increase the teaching capacity in the program, but also offer greater diversity of thoughts in our Steering Committee meetings.

Recommendation 2: Additional faculty resources are needed for the program to continue to grow, particularly in animal and agronomic (row crop) agriculture. Consideration, as noted above, should be given to new faculty position announcements that include collaboration with programs such as SAG. Attracting additional faculty in the College and University would help overcome a perception that some may have suggesting that the SAG program is really a Horticultural Science program.

Assessment method: We have assessed the composition of the SAG steering committee and core group of faculty members involved with the SAG program, to identify opportunities to incorporate a broader composition of faculty training and departmental representation.

Results: As the program has been undergoing program formalization and course revision processes, we have actively worked to expand departmental representation on our Steering Committee. During this review period, it is of note that in addition to the CLD and ENT additions to our Steering Committee, we have been partnering with DHN to support the newly approved Food Systems and Hunger Studies certificate program, which requires the SAG Introductory course (SAG 101, now approved as SAG 210). We have also worked with the Agricultural Education program on mapping double-major options, and have seen ongoing increases in Ag Ed students in SAG core and affiliated courses. As such, we have actively sought to change the composition of our Steering Committee membership both shift the optics of the program, as well as to incorporate faculty members we are actively working with on new curricular partnerships.

Analysis of results and reflection: Faculty members from programs such as Ag Biotech, Plant and Soil Science, Community Leadership Development, and Dietetics have been added to the steering committee. Discussions with faculty around the university have made it apparent that there are several new related programs and classes that will help augment the choices for our students, and increase recognition of our program across campus.

Ongoing improvement actions: The SAG program will continue to reach out to faculty across our college and university to create an inclusive environment,

where faculty from diverse interests can be involved in the program. In addition to leveraging curriculum partnerships with DHN and CLD (Ag Ed program), recent changes in the Animal Sciences curriculum have removed some pre-requisite barriers for SAG majors to minor in Animal Sciences. These are examples of how we are continuing to work with allied programs to not only expand program representation at the faculty level, but broaden our students' course of studies through double majors, certificates, and minors across the social and natural sciences. Although the primary motivation is to facilitate faculty relationships and curriculum depth for our students in these areas, they also serve to broaden the perception of the SAG program as beyond a Horticulture or Organic major.

Recommendation 3: The Steering Committee (advisory committee, perhaps) along with the College and appropriate departmental administrators should address the quality/quantity tradeoffs and impacts of increasing student enrollment including resource needs for:

- **Curriculum management – The curriculum includes significant experiential learning components. (Expansion may decrease the quality of the instruction and the ability to carry out such activities.)**
- **Advising**
- **Resources (faculty and staff)**
- **Line item operating budget**

Assessment method: Tracking of student enrollment and the impact of enrollment on faculty time and resources. Evaluation of recruitment resources and identification of priority needs to increase student enrollment while minimizing impact on faculty instructional and advising time and resources.

Results: Over the last 4 years student enrollment in the program declined, due to a large "bump" in students we experienced ~5 years ago. We have stabilized our numbers of majors since that time. However, with an understanding that we are essentially at a fairly stable number that is lower than our capacity, our website was re-vamped a few years ago and we created some branded items (shirts, bags, hats), and leverage the support we receive for recruitment and initial advising. However, a recent staff departure in 2018, lack of a program operating budget, and delaying re-vamping materials due to program revisions, our staffing and other budgetary resources have essentially stagnated.

Analysis of results and reflection: Funds were acquired from the college to help hire a website developer, and the re-vamped website went "live" in Summer 2016. With the support of a part-time recruiter (25% SAG), we printed some t-shirts and tote bags to increase program visibility. The program support staff had a majority appointment as the recruiter for the Individualized Program in Modern Agronomic Crop Production, but has also incorporated some SAG slides into her power point recruitment presentation, with the strategy of driving interested students to our new website. However, we never fully realized the potential of

this staff position, nor did the SAG program leadership team feel that we received 25% of the efforts of this position, as her recruiting activities were directed toward efforts that were not noted for being high-yielding activities for potential SAG recruits (e.g. recruitment nights in high schools, FFA activities, etc.). Although we are grateful for the support, assistance in first contact advising, and program engagement with the CAFÉ Office of Student Success, during this review period we have seen a decline in supporting staff resources and SAG program faculty, who are already stretched thin, are the primary contacts for all advising, social media, recruitment, and other professional academic staff functions. As such, we look forward to our 2018 programmatic review as a systematic evaluation of program resource needs.

Ongoing improvement actions: The DUS and Steering Committee will continue to work with CAFÉ Office of Student Success staff on recruiting and advising events, and maintain social media and outreach materials functions as best we are able without staff support. We are not in a position to actively improve upon these efforts at this moment.

Recommendation 4: Strengthen formal development efforts.

Assessment method: Evaluation of the need to proceed to formalize the program based on student enrollment and job placement.

Results: In 2017-2018, with the support of CAFÉ administration, the SAG Steering Committee elected to move forward with formalizing the program as a Bachelor's of Science in Sustainable Agriculture and Community Food Systems. This would create a stand-alone major independent of the Individualized Degree Program in Agriculture that the major has existed under since its inception.

Analysis of results and reflection: Since our previous programmatic review, there has been much discussion of a minimum number of SAG majors needed to allow the program to proceed toward formalization as a stand-alone major. However, in 2016-2017, it became clear that we were losing opportunities for exposure and leveraging recruitment opportunities if we remained under Individualized program status. Specifically, we lack exposure opportunities at the University-level when combined with other Individualized degree programs in CAFÉ. Further, there are significant opportunities to recruit out-of-state students via the Academic Common Market that are only available to us as a formal, stand-alone major. As such, with the support of the CAFÉ administration, we decided that to strengthen program development efforts, we needed to formalize the degree program. This is coincident with an upcoming periodic review, where we hope to systematically evaluate program development.

Ongoing improvement actions: With the curriculum formalization, and subsequent branding and exposure, we hope to increase our total student

numbers to 50-60. It is our intention that program changes, leadership team expansion, and increased exposure will foster in a new period of enhanced enrollment growth and recruitment resource development.

Recommendation 5: Develop an Organic Farm Unit incubator.

Assessment method. Evaluate incubator programs around the country and assess the potential for such a program in KY by working with local farmers.

Results: We have spent substantial time traveling to and studying existing incubator programs around the country.

Analysis of results and reflection: Although it may be possible to develop an incubator program in the future, it has become clear that the focus of developments in this area would be better spent building a beginning farmer training program to generate students that could take advantage of the incubator. We have been applying for funding to create a beginning farmer training program, and have secured some initial funds to begin training farmers specifically in growing and marketing for a Community Supported Agriculture model (grant-funded work with Dr. Tim Woods and Dr. Mark Williams). We are also pursuing donors to help fund the training program and subsequent incubator efforts. Several SAG faculty are planning on a USDA Beginning Farmer and Rancher Development Program grant proposal for the FY 2019 funding cycle.

Ongoing improvement actions: The SAG program is attempting to create a beginning farmer training program. Once funding is obtained to develop this program, we will determine how an incubator could augment this effort.

Recommendation 6: Develop a certificate program in Organic Farming.

Assessment method. Evaluate how other programs are developing certificates to provide hands on training around the country.

Results: Our assessment of other programs and our success with our apprenticeship (SAG 397 Apprenticeship in Sustainable Agriculture) has made it clear that we have many of the pieces already in place to develop a nationally recognized beginning farmer training program.

Analysis of results and reflection: Once funding is secured, we will develop a beginning farmer training program that will serve as an organic farming certificate. This year-long program will be available to UK students and the general public as a professional certificate program.

Ongoing improvement actions: We have been applying for grants and seeking donor funding to support the development of a beginning farmer training

program. Funding will primarily be used to hire an on-farm education director for the program. Once developed, it is anticipated that the program will be funded through student fees. We will continue to pursue funding from as many appropriate sources as possible over the next period to make this program a reality, including the possibility of USDA Beginning Farmer and Rancher Development Program funds. We plan to work with the CAFÉ Office of Student Success to develop admission and administration guidelines for this professional certificate for non-degree seeking students, similar to professional farming certificates developed by our peer institutions.

Recommendation 7: Develop partnerships and alliances with private farm owners to develop whole farm plans to help create jobs for graduates and to serve as outreach models for other producers to consider.

Assessment method: Track and evaluate the number of students working in the farming sector during and after their undergraduate careers.

Results: Our students are gaining employment in a wide range of jobs and we are developing strategies to track these jobs.

Analysis of results and reflection: We are placing more students in a range jobs related to sustainable agriculture and the number of students developing their own farms is increasing.

Ongoing improvement actions: We continue to partner with community organizations and farms in the central Bluegrass as part of SAG 397 and EXP 399 course credit. We are considering systematizing our alumni tracking process in the years to come, to strengthen our longitudinal data on our graduates. We are in the process of collating these data for our upcoming 2018 program assessment.

Appendix E: Student Learning Outcomes Assessment Plans and Assessment Reports

Assessment Inventory Undergraduate Program in Sustainable Agriculture

Contact: Mark Williams, Director of Undergraduate Studies (SAG)
Department of Horticulture,
N322D Agricultural Sciences North.
Telephone 859 257 2638 Fax 859 258 2859 email mawillia@uky.edu

Content

Mission Statement: Undergraduate Program in Sustainable Agriculture (SAG)

To provide students with a fundamental knowledge in sustainable agriculture that is grounded in a framework integrating three conceptual pillars: environmental stewardship, economic profitability, and social responsibility. Through a combination of course work and experiential learning, the curriculum prepares students for careers in production agriculture, allied industries, agricultural entrepreneurism, and public and private sector employment.

Learning Outcomes: Undergraduate Program in Sustainable Agriculture (SAG)

1. Describe and apply the environmental stewardship component of sustainable agriculture;

2. Describe and apply the social well-being component of sustainable agriculture;

3. Describe and apply the economic viability/responsibility component of sustainable agriculture;

4. Assess food systems using an integrated understanding of sustainable agriculture;

5. Evaluate the sustainability of a site specific situation by applying a fundamental understanding of sustainable agriculture principles.

Learning Outcomes Curriculum Map

Sustainable Agriculture

(Version – October 17, 2009)

		Learning Outcome 1	Learning Outcome 2	Learning Outcome 3	Learning Outcome 4	Learning Outcome 5
		… Describe and apply the environmental stewardship component of sustainable agriculture…	*… Describe and apply the social well-being component of sustainable agriculture …*	*… Describe and apply the economic viability/responsibility component of sustainable agriculture …*	*… Assess food systems using an integrated understanding of sustainable agriculture …*	*… Evaluate the sustainability of a site specific situation by applying a fundamental understanding of sustainable agriculture principles …*
Pre-major Requirements	BIO 150 Principles of Biology I	Introduced	- - - -	- - - -	- - - -	- - - -
	BIO 152 Principles of Biology II	Introduced	- - - -	- - - -	- - - -	- - - -
	CHE 105 General College Chemistry I	Introduced	- - - -	- - - -	- - - -	- - - -
	CHE 107 General College Chemistry II	Introduced	- - - -	- - - -	- - - -	- - - -
	CHE 111 Laboratory to Accompany General Chemistry I	Introduced	- - - -	- - - -	- - - -	- - - -
	CHE 113 Laboratory to Accompany General Chemistry II	Introduced	- - - -	- - - -	- - - -	- - - -
	ECO 201 Principles in Economics I	- - - -	- - - -	Introduced	- - - -	- - - -
	GEN 100 Issues in Agriculture	*varies*	*varies*	*varies*	*varies*	*varies*
	NFS 212 Introductory Nutrition	- - - -	Introduced / Emphasized	Introduced	Introduced	- - - -
Major Requirements	ASC 382 Principles of Livestock Production	Introduced / Emphasized	Introduced / Emphasized	Introduced / Emphasized	Introduced	Introduced / Emphasized
	ENT 300 General Entomology	Emphasized	- - - -	Introduced / Emphasized	Introduced	Introduced / Emphasized
	PLS 404 Integrated Weed Management	Emphasized	- - - -	Introduced / Emphasized	Introduced	Introduced / Emphasized
	PLS 366 Fundamentals of Soil Science	Emphasized	- - - -	Introduced / Emphasized	Introduced	Introduced / Emphasized

	PPA 400G Principles of Plant Pathology	Emphasized	- - - -	Introduced / Emphasized	Introduced	Introduced / Emphasized
	PLS 386 Plant Production Systems	Emphasized / Reinforced	Emphasized	Emphasized / Reinforced	Emphasized	Emphasized
	AEC 302 Agricultural Management Principles	Emphasized / Reinforced	Introduced / Emphasized	Emphasized / Reinforced	Emphasized	Emphasized
	AEC 305 Food and Agricultural Marketing Principles	Emphasized / Reinforced	Introduced / Emphasized	Emphasized / Reinforced	Emphasized / Reinforced	Emphasized
	AEC 445G Introduction to Resource and Environmental Economics	Emphasized / Reinforced	Introduced / Emphasized	Introduced / Emphasized	Emphasized / Reinforced	Emphasized / Reinforced
	PHI 336 Environmental Ethics	Emphasized / Reinforced	Introduced / Emphasized	Introduced / Emphasized	Introduced / Emphasized	Introduced / Emphasized
	SOC 360 Environmental Sociology	Emphasized / Reinforced	Reinforced	Introduced / Emphasized	Introduced / Emphasized	Introduced / Emphasized
	SOC 420 Community Analysis or SOC 517 Rural Sociology	Introduced / Emphasized	Reinforced	Introduced / Emphasized	Introduced / Emphasized	Introduced / Emphasized
	SAG 101 Introduction to Sustainable Agriculture	Introduced / Emphasized	Introduced / Emphasized	Introduced / Emphasized	Introduced / Emphasized	Introduced / Emphasized
	SAG 201 Cultural Perspectives on Sustainability	Emphasized / Reinforced	Reinforced	Emphasized / Reinforced	Reinforced	Reinforced
	SAG 397 Apprenticeship in Sustainable Agriculture	Reinforced	Reinforced	Reinforced	Reinforced	Reinforced
	SAG 490 Integration of Sustainable Agriculture Principles	Reinforced	Reinforced	Reinforced	Reinforced	Reinforced
	GEN 300-004 Agroecology	Reinforced	Emphasized / Reinforced	Emphasized / Reinforced	Reinforced	Reinforced

Source:

Norfolk State University – Curriculum Mapping Process Steps (Source: Site Accessed 8/31/09 http://eknowledgediscovery.com/yahoo_site_admin/assets/docs/CurriculumMappingProcess.40174545.pdf)

Introduced - STUDENTS ARE INTRODUCED TO CONTENT/SKILL. Students are not expected to be familiar with the content or skill at the collegiate or graduate level. Instruction and learning activities focus on basic knowledge, skills, and/or competencies and entry-level complexity."

Emphasized - THE CONTENT / SKILL IS EMPHASIZED AND TAUGHT IN DEPTH. Students are expected to possess a basic level of knowledge and familiarity with the content or skills at the collegiate or graduate level. Instruction and learning activities concentrate on enhancing and strengthening knowledge, skills, and expanding complexity."

Reinforced - THE CONTENT/SKILL IS REINFORCED WITH ADDITIONAL EXPOSURE TO THE INFORMATION. Students are expected to possess a strong foundation in the knowledge, skill, or competency at the collegiate or graduate level. Instructional and learning activities continue to build upon previous competencies and increased complexity."

SAG – Assessment Methods

For the first cycle of assessment (2010-2012), we will use the following direct and indirect assessments:

Direct assessments:

Sustainable Agriculture (SAG 101) will be used to assess student knowledge of the principles of sustainable agriculture upon entering the curriculum and their ability to apply these principles in a site-specific context based on their experiences in the greater Lexington Community Food System. Learning Outcomes 1-3 will be assessed through written assignments and reflections designed to apply course concepts to the greater Lexington Community Food System, while Learning Outcomes 4 and 5 are assessed through problem-based essays on midterm and final exams. The latter will be used as a "baseline" assessment in student portfolios designed to track student progress in the curriculum, discussed further below.

Integration of Sustainable Agriculture Principles (SAG 490) is a senior capstone class that will be used to assess all five Learning Outcomes, above. Students are expected to demonstrate the ability to draw conclusions and make recommendations based on an interdisciplinary understanding of sustainable food production systems. Students are required to present findings from a semester-long project to an audience of their peers, interested professionals and community stakeholders, and also produce a written report of findings and recommendations.

Internships are evaluated through a combination of participation points and a daily journal. Beyond fulfilling the required number of class hours, students will be evaluated based on their work ethic and mastery of critical agricultural skills relevant to their particular internship. A daily journal is kept to catalog the experiential learning process and to serve as a tool for personal reflection.

Indirect assessments:

An exit interview will be used to determine student satisfaction with the curriculum. Comments from students are collated, and where they coalesce into a common experience, are used as a guide to make course and program changes. These interviews will be conducted yearly with graduating seniors.

Individualized Curriculum in Sustainable Agriculture

Assessment Plan

Effective 2015-2016 Academic Year

Contact: Krista Jacobsen, Director of Undergraduate Studies (SAG)
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N310C Agricultural Sciences North
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Contents

1. Introduction

This assessment plan is for the Individualized Undergraduate Degree Program in Sustainable Agriculture (SAG), housed in the College of Agriculture, Food and the Environment (CAFE). SAG is an interdisciplinary program, with the administrative faculty currently housed in the Department of Horticulture (Krista Jacobsen, current Director of Undergraduate Studies; Mark Williams, past Director of Undergraduate Studies) and the Department of Agricultural Economics (Lee Meyer, Curriculum Committee Chair).

The SAG Program consists of an undergraduate major (Bachelor of Science) and an undergraduate minor.

1.1. Unit Mission Statement

To provide students with a fundamental knowledge in sustainable agriculture that is grounded in a framework integrating three conceptual pillars: environmental stewardship, economic profitability, and social responsibility. Through a combination of course work and experiential learning, the curriculum prepares students for careers in production agriculture, allied industries, agricultural entrepreneurism, and public and private sector employment.

1.2. Basic Assessment Approach

The basic strategy for program level assessment is the same for all Program Learning Outcomes. We will use the SAG core courses (SAG-prefix) to generate assessment artifacts. All students (irrespective of transfer status) are required to take the SAG core courses. Formative assessments for all Learning Outcomes will be conducted in the Introduction to Sustainable Agriculture (SAG 101) course, as it is the common entry point into the curriculum. As we have a number of non-SAG majors taking this course, we will select only declared SAG majors and (self-declared) SAG minor students. Major and minor declaration is collected as self-reported information at the beginning of the semester. Summative assessment for Learning Outcomes will be conducted from course activities in advanced SAG core courses. Summative assessment of Learning Outcomes 1 and 3 will be conducted from artifacts generated in the Integration of Sustainable Agriculture Principles (SAG 490) course. SAG 490 is a senior capstone class, in which students are expected to demonstrate the ability to draw conclusions about the sustainability of farming systems and food-related businesses and non-profit organizations, based on a nuanced, interdisciplinary understanding of sustainable food and farming systems. Summative assessment for Learning Outcomes 2 and 4 will be collected from the Cultural Perspectives on Sustainability (SAG 201) course. SAG 201 examines the socio-cultural dimensions of sustainability in agriculture and food systems from a global perspective. Students are expected to conduct independent research on an global agriculture and food system topic of their choosing, and through assigned written work and oral presentations critically analyze the how the concept of sustainability is applied and practiced in global and local food systems. This course meets the SAG Program Graduate Composition and Communication Requirement (GCCR). It should be noted that although this course is 200-level, it is often taken by SAG majors and minors in the Junior and Senior years due to curriculum-level scheduling complexities and the role it plays as our GCCR requirement.

2. Assessment Oversight, Resources

2.1. College Learning Outcomes Assessment Coordinator

Dr. Larry Grabau
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Office of Academic Programs
N-6 Agricultural Sciences North
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2.2. Unit Assessment Coordinator

Krista Jacobsen
Assistant Professor
Director of Undergraduate Studies (SAG)
N310C Agricultural Sciences North
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3. Program-Level Learning Outcomes: Undergraduate Program in Sustainable Agriculture (SAG)

1. Demonstrate an understanding of the economic profitability, social responsibility and environmental stewardship components of sustainable agriculture;

2. Explain how the concept of sustainability is applied and practiced in local and global food systems.

3. Evaluate the sustainability of a site specific situation by applying an integrated, interdisciplinary understanding of sustainability in sustainable agriculture and food systems.

4. Articulate her/her own understanding of agricultural sustainability through oral and written communication.

4. Curriculum and Artifact Map

Curriculum and Artifact Map: Individualized Degree Program in Sustainable Agriculture		Key: ○= Introductory; ◑ = Intermediate; ● = Degree Level ► = Programmatic Assessment Component ⌘ = GCCR Assessment Component			
	Learning Outcome	**1**	**2**	**3**	**4**
Pre-major Requirements	BIO 148 Principles of Biology I	○			
	BIO 152 Principles of Biology II	○			
	CHE 104 Introductory General Chemistry	○			
	CHE 108 Introductory Inorganic, Organic, and Biochemistry	○			
	ECO 201 Principles in Economics I	○			
	GEN 100 Issues in Agriculture	○	Varies	Varies	○
	NFS 212 Introductory Nutrition	◑	○	○	○
Major Requirements	***Environmental Stewardship Cluster***				
	ASC 382 Principles of Livestock Production	◑	◑	◑	○
	PLS 366 Fundamentals of Soil Science	◑		◑	
	PLS 386 Plant Production Systems	◑	◑	◑	○
	Economic Profitability Cluster				
	AEC 302 Agricultural Management Principles	◑	◑	◑	◑
	AEC 305 Food and Agricultural Marketing Principles	◑			
	AEC 445G Introduction to Resource and Environmental Economics	◑	◑		
	Social Responsibility Cluster				
	PHI 205 Food Ethics	◑			
	SOC 360 Environmental Sociology	◑			
	SOC 420 Community Analysis or SOC 517 Rural Sociology	◑			
	SAG Core Courses				
	SAG 101 Introduction to Sustainable Agriculture	○,►	○,►	○,►	○,►
	SAG 201 Cultural Perspectives on Sustainability	◑	●, ⌘,►	◑	●, ⌘,►
	SAG 397 Apprenticeship in Sustainable Agriculture	◑	●	●	◑
	SAG 490 Integration of Sustainable Agriculture Principles	●,►	●	●,►	●

5. Assessment Methods and Measures

5.1. Direct Assessment of Program Learning Outcomes

Learning Outcome 1: Formative assessment will be conducted through evaluation of an essay on the SAG 101 final exam. Through the course, students are introduced to economic, environmental, and social aspects of sustainability in agriculture and food systems. On the final exam they are asked to provide a nuanced, personal definition of sustainable agriculture with justification for their view. This definition provides a point at which to evaluate the students' nuanced understanding of the tri-partite nature of sustainability. Summative assessment will be conducted through final projects in SAG 490. In this course, students conduct a semester-long, independent research project focused on a topic relevant to their future career in sustainable agriculture and food systems. Students are required to produce a written report to the instructor, as well as make a presentation to an audience of their peers, interested professionals and community stakeholders. The presentation (and question and answer session with SAG faculty) will be used for the summative evaluation of Learning Outcome 1. The activities and rubrics for Learning Outcome 1 are attached in *Appendix 11A.*

Learning Outcome 2: Formative assessment will be conducted through evaluation of a course reflection activity (a small writing assignment) in SAG 101. This activity asks students to evaluate the strengths and weaknesses of models for increasing the sustainability of food systems, and to articulate how sustainability is valued in several case study models. The final papers in SAG 201 are used for summative assessment. SAG 201 final papers include case studies in sustainable agriculture and food systems in the US and abroad, and require the students to describe how sustainability is constructed in their culture and agriculture/food system. The activities and rubrics for Learning Outcome 2 are attached in *Appendix 11B.*

Learning Outcome 3: Formative assessment will be conducted through evaluation of a problem-based essay/creative writing exercise on the final exam in SAG 101. The SAG 101 final exam asks students to develop a plan that contributes to the sustainability of agriculture and food systems via a parcel of land they are to imagine they inherit. They are to use course concepts from the introductory class and their personal land ethic/motivation to create this plan. Summative assessment of Learning Outcome 3 will be conducted from a study tour taken in SAG 490. During the week-long study tour of farms and food-related businesses, and are expected to keep a journal with guided reflection questions for each stop on the tour. Student are provided questions for their journals to aid assessment, but are also encouraged to use the journaling experience for self-reflection. Student journal entries will be used for the summative assessment of Learning Outcome 3. The activities and rubrics for Learning Outcome 3 are attached in *Appendix 11C.*

Learning Outcome 4: Formative assessment of the written component will be conducted through evaluation of a problem-based essay/creative writing exercise on the final exam in SAG 101. As described above, the components of the SAG 101 final require the student articulate their understanding of sustainability in written form. Formative assessment of the oral component will be conducted by evaluation of a short (3-4 minute) persuasive speech students complete as an outcome to an issues-based learning module. The final papers and presentations in SAG 201 are used for summative assessment, and similarly require students to articulate their understanding of sustainability in written and oral

presentation form. The activities and rubrics for Learning Outcome 4 are attached in *Appendix 11D.*

Direct Assessment of other Experiential Learning Courses
Apprenticeship in Sustainable Agriculture (SAG 397) is a hands-on internship experience rooted in workshop-style coursework at the University of Kentucky Horticulture Research Farm Organic Farming Unit. Students are expected to participate in a weekly 2-4 hour workshop on production aspects of farming systems, as well as an additional 200 hours of independently-scheduled work. One half (up to 100) of these hours may be completed on a participating farm or with a community-food systems organization. The other half (100 hours) must be completed working on the UK Community Supported Agriculture (CSA) program. Beyond fulfilling the required number of class hours, students will be evaluated based on their work ethic and mastery of critical agricultural skills relevant to their particular internship. Summative learning is assessed through weekly class discussion and a series of reflective essays that allow the students to present what they have learned on eight key topics related to farming production practices.

SAG students are encouraged to participate in experiential learning coursework fitting to their academic and career goals. As such, a number of students complete 395 and 399 credit as a portion of their Specialty Support (directed electives) coursework. Direct assessment methods and criteria are tailored with the individual student and their supervisor via a Learning Contract. All internship and other experiential learning (399-coursework) outcomes are evaluated through journaling activities and a quantitative commitment to complete a given number of hours with the course mentor. All independent research (395-coursework) is evaluated via a research outcome appropriate to the learning outcomes, as co-designed by the student and research mentor.

5.2. Indirect Assessment

Program-Level
At the Program-level, an exit interview will be used to determine student satisfaction with the curriculum. Comments from students are collated, and where they coalesce into a common experience, are used as a guide to make course and program changes. These interviews will be conducted yearly with graduating seniors. We will also collect the data on students' publications and conference presentations as the evidence to meet the learning outcomes.

6. Data Collection and Review

6.1. *Data Collection Process/Procedures* are outlined in Table 1, below:

Table 1. SAG Program Learning Outcome Data Collection Process, 2015 – 2020.

Learning Outcome	Data Collection Timeline (6.1.1)	Data Collection Method (6.1.2)	Learning Outcome Benchmarks (6.1.3)	Responsible Party for Data Collection (6.1.4)
1: Formative	October 2017, 2019	Electronic assignment submission via email to instructor. Paper submissions will be scanned to digitize.	Mean student score of 60% (9/15) on assessment rubric.	Krista Jacobsen, SAG 101 Instructor
1: Summative	May 2018, 2020	Electronic assignment submission via email to instructor.	Mean student score of 85% (12.75/15)	Mark Williams, SAG 490 Instructor
2: Formative	October 2016, 2018	Electronic assignment submission via email to instructor. Paper submissions will be scanned to digitize.	Mean student score of 60% (9/15) on assessment rubric.	Krista Jacobsen, SAG 101 Instructor
2: Summative	May 2017, October 2018	Electronic assignment submission via email to instructor.	Mean student score of 85% (12.75/15)	Keiko Tanaka, SAG 201 Instructor
3: Formative	December 2015, 2017	Electronic assignment submission via email to instructor. Paper submissions will be scanned to digitize.	Mean student score of 60% (9/15) on assessment rubric.	Krista Jacobsen, SAG 101 Instructor
3: Summative	May 2016, 2018	Electronic assignment submission via email to instructor. Paper submissions will be scanned to digitize.	Mean student score of 85% (12.75/15)	Mark Williams, SAG 490 Instructor
4: Formative	December 2016, 2018	Electronic assignment submission via email to instructor. Paper submissions will be scanned to digitize. Collection of oral presentation judging sheets for oral presentation.	Mean student score of 60% (9/15) on assessment rubric.	Krista Jacobsen, SAG 101 Instructor
4: Summative	May 2017, October 2018	Electronic assignment submission via email to instructor for written component, collection of oral presentation judging sheets for oral presentation (see GCCR section 8 for detail).	Mean student score of 85% (12.75/15)	Keiko Tanaka, SAG 201 Instructor

7. Assessment Cycle and Data Analysis

7.1 *Assessment Cycle*

7.1.1. *Assessment Frequency*. Each Learning Outcome will be assessed every-other year. A table outlining the Assessment Cycle is listed below:

Learning Outcome	Academic Year Assessed (2015/2016 - 2019/2020)
1	2017/2018; 2019/2020
2	2016/2017; 2018/2019
3	2015/2016; 2017/2018; 2019/2020
4	2016/2017; 2018/2019

7.1.2. *Date for sharing results with faculty and planning improvement actions.* The SAG Curriculum Steering Committee meets as a whole, at the beginning of each semester. Results will be shared with the Steering Committee at the Spring Semester (January/February) meeting. The committee will review the strengths and weaknesses of the previous year's assessment and develop an ad hoc sub-committee to assist the Assessment Coordinator and faculty participating in the assessment in improvement actions, as needed, based upon feedback from the UK Office of Assessment and internal curriculum discussions. At this meeting faculty will also be solicited to participate in the subsequent academic year's assessment.

7.2. Data Analysis Process/Procedures

7.2.1. *Data presentation*. Data will presented in summary form to the Sustainable Agriculture Steering Committee, with the full data set and annual assessment report available upon request to Steering Committee members. All faculty that teach core SAG courses (SAG-prefix) are standing members of the Steering Committee. All reports and data will be made available upon request to other program-affiliated faculty.

7.2.2. *Analysis of results*. Results will be analyzed by the core group of SAG faculty participating in artifact collection, as well as ad hoc Steering Committee members engaged in the annual assessment process. These consist of a mix of social and natural scientists well-versed in data collection and management, as well as several faculty members with significant program assessment experience.

7.2.3. *Alignment of results with benchmarks.* Assessment results relate directly to quantitative benchmarks established to reflect the expectation of student mastery of foundation knowledge and critical skills as they progress through the program. Our target is that mean student scores will increase 25% from when they enter the program (formative assessments) to when the exit the program (summative assessment).

7.2.4. *Data-driven program improvements.* Data will be reviewed for making programmatic improvements at two levels. The fields of sustainable agriculture and food systems are complex and interdisciplinary. As such, our Learning Outcomes reflect the need for students to have both content knowledge in diverse subject areas, as well as the ability to communicate this knowledge in a holistic, systems context. Data (particularly below benchmark) will warrant review of specific assignments and courses used to generate assessment artifacts to determine if low scoring data are a function of students' inability to communicate these perspectives effectively.

Modifications to assignments and in-class preparation will be made accordingly. Should low scores indicate insufficient content knowledge (that is, students lack both the perspective as well as the content knowledge), then an ad hoc review committee will be established to identify relevant coursework to the Learning Outcome to seek opportunities for improvement.

7.3. Data Review and Assessment Timeline

Data will be reviewed at the end of each academic year (summer), any remaining analyses conducted (e.g. evaluating written artifacts by assessment rubrics, etc.), and the annual report drafted to comply with Office of Assessment deadlines in the fall semester (by October 31st). This assessment plan will be reviewed as a component of regular Program Reviews, and modified to reflect recommendations.

8. Graduating Composition and Communication Requirement (GCCR)

8.1. *Identification of GCCR Student Learning Outcome*. Learning Outcome 4, "Articulate her/her own understanding of agricultural sustainability through oral and written communication" will be used for GCCR assessment.

8.2. *GCCR composition assessment plan.* The final research papers submitted to SAG 201 will be used as the artifact for assessing the composition component of the GCCR. The average enrollment for SAG 201 is 30. Each paper is written with minimum of 3,500 words and maximum of 4,500 words, excluding references, tables, figures, and appendices. A random sample of 10 papers will be selected for evaluation. Two members from the SAG Curriculum Advisory Committee will read the selected papers to assess whether the learning outcome for the GCCR has been met. The composition component of the GCCR will be assessed every 2 years.

8.3. *GCCR oral component assessment plan.* The final in-class presentations in SAG 201 will be used to assess the oral and visual components of the GCCR. The last two to three weeks of SAG 201 are used for student presentations. Each student is required to give a 10-minute presentation. The instructor will assess both oral and visual components of all the students in SAG 201. In the year to assess the GCCR learning outcome, two members from the SAG Curriculum Advisory Committee will attend at least two of presentation sessions in order to assess a sample of oral and visual presentations.

8.4. Identify clear goals, rubrics, and revision plans for GCCR implementation. The goal of SAG 201 in meeting GCCR is that the population of students assessed will obtain a mean score of 75% on Learning Outcome 4 and 75% will satisfy the GCCR Learning Outcome, that "Students will demonstrate competent written, oral, and visual communication skills both as producers and consumers of information." The rubrics used to assess the written assignments and oral presentations are attached in Appendix 11E. Any revisions will be determined by the SAG Curriculum Advisory Committee.

8.5. *GCCR Student artifacts*. SAG 201 students are required to write two papers, a personal narrative essay in the length of 1,200-1,500 words and a research paper in the length of 3,500-4,500 words on the cultural perspective of agricultural sustainability. Each student must also give a 10-minute presentation based on his/her research paper. The research paper involves one round of draft, peer-evaluation, and rewrite. A practice presentation session is held in the group format so as to allow students to receive feedback from their peers on the quality of their visual and oral presentations.

8.6. *GCCR artifact sampling plan.* A random sample of 10 research papers and 10 PowerPoint presentation files will be selected.

8.7. *GCCR course assessment rubric.* A copy of the current SAG 201 Final Paper and Presentation rubrics are presented in Appendix 11E.

8.8. *GCCR course syllabus*. A copy of the current syllabus for SAG 201 is presented in Appendix 11E.

9. Teaching Effectiveness

9.1. *Identify measures of teaching effectiveness*. Teaching effectiveness will be evaluated from multiple measures. Teacher Course Evaluations will be used for quantitative, formal feedback for courses and instructors. As SAG core courses maintain a relatively small classroom size (under 40), instructors have frequent opportunities to interact with students. Informal interviews/discussion with students throughout their undergraduate degree will be used to evaluate effectiveness and areas of improvement. Students will also be asked about teaching effectiveness in their exit interview. Finally, instructors of SAG core courses conduct self-reflection based upon evidence of student learning from assignments considered central to the given course.

9.2. What efforts to improve teaching effectiveness will be pursued based on these measures?
Efforts to improve teaching effectiveness will be based upon the particular course and feedback received. However, we have found through utilizing these methods that methods include, but are not limited to: revision of course workload and content; diversification of instructional methods, especially efforts to augment traditional lecture structure with active learning strategies; and generally increasing opportunities for active and experiential learning opportunities, as appropriate to the course content.
It should also be noted that many of the core SAG teaching faculty are actively engaged in professional teaching societies, including the Sustainable Agriculture Education Association, and the National Association of Collegiate Teachers of Agriculture. The faculty regularly attend Association conferences, which offers an opportunity to exchange best practices with colleagues around the country.

10. What are the plans to evaluate students' post-graduate success?

Post-graduate success is evaluated based surveys of SAG alumni, conducted as least every 3 years, as well as informal, regular contact with alumni (e.g. emails, phone calls). Particular attention will be paid to job placement in a position a) suited to a degree in sustainable agriculture, and b) student satisfaction with their positon, will be noted. Post-graduate study and program of study will also be noted.

11. Appendices

Appendix 11A: Learning Outcome 1 Assessment Tools

Includes Final Exam from SAG 101 (Formative), Presentation Evaluation for SAG 490 Final presentations (Summative), and Learning Outcome Rubric

Appendix 11B: Learning Outcome 2 Assessment Tools

Includes SAG 101 Challenges to Community Food Systems Reflection Activity (Formative), SAG 201 Final Paper Guidelines (excerpted from SAG 201 syllabus), and Learning Outcome 2 Rubric

Appendix 11C: Learning Outcome 3 Assessment Tools

Includes SAG 490 Study Tour Journal Activity (Summative*), Learning Outcome 3 Rubric

Appendix 11D: Learning Outcome 4 Assessment Tools

Includes SAG 101 Elevator Speech Activity (Formative*, †), Learning Outcome 4 Rubric.

Appendix 11E: Supplemental Materials for GCCR from SAG 201.

Includes Final Paper Rubric, Final Presentation Rubric, and Syllabus

*SAG 101 Final Exam provides formative written activity, presented in Appendix 11A.

†SAG 201 Final Paper and Presentation provides summative written activity, and is presented in Appendix 11B.

Appendix 11A Learning Outcome 1 Assessment Tools

11A.1 Formative Assessment Activity Prompt

SAG 101
Final Exam

This take home, open book exam is due upon completion of our common hour exam time, Monday, December 14th, 10 am. You are welcome to submit your assignment at any time before the due date. However, late assignments will be accepted only under extenuating circumstances. Electronic or paper submission is acceptable. Either way you submit your exam, I will email you comments and your grade prior to December 21st. This exam is worth 15 points of your final exam grade (15 points). The remaining 10 points are comprised of your Summary Activity from your Independent Research Module, which is due at the same time as this portion of your exam, although you are welcome to submit it earlier.

The Scenario

It is a beautiful, crisp fall morning in the Bluegrass. The sun is shining, the light frost is lifting from the earth, and the trees are awash in seasonal reds and golds. However, a very sad event has transpired. Your great Aunt Midge has passed away. Midge was of the last generation in your family to grow up and stay on the farm. She spent her life in her vegetable garden, tending her prized tomatoes and chasing out an errant laying hen. Her husband and brother raised tobacco, corn, and cattle, like many of their neighbors. You loved visiting their farm as a kid, running around the pastures and pens, riding on old tractors, and picking watermelons from the garden.

You pull yourself from this rich memory back into the present. You are in your Sunday best, along with your whole family, awaiting the lawyer's reading of Aunt Midge's last will and testament. After many minutes of legal mumbo-jumbo, the lawyer informs the crowd assembled that *you* will receive the deed to the farm – all 150 acres and everything on it, and just a stone's throw from Lexington where you currently reside. But there is a catch (Midge was a crafty lady). She selected you to be the future of the land because you are the only one "who gave a hill of beans about farming and the local community." You are free to do anything with the farm (keep it, sell it, etc.) but it must be a significant contribution to the local food and/or agricultural community of the Central Bluegrass. To ensure this is the fate of the land, before you are handed the deed, you must create a plan convincing your family of the importance of your idea. This plan should be based on your knowledge of local and global agricultural issues, and the potential for your idea to be a contribution to the community. Your family is supportive, and can't wait to hear what you come up with.

The Assignment

After your experience in SAG 101 at the University of Kentucky, you have decided that not only do you want your plan to be productive and profitable; you are also keen to meet Aunt Midge's challenge to create a contribution to the agricultural and community food system of the Bluegrass. Your final assignment is to create a plan for the use of this land, specifically addressing critical environmental, economic and social issues in agriculture that are of most concern to you. In this plan, you will discuss what you will do with the land, how it will sustain your livelihood, and how it will contribute to your community. You are free to be as creative as you like and to incorporate any tools that help convey your vision (pictures, figures, tables, links, etc.).

This plan should be a minimum of 3 pages in length. The questions below are provided to help structure your plan and provide opportunities for you to reflect upon what you have learned in this class. **Each question below (in bold) is worth 4 points each, 20 points total.** You may answer these questions in any order, and you are free to elaborate beyond these questions. You will be evaluated on the thoroughness of your answers to these questions and your ability to articulate your vision for this property. Please be sure to use in-text references throughout the document and provide a reference list at the end of the document, using a standard citation format of your choice.

Note: Although this activity lends itself well to a "farm plan" type of answer, you are very welcome to think of this gift of land as capital to start a venture to build a critical component of the food system that you see is needed in our community.

Appendix 11A Learning Outcome 1 Assessment Tools

Please see the rubric on page 4 for additional information on how you will be evaluated, and please know you may always email me with questions (krista.jacobsen@uky.edu).

1. **First, assess the situation in the context of your definition of sustainable agriculture.** Describe your definition of sustainable agriculture. Then list the assets and the opportunities in our community food system based on the economic, environmental, and social aspects of our agrifood system that our most important to you. Be sure to list at least one of each. Based on where you see opportunities for improvement, what do you think our community food system is missing?

2. **Next, describe a general plan for what you will do with the land to meet the needs/opportunities described in question 1.** How will you do with the land, and why? Will you farm it? Sell it? Or another option? Please describe in words and/or pictures what you will do with the land. If you are farming, describe what you will produce and the basic production practices you will employ. Why did you choose these crops/enterprises? If you decide not to farm yourself, describe how you will use the land to further your goals. *You might think of this question as your "elevator pitch" to your family.*

3. **What are your economic goals for your project in the short- and long-term?** Discuss a particular economic issue related to our agriculture and food system that is compelling to you, and how your plan addresses will address this issue. This could be at the farm-level or the food system-level. If you are farming, please mention where will you market your products and to whom, and marketing challenges that you might encounter. If you are not farming for income-generating purposes, how will you meet your financial goals?

4. **What environmental issues in agriculture will your plan address?** Please discuss a particular environmental issue related to our agriculture and food system that is compelling to you, and how your plan addresses will address this issue.

5. **What additional resources will you utilize (mention at least 2 concepts, resources, organizations, etc. from SAG 101)?** Uncle Timmy had some basic farm equipment, such as a tractor and implements, a barn, and a few animal pens in need of repair. If you decide to farm, what additional equipment, capital, labor and technical support might you need? If you are pursuing a different venture, what kinds of financial, technical, and other resources might you need? What people, resources or agencies might provide you with these?

Good luck and have fun!

Appendix 11A Learning Outcome 1 Assessment Tools

11A.2 Summative Assessment Activity Prompt

SAG 490 *Integration of Sustainable Agriculture Principles*
Final Paper Assignment

(Excerpted from SAG 490 Syllabus, and complemented with significant in-class discussion and guidance throughout the semester.)

SAG 490 Final Paper: The main semester project written assignment should be 10-12 pages in length with double spacing, 12-point font, and one-inch margins. You should start with an introduction of your project that clearly states the goals and objectives of the work. In describing your project you can use a combination of written text, pictures, figures ad tables. In the main body of the document you will describe what you did (methods), and what data you took or things that you developed (results). You should conclude the document with a clear discussion of how you project addressed and integrated the three pillars of sustainable agriculture: economic profitability, environmental stewardship, and social responsibility. Grades will be assigned based on the depth and breadth of information you provide and your ability to evaluate your project from a sustainability perspective.

Appendix 11A Learning Outcome 1 Assessment Tools

11.A.3 Rubric for Learning Objective 1

Learning Outcome 1: "Demonstrate a nuanced understanding of the economic profitability, social responsibility and environmental stewardship components of sustainable agriculture."

Evaluation Criteria	Excellent (5 points)	Very Good (4 points)	Good (3 points)	Fair (2 points)	Poor (1 point)
Economic Profitability Student demonstrates an understanding of issues affecting economic profitability on farm, community, and food system levels	Understands key points related to short term profitability while securing the economic livelihood of future generations on farm and societal levels	Understands key points related to short term profitability while considering of future generations, but missing consideration of farm or societal levels	Understands key points related to short term profitability, but missing some key considerations of farm or societal levels	Demonstrates limited understanding of key points related to profitability, future generations, and missing consideration of farm or societal levels	Does not demonstrate understanding of key points related to profitability, future generations, and missing consideration of farm or societal levels
Environmental Stewardship Student demonstrates an understanding of the principles and practices affecting environmental quality on the farm and watershed (or global) levels	Applies the principles and practices associated with improving or maintaining natural resources that are appropriate to the agroecosystems in consideration, and demonstrates mechanistic understanding of the scientific basis for these practices	Applies the principles and practices associated with improving or maintaining natural resources that are appropriate to the agroecosystems in consideration, but missing mechanistic understanding of the scientific basis for these practices	Applies select principles and practices associated with improving or maintaining natural resources that are appropriate to the agroecosystems in consideration, and missing mechanistic understanding of the scientific basis for these practices	Misses some key principles and practices appropriate to the agroecosystems in consideration, and missing mechanistic understanding of the scientific basis for these practices	Misses most key principles and practices appropriate to the agroecosystems in consideration, and missing mechanistic understanding of the scientific basis for these practices
Social Responsibility Student demonstrates an understanding of labor, food access, community development, and equity issues associated with the farms and surrounding communities	Discusses key issues and policy associated with equity, justice, and community development on relevant scales (local, regional, national, etc.), and demonstrates an understanding of causality of these issues and policies	Discusses some key issues and policy, with somewhat limited understanding of causality	Discusses limited key issues and policy, with somewhat limited understanding of causality	Discusses few key issues and policy, with limited understanding of causality	Misses most key issues and policy, with no mention of causality of underlying social issues in the agrifood system

Appendix 11B. Learning Outcome 2 Assessment Tools

11B.1 Formative Prompt for Learning Objective 2

SAG 101
Summary Activity
Challenges to local food systems reflection
Due Wednesday, October 5, 2016

These past few weeks, we have discussed marketing and food distribution opportunities and challenges with our guest speakers from the Lexington Community Food System. We toured the local cooperative grocery store. You have visited the local farmer's markets and made guided observations about the food, farmers, and consumers. The UK Community Supported Agriculture Program (CSA) Manager spoke with us about CSA's as a market model and training opportunity. Our friends at the Food Connection spoke with us about integrating support for local foods and sustainability in institutional food systems, like our UK Dining Services. Representatives from organizations addressing hunger on campus and in the greater area spoke about how waste within the food system and hunger exist side-by-side. All of these experiences are representative of the promise of new models that have emerged to address some of the challenges in building local food systems.

In this brief reflection, please address the following questions for each of the models below. You are encouraged to reference resources you may find on the web and other places, but please know you are not being judged or critiqued for your reasoning. However, please give appropriate credit for these resources through in-text references and a works cited section. Recall that these activities are merely to help you reflect on each of these speakers and think more deeply about the topics they discussed. You will be evaluated on how well you articulate your opinion/rational. A few sentences for each question will suffice.

Reflection questions:

1. What aspect of this model do you feel has the greatest promise for increasing the sustainability of local food systems? What excites you about this idea the most?

2. What do you feel is the greatest challenge to the success of this model?

Remember to answer these questions for each of these models/speakers:

- Models for direct marketing to consumers (e.g. farmer's markets)
- Models for alternative distribution systems (e.g. CSA's)
- Models of institutional support for local food systems (e.g. UK Food Connection)
- Model programs for capturing food waste and decreasing hunger (e.g. Campus Kitchens)

Appendix 11B. Learning Outcome 2 Assessment Tools

11B.2 Summative Prompt for Learning Objective 2 (Excerpted from SAG 201 syllabus, Section 2)

Research Paper: The Cultural Perspective of Agricultural Sustainability

You are required to write a research paper which examines how the perspective of agricultural sustainability is situated in particular place and time outside the United States. Using the ***case study methodology***, you will collect and analyze data from one system in a non-U.S. country/society to answer the following ***research questions***:

1. What unique and common ideas of agricultural sustainability defined in that system in comparison to the system with which you are familiar?
2. What key ethical and social justice issues are raised in that system?
3. What opportunities and constraints are there for making agriculture more sustainable in that country? How unique or common are they in comparison to what the system, with which you are familiar, encounter?
4. What do we learn about sustainability as a concept in the context of a global food and agricultural system, particularly in comparison to how the concept is defined in the system with which you are familiar?

Potential data includes, though are not limited to: newspaper, magazine, and academic journal articles about a particular agrifood system; economic and trade statistics available from government and international agencies; interviews with faculty and residents from your research country; websites on various aspects about that country's agriculture and food system.

You are required to submit a draft of your case study by ***5:00pm on Friday, November 15, 2015***. Each student is required to give a presentation of at least 10 minutes about your research in the last three weeks of the semester. This can be done with a PowerPoint, Prezi, or any other types of visual presentation. The practice session will be held on ***November 17 and 19*** by dividing the class into smaller groups in which each student will present his/her work for peer evaluations. The final oral presentation must incorporate the feedback you received from your peers.

For the final paper, due by ***5:00pm on Monday, December 14, 2014***, you need to incorporate your Kentucky sustainability essay fully into your research paper and integrating them into one coherent paper with revised introduction and conclusion sections. The paper must be written with minimum of 3,500 words and maximum of 4,500 words, excluding references, tables, figures, and appendices.

Research & Communication Exercises

To help you carry out your research project, there will be three Research Skill Development exercises. Written products for these exercises should be incorporated into your research papers. No draft or rewriting will be permitted for these assignments. You can submit them any time before the due date. No rewrites will be allowed for these assignments!!!

1. Country Profile & Bibliography (Due: 9/20/15, 12noon): As soon as you select your case country, using one or more of World Bank, UNDP, OECD, and FAO databases, collect basic information concerning that country's population, agricultural production and trade, economy and industry, and social characteristics. Create tables and figures to summarize these data. Also provide a list of bibliographies which you plan to use for writing this section. A worksheet will be provided for this exercise. Your bibliography must include **at least** the following:

- 5 News articles published by internationally recognized news agencies or media companies (e.g., CNN, New York Times, BBC, NPR)

- 3 In-depth reports/articles from either magazines (e.g., National Geographic, New Internationalist, The Economist) or organizations (e.g., government agency, community-based organizations).
- 3 Distinct websites (meaning that not two web pages within a given site)
- 1 Academic journal article

These must be the sources which you will read and use for your case study. This particular bibliography list can include more than what you will end up reading. If you feel useful, draft a narrative which will later become a part of your non-US case study narrative due on September 20, 2015.

2. Sustainability in Kentucky Essay (Due: 10/3/15, noon): Based on your everyday observation and understanding of the course materials, write a short essay to answer the following questions: (a) What does sustainability mean in Kentucky? (b) How does the concept of sustainability is expressed? (c) What do you see opportunities and challenges of sustainability in Kentucky? The essay should be double-spaced with a 12-font and 1" margins for all sides. The paper should not be any less than 1,200 words and any more than 1,500 words, excluding references, tables, and figures.

3. Sustainable Farm System Proposal (Presentation Date: 10/1/15): This is an in-class group project. Each group will design a "sustainable farm" that meets the USDA's definition. Each week between January 21 and February 11, groups will work on one of the three pillars of sustainability. On February 18, each group will present the design of a proposed farm system.

4. Narrative & Visual Representations of the Case Country (Due: 10/27/15, noon): Based on your research for the Country Profile, write a short narrative about your case country. This narrative will become an important component of your draft and final paper. After the narrative, attach any visual representations, e.g., pictures, videos, you wish to include your presentation. The narrative portion of the paper should be double-spaced with a 12-font and 1" margins for all sides. This portion should not be written with any less than 1,200 words and any longer than 1,500 words, excluding the bibliography page(s). Your visual portion of this paper does not have any page limit.

Format Requirements

1. Research Paper:

- Double-spaced, 12-point font, 1" margins all sides
- Page numbered, your name in either header or footer
- Title page with the paper title and your name. Please do not include your name in the body of the paper.
- Reference pages (with any social science citation format; please see the course Blackboard site for resources on reference formats and citation guidelines)
- The minimum word count of this assignment is 3,500 words, excluding references, tables, figures, and appendices. Your draft, due on November 13, 2015 should not be any shorter than 8 pages.

Appendix 11B. Learning Outcome 2 Assessment Tools

11B.3 Rubric for Learning Outcome 2

Learning Outcome 2: "Explain how the concept of sustainability is applied and practiced in local and global food systems."

Evaluation Criteria	Excellent (5 points)	Very Good (4 points)	Good (3 points)	Fair (2 points)	Poor (1 point)
Applying Sustainability Addresses unique and common ideas of agricultural sustainability defined in the local and global context	Explains how aspects of sustainability are valued and articulated based on cultural context, including key environmental, economic and ethical aspects of food system sustainability.	Explains how aspects of sustainability are valued and articulated based on cultural context, with limited key environmental, economic and ethical aspects missing.	Explains how aspects of sustainability are valued and articulated based on cultural context, with several key environmental, economic and ethical aspects missing.	Limited explanation of how aspects of sustainability are valued and articulated, with several key environmental, economic and ethical aspects missing.	Limited explanation of how aspects of sustainability are valued and articulated , lacking significant environmental, economic and ethical aspects.
Practicing Sustainability Discusses unique and common opportunities and constraints for making agricultural and food systems more sustainable	Addresses common and unique opportunities and constraints for increasing food system sustainability through specific examples, and discussion of how opportunities address key sustainability challenges in local and global food systems.	Addresses common and unique opportunities and constraints for increasing food system sustainability through specific examples, with some gaps in discussion of how opportunities address key sustainability challenges in local and global food systems.	Addresses common or unique opportunities and constraints for increasing food system sustainability through specific examples, with some gaps in discussion of how opportunities address key sustainability challenges in local and global food systems.	Addresses common or unique opportunities and constraints for increasing food system sustainability through specific examples, with significant gaps in discussion of how opportunities address key sustainability challenges in local and global food systems.	Limited addressing of opportunities and constraints for increasing food system sustainability, lacking specific examples and discussion of how opportunities address key sustainability challenges in local and global food systems.
Situating Community Food Systems in the Global Context Discusses lessons about sustainability as a concept in the context of a global food and agricultural system	Demonstrates ability to generalize across models of community food systems to discuss common constraints and challenges to community based food systems and sustainable agriculture in a global context.	Demonstrates ability to generalize across models of community food systems, with some gaps in discussion of common constraints and challenges to community based food systems and sustainable agriculture in a global context.	Demonstrates ability to generalize across models of community food systems, with significant gaps in discussion of common constraints and challenges to community based food systems and sustainable agriculture in a global context.	Demonstrates limited ability to generalize across models of community food systems, with significant gaps in discussion of common constraints and challenges to community based food systems and sustainable agriculture in a global context.	Demonstrates limited ability to generalize across models of community food systems, with significant global competency.

Appendix 11C. Learning Outcome 3 Assessment Tools

11C.1 Prompt for Summative Activity for Learning Objective 3

(* Please note, formative prompt is presented in Appendix 11.A.1 in the SAG 101 Final Exam)

SAG 490 *Integration of Sustainable Agriculture Principles*
Study Tour Learning Assessment Assignment

Overview:
The main goal of this assignment is for you to document what you learn from the various places that we tour during our trip. As we visit each of the agricultural-related sites on the trip I would like for you to listen carefully to the presenters, observe and critique their agricultural systems and ask questions. It is expected that you will be able to reflect on the experience at each place and record your impression of what you learned.

The assignment:
For each of the agricultural sites that we visit on this trip I would like you to write a short synopsis (1-2 paragraphs maximum) of your assessment and impressions. Points you might include:

1. An overview of what they do and how they do it. This could cover the production system they use, how they integrate components, how they market, and how they interact with their community. The appropriateness of each of these elements will vary from place to place.

2. A brief discussion on how you would rate the sustainability of the site. How long have they been in business? What factors contribute to their success? Could their systems be transferrable to other places, why or why not?

3. What was at least one thing that you learned at the site?

Points will be assigned for each day of the trip as follows: there are five days and each daily written assignment will be worth 6 points, for a total of 30 points. You will be graded on the thoughtfulness and thoroughness of what you write. This assignment will be due on Friday March 22, at the beginning of our class.

Bonus points. At the end of this assignment I would like for you to write down three major things that you learned on this trip or things that were memorable. These could cover a spectrum of experiences or observations and are not just agricultural specific. 3 points.

Appendix 11C. Learning Outcome 3 Assessment Tools

11C.2 Rubric for Learning Objective 3

Learning Outcome 3: "Evaluate the sustainability of a site specific situation by applying an integrated, interdisciplinary understanding of sustainability in sustainable agriculture and food systems."

Evaluation Criteria	Excellent (5 points)	Very Good (4 points)	Good (3 points)	Fair (2 points)	Poor (1 point)
Identification of Key Issues Affecting Sustainable Agriculture and Food Systems Student demonstrates an understanding of key issues affecting economic profitability, environmental stewardship, and social justice in a site-specific application	Identifies key economic, environmental and social issues in a site-specific situation, with an understanding of the causal agents of these issues within and beyond the site-specific situation.	Identifies key economic, environmental and social issues in a site-specific situation, with limited gaps, and demonstrates an understanding of the causal agents of these issues within and beyond the site-specific situation.	Identifies key economic, environmental and social issues in a site-specific situation, with some gaps, and demonstrates an understanding of the causal agents of these issues within and beyond the site-specific situation, with some gaps.	Does not sufficiently identify key economic, environmental and social issues in a site-specific situation, and demonstrates limited understanding of the causal agents.	Does not sufficiently identify key economic, environmental and social issues in a site-specific situation, and does not demonstrate understanding of the causal agents.
Interdisciplinary Perspective Student demonstrates an understanding of the inter-relatedness of economic, environmental, and social factors, and can weigh their relative importance in a site-specific application	Effectively justifies which said issues are the critical factors affecting the sustainability of the site, provides well-supported rationale for how said factors interact or act as drivers in the system.	Effectively justifies some key factors at the site, with some gaps, and provides well-supported rationale for how said factors interact or act as drivers in the system.	Provides some justification for key factors at the site, with some gaps, with minimal gaps in rationale for how said factors interact or act as drivers in the system.	Provides limited justification for key factors at the site, with gaps significant gaps in how said factors interact or act as drivers in the system.	Fails to identify key factors at the site, with no discussion of their effect on the site.
Causation and Generalization Student demonstrates the ability to generalize the site-application to broader issues in sustainable and food systems, at the appropriate geographic scale	Demonstrates an ability to link site-specific application to other relevant sites, experiences, or generalizable theory and provides well-supported justification for the local, regional, or global level scope of their assertions.	Demonstrates an ability to link site-specific application to other relevant sites, experiences, or generalizable theory and provides well-supported justification for the local, regional, or global level scope, with some gaps.	Demonstrates an ability to link site-specific application to other relevant sites, experiences, or generalizable theory, but with gaps in justification for the local, regional, or global level scope of their assertions.	Demonstrates limited ability to link site-specific application to other relevant sites, experiences, or generalizable theory, and with gaps in justification for the local, regional, or global level scope of their assertions.	Is unable to to link site-specific application to other relevant sites, experiences, or generalizable theory, and with gaps in justification for the local, regional, or global level scope of their assertions.

Appendix 11D. Learning Outcome 4 Assessment Tools

11D.1 Formative Prompt for Learning Objective 4, Oral Presentation

(* Please note, formative written prompt is presented in Appendix 11A.1, SAG 101 Final Exam; Summative prompt is presented in Appendix 11B.2, SAG 201 Final Paper and Presentation.)

SAG 101
"Can Sustainable Agriculture Feed the World?" Elevator Speech

This exercise is designed to help you synthesize your opinion on the question "Can Sustainable Agriculture Feed the World?" The answer to this question, in its various iterations (e.g. "Can organic feed the world?" etc.), is critical if the sustainable agriculture perspective is to be present in the global conversation regarding how we will continue to feed a growing human population into the future. You will likely be asked your perspective in future agriculture classes (and life in general). Rather than a writing assignment to communicate your ideas, as in previous modules, you are asked to develop a succinct (2-3 minute) verbal argument to answer this question. You might call this an "elevator speech." Technically, and "elevator speech" or "pitch" is a brief, persuasive speech that you use to summarize a position or statement about something. In business or job hunting, they are used to generate interest in you/your work/your company/etc. in a happenstance situation in which you run into someone important. For our purposes, your elevator speech is meant to introduce your expert opinion and perspective to someone posing this question, and to open the door for further informed dialogue. As such, do not feel like you must capture every salient point in your perspective. Rather, focus on 1-2 key points that are the most important or compelling to you.

Your assignment:

Although this is a verbal assignment, it is helpful to at least draft your arguments. As such, by Wednesday November 16, have a draft outline of your response to this question. Your answer should include the following information:

- Introduction/issues summary
  - What are the key 1-2 issues here
- Background information
  - Provide a few sentences of information that is relevant to the aspects of your issues such that your audience has a general understanding of the facts you are using to make your argument.
- Solution
  - Now that you have described the issues, explain under what conditions/sets of sustainable agriculture solutions we can (or cannot) feed the world with sustainable agriculture practices.
- Conclusion
  - "Tell 'em what you told 'em"
- Works cited
  - You do not need formal references for the verbal portion of this assignment, but on your outline draft I would like to see a list of sources you have used to craft your answer. Don't forget to use in-text citations as well.

Evaluation

You will be evaluated by your peers via a "speed dating" exercise in class on Friday, November 18, where you will ask and answer this question many times. You will be given a rubric in class in the coming days to see how your peers will evaluate you.

Appendix 11D. Learning Outcome 4 Assessment Tools

11D.2 Rubric for Learning Objective 4

Learning Outcome 4: "Articulate her/her own understanding of agricultural sustainability through oral and written communication."

Evaluation Criteria	Excellent (5 points)	Very Good (4 points)	Good (3 points)	Fair (2 points)	Poor (1 point)
Demonstrates their Understanding of Agricultural Sustainability Student provide a comprehensive, interdisciplinary definition of sustainable agriculture and food systems, within and external to their personal value system	Student provides an interdisciplinary definition of sustainable agriculture and food systems, including environmental, economic and social aspects. Effectively provide justification for their personal definition of sustainability, and an understanding of their definition within the broader context of sustainable agriculture and food systems research and practice.	Student provides an interdisciplinary definition of sustainable agriculture and food systems. Effectively provide justification for their personal definition of sustainability, with some gaps in understanding of their definition within the broader context of sustainable agriculture and food systems research and practice.	Student provides an interdisciplinary definition of sustainable agriculture and food systems. Effectively provide justification for their personal definition of sustainability, with significant gaps in understanding of their definition within the broader context of sustainable agriculture and food systems research and practice.	Student provides a limited definition of sustainable agriculture and food systems. Justification for their personal definition contains significant gaps in understanding of their definition within the broader context of sustainable agriculture and food systems research and practice.	Student provides a limited definition of sustainable agriculture and food systems, with little context for the broader research and practice context.
Competency in Written Communication	Paper provides a thesis/central statement that is effectively developed and is supported by an adequate amount of evidence and reflection. The paper is written without spelling or grammatical errors at a level that would be expected of a college graduate.	Paper provides a thesis/central statement that is effectively developed, with few gaps in evidence and reflection. The paper is written with limited spelling or grammatical errors at a level that would be expected of a college graduate.	Paper provides a thesis/central statement that is effectively developed, with some gaps in evidence and reflection. The paper is written with limited spelling or grammatical errors at a level that would be expected of a college graduate.	Paper lacks a thesis/central statement that is effectively developed, with gaps in evidence and reflection. The paper is written with some spelling or grammatical errors at a level that would be expected of a college graduate.	Paper lacks a thesis/central statement that is effectively developed, lacks evidence and reflection. The paper has significant spelling or grammatical errors at a level that are not reflective college graduate.
Competency in Oral Communication	Presentation contains a central theme that is well supported by appropriate content; verbal elocution is understandable to target audience, and non-verbal skills command attention and are fluid and poised.	Presentation contains a central theme that is well supported by appropriate content; with limited gaps in verbal elocution to target audience, and limited gaps in non-verbal skills.	Presentation contains a central theme that has minimal gaps in supported content; with some gaps in verbal elocution to target audience, and limited gaps in non-verbal skills.	Presentation lacks a central theme; with some gaps in verbal elocution to target audience, and limited gaps in non-verbal skills	Presentation lacks a central theme; with significant gaps in verbal elocution to target audience, and significant gaps in non-verbal skills

Appendix 11E. Supplemental Materials for GCCR Requirement

11E.1 SAG 201 Final Paper Rubric

SAG 201: Cultural Perspectives of Sustainability

Case Study Final Paper Rubrics

Student Name: /50 pts

Case Country:

Criteria	Poor	Fair	Good	Very Good	Excellent
This paper addresses unique and common ideas of agricultural sustainability defined in the case country's system in comparison to the US system (**Q1**).	1	2	3	4	5
The paper addresses key ethical and social justice issues are raised in the case study country's system (**Q2**).	1	2	3	4	5
The paper addresses unique and common opportunities and constraints for making agriculture more sustainable in the case country (**Q3**).	1	2	3	4	5
The paper discusses the lessons about sustainability as a concept in the context of a global food and agricultural system (**Q4**).	1	2	3	4	5
The paper has a thesis statement, which effectively developed with the case study.	1	2	3	4	5
The paper successfully compares their home state/country and non-US cases.	1	2	3	4	5
The paper demonstrates that the student carried out an adequate amount of research for this assignment.	2	4	6	8	10
The paper is written without spelling or grammatical errors at a level that would be expected from college graduates.	1	2	3	4	5
The paper meets all the requirements for this assignment.	1	2	3	4	5

Notes:

Appendix 11E. Supplemental Materials for GCCR Requirement

11E.2 SAG 201 Final Presentation Rubric

SAG 201: Cultural Perspectives of Sustainability

Case Study Presentation Rubrics

Student Name: /20 pts

Case Country:

Criteria	Poor	Fair	Good	Excellent
The presentation uses visuals (e.g., pictures, tables, figures) effectively to communicate the key information about the case country.	1	2	3	4
The presentation illustrates effectively at least one idea about agricultural sustainability in the case country.	1	2	3	4
The presenter describes effectively at least one example of sustainable agricultural practices used in the case country.	1	2	3	4
The presentation demonstrates that the presenter has carried out a sufficient amount of research about sustainable agriculture in the case country.	1	2	3	4
The presentation demonstrates that the presenter has developed a sufficient level of understanding about agricultural sustainability in the non-US context.	1	2	3	4

Notes:

Appendix 11E. Supplemental Materials for GCCR Requirement

11E.3 SAG 201 Syllabus

SAG 201-001:
Cultural Perspectives on Sustainability

Tuesdays and Thursdays, 12:00 – 1:15 pm *109 Garrigus Building*

(This course satisfies the UK CORE "Global Dynamics" requirement and graduation writing requirement.)

Dr. Keiko Tanaka

Ph: (859) 257-7574
E-mail: ktanaka@email.uky.edu

Office Hours

Tues/Thurs 11:00am – 11:30am and 1:30pm – 2:00pm or by appointment
Department of Community & Leadership Development
College of Agriculture, Food, and Environment
704 Garrigus Building

SECTION 1. COURSE OVERVIEW

Course Content

Sustainability is a multifaceted, highly contested concept. This course begins with two premises that: (a) sustainability does not exist in the physical world, but is an ideal, that is, a concept to work toward; and (b) how we define sustainability as individuals comes from our daily practices and interactions with people, plants, animals, spirits, and everything that is meaningful to us. In this class, we will focus on the social processes and cultural mechanisms that underlie everyday agricultural practices, in the U.S. and abroad. To do so, we will compare agriculture and food systems between the U.S. and other countries. Such cross-cultural comparison will help you: (a) appreciate distinctiveness of each society's effort to build agricultural sustainability; and (b) recognize the common challenges these societies face in the effort in the context of globalized agricultural trade and food production.

This course is structured into three modules. Each module consists of readings, guest speakers, lectures, and seminar discussions. Some readings are selected from classic sustainable agriculture literature to expose students to key authors writing on cultural aspects of the sustainability movement. Students are required to read some "issue" oriented articles from newspapers, magazines, reports, and electronic sources which are written for wider audience. The module on cross-cultural perspectives is organized around key challenges for agricultural sustainability. Although my lectures will bring examples from agriculture and food systems and rural economies in Asia, guest speakers will be brought in to talk about farming and agriculture in other regions of the world. In your independent research, you will delve even deeper into a culture or commodity of your choosing, and write a semester-long paper using a case study approach to draw your own cross-cultural comparisons, and present your work at the end of the semester. Students are expected to come to class fully prepared, willing to take responsibilities for organizing seminar discussion and presenting original case study research to make their arguments on a seminar topic.

Appendix 11E. Supplemental Materials for GCCR Requirement

Learning Outcomes

By this end of this course, students will be able to:

- Appreciate the existence of diverse perspectives of sustainability across time (history) and place (cultures/societies);
- Develop analytical skills to investigate how agricultural sustainability is defined and practiced in a given location at a given time;
- Critically evaluate how certain social processes and cultural mechanisms shape these perspectives;
- Systematically compare the perspective of sustainability between one society/community in the U.S. and the other from non-U.S. society/country; and
- Communicate effectively how diverse, often competing, perspectives of sustainability reflect on the global dynamic in which agricultural and food products are produced, distributed, and consumed in today's world.

Required Readings

Available in the course Blackboard site

- Millstone, Erik and Tim Lang. 2013. *The Atlas of Food: Who Eats What, Where, and Why.* Berkeley and Los Angeles, CA: University of California Press.

Graduation Composition & Communication Requirement (GCCR)

This is a writing-intensive course approved to fulfill the Graduation Composition & Communication Requirement (GCCR) for SAG majors and minors. Prior to taking this course, you must have achieved sophomore status. To satisfy the GCCR, students must earn an average grade of C or better on the Research Paper & Presentation and Research & Communication Exercises (see pp. 8-10).

Assessment

Distribution

		Points	%
Research Paper & Presentation		100	50
Non-US Case Study (Draft 1)	30		
Non-US Case Study (Presentation)	20		
Non-US Case Study (Final)	50		
Research & Communication Exercises		60	30
Essay: Sustainability in Kentucky	20		
Sustainable Food System Presentation	10		
Country Profile & Bibliography	10		
Case Country Narrative & Visuals	20		
Quizzes (4)		40	20
Total		**200**	**100**

Scale

Grade	Points	%
A	≥ 180	≥ 90
B	160 – 179	80 - 89
C	140 – 159	70 - 79
D	120 – 139	60 - 69

E	< 120	< 60

Assessment Criteria

A Exceptional work, beyond expectation, which demonstrate one's ability to effectively integrate all the required course materials and additional materials into an assignment. Written work requires little or no editorial revision.

B Very good work that demonstrates one's competence in integrating all the required course materials into an assignment. Written work requires minor revisions.

C Acceptable work that uses most of the required course materials. Written work needs major revisions for better integration of the course materials.

D Poor work that uses some of the required course materials. Written work needs major revisions.

E Unacceptable as an assignment.

Excusable Absences & Make-Up Policy

I do require written documentation (doctor's note, etc.) to grant an excused absence. I am strict about this policy to ensure that each student has the same set of standards in determining whether or not an absence is excused, and to help me to keep track of excused absences. In accordance with the UK's policy (S.R. 5.2.4.2), the following reasons will be accepted for excused absences: (a) serious illness, (b) illness or death of family member, (c) University-related trips, (d) major religious holidays or other church-related absences, and (e) other circumstances I find to be "reasonable cause for nonattendance."

Students with excused absences will be granted the opportunity to turn in written assignments (see "Make-Up Assignment" in the next section) and will not be penalized for their absence. However, if you miss class due to an excused absence, it is your responsibility to provide documentation and arrange for make-up deadlines within one week of your absence. Your failure to do so will result in changing your "excused absence" to "absence." Please be proactive in your communication with me regarding absences so that mutually agreeable accommodations can be made as soon as possible.

Penalty for Absence

You are expected to attend the class. For some reasons, if you must miss the class, please contact me via e-mail or text message (859-351-9252). Points will be deducted from your grade for absences.

Penalty

Number of Absences	Points Deducted
1	0
2	5
3	10
4	20
≥ 5	40

Late Submission

All assignments must be submitted by the specified date and time. Each student can request an extension of the deadline for only one assignment. Points will be deducted from your assignment for late submission, ***UNLESS*** an

arrangement for extension has been made between you and me at least 24 hours before the deadline. The percentages deducted from the total points of a given assignment are listed below. Please note that Saturday and Sunday will be counted toward the number of dates passed the deadline.

Penalty

Number of Dates	Percentage Deducted
1 day late	5
2 days late	10
3 days late	20
4 Days late	40
≥ 5	80

Academic Integrity

Per university policy, students shall not plagiarize, cheat, or falsify or misuse academic records. Students are expected to adhere to University policy on cheating and plagiarism in all courses. The minimum penalty for a first offense is a zero on the assignment on which the offense occurred. If the offense is considered severe or the student has other academic offenses on their record, more serious penalties, up to suspension from the university may be imposed.

Plagiarism and cheating are serious breaches of academic conduct. Each student is advised to become familiar with the various forms of academic dishonesty as explained in the Code of Student Rights and Responsibilities. Complete information can be found at the following website: http://www.uky.edu/Ombud. A plea of ignorance is not acceptable as a defense against the charge of academic dishonesty. It is important that you review this information as all ideas borrowed from others need to be properly credited.

Part II of Student Rights and Responsibilities (available online http://www.uky.edu/StudentAffairs/Code/part2.html) states that all academic work, written or otherwise, submitted by students to their instructors or other academic supervisors, is expected to be the result of their own thought, research, or self-expression. In cases where students feel unsure about the question of plagiarism involving their own work, they are obliged to consult their instructors on the matter before submission.

When students submit work purporting to be their own, but which in any way borrows ideas, organization, wording or anything else from another source without appropriate acknowledgement of the fact, the students are guilty of plagiarism. Plagiarism includes reproducing someone else's work, whether it be a published article, chapter of a book, a paper from a friend or some file, or something similar to this. Plagiarism also includes the practice of employing or allowing another person to alter or revise the work which a student submits as his/her own, whoever that other person may be.

Students may discuss assignments among themselves or with an instructor or tutor, but when the actual work is done, it must be done by the student, and the student alone. When a student's assignment involves research in outside sources of information, the student must carefully acknowledge exactly what, where and how he/she employed them. If the words of someone else are used, the student must put quotation marks around the passage in question and add an appropriate indication of its origin. Making simple changes while leaving the organization, content and phraseology intact is plagiaristic. However, nothing in these Rules shall apply to those ideas which are so generally and freely circulated as to be a part of the public domain (Section 6.3.1).

Please note: Any assignment you turn in may be submitted to an electronic database to check for plagiarism.

Appendix 11E. Supplemental Materials for GCCR Requirement

The Classroom Environment

I expect civil and courteous behaviors from students both inside and outside the classroom. This course involves discussions on various ideas and practices surrounding food and agriculture, and often times you will find your beliefs called into question. This is part of the learning process, and we will all have varying opinions on how we will produce food for future generations. It is very important to me that we all work together to create a classroom environment where everyone feels comfortable to freely voice his/her opinions. This means that attacks of a personal nature or statements denigrating another will not be accepted. Additionally, please refrain from tobacco use of any kind in the classroom. It is against University policy.

Moreover, sometimes your life circumstances will force you to miss a class or delay the submission of your assignment. Whether your absence from the class or delay in the submission of an assignment is excusable or not, you need to let me know so that I will be able to suggest a necessary arrangement for you to catch-up on the work. Please be proactive about any absences or delays in assignment submission, so that we can plan accordingly. Please communicate to me via phone or e-mail that you will miss a class or that your assignment will be submitted late.

Classroom Use of Laptop & Cell Phone

I permit the use of laptop in the classroom only for taking notes and in-class exercises. Please silence your cell phones in the beginning of our class, and remind your peers to do the same. I also ask that you refrain from texting or using your cell phone to access the internet, check email, etc. I will confiscate your device for up to 12 hours if I find you violate this policy.

Email Contacts

If you are unable to come to see me during office hours, you can receive my consultation through e-mail. However, please remember that email is an official form of communication with your instructor. When you send an e-mail message, please use common courtesies, such as filling out the "Subject" line, using an appropriate salutation that addresses me personally (please don't just say "Hey"), and please include your name in the message.

Text Contacts

My cell phone number is 859-351-9252. You can send me text messages to notify your absence and schedule an appointment with me. When you send me a text message, please include your name. I will not answer a message which does not identify who is the sender. Please do NOT send me text messages on other purposes unless I initiate a text conversation and request you to respond via texts.

Special Consideration

If you need accommodation for a documented physical or learning disability, please see me. If you have another special situation that will affect your participation or work, please see me.

Appendix 11E. Supplemental Materials for GCCR Requirement

SECTION 2. LEARNING PLAN

Research Paper: The Cultural Perspective of Agricultural Sustainability

You are required to write a research paper which examines how the perspective of agricultural sustainability is situated in particular place and time outside the United States. Using the ***case study methodology***, you will collect and analyze data from one system in a non-U.S. country/society to answer the following ***research questions***:

5. What unique and common ideas of agricultural sustainability defined in that system in comparison to the system with which you are familiar?
6. What key ethical and social justice issues are raised in that system?
7. What opportunities and constraints are there for making agriculture more sustainable in that country? How unique or common are they in comparison to what the system, with which you are familiar, encounter?
8. What do we learn about sustainability as a concept in the context of a global food and agricultural system, particularly in comparison to how the concept is defined in the system with which you are familiar?

Potential data includes, though are not limited to: newspaper, magazine, and academic journal articles about a particular agrifood system; economic and trade statistics available from government and international agencies; interviews with faculty and residents from your research country; websites on various aspects about that country's agriculture and food system.

You are required to submit a draft of your case study by ***5:00pm on Friday, November 15, 2015***. Each student is required to give a presentation of at least 10 minutes about your research in the last three weeks of the semester. This can be done with a PowerPoint, Prezi, or any other types of visual presentation. The practice session will be held on ***November 17 and 19*** by dividing the class into smaller groups in which each student will present his/her work for peer evaluations. The final oral presentation must incorporate the feedback you received from your peers.

For the final paper, due by ***5:00pm on Monday, December 14, 2014***, you need to incorporate your Kentucky sustainability essay fully into your research paper and integrating them into one coherent paper with revised introduction and conclusion sections. The paper must be written with minimum of 3,500 words and maximum of 4,500 words, excluding references, tables, figures, and appendices.

Research & Communication Exercises

To help you carry out your research project, there will be three Research Skill Development exercises. Written products for these exercises should be incorporated into your research papers. No draft or rewriting will be permitted for these assignments. You can submit them any time before the due date. No rewrites will be allowed for these assignments!!!

1. Country Profile & Bibliography (Due: 9/20/15, 12noon): As soon as you select your case country, using one or more of World Bank, UNDP, OECD, and FAO databases, collect basic information concerning that country's population, agricultural production and trade, economy and industry, and social characteristics. Create tables and figures to summarize these data. Also provide a list of bibliographies which you plan to use for writing this section. A worksheet will be provided for this exercise. Your bibliography must include **at least** the following:

- 5 News articles published by internationally recognized news agencies or media companies (e.g., CNN, New York Times, BBC, NPR)

- 3 In-depth reports/articles from either magazines (e.g., National Geographic, New Internationalist, The Economist) or organizations (e.g., government agency, community-based organizations).
- 3 Distinct websites (meaning that not two web pages within a given site)
- 1 Academic journal article

These must be the sources which you will read and use for your case study. This particular bibliography list can include more than what you will end up reading. If you feel useful, draft a narrative which will later become a part of your non-US case study narrative due on September 20, 2015.

2. Sustainability in Kentucky Essay (Due: 10/3/15, noon): Based on your everyday observation and understanding of the course materials, write a short essay to answer the following questions: (a) What does sustainability mean in Kentucky? (b) How does the concept of sustainability is expressed? (c) What do you see opportunities and challenges of sustainability in Kentucky? The essay should be double-spaced with a 12-font and 1" margins for all sides. The paper should not be any less than 1,200 words and any more than 1,500 words, excluding references, tables, and figures.

3. Sustainable Farm System Proposal (Presentation Date: 10/1/15): This is an in-class group project. Each group will design a "sustainable farm" that meets the USDA's definition. Each week between January 21 and February 11, groups will work on one of the three pillars of sustainability. On February 18, each group will present the design of a proposed farm system.

4. Narrative & Visual Representations of the Case Country (Due: 10/27/15, noon): Based on your research for the Country Profile, write a short narrative about your case country. This narrative will become an important component of your draft and final paper. After the narrative, attach any visual representations, e.g., pictures, videos, you wish to include your presentation. The narrative portion of the paper should be double-spaced with a 12-font and 1" margins for all sides. This portion should not be written with any less than 1,200 words and any longer than 1,500 words, excluding the bibliography page(s). Your visual portion of this paper does not have any page limit.

Format Requirements

1. Research Paper:

- Double-spaced, 12-point font, 1" margins all sides
- Page numbered, your name in either header or footer
- Title page with the paper title and your name. Please do not include your name in the body of the paper.
- Reference pages (with any social science citation format; please see the course Blackboard site for resources on reference formats and citation guidelines)
- The minimum word count of this assignment is 3,500 words, excluding references, tables, figures, and appendices. Your draft, due on November 13, 2015 should not be any shorter than 8 pages.

2. Exercise Assignment:

- Title page with the assignment title and your name. Please do not include your name in the body of the paper.
- Page numbered, your name in either header or footer, but not inside margins.

Evaluation Measures

Appendix 11E. Supplemental Materials for GCCR Requirement

You will receive an evaluation rubric for your research papers and exercises well in advance of their due dates. I will do my best to communicate with you my expectations for your work, but if you feel something is unclear, please do not hesitate to let me know.

1. Paper: The final paper will be evaluated on five areas:

- Appreciation for diverse perspectives of sustainability;
- Critical evaluation of ethical dilemmas, conflicts, and trade-offs in the effort to make agriculture more sustainable;
- Analytical skills for data collection, analysis, and synthesis to develop own perspective on sustainability; and
- Effectiveness of communication of ideas.
- Integration of course materials

2. Exercise: Each exercise will be assessed based on two areas:

- Effectiveness of data collection and analysis; and
- Effectiveness of communication of ideas

Submission & Feedback

Please submit all your assignments in either Word (.doc or .docx) or PDF (.pdf) format to the designated location in the course Blackboard. I will grade and give you feedback on the research and writing exercise assignments and your paper draft within two weeks after the due date.

Quizzes

There will be 4 quizzes over the semester. Quiz questions will come from the required readings for that week as well as any materials covered since the last exam.

	Readings (dates)	**Lectures/Seminars/Exercises (dates)**
Quiz 1 (9/15)	8/27, 9/1, 9/3, 9/8, 9/10, 9/15	8/27, 9/1, 9/3, 9/8, 9/10
Quiz 2 (10/6)	9/17, 9/22, 9/24, 9/29, 10/1, 10/6	9/15, 9/17, 9/22, 9/24, 9/29, 10/1
Quiz 3 (10/22)	10/8, 10/13, 10/15, 10/20, 10/22	10/6, 10/8, 10/13, 10/15, 10/20
Quiz 4 (11/12)	10/27, 10/29, 11/3, 11/5, 11/10, 11/12	10/27, 10/29, 11/3, 11/5, 11/10

Evaluation Measures

Each student will be evaluated on the following areas:

- Completion of the assigned readings
- Understanding of the assigned course materials;
- Appreciation for diverse perspectives of sustainability; and
- Critical evaluation of complex and nuanced ethical and social justice issues involved in making agriculture more sustainable.

Make-Up Assignment: Reading Summaries

For each excused absence, provide summaries of the reading assignments for that class. Reading summaries should not be longer than 2 single-spaced pages, and should primarily of your reflections on the readings, how they

contribute to your ideas about sustainability and the sustainable agriculture movement, and 2-3 discussion questions.

Evaluation Measures

Grading for reading summaries will be as follows:

- 2 points for clear work that is not rushed, with reflection and discussion questions;
- 1 point for incomplete or unclear writing or significant components missing; and
- 0 points for unacceptable or no work.

SECTION 3. COURSE SCHEDULE (TENTATIVE)

Wk	Tuesdays				Thursdays			
	Date	Topic	Activity	Due	Date	Topic	Activity	Due
1					8/27	Course Overview & Introduction	Introduction	Information Sheet
2	9/1	Sustainability 1. What does "sustainability" mean?	Lecture		9/3	Research Exercise 1. Social Science Research "Sustainability" as a Concept	Exercise & Group Work	
3	9/8	Sustainability 2. "Sustainable Farm System"	Seminar & Group Work		9/10	Research Exercise 2. Data Collection Pt 1 Country Profile	Exercise	
4	9/15	Sustainability 3. "Sustainable Farm System"	Seminar & Group Work	Quiz 1	9/17	Research Exercise 3. Data Collection Pt 2 Websites & Literature	Exercise	Country Profile (9/20)
5	9/22	Sustainability 4. "Sustainable Farm System"	Seminar & Group Work		9/24	Research Exercise 4. Data Synthesis Writing	Exercise	
6	9/29	Sustainability 5. Sustainability in the Global Food System	Lecture		10/1	Research Exercise 5. "Sustainable Farm System" Presentation	Group Presentations & Critique	Presentation KY Essay (10/3)
7	10/6	Movie:			10/8	Research Exercise 6. Cross-Cultural Research	Exercise	Quiz 2
8	10/13	Cross-Cultural 1. Cross-Cultural Perspectives	Seminar		10/15	Cross-Cultural 2. Global Agriculture	Exercise	Peer Review 1
9	10/20	Cross-Cultural 3. Case Study: Japan	Seminar		10/22	Cross-Cultural 4. Case Study: Japan	Seminar	Quiz 3
10	10/27	Cross-Cultural 5. Case Study: Morocco	Guest Speaker: Karen Rignall	Narrative & Visual (10/27)	10/29	Cross-Cultural 6. Case Study:	Guest Speaker: Paul Vincelli	
11	11/3	Cross-Cultural 7. Case Study: Indonesia	Guest Speaker: Krista Jacobsen		11/5	Cross-Cultural 8. Case Study: Indonesia	Student Panel	Peer Review 2
12	11/10	Cross-Cultural 9. Case Study: Indonesia			11/12	Conclusion: Learning from Other Cultures		Quiz 4 Research Paper Draft (11/13)
13	11/17	Draft Presentations	Seminar		11/19	Draft Presentations	Peer Reviews of Presentations	
14	11/24	NO CLASS			11/26	NO CLASS		
15	12/1	Presentations 1	Student Presentations		12/3	Presentations 2	Student Presentations	
16	12/8	Presentations 3	Student Presentations		12/10	Presentations 4	Student Presentations	

* Final research paper is due at 5:00pm, **Monday, December 14, 2015**.

SECTION 4: READING ASSIGNMENTS (TENTATIVE)

Please complete the following readings before you come to the class. The quality of your participation in discussion activities will be evaluated based on your ability to demonstrate whether you have completed reading assignments.

Module 1. Overview & Introduction

August 27 Course Overview & Introduction: Transformations of the US Agrifood System

- Hederson, Elizabeth. 2009. "Local & Organic." *In Good Tilth*, 20(3): 16-17.

Module 2. Sustainability in the US Agrifood System

September 1 What Does Sustainability Mean? (Lecture)

- Ikerd, John E. 2008. "3. Corporate Agriculture and Family Farms." Pp. 33 – 44 in *Crisis & Opportunity: Sustainability in American Agriculture*. Lincoln, NE and London, UK: University of Nebraska Press.
- MacDonald, James. 2013. "Crop Land Consolidation and the Future of Family Farm." *Amber Wave*, September. Available at http://www.ers.usda.gov/amber-waves/2013-september/cropland-consolidation-and-the-future-of-family-farms.aspx#.Us8Kj7TG-AY
- Royte, Elizabeth. 2013. "The Post-GMO Economy: One mainstream farmer is returning to conventional seed — and he's not alone." Modern Farmer, December 6, 2013. Available at http://modernfarmer.com/2013/12/post-gmo-economy/

September 3 Research Exercise 1: Social Research (In-class Activity). Sustainability as a Concept

- Lyson, Thomas A. 2004. "Toward a Civic Agriculture." Pp. 61-83 in *Civic Agriculture: Reconnecting Farm, Food, and Community*. Medford, MA: Tufts University Press.
- SARE. 2012. *What is Sustainable Agriculture? A SARE Sampler of Sustainable Practices.* College Park, MD: SARE. Available at http://www.sare.org/Learning-Center/SARE-Program-Materials/National-Program-Materials/What-is-Sustainable-Agriculture

September 8 Sustainability: Environmental Stewardship

- Rodale Institute. 2011. *The Farming Systems Trial. Celebrating 30 Years.* Kutztown, PA: Rodale Institute. Available at http://66.147.244.123/~rodalein/wp-content/uploads/2012/12/FSTbookletFINAL.pdf

September 10 Research Exercise 2: Data Collection Part 1 – Country Profile (In-class Activity).

- Millstone, Erik and Tim Lang. 2013. "Introduction." Pp. 9-13 in *The Atlas of Food: Who Eats What, Where, and Why.* Berkeley and Los Angeles, CA: University of California Press.

September 15 Sustainability: Economic Viability

- Bagi, Faqir. 2013. "Who is Adopting Organic Farming Practices?" Amber Waves, October. Available at http://www.ers.usda.gov/amber-waves/2013-october/who-is-adopting-organic-farming-practices.aspx#.Us8JzrTG-AY
- Greene, Catherine, Edward Slattery, and William D. McBride. 2010. "America's Organic Farmers Face Issues and Opportunities." *Amber Wave* 18(2): 34-39.

September 17 Research Exercise 3: Data Collection Part 2 – Websites & Literature (In-class Activity)

- None

September 22 Sustainability: Social Equity

- Berry, Wendle. 1997 [1986]. "The Agricultural Crisis as a Crisis of Culture." Pp. 39-48 in *The Unsettling of America: Culture & Agriculture.* San Francisco, CA: Sierra Club.
- Wallace Center. n.d. *Innovations in Local Food Enterprise. Fresh Ideas for a Just Profitable Food System.* Arlington, VA: Wallace Center at Winrock International. Available at http://static.squarespace.com/static/520ed291e4b066a62d157faa/t/528da3d7e4b04fc3083284e5/1385014231781/HUFED%20Innovations%20Report_Part%20One.pdf

September 24 Research Exercise 4: Data Synthesis Part 1. –Writing (In-class Activity)

- Berry, Wendle. 1997 [1986]. "The Agricultural Crisis as a Crisis of Culture." Pp. 39-48 in *The Unsettling of America: Culture & Agriculture.* San Francisco, CA: Sierra Club.

September 29 Sustainability: Sustainability in the Global Food System

October 1 Research Exercise 5: Data Synthesis Part 2. – Presentation (In-class Activity)

- None

October 6 Movie:

- TBD

October 8 Research Exercise 6: Cross-Cultural Research

- TBD

Module 3. Cross-Cultural Perspectives of Sustainability

October 13 Diverse World, Diverse Agriculture/Farming 1

- Millstone, Erik and Tim Lang. 2013. "Part 1. Contemporary Challenges." Pp. 15-31 in *The Atlas of Food: Who Eats What, Where, and Why.* Berkeley and Los Angeles, CA: University of California Press.
- Millstone, Erik and Tim Lang. 2013. "Part 2. Farming." Pp. 32-63 in *The Atlas of Food: Who Eats What, Where, and Why.* Berkeley and Los Angeles, CA: University of California Press.

October 15 Diverse World, Diverse Agriculture/Farming 2

- Millstone, Erik and Tim Lang. 2013. "Part 3. Trade." Pp. 64-77 in *The Atlas of Food: Who Eats What, Where, and Why.* Berkeley and Los Angeles, CA: University of California Press.
- Millstone, Erik and Tim Lang. 2013. "Part 4. Processing, Retailing and Consumption." Pp. 78-101 in *The Atlas of Food: Who Eats What, Where, and Why.* Berkeley and Los Angeles, CA: University of California Press.

October 20 Case Study. Japan 1

- Fukuoka, Masanobu. 2009 [1978]. Selection from *One Straw Revolution: An Introduction to Natural Farming*. New York: NYRB Classics.

- Miura, Kenji. 2014. "Local Pioneers of Natural Farming Strong after 60 Years." *The Japan Times.* Available at: http://www.japantimes.co.jp/life/2014/01/28/food/local-pioneers-of-natural-farming-strong-after-60-years/#.UyfNvuddVJ8
- McGreevy, Steven R. 2012. "Lost in Translation: Incomer Organic Farmers, Local Knowledge, and the Revitalization of Upland Japanese Hamlets." *Agriculture and Human Values* 29: 393-412.

October 22 Case Study. Japan 2

- The Economist. 2013. "Farming in Japan: Field Work." *The Economist* (April 13th). Available at: http://www.economist.com/node/21576154/print.
- The Economist. 2013. "Rice Farming in Japan: Political Staple." *The Economist* (November 30th). Available at: http://www.economist.com/node/21590947/print
- Harner, Stephen. 2013. "TPP or No TPP Japanese Agriculture Must be Reformed." *Forbes* (August 19th). Available at: http://forbes.com/sites/stephenharner/2013/09/19/tpp-or-no-tpp-japanese-agriculture-must-be-reformed/print/
- Mogi, Chikako and Masaaki Iawmoto. 2013. "Abe Breaks Micro-Farms to End Japan Agriculture Slide: Economy." *Bloomberg* (December 12th). Available at: http://www.bloomberg.com/news/print/2013-12-12/abe-pushes-biggest-farm-revamp-since-macarthur-broke-landlords.html

October 27 Case Study. Morocco

- TBD

October 29 Case Study. GMO in Developing Countries

- TBD

November 3 Case Study: Indonesia 1

- Fernside, Philip M. 2008. "Transmigration in Indonesia: Lessons from Its Environmental and Social Impacts." *Environmental Management* 21(4): 553-570.
- Knight, Drew, Bruce Mitchell and Geoffrey Wall. 1997. "Bali: Sustainable Development, Tourism and Coastal Management." *Ambio* 26(2): 90-96.

November 5 Case Study: Indonesia 2

- TBD

November 10 Case Study: Indonesia 3

- TBD

November 12 Conclusion: Learning from Other Cultures

- TBD

Module 4. Presentations

November 17 Draft Presentations 1

- None

November 19 Draft Presentations 2

- None

November 24 & 26 THANKSGIVING BREAK: NO CLASS!

December 1 Research Presentations 1

- None

December 3 Research Presentations 2

- None

December 8 Research Presentations 3

- None

December 10 Research Presentations 3

- None

UNIVERSITY OF KENTUCKY®

Annual Student Learning Outcomes Report

College of Agriculture, Food and Environment
Sustainable Agriculture - Bachelor
2012-2013 Sustainable Agriculture

Student Learning Outcome(s) Assessed

sustain.b: Outcome 5 Evaluate the sustainability of a site specific situation by applying a fundamental understanding of sustainable agriculture principles.

Assessment Methods and Tools

Methods: This project focused on assessing student mastery of learning outcome #5: Evaluate the sustainability of a site-specific situation by applying a fundamental understanding of sustainable agriculture principles. All students in the Sustainable Agriculture (SAG) curriculum are required to take the introductory class SAG 101 *Introduction to Sustainable Agriculture Principles* (see attached syllabus), ideally in the first year in the program. During their senior year, all students are required to take SAG 490 *Integration of Sustainable Agriculture Principles* (see attached syllabus). Final projects from both of classes were collected and evaluated based on a rubric (see attached) developed specifically to determine student understanding and application of this learning outcome. Three faculty evaluators participated in this assessment based on their involvement in the SAG program – one is the Director of Undergraduate Studies and instructs SAG 490, one is the instructor for SAG 101 and advises approximately half of the students in the program, and one is the Chair of the program's Steering Committee. For the period under review, final projects (see attachment for the assignment in SAG 101) from 17 students in SAG 101 (Fall 2012) and final projects from 11 students in SAG 490 (Spring 2013) were evaluated. These projects are somewhat standardized between the classes such that they both challenge the students to demonstrate mastery of learning outcome #5, and therefore one rubric could be used across both assignments. It should be noted that while the majority of students in SAG 490 are SAG majors, the majority of students enrolling in SAG 101 are other majors in the College of Agriculture, Food, and the Environment. The cohort represented in this analysis are representative of the student body of these pools, but not necessarily focused on SAG majors.

Assessment Tools: Our rubric utilized 5 specific evaluation categories: economic profitability, environmental stewardship, social responsibility, site analysis and synthetic evaluation. Each category was worth 4 points total, for a maximum combined score of 20 points possible for each student. The reviewers independently evaluated the students from each class and the collective average was determined to allow comparison of student mastery of the learning outcome for each cohort of students.

Results

Results: Out of a total of 20 possible points per student, the average for each class by evaluator was:

	SAG 101	SAG 490
Evaluator 1	13.8	16.2
Evaluator 2	12.8	16.1
Evaluator 3	11.7	16.0
Combined Average	12.8	16.1

Interpretation of Results

Interpretation of results: The combined averages between the three reviewers were 12.8 for SAG 101 and 16.1 for SAG 490. This represents a 26% increase between the classes in the point total averaged across each class. This demonstrates that our student's understanding of the learning outcome, and ability to apply this information in a site-specific manner, is increasing based on their cumulative knowledge gained from our program.

Improvement Action

Improvement Action: Since these classes are typically taken in the early and late part of our student's tenure in our program, and our assessment is over two consecutive semesters, we were unable to longitudinally follow each student between the classes. In the future we will collect student artifacts (final projects) for each student as they progress through our program so that individual increases can be more accurately compared. This cycle of assessment is a preliminary attempt to develop a more robust method for use in the future to track student learning and guide programmatic evolution. Additionally we will alternate the evaluators used in this assessment with others involved in our curriculum but not with these specific classes. This will help to ensure an unbiased assessment.

Reflection

Attachments

SAG 101 Final Exam Fall 2012.docx

SAG 101 Syllabus_Fall 2012.docx

SAG490 Syllabus 2013.docx

SLO 5 Assessment Rubric.docx

University of Kentucky

Annual Assessment Reporting
2013-2014

Please complete this form for the program's 2013-2014 academic year student learning outcomes assessment. If you conducted multiple assessments, please fill in as needed by starting a new section. If you have documents relevant to the assessment conducted, please add them as an appendix. Add hyperlinks to websites as necessary. For our records, please save the file as Program Name and Level (e.g. English_Master).

College: Agriculture Food and the Environment
Department: Horticulture
Program Name: Sustainable Agriculture (SAG)
Level (Bachelor, Master, Doctorate, Certificate, or Other): Bachelor

	Assessment #1 Assessing a critical programmatic learning outcome across an introductory and a senior-level core class.
Outcome(s) Assessed	This assessment is linked to outcome #5 of the SAG program's learning outcomes: Evaluate the sustainability of a site-specific situation by applying a fundamental understanding of sustainable agriculture principles.
Assessment Method/Tools	**Methods:** This project focused on assessing student mastery of learning outcome #5: Evaluate the sustainability of a site-specific situation by applying a fundamental understanding of sustainable agriculture principles. All students in the Sustainable Agriculture (SAG) curriculum are required to take the introductory class SAG 101 *Introduction to Sustainable Agriculture Principles* (see attached syllabus), ideally in the first year in the program. During their senior year, all students are required to take SAG 490 *Integration of Sustainable Agriculture Principles* (see attached syllabus). A midterm exam in SAG 101 and the final project in SAG 490 were collected and evaluated based on a rubric (see attached) developed specifically to determine student understanding and application of this learning outcome. Two faculty evaluators participated in this assessment based on their involvement in the SAG program – one is the Director of Undergraduate Studies and instructs SAG 490, and one is the Chair of the program's Steering Committee. For the period under review, midterm exams (see attachment for the assignment in SAG 101) from 13 students in SAG 101 (Fall 2013) and final projects from 8 students in SAG 490 (Spring 2014) were evaluated. These projects were standardized between the classes in order to challenge the students to demonstrate mastery of learning outcome #5, therefore one rubric could be used across both assignments. It should be noted that while the majority of students in SAG 490 are SAG majors, the majority of students enrolling in SAG 101 are other majors in the College of Agriculture, Food, and the Environment, but our majors generally take this class during their first year in the program. This

<table>
<tr><td></td><td>assessment represents the knowledge-level that a cohort of students have when they first take one of our SAG core classes, and when they graduate. By utilizing the midterm exam in SAG 101 we can hopefully develop a baseline understand of the knowledge-level that students have when they enter our program.
Assessment Tools: Our rubric utilized 5 specific evaluation categories: economic profitability, environmental stewardship, social responsibility, site analysis and synthetic evaluation. Each category was worth 4 points total, for a maximum combined score of 20 points possible for each student. The reviewers independently evaluated the students from each class and the collective average was determined to allow comparison of student mastery of the learning outcome for each cohort of students.</td></tr>
<tr><td>Benchmark/ Target</td><td>The target was a demonstrated increase between entering and graduating students' ability to convey a depth and breadth of understanding of the learning outcome. Our expectation was that through the combined learning and experiential opportunities in our program our students would be more capable of applying core concepts in sustainability, such as this SLO, in a more evolved and informed manner. With that said we were hopeful that at least a 15-20% increase in the point total per student would be observed.</td></tr>
<tr><td>Results</td><td>Out of a total of 20 possible points per student, the average for each class by evaluator was:

<table>
<tr><th></th><th>SAG 101</th><th>SAG 490</th></tr>
<tr><td>Evaluator 1</td><td>13.2</td><td>15.8</td></tr>
<tr><td>Evaluator 2</td><td>12.7</td><td>16.0</td></tr>
<tr><td>Combined Average</td><td>13</td><td>15.9</td></tr>
</table>
</td></tr>
<tr><td>Interpretation of Results</td><td>The combined averages between the two reviewers were 13 for SAG 101 and 15.9 for SAG 490. This represents a 22% increase between the classes in the point total averaged across each class. This demonstrates that our student's understanding of the learning outcome, and ability to apply this information in a site-specific manner, is increasing based on their cumulative knowledge gained from our program.</td></tr>
<tr><td>Improvement Action</td><td>Although using the midterm exam in SAG 101 allows a reasonable assessment of the base-line knowledge that our students have when they enter the program, it may be better to develop an exam that is given out on the first day of SAG 101. By the time the midterm is given in SAG 101, several weeks of instruction has already been given, and this might be skewing the true level of understanding of our incoming students. As our student numbers increase we will also be able to collect assessment tools from SAG 101 to SAG 490 for each student, , instead of the current approach that assesses SLO mastery among a cohort of students. This should facilitate an even clearer understanding of student mastery of the SLO.</td></tr>
</table>

University of Kentucky

Annual Assessment Reporting

2013-2014

	Assessment #2
Outcome(s) Assessed	
Assessment Method/Tools	
Benchmark/ Target	
Results	
Interpretation of Results	
Improvement Action	

University of Kentucky

Annual Assessment Reporting

2013-2014

	Assessment #3
Outcome(s) Assessed	
Assessment Method/Tools	
Benchmark/ Target	
Results	
Interpretation of Results	
Improvement Action	

Student number: _____

Artifact: _____

Student Learning Outcome: Evaluate the sustainability of a site-specific situation by applying a fundamental understanding of sustainable agriculture principles.

Evaluation Criteria	Highly Proficient (4 points)	Some proficiency (3 points)	Limited proficiency (2 points)	Poor proficiency (1 point)
Economic Profitability (1-4 points) Student demonstrates an understanding of issues affecting economic profitability on farm, community, and food system levels	Understands key points related to short term profitability while securing the economic livelihood of future generations on farm and societal levels	Understands key points related to short term profitability while considering of future generations, but missing consideration of farm or societal levels	Demonstrates limited understanding of key points related to profitability, future generations, and missing consideration of farm or societal levels	Does not demonstrate understanding of key points related to profitability, future generations, and missing consideration of farm or societal levels
Environmental Stewardship (1-4 points) Student demonstrates an understanding of the principles and practices affecting environmental quality on the farm and watershed (or global) levels	Applies the principles and practices associated with improving or maintaining natural resources that are appropriate to the agroecosystems in consideration, and demonstrates mechanistic understanding of the scientific basis for these practices	Applies the principles and practices associated with improving or maintaining natural resources that are appropriate to the agroecosystems in consideration, but missing mechanistic understanding of the scientific basis for these practices	Misses some key principles and practices appropriate to the agroecosystems in consideration, and missing mechanistic understanding of the scientific basis for these practices	Misses most key principles and practices appropriate to the agroecosystems in consideration, and missing mechanistic understanding of the scientific basis for these practices
Social Responsibility (1-4 points) Student demonstrates an understanding of labor, food access, community development, and equity issues associated with the farms and surrounding communities	Discusses key issues and policy associated with equity, justice, and community development on relevant scales (local, regional, national, etc.), and demonstrates an understanding of causality of these issues and policies	Discusses some key issues and policy, with somewhat limited understanding of causality	Discusses few key issues and policy, with limited understanding of causality	Misses most key issues and policy, with no mention of causality of underlying social issues in the agrifood system
Site Analysis (1-4 points) Demonstrates an understanding of the challenges to sustainable management of a given situations based on the economic goals, resources available, environmental conditions, and values guiding management	Effectively identifies and discusses key economic, environmental, and social issues on the site, with effective justification of why said issues are the critical factors affecting the sustainability of the study system	Effectively identifies some key economic, environmental, and social issues, with minimal discussion of the relevance of said factors to the sustainability of the study system	Identifies few key economic, environmental, and social issues, with significant gaps in issues and minimal discussion of their relevance to the sustainability of the study system	Fails to identify key economic, environmental, and social issues, with no discussion of their relevance to the sustainability of the study system
Synthetic Evaluation (1-4 points) Student demonstrates the ability to integrate the above criteria in a holistic way, considering in-depth knowledge of the individual components and communicating an analytical perspective that assesses the system as more than a “sum of its parts”	Integrates the environmental, economic, and social criteria, shows connections between key points across disciplines, identifies contradictions and continuities between key points, and demonstrates sound logic leading towards overall conclusions	Discusses environmental, economic, and social criteria, but struggles to connect key points across disciplines, contradictions and continuities between key points, and gaps in logic leading towards overall conclusions	Mentions environmental, economic, and social criteria, but minimal connections between disciplines, and gaps in logic leading towards overall conclusions	Ignores one or more of the 3 pillars, fails to identify key points, shows confusion about relationships among key points, uses faulty logic, fails to create order from details

SUSTAINABLE AGRICULTURE (SAG) 490, Spring 2014

INTEGRATION OF SUSTAINABLE AGRICULTURE PRINCIPLES

Time and Place

Fridays, 1:00-3:30, Ag Science North, Room S221.
Additional time outside of the required class period will be needed to fulfill some of the objectives in this class.

Instructor

Dr. Mark Williams
Department of Horticulture
N-322-D Agriculture Science North
Office phone: 257-2638
mawillia@uky.edu
Office hours by appointment

Course Description

This course provides an intensive experience for students to integrate critical aspects of sustainability into a semester-long project. This project will involve research, design, and implementation phases, and students will present their work in both written and oral forms. Additionally, this class will allow students to gain first-hand experience in sustainable agriculture by taking a weeklong study tour to visit exemplary agriculture sites in a region of the United States.

Learning Objectives

1. To understand the processes involved in researching, designing, and building an agricultural system in a way that optimizes the sustainability of the system

2. To acquire a deeper knowledge of the critical factors needed to be successful in agricultural production

3. To gain a broad perspective of how the components of sustainable agriculture are integrated in a range of agricultural-related systems

Grading

Participation	15 points		
Attendance	15 points	90-100%	A
Written Assignments	130 points	80-89%	B
Oral Presentations	40 points	70-79%	C
		60-69%	D
Total points	200 points	0-59%	E

Participation.

Students are required to attend classes, as well as research, design, and implement a project of their choosing - with consent of instructor. Participation and appropriate behavior on the spring trip will contribute 15 points in this category.

Attendance

Because active participation counts in the grade, attendance is absolutely required. Each absence will result in a 1-point reduction in the final semester grade. Excused absences are described in the student code of conduct at http://www.uky.edu/StudentAffairs/Code/part2.htm, Section 5.2.4.2. **If students cannot attend class regularly, they should consider dropping the course.**

Written Assignments

There will be two written assignments:
A written document describing the processes used to develop the main semester project is required at the end of the semester. This assignment will be worth 100 points. A grading rubric will be distributed in advance of the due date.

A travel log will be kept during the study tour that will include answering questions designed to assess the learning experience. This will be evaluated by the instructor and will be worth 30 points.

Oral Presentation

An oral presentation describing the main semester project will be given at the end of the semester. This presentation will be assessed by the students from this class and other outside reviewers.

Academic Integrity

Part II of *Student Rights and Responsibilities* (http://www.uky.edu/StudentAffairs/Code/part2.html) states that all academic work, written or otherwise, submitted by students to their instructors or other academic supervisors, is expected to be the result of their own thought, research, or self-expression. In cases where students feel unsure about a question of plagiarism involving their work, they are obliged to consult their instructors on the matter before

submission.

When a student submits work purporting to be their own, but which in any way borrows ideas, organization, wording or anything else from another source without appropriate acknowledgment of the fact, the student is guilty of plagiarism. Plagiarism includes reproducing someone else's work, whether it be a published article, chapter of a book, a paper from a friend or an electronic file, or whatever. Plagiarism also includes the practice of employing or allowing another person to alter or revise the work which a student submits as his/her own, whoever that other person may be. Students may discuss assignments among themselves or with an instructor or tutor, but when the actual work is done, the student alone must do it.

When a student's assignment involves research in outside sources of information, the student must carefully acknowledge exactly what, where and how he/she has employed such resources. If the words of someone else are used, the student must put quotation marks around the passage in question and add an appropriate indication of its origin. Making simple changes while leaving the organization, content and phraseology intact is plagiaristic. However, nothing in these Rules shall apply to those ideas, which are so generally and freely circulated as to be a part of the public domain. (Section 6.3.1).

The minimum penalty for an academic offense, such as cheating or plagiarism, is a 0 on the assignment. Repeated offenses will result in more serious penalties.

Special Consideration

Accommodation will be provided for documented physical or learning disabilities. If students have other special situations that will affect their participation or work, they should see the instructor as soon as possible.

SAG 101
October 11, 2013
Midterm Exam

Due Monday, October 14, 2013 at 9 a.m. Late exams will only be accepted under extenuating circumstances. Electronic submission of your answers is welcomed, but must be submitted to me via email prior to class on Monday morning.

This exam is take-home and open book, worth a total of 15 points (15% of your final grade). You may use any resources from class or available to you, but your sources must be referenced. To perform well on this exam you should:

- Answer each question thoroughly with a clear flow of logic.
- Not merely answer the question; rather, explain your perspective, based on your personal values and information you are using to construct your answer.
- Reference course concepts from lectures, guest speakers, activities and outside readings. A well-reference paper is what separates an "A" paper from a "B" or lower paper. Use the reference format of your chosen field, but be consistent and provide in-text references in addition to your works cited page.

Be creative, thoughtful, and if possible, have fun!

1. **Describing *our* Community Food System.** Throughout this course we explore fundamental concepts in the sustainable agriculture movement through the lens of the greater Lexington community food system. The following questions ask you to articulate a nuanced definition of community food systems, the productive capacity of these systems, as well as the limits of local food production. *(8 points total)*

    a. How do you define or describe "community" in a broad sense? Consider geographic boundaries as well as socioeconomic criteria in your definition. (1 points)

    b. How do you define a "community food system?" Please explain (in words or pictures) what you include in this system. (1 point)

    c. What are some of the key elements in your definition of a community food system, and are they present in the greater Lexington area? (2 points)

    d. Assume the bulk of a community's food *could* be produced within this system (that is, we have the physical capacity – land and natural resources - to produce this food). What are the key social and economic barriers to food being produced and consumed within this system by all people who live there? Discuss 1 of these barriers, and offer a potential solution to this problem. (2 points)

    e. Is there a food that you would find difficult to live without that cannot be grown within this system? How might you ensure that purchasing this product supports your value system, and specifically, what labels or certifications are important in this purchase and why? (2 points)

2. **Describing *your* vision.** Briefly describe (in words or pictures) your vision of what a community-based food system would like for *Kentucky. (5 points total)*

   Your vision should include:

   a. What produce, grains and animal products would be produced within this system? Where would each of these be produced? (1 point)

   b. Describe at least one processing or distribution component of this system that will be important in helping farmers add value to their products. Why is this so important? (1 point)

   c. How will these products reach consumers in Kentucky? That is, what marketing models do you envision to bring these products to market and where will they occur? (1 point)

   d. What are the greatest socioeconomic and environmental barriers to your vision (describe one for each)? (2 points)

3. **Defining Sustainable Agriculture.** Students taking classes in the Sustainable Agriculture Program are frequently asked the question: "What is sustainable agriculture?" Provide your definition of sustainable agriculture. How does your definition of community food systems connect with your definition of sustainable agriculture? You are free to use definitions provided by outside sources, but you must cite the source. (2 points).

Annual Student Learning Outcome Report

College: Agriculture, Food & Environment
Department: Individualized
Degree Program: Sustainable Agriculture, Bachelor
Year Assessed: 2014-2015
Student Learning Outcome Number: 4

Outcome Assessed:
Assess food systems using an integrated understanding of sustainable agriculture.

Assessment Methods/Tools:
This project focused on assessing student mastery of learning outcome #4: Assess food systems using an integrated understanding of sustainable agriculture. All students in the Sustainable Agriculture (SAG) curriculum are required to take the introductory class SAG 101 Introduction to Sustainable Agriculture Principles, ideally in the first year in the program. During their senior year, all students are required to take SAG 490 Integration of Sustainable Agriculture Principles (see attached syllabus). A midterm exam in SAG 101 and the final project in SAG 490 were collected and evaluated based on a rubric (see attached) developed specifically to determine student understanding and application of this learning outcome. Three faculty evaluators participated in this assessment based on their involvement in the SAG program – one was the Director of Undergraduate Studies and instructs SAG 490, one was the Chair of the program's Steering Committee, and one was instructor for SAG 101. For the period under review, midterm exams (see attachment for the assignment in SAG 101) from 2 students in SAG 101 (Fall 2015) and final projects from 11 students in SAG 490 (Spring 2015) were evaluated. These projects were standardized between the classes in order to challenge the students to demonstrate mastery of learning outcome #4, therefore one rubric could be used across both assignments. It should be noted that while the majority of students in SAG 490 are SAG majors, the majority of students enrolling in SAG 101 are other majors in the College of Agriculture, Food, and the Environment, but our majors generally take this class during their first year in the program. This assessment

represents the knowledge-level that a cohort of students have when they first take one of our SAG core classes, and when they graduate. By utilizing the midterm exam in SAG 101 we can hopefully develop a baseline understand of the knowledge-level that students have when they enter our program.
Assessment Tools: Our rubric utilized 5 specific evaluation categories: economic profitability, environmental stewardship, social responsibility, site analysis and synthetic evaluation. Each category was worth 4 points total, for a maximum combined score of 20 points possible for each student. The reviewers independently evaluated the students from each class and the collective average was determined to allow comparison of student mastery of the learning outcome for each cohort of students. All three of the reviewers have worked closely together in a teaching capacity for many years, therefore they are familiar with how these projects are evaluated individually. This familiarity is evidenced in the very similar distribution of grades between the evaluators and somewhat normalizes this process.

Benchmark/Target:
The target was a demonstrated increase between entering and graduating students' ability to convey a depth and breadth of understanding of the learning outcome. Our expectation was that through the combined learning and experiential opportunities in our program our students would be more capable of applying core concepts in sustainability, such as this SLO, in a more evolved and informed manner. With that said we were hopeful that at least a 15-20% increase in the point total per student would be observed.

Results:
Out of a total of 20 possible points per student, the average for each class by evaluator was:

	SAG 101	SAG 490
Evaluator 1	13.1	17.1
Evaluator 2	13.2	17.5
Evaluator 3	13	16.5
Combined Average	13.1	17.0

Interpretation of Results:
The combined averages between the two reviewers were 13.1 for SAG 101 and 17.0 for SAG 490. This represents a 30% increase between the classes in the point total averaged across each class. This demonstrates that our student's understanding of the learning outcome, and ability to apply this information in a site-specific manner, is increasing based on their cumulative knowledge gained from our program.

Improvement Actions:
Although using the midterm exam in SAG 101 allows a reasonable assessment of the base-line knowledge that our students have when they enter the program, it may be better to develop an exam that is given out on the first day of SAG 101. By the time the midterm is given in SAG 101, several weeks of instruction has already been given, and this might be skewing the true level of understanding of our incoming students. As our student numbers increase we will also be able to collect assessment tools from SAG 101 to SAG 490 for each student, , instead of the current approach that assesses SLO mastery among a cohort of students. This should facilitate an even clearer understanding of student mastery of the SLO.

Reflection:
Not Provided.

SUSTAINABLE AGRICULTURE (SAG) 490, Spring 2015

INTEGRATION OF SUSTAINABLE AGRICULTURE PRINCIPLES

Time and Place

Fridays, 1:00-3:30, Ag Science North, Room S221.
Additional time outside of the required class period will be needed to fulfill some of the objectives in this class.

Instructor

Dr. Mark Williams
Department of Horticulture
N-322-D Agriculture Science North
Office phone: 257-2638
mark.williams@uky.edu
Office hours by appointment

Course Description

This course provides an intensive experience for students to integrate critical aspects of sustainability into a semester-long project. This project will involve research, design, and implementation phases, and students will present their work in both written and oral forms. This class will also allow students to gain a deeper understanding of a range of topics related to sustainable agriculture, determined by the class at the beginning of the semester. Additionally, students will gain first-hand experience in sustainable agriculture by taking a weeklong study tour to visit exemplary agriculture sites in a region of the United States.

Learning Objectives

1. To be able to evaluate and explain the processes involved in researching, designing, and building an agricultural system in a way that optimizes the sustainability of the system.

2. To be able to compare and contrast the critical factors needed to be successful in agricultural production.

3. To be able to evaluate the strengths and weaknesses of how the components of sustainable agriculture are integrated in a range of agricultural-related systems.

Grading

Attendance	15 points		
Study Tour behavior	15 points	90-100%	A
Written Assignments	180 points	80-89%	B
Oral Presentations	40 points	70-79%	C
		60-69%	D
Total points	250 points	0-59%	E

Attendance

Because active participation counts in the grade, attendance is absolutely required. Each absence will result in a 1-point reduction in the final semester grade. Excused absences are described in the student code of conduct at http://www.uky.edu/StudentAffairs/Code/part2.htm, Section 5.2.4.2. **If students cannot attend class regularly, they should consider dropping the course.**

Study Tour Behavior

Participation and appropriate behavior on the spring trip will contribute 15 points towards the final grade.

Written Assignments

There will be four written assignments:

1. An outline of the main project will be due on February 20th. The outline will contain a brief overview of the project, as well as a representation of how the project will be organized and presented. This assignment will be worth 20 points.
2. Three times during the semester you will be asked to write a one-page summary of what you learned from that days class experience. These summaries will be worth 10 points each.
3. A travel log will be kept during the study tour that will include answering questions designed to assess the learning experience. This will be evaluated by the instructor and will be worth 30 points.
4. A written document describing the processes used to develop the main semester project is required at the end of the semester. A grading rubric and examples of past student projects will be distributed in advance of the due date. This assignment will be worth 100 points.

Oral Presentation

An oral presentation describing the main semester project will be given at the end of the semester. This presentation will be assessed by the students from this class and other outside reviewers and will be assessed as follows:

· Understanding: Is knowledge of the area demonstrated? Are information and evidence accurate, appropriate, and relevant? Are ideas logically and convincingly developed?
· Clarity: Are major points clearly presented? Is the speaker well versed in the material?
· Completeness: Are major points included, i.e., no points are missing?
· Organization: Does the introduction provide an overview of the presentation? Are main points in the right order? Are main points connected to each other coherently? Are details relevant and concise? Is the conclusion a good summary of the presentation?
· Delivery: Is eye contact effectively established with the audience? Are visual aids used effectively to reinforce ideas without creating distractions? Are questions raised being answered satisfactorily? Is the length of presentation appropriate with the allotted time?

Academic Integrity

Part II of *Student Rights and Responsibilities* (http://www.uky.edu/StudentAffairs/Code/part2.html) states that all academic work, written or otherwise, submitted by students to their instructors or other academic supervisors, is expected to be the result of their own thought, research, or self-expression. In cases where students feel unsure about a question of plagiarism involving their work, they are obliged to consult their instructors on the matter before submission.

When a student submits work purporting to be their own, but which in any way borrows ideas, organization, wording or anything else from another source without appropriate acknowledgment of the fact, the student is guilty of plagiarism. Plagiarism includes reproducing someone else's work, whether it be a published article, chapter of a book, a paper from a friend or an electronic file, or whatever. Plagiarism also includes the practice of employing or allowing another person to alter or revise the work which a student submits as his/her own, whoever that other person may be. Students may discuss assignments among themselves or with an instructor or tutor, but when the actual work is done, the student alone must do it.

When a student's assignment involves research in outside sources of information, the student must carefully acknowledge exactly what, where and how he/she has employed such resources. If the words of someone else are used, the student must put quotation marks around the passage in question and add an appropriate indication of its origin. Making simple changes while leaving the organization, content and phraseology intact is plagiaristic. However, nothing in these Rules shall apply to those ideas, which are so generally and freely circulated as to be a part of the public domain. (Section 6.3.1).

The minimum penalty for an academic offense, such as cheating or plagiarism, is a 0 on the assignment. Repeated offenses will result in more serious penalties.

Special Consideration

Accommodation will be provided for documented physical or learning disabilities. If students have other special situations that will affect their participation or work, they should see the instructor as soon as possible.

SAG 101
March 9, 2015
Midterm Exam

Due Friday, March 13, 2015 at 9 a.m. Late exams will only be accepted under extenuating circumstances. Electronic submission of your answers is welcomed.

This exam is take-home and open book, worth a total of 15 points (15% of your final grade). You may use any resources from class or available to you, but your sources must be referenced. To perform well on this exam you should:

- Answer each question thoroughly with a clear flow of logic.
- Not merely answer the question; rather, explain your perspective, based on your personal values and information you are using to construct your answer.
- Reference course concepts from lectures, guest speakers, activities and outside readings. A well-reference paper is what separates an "A" paper from a "B" or lower paper. Use the reference format of your chosen field, but be consistent and provide in-text references in addition to your works cited page.

Be creative, thoughtful, and if possible, have fun!

1. Describing *our* Community Food System. Throughout this course we explore fundamental concepts in the sustainable agriculture movement through the lens of the greater Lexington community food system. The following questions ask you to articulate a nuanced definition of community food systems, the productive capacity of these systems, as well as the limits of local food production. *(8 points total)*

a. How do you define or describe "community" in a broad sense? Consider geographic boundaries as well as socioeconomic criteria in your definition. (1 points)

b. How do you define a "community food system?" Please explain (in words or pictures) what you include in this system. (1 point)

c. What are some of the key elements in your definition of a community food system, and are they present in the greater Lexington area? (2 points)

d. Assume the bulk of a community's food *could* be produced within this system (that is, we have the physical capacity – land and natural resources - to produce this food). What are the key social and economic barriers to food being produced and consumed within this system by all people who live there? Discuss 1 of these barriers, and offer a potential solution to this problem. (2 points)

e. Is there a food that you would find difficult to live without that cannot be grown within this system? How might you ensure that purchasing this product supports your value system, and specifically, what labels or certifications are important in this purchase and why? (2 points)

2. Describing *your* vision. Briefly describe (in words or pictures) your vision of what a community-based food system would like for *Kentucky. (5 points total)*

Your vision should include:

a. What produce, grains and animal products would be produced within this system? Where would each of these be produced? (1 point)

b. Describe at least one processing or distribution component of this system that will be important in helping farmers add value to their products. Why is this so important? (1 point)

c. How will these products reach consumers in Kentucky? That is, what marketing models do you envision to bring these products to market and where will they occur? (1 point)

d. What are the greatest socioeconomic and environmental barriers to your vision (describe one for each)? (2 points)

3. Defining Sustainable Agriculture. Students taking classes in the Sustainable Agriculture Program are frequently asked the question: "What is sustainable agriculture?" Provide your definition of sustainable agriculture. How does your definition of community food systems connect with your definition of sustainable agriculture? You are free to use definitions provided by outside sources, but you must cite the source. (2 points).

Student number: _____

Artifact: _____

Student Learning Outcome: Assess food systems using an integrated understanding of sustainable agriculture.

Evaluation Criteria	Highly Proficient (4 points)	Some proficiency (3 points)	Limited proficiency (2 points)	Poor proficiency (1 point)
Economic Profitability (1-4 points) Student demonstrates an understanding of issues affecting economic profitability on farm, community, and food system levels	Understands key points related to short term profitability while securing the economic livelihood of future generations on farm and societal levels	Understands key points related to short term profitability while considering of future generations, but missing consideration of farm or societal levels	Demonstrates limited understanding of key points related to profitability, future generations, and missing consideration of farm or societal levels	Does not demonstrate understanding of key points related to profitability, future generations, and missing consideration of farm or societal levels
Environmental Stewardship (1-4 points) Student demonstrates an understanding of the principles and practices affecting environmental quality on the farm and watershed (or global) levels	Applies the principles and practices associated with improving or maintaining natural resources that are appropriate to the agroecosystems in consideration, and demonstrates mechanistic understanding of the scientific basis for these practices	Applies the principles and practices associated with improving or maintaining natural resources that are appropriate to the agroecosystems in consideration, but missing mechanistic understanding of the scientific basis for these practices	Misses some key principles and practices appropriate to the agroecosystems in consideration, and missing mechanistic understanding of the scientific basis for these practices	Misses most key principles and practices appropriate to the agroecosystems in consideration, and missing mechanistic understanding of the scientific basis for these practices
Social Responsibility (1-4 points) Student demonstrates an understanding of labor, food access, community development, and equity issues associated with the farms and surrounding communities	Discusses key issues and policy associated with equity, justice, and community development on relevant scales (local, regional, national, etc.), and demonstrates an understanding of causality of these issues and policies	Discusses some key issues and policy, with somewhat limited understanding of causality	Discusses few key issues and policy, with limited understanding of causality	Misses most key issues and policy, with no mention of causality of underlying social issues in the agrifood system
Site Analysis (1-4 points) Demonstrates an understanding of the challenges to sustainable management of a given situations based on the economic goals, resources available, environmental conditions, and values guiding management	Effectively identifies and discusses key economic, environmental, and social issues on the site, with effective justification of why said issues are the critical factors affecting the sustainability of the study system	Effectively identifies some key economic, environmental, and social issues, with minimal discussion of the relevance of said factors to the sustainability of the study system	Identifies few key economic, environmental, and social issues, with significant gaps in issues and minimal discussion of their relevance to the sustainability of the study system	Fails to identify key economic, environmental, and social issues, with no discussion of their relevance to the sustainability of the study system
Synthetic Evaluation (1-4 points) Student demonstrates the ability to integrate the above criteria in a holistic way, considering in-depth knowledge of the individual components and communicating an analytical perspective that assesses the system as more than a "sum of its parts"	Integrates the environmental, economic, and social criteria, shows connections between key points across disciplines, identifies contradictions and continuities between key points, and demonstrates sound logic leading towards overall conclusions	Discusses environmental, economic, and social criteria, but struggles to connect key points across disciplines, contradictions and continuities between key points, and gaps in logic leading towards overall conclusions	Mentions environmental, economic, and social criteria, but minimal connections between disciplines, and gaps in logic leading towards overall conclusions	Ignores one or more of the 3 pillars, fails to identify key points, shows confusion about relationships among key points, uses faulty logic, fails to create order from details

ANNUAL SLO ASSESSMENT REPORT
Office of University Assessment
University of Kentucky

College: College of Agriculture, Food, and the Environment

Department: Interdepartmental

Degree: Sustainable Agriculture

Student Learning Outcome (SLO)

SAG Program Learning Outcome 3: "Evaluate the sustainability of a site specific situation by applying an integrated, interdisciplinary understanding of sustainability in sustainable agriculture and food systems."

Rationale for use of assessment tool and how tool aligns to the Student Learning Outcome

Both formative and summative assessments are direct, based on artifacts generated in SAC-curriculum core courses. Formative assessment was conducted through evaluation of a problem-based essay/creative writing exercise on the final exam in SAG 101. SAG 101 is the common entry point for all students in the SAG program. The SAG 101 final exam asks students to develop a plan that contributes to the sustainability of agriculture and food systems via a parcel of land they are to imagine they inherit. They are to use course concepts from the introductory class and their personal land ethic/motivation to create this plan. At this closing point in their first SAG course, students have broad introduction to the environmental, economic, and social components of sustainable agriculture and food systems, but have not had extensive practice evaluating a given site or situation in the context of this tri-partite perspective of sustainability.

The summative assessment was conducted from artifacts collected during an annual study tour taken in SAG 490, the curriculum capstone course. During the week-long study tour of farms and food-related businesses, and are expected to keep a journal with guided reflection questions for each stop on the tour. Student are provided guided questions for their journals to aid assessment, but are also encouraged to use the journaling experience for self-reflection. At this point in their curriculum, students have had multiple opportunities to apply their understanding of sustainability in agriculture and food systems in a particular situation at an academic level. This experience requires students to extend this understanding into multiple "real-world" assessments. As such, the study tour experience epitomizes this Learning Outcome. Our work as a curriculum assessment team has been to create a tool that effectively captures this highly impactful and relevant capstone experience.

We used indirect methods to ensure the validity and reliability of our data and assessment tools. The SAG program is characterized by small class sizes, and a relatively small group of core faculty that teach the courses providing assessment artifacts. As such, we are in continual conversation with each other, our

students, and our data, to ensure that our data are broadly consistent with our working understanding of our students progress and our teaching effectiveness.

Benchmark/Target/Goal

We had provided a 20-25% student increase in overall mean student score between the formative and summative assessments for this Learning Outcome. This was based on previous experience assessing this Learning Outcome, and identifying achievable progress based on the relatively high scores some of our SAG majors obtain in the formative exercise. Specifically, many of these students are passionate about the topics and perspective, and bring formative knowledge into the program, despite this being the common entry point for the curriculum. As such, we feel a 25% increase in mean scores between the formative and summative assessments reflects achievable results that match our students' entry level knowledge and high expectations for our graduating seniors.

Data Collection (includes time/semester and place, sampling process, population description, and data review process)

The formative artifacts were collected during the SAG 101 final exam, in December 2015. The students may submit this take-home exam either electronically or by paper submission at the common hour exam time. Electronic assignments were archived by the instructor, and paper submissions were scanned to be digitized. The sampling population was all students that had declared a SAG major or minor during or before the Fall 2015 semester. As this pool of students is relatively small (n = ~15 or less each semester), artifacts from all students in this population were sampled.

Summative artifacts were collected at the end of spring break (late March) in the Spring 2016 semester, at the completion of the SAG 490 capstone study tour. SAG 490 is restricted to SAG majors and minors, upon exception of instructor, and is a relatively small class size (n < 20 students). As such, artifacts from all students in the class were sampled.

Data were reviewed independently in the Fall 2016 semester by three faculty members with teaching experience in the SAG program (instructor of SAG 101, instructor of SAG 490, and SAG Steering Committee Chair). Results and comments were collated by the SAG Assessment Coordinator and DUS, Krista Jacobsen.

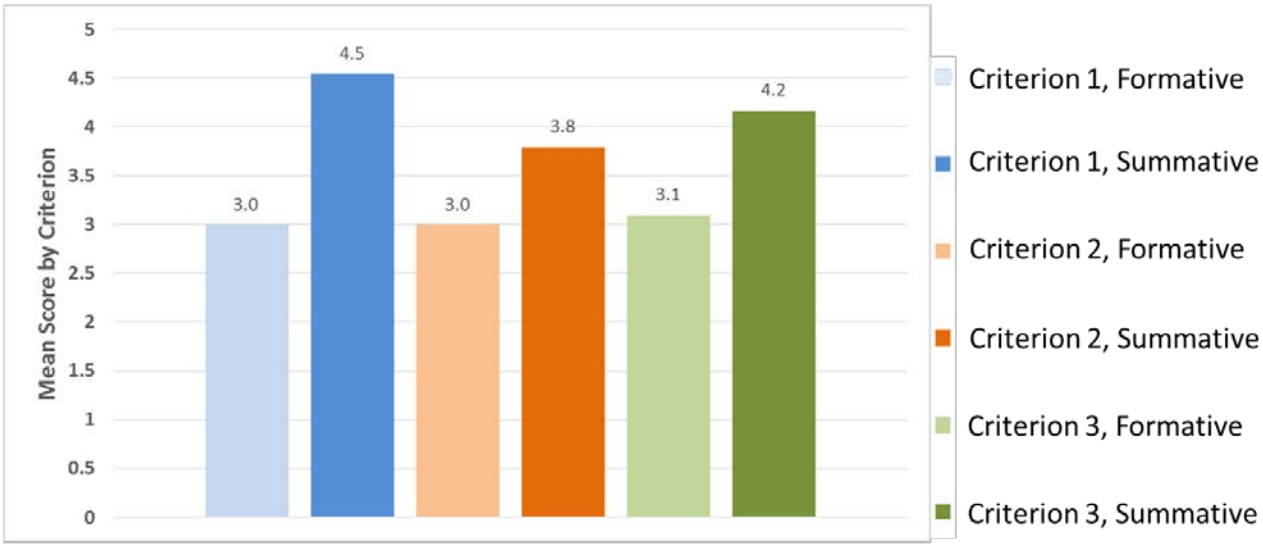
The rubric used to assess the artifact is attached as Appendix A of this report.

Results

Mean rubric scores, disaggregated by individual rubric criteria, as presented in Figure 1 below. Mean student scores in the formative assessment for each criterion were approximately 60% (3/5). Mean student scores in the summative assessment were 90% (4.5/5), 76% (3.8/5), and 85% (4.2/5) for criterion 1, 2, and 3, respectively.

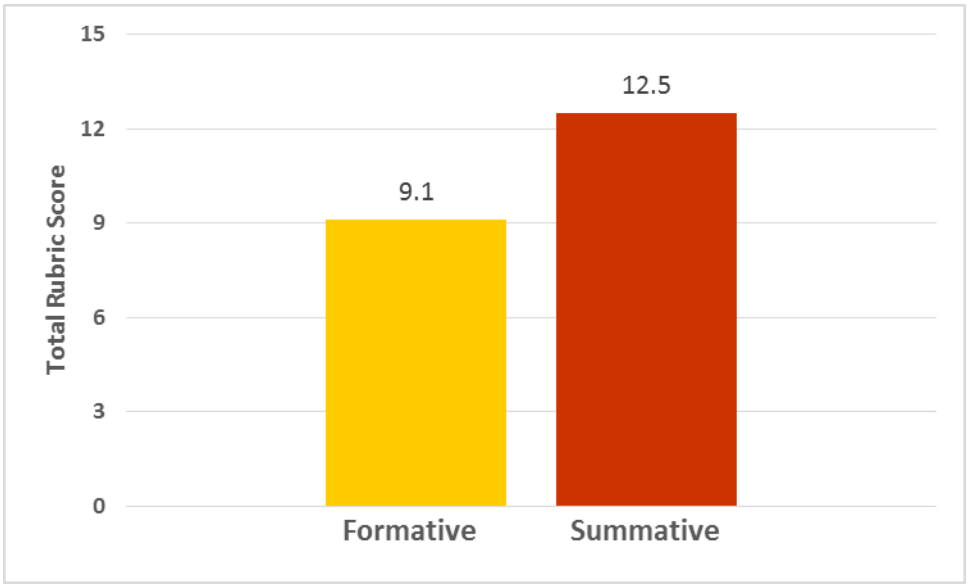
Total Learning Outcome Rubric Score (aggregated across all categories) reflects a mean formative score of 60% (9.1/15) and a mean summative score of 83% (12.5/15) (Figure 2).

Figure 1. Mean rubric score for formative and summative learning assessments for SAG SLO 3, disaggregated by rubric criterion* for 2015-2016 academic year.



*SLO 3 Rubric Criteria include: *Criterion 1*- Student demonstrates an understanding of key issues affecting economic profitability, environmental stewardship, and social justice in a site-specific application. *Criterion 2*- Student demonstrates an understanding of the inter-relatedness of economic, environmental, and social factors, and can weigh their relative importance in a site-specific application. *Criterion 3*- Student demonstrates the ability to generalize the site-application to broader issues in sustainable and food systems, at the appropriate geographic scale.

Figure 2. Mean total rubric score for formative and summative learning assessment for SAG SLO 3 for academic year 2015-2016.



Interpretation of Results

Results were reviewed and interpreted for this report by the SAG faculty conducting the assessment. Our benchmarks for this SLO, as referenced in our Assessment Plan, are a formative mean student total score of 60%, and a summative mean student total score of 85%. We have fallen slightly short of our stated summative goal, although we are cautious not to over interpret relatively small numerical differences given the small student numbers used in this assessment. Some obvious areas for improvement are highlighted in the lower summative assessment scores in Criterion 2 and 3. In particular, we may wish to work with our students more to ensure they understand and are able to articulate the inter-relatedness of the economic, environmental, and social aspects of sustainability.

In total, we are satisfied with the growth in our students' mastery of the content and perspective reflected in this SLO. These results will be reviewed by the SAG Steering Committee at the Spring 2017 curriculum meeting in early 2017 (the group meets regularly once at the beginning of each semester). Should the overall committee determine additional work is needed to revise this rubric, and the artifacts and instructional efforts to generate them, an ad hoc committee will be formed and revision work conducted in the Spring 2017 semester.

It should also be noted that this is our first year assessing a slightly revised SLO and using new artifacts for this assessment that better reflect where our student and instructional energies are placed in the program. In particular, the SAG program is notable for the highly individualized and experiential nature of the curriculum. We are continually working to capture this strength of the program in our assessment artifacts, as evident using the student's reflections from their Capstone Study Tour. The Spring 2016 semester was the first year we used this assignment for SLO assessment, and as such, we are continuing to work to create writing prompts that effectively capture the high level of discussion and analysis by the students on the tour.

Reflection of Results and Assessment Process

Given our close achievement to our SLO benchmarks, we feel minor modifications are necessary at this point to ensure students are being pushed to demonstrate the content and perspective in this SLO in a way that aligns well with our assessment rubric. These findings encourage us to continue to work to revise our artifact assignments to ensure they accurately capture the students' high-level thinking on the subject matter. We do not foresee large changes to the assessment or data collection process at this time; rather some relatively small tweaks to the assignments generating the artifacts.

Actions Intended for the Improvement of Student Learning

Our disaggregated results indicate that our students have a good understanding and ability to characterize the economic, environmental, and social aspects of sustainability at a given site. However, at all levels, our students will likely benefit from more guided discussion about how these factors are inter-related, and at times causative. (For example, a particular set of values or economic constraints may drive a farmer's management decisions that may have an environmental impact.) As instructors reviewing these artifacts, we see room to use dialogue and more specific guided questions to push our students to make these connections. This is high-level thinking, requiring students to be able to analyze the individual components of a situation affecting the sustainability, but also how those factors interact. It is the challenge of interdisciplinary programs like ours to ensure that our students have not only discipline-specific content knowledge, but the ability to integrate these into a holistic analytical perspective.

Appendix A. Rubric for Learning Outcome 3: "Evaluate the sustainability of a site specific situation by applying an integrated, interdisciplinary understanding of sustainability in sustainable agriculture and food systems."

Evaluation Criteria	Excellent (5 points)	Very Good (4 points)	Good (3 points)	Fair (2 points)	Poor (1 point)
Identification of Key Issues Affecting Sustainable Agriculture and Food Systems Student demonstrates an understanding of key issues affecting economic profitability, environmental stewardship, and social justice in a site-specific application	Identifies key economic, environmental and social issues in a site-specific situation, with an understanding of the causal agents of these issues within and beyond the site-specific situation.	Identifies key economic, environmental and social issues in a site-specific situation, with limited gaps, and demonstrates an understanding of the causal agents of these issues within and beyond the site-specific situation.	Identifies key economic, environmental and social issues in a site-specific situation, with some gaps, and demonstrates an understanding of the causal agents of these issues within and beyond the site-specific situation, with some gaps.	Does not sufficiently identify key economic, environmental and social issues in a site-specific situation, and demonstrates limited understanding of the causal agents.	Does not sufficiently identify key economic, environmental and social issues in a site-specific situation, and does not demonstrate understanding of the causal agents.
Interdisciplinary Perspective Student demonstrates an understanding of the inter-relatedness of economic, environmental, and social factors, and can weigh their relative importance in a site-specific application	Effectively justifies which said issues are the critical factors affecting the sustainability of the site, provides well-supported rationale for how said factors interact or act as drivers in the system.	Effectively justifies some key factors at the site, with some gaps, and provides well-supported rationale for how said factors interact or act as drivers in the system.	Provides some justification for key factors at the site, with some gaps, with minimal gaps in rationale for how said factors interact or act as drivers in the system.	Provides limited justification for key factors at the site, with gaps significant gaps in how said factors interact or act as drivers in the system.	Fails to identify key factors at the site, with no discussion of their effect on the site.
Generalization and "Lessons Learned" Student demonstrates the ability to generalize the site-application to broader issues in sustainable and food systems, at the appropriate geographic scale	Demonstrates an ability to link site-specific application to other relevant sites, experiences, or generalizable theory and provides well-supported justification for the local, regional, or global level scope of their assertions.	Demonstrates an ability to link site-specific application to other relevant sites, experiences, or generalizable theory and provides well-supported justification for the local, regional, or global level scope, with some gaps.	Demonstrates an ability to link site-specific application to other relevant sites, experiences, or generalizable theory, but with gaps in justification for the local, regional, or global level scope of their assertions.	Demonstrates limited ability to link site-specific application to other relevant sites, experiences, or generalizable theory, and with gaps in justification for the local, regional, or global level scope of their assertions.	Is unable to link site-specific application to other relevant sites, experiences, or generalizable theory, and with gaps in justification for the local, regional, or global level scope of their assertions.

University of Kentucky
College of Agriculture, Food and Environment

College of Agriculture, Food and Environment
Sustainable Agriculture and Individualized Programs
Periodic Program Review
Site Visit Agenda
December 9-11, 2018

Date:	December 9, 2018
Day 1:	Sunday

12:00 – 5:00 pm	Reviewers from distant locations travel to Lexington Dr. Schroeder-Moreno arrives at Bluegrass Airport at 3:18pm. Dr. Zehnder and Ms. Ball each drive to Lexington and check in at 21c Hotel. Dr. Jacobsen transports Dr. Schroeder-Moreno from airport to 21c Hotel upon arrival at the airport. 21c Hotel 167 W Main St, Lexington, KY 40507 (859) 899-6800
5:30 – 7:00 pm	Review Committee has dinner and working session at Portofino restaurant (walking distance from 21c Hotel). Program leaders Drs. Mark Williams and Krista Jacobsen join group. Portofino Restaurant 249 E Main St, Lexington, KY 40507 (859) 253-9300

Date:	December 10, 2018
Day 2:	Monday

7:00 – 8:00 am	Breakfast on own (hotel guests dine at 21c Hotel)
8:00 – 8:30 am	Designated local committee member transports hotel guests to E.S. Good Barn
9:00 – 10:00 am	Meet with College of Agriculture, Food and Environment Dean Nancy Cox, Associate Dean Lisa Collins, and Associate Dean for Faculty Resources, Planning and Assessment, Sandra Bastin. Committee receives their charge from Dean Cox and Dr. Bastin reviews rules and procedures. (E.S. Good Barn, Weldon Suite)
10:05 – 11:05 am	Meet with Associate Deans in E.S. Good Barn, Weldon Suite Dr. Larry Grabau, Instruction Dr. Bob Houtz, Research Dr. Gary Palmer, Extension Dr. Orlando Chambers, Administration Dr. Sandra Bastin, Faculty Resources, Planning and Assessment Dr. Lisa Collins, Faculty Resources, Planning and Assessment
11:05-11:20 am	Break
11:20am – 12:20pm	Lunch and discussion with program students. (faculty/staff committee members recused) (E.S. Good Barn, Weldon Suite)
12:25 – 1:30 pm	Lunch continuation and discussion with AICU program faculty and select Extension faculty. (E.S. Good Barn, Weldon Suite)

1:30 – 2:00 pm	Break and travel to South Farm by van (Tricia Coakley drives van)
2:00 – 3:00 pm	Meet with Drs. Williams and Jacobsen, and select farm staff for tour of farm facilities.
3:00 – 3:30 pm	Discussion with select farm staff in South Farm classroom building (staff committee member recused).
3:30 – 4:30 pm	Travel by van to Zim's Café (farm to table).
4:30 – 5:00 pm	Break
5:00 – 6:00 pm	Dinner with Associate Dean for Instruction, Dr. Larry Grabau, at Zim's Café.
6:00 – 7:30 pm	Committee working session at VisitLex Conference room adjacent to Zim's Café.
7:30 – 8:00 pm	Tricia Coakley transports committee members from Zim's Café to E.S. Good Barn. Hotel guests walk across street from Zim's Café to 21c Hotel.

Date:	December 11, 2018
Day 3:	Tuesday

8:30 – 9:00 am	Designated local committee member transports hotel guests to E.S. Good Barn.
9:00 – 10:00 am	Breakfast and discussion with SAG Steering Council. (E.S. Good Barn, Weldon Suite)
10:05 – 11:00 am	Discussion with select Extension agents and program alumni. (E.S. Good Barn, Weldon Suite) (Some participants will video conference into meeting)
11:00 – 11:30 am	Break
11:30am – 12:45pm	Lunch with stakeholders and constituents (E.S. Good Barn, Weldon Suite)
12:45 – 3:30 pm	Committee working session (E.S. Good Barn, Weldon Suite)
3:30 – 4:30 pm	Committee presents preliminary findings to Dean and Executive Council of the College of Agriculture, Food and Environment. (E.S. Good Barn, Weldon Suite)
4:30 pm	Dr. Bastin transports hotel guests to 21c Hotel

Date:	December 12, 2018
	Wednesday

8:00 – 10:30 am	Guests check out at 21c Hotel. Designated local committee member or staff support drives Dr. Schroeder-Moreno from 21c Hotel to Bluegrass Airport for flight that departs at 10:06 am.

Agriculture Individualized Curriculum

College of Agriculture, Food and Environment
University of Kentucky

2018 Periodic Program Review

Review Committee site visit December 9–11, 2018

Programs Reviewed:

Agriculture Individualized B.S., including the following four options:
Technical System Management (TSM)
Entomology
Modern Agronomic Crop Production (MACP)
Sustainable Agriculture (SAG)

Review Report Submitted on January 22, 2019 by:

Dr. Rebecca L. McCulley, Review Committee Chair & Chair of UK Department of Plant & Soil Sciences
Dr. Geoff Zehnder, Clemson University
Dr. Michelle Schroeder-Moreno, North Carolina State University
Mr. Mac Stone, Elmwood Stock Farms
Dr. Alice Turkington, UK Department of Geography
Dr. Karen Rignall, UK Sustainable Agriculture Program
Ms. Kristi Durbin, CSA Manager, UK Organic Farming Unit
Ms. Alex Ball, UK Sustainable Agriculture Program

Executive Summary:

The Agriculture Individualized Curriculum (AICU) degree program is a versatile degree program created to serve several distinct purposes in the College. AICU serves as an 'incubator' program where new, novel undergraduate degree programs can be initiated, tested, refined and grown before they are put forward for degree program approval at the College and University levels. AICU also allows students the ability to design their own unique curricula not currently found in existing programs within the College or University. In addition, AICU helps undergraduate students who have encountered intractable course roadblocks which would otherwise keep them from graduating. The data presented in the self-study suggest that AICU is successful in all three of missions; however, some challenges were identified which will require careful consideration and modifications moving forward.

Four incubator programs are currently present within AICU: Sustainable Agriculture (SAG), Modern Agronomic Crop Production (MACP), Entomology (ENT), and Technical System Management (TSM). MACP and TSM will not become full-fledged degree programs: MACP will likely be replaced with another emerging program and TSM lacks the necessary teaching capacity but did develop into a minor. The Entomology option is also unlikely to become a stand-alone degree program, because while there is steady student subscription, student numbers are low and not likely to increase in the future. However, SAG was recently approved at the College-level as a stand-alone B.S. (Sustainable Agriculture and Community Food Systems) and is currently awaiting University approval. Because SAG is the oldest incubator program and has the most students (similar to the create your own 'pure individualized' option), the review team spent considerable time focused on this program. In the following text, we summarize the strengths and challenges of both SAG and AICU overall and provide recommendations for each.

Brief description of external review committee process:

- Prior to the review, all external committee members received and studied the AICU & SAG self-study document submitted by Dr. Krista Jacobsen (Director of Undergraduate Studies for SAG).
- The external committee met for dinner Sunday, Dec. 9, to get to know one another and the SAG program leaders.
- On Mon, Dec. 10, the committee met with the Deans, received our charge (attached to this document), met with program students (all of whom were 'pure individualized' AICU as none of the invited students from SAG and other option areas chose to attend), AICU faculty, and visited the South Farm, where the on-farm apprenticeship for SAG occurs. We then had dinner and spent some time afterwards starting to draft strengths, challenges, and recommendations.
- On Tues, Dec. 11, the external committee met with the SAG steering council, program alums

and extension agents (all of whom were SAG alums), other stakeholders, and then spent several hours working on our report.

- The review ended the afternoon of Tues, Dec. 11, with us reporting back to the Deans.
- The external committee Chair drafted this report, based on the work done during our time together, which was then circulated to all committee members via email for feedback, and subsequently approved by all members.

Brief statements on evaluation of quality and productivity:

Agriculture Individualized Curriculum –

Strengths:

- **Allows incubation and testing of new degree programs within the College** - This function is highly valued by faculty, as it significantly speeds up our ability to test out new curricula and lowers the hurdles encountered (vs. full University approval). Being able to 'incubate' programs allows faculty to get a better idea of what students want and need to be successful and what it will take, faculty and administrative support-wise, for the program to function.
- **Absolute freedom to create one's own program** - Students expressed great satisfaction with being able to design a custom degree program, individualized to suit their unique needs and desires.
- **Ability to graduate students that would otherwise not** - This function seems well-aligned with the overall University mission to try to graduate as many students as possible and seems to serve our College and the students caught in 'intractable roadblocks' well.

Challenges:

- **Perceived competition with existing programs** - The students we spoke to were clear in voicing their desire for AICU to be better branded/labeled and advertised. They thought there was significant potential to attract additional students to the 'pure individualized' option. We learned later that there is pushback within the College for following this route: perceived competition with some of the smaller existing degree programs. Given that the student numbers within AICU (with no option) have grown significantly over the past five years (more than any option incubated within the degree program), and assuming majority of these students were 'pure individualized' and not 'intractable roadblocks,' the data appear to support the student supposition.
- **Numbers of 'intractable roadblock' students using AICU to graduate** - Because the self-study document does not report whether AICU (with no option) growth is from 'pure individualized' or 'intractable roadblock' students, we were unable to assess whether the 'intractable roadblock' students have changed over time. If the 'intractable roadblock' student numbers were increasing substantially, it may indicate other, larger issues at the

College or University-level that need to be addressed.

- **Difficulty in recruiting for incubator programs** - The nature of AICU and the fact that it is currently an unadvertised degree program in the College makes marketing and recruiting for incubators within the degree program difficult. This makes it difficult for the incubators to truly gauge potential student interest and demand.

Sustainable Agriculture –

Strengths:

- The **on-farm apprenticeship** was universally commended by current students and alums for being a unique and extremely important hands-on learning aspect of the SAG degree program. Specifically, the hands-on nature of it, the farm/production-oriented/real-world learning (which can provide a useful reality check), the development of relationships, and the professional opportunities provided were all identified as truly outstanding experiences.
- The **freedom to explore classes and topics**, especially the ability to mix and match from natural science, social science, economics, and humanities courses (the pillars of sustainability), leads to a well-rounded approach to agriculture and strong interdisciplinary connections.
- The degree program has been especially **successful at attracting diverse students** (e.g. non-traditional students – Veterans, returning students, non-agricultural background students, students with other prior educational backgrounds but looking for a career change) and prepares them for diverse careers, as evidenced by the placement data in the self-study document and the alums we met.
- **Strong relationships form between faculty, staff, and students** – a hallmark of the program.
- **Strong alumni group and community partnerships exist**.
- The **proximity of the South Farm to campus and the outreach/educational aspects that it provides** help with SAG recruitment and makes SAG more accessible to others. The South Farm reaches people not in the traditional agriculture community but is also an important demonstration farm for growers.
- **The South Farm and the SAG faculty fill an unmet need for organic growers in the state**, performing important extension functions.
- The **CSA brings the concept of sustainability to the broader University of Kentucky community and also connects people to the South Farm and the SAG program**. The CSA has become a treasured aspect of the UK community.
- The **curricular refinements accomplished since the last program review are likely to be beneficial to students**. Providing specific and focused tracks will help guide students, so that they do not feel overwhelmed by the flexibility and options. Adding the Community Food Systems track will likely increase attractiveness to students not previously reached, be

of interest to people who aren't necessarily attracted to production agriculture, train students for the growing number of food system careers, and will further diversify the student base, potentially attracting needed students.

Challenges:

- **Student numbers must increase** – While student numbers appear stable, they are lower than at one point in time and do not meet the minimum expectation set by the Kentucky Council on Postsecondary Education. SAG program leaders are optimistic that being a stand-alone degree will allow them to more effectively recruit and that participating in the Common Market will draw out-of-state students. Hopefully, this will pan out, but it is a significant, important unknown at present.
- **Loss of faculty** – At least two important faculty members for the program have recently either retired or been promoted to administrative positions, which has dramatically impacted the teaching load of the only remaining, essentially full-time SAG faculty member. This does not seem like a sustainable situation.
- **Summer tuition for apprenticeship** – While the on-farm apprenticeship is widely viewed as the hallmark of the program, an important, positive experience for the students, the fact that students are now going to have to pay summer tuition for the experience is likely to mean alternative choices (or funding options) must be found.
- **CSA dependence on SAG apprentices for labor is likely not sustainable** – The summer tuition situation will likely result in apprentice numbers going down, which could impact the capacity of the CSA.
- **Infrastructure needs** - On-campus facilities for the program are lacking. For example, there is no market area for the CSA or SAG community space.
- **Limited online presence** – The SAG website does not appear to have been updated in some time and use of social media for the academic program is limited.
- **Lack of acknowledgement of the extension role SAG faculty have been performing** - The primary SAG faculty to-date are widely known for being generous with their time and expertise, always willing to tackle something new, and having a real commitment to 'town' and to growers. The stakeholders we met with expressed gratitude for the willingness of SAG faculty to help them with new ventures and for providing quality content when asked. Again, with two of these individuals experiencing significant career changes, there are concerns about the provision of timely response to grower and other stakeholder questions and concerns.
- **Lack of staff support** – There is currently no SAG-dedicated staff support for academic services, such as recruiting, administration, assessment, etc.

Recommendations:

Agriculture Individualized Curriculum -

(1) **Develop more identity for the degree program** - at least for the 'pure individualized' function. Consider changing the name, branding, and increasing internal to the College communication about this option.

(2) **Formally include internships/apprenticeships/service learning as part of the degree,** particularly for the 'pure individualized' students, and provide more direction and evaluation of these experiences.

(3) **Identify a Director of Undergraduate Studies within the College for the program and move the program from under the direction of the Associate Dean for Instruction/Center for Student Success**. The program needs a faculty member of record, which may require incentivizing faculty (and Chairs) to participate in multidisciplinary programs.

Sustainable Agriculture -

(1) **Investment in a staff (e.g., Academic Coordinator) or lecturer position is needed.** Such a person could help increase student numbers and contribute to programmatic teaching. Possible responsibilities include:

- Formalizing internship opportunities and expectations with community partners and industry;
- Increasing student research involvement;
- Tracking alums and deepening connections between them and current students;
- Advising students;
- Teaching within SAG;
- Program recruitment/advertising, participating in 'Preview Nights', deepening diversity recruitment;
- Communications (web, newsletter, social media, etc.);
- Assist with program assessment.

(2) **Recruit/hire a new SAG teaching/extension faculty member**. This person could fill the holes left by the recent faculty departures/promotions, increase the program's teaching capacity, and explicitly acknowledge the program's important extension function. Responsibilities might include:

- Teach/oversee the apprenticeship, capstone, and other production-related courses;
- Develop a beginning farmer certification program in coordination with the CSA;
- Develop a Commonwealth-wide extension program that formalizes SAG faculty efforts to date in this arena;
- Assist with developing more community food system related internship opportunities, especially with alumni and partner organizations.

(3) **Build stronger relationships with other Departments**. This is the most immediate way to help fill the instructional gaps, but it is also likely to lead to a more diverse and engaged faculty of record. While the program has made some progress on this front since the last review, more still could be done. Ideas on how to accomplish include:
   - Develop a strategy to recruit and reward contributing faculty from other Departments (Dietetics & Human Nutrition, Community & Leadership Development, Agricultural Economics, Plant & Soil Sciences, Entomology, Plant Pathology, and others outside the College, such as Philosophy, Anthropology, Geography, Sociology, etc.);
   - Negotiate for SAG teaching/advising responsibilities to be explicitly written into new faculty hires in multiple departments (possibly as a cluster hire?);
   - Consider developing MOUs with contributing Departments;
   - Develop other Department buy-in for support of the SAG program beyond teaching (HR, IT, financial, recruitment support, etc.).

(4) **Deepen relationships with alums:**
   - Increase formal tracking of students;
   - Improve alumni networking (maintain directories & current listservs);
   - Develop opportunities for alumni and current students to interact and gain a broader understanding of food systems, such as a seminar format course bringing in alums.

(5) **Expand the mandate of the Steering Committee**:
   - Develop more formalized roles so that the steering committee functions more like an executive committee, delegating administrative, operations, strategic planning to individuals or groups within the committee to help share the load;
   - Broaden leadership across the involved disciplines to facilitate buy-in and commitment from associated Departments;
   - Include extension representation on the committee (possibly the UK SARE coordinator?);
   - Further build the diversity, multidisciplinarity of the participants and foster community amongst the members;
   - Consider including stakeholders somehow.

(6) **Maintain the summer Apprenticeship:**
   - Explore financial options to help students with the cost (e.g., use online teaching revenue to help subsidize the cost or create scholarships, philanthropy);
   - Re-thinking the size and financial operations of the CSA is needed, since apprentice labor has been free to-date and apprentice numbers may go down due to summer tuition. Consider reducing the size of the CSA to provide a more even balance between commercial production and other activities that associated staff or faculty engage in, such as teaching, research, and extension.
   - Given the importance of the CSA to the UK community (and beyond) and the apprenticeship for the SAG program, hard funding for a farm educational coordinator/CSA manager may be needed.

UK Program Review Implementation Plan

*This **required** form is described as Appendix A in AR II-I.0.6.*

College/Unit: Agriculture Individualized Curriculum Program **Date:** March 13, 2019

Recommendation/ Suggestion	Source I/E/H*	Accept/ Reject**	Unit Response (resulting goal or objective)	Actions (including needed resources)	Time Line
(1) **Develop more identity for the degree program** - at least for the 'pure individualized' function. Consider changing the name, branding, and increasing internal to the College communication about this option.	E	A	Increased visibility of the AICU program to new incoming students is needed. The program can be branded and marketed effectively to increase new recruitment to the AICU program while being careful to avoid influencing enrollment in other programs.	New Director of Undergraduate Studies (to be appointed as outlined in item 3) will play a role in the following 2 initiatives: • Consider evaluation of potential new names for the program • Initiate a new marketing campaign to include printed and digital materials	Summer 2019 Fall 2020 Fall 2020
(2) **Formally include internships/apprenticeships/service learning as part of the degree,** particularly for the 'pure individualized' students, and provide more direction and evaluation of these experiences.	E	A	Beginning Fall 2019, all entering students to the program will be required to participate in Academic Enrichment requirements following a recent revision of the college rules concerning minimum requirements for graduation. The revised rule states that undergraduate students in all major programs (including AICU) will "Complete a graded, credit-bearing Academic Enrichment Experience (AEE) as specified by the degree program. The AEE may consist of a single course or could involve a series of related courses. Such experiences may include mentored research or teaching, supervised internships, directed service learning, or Education Abroad.	Assuming approval of revisions to college rules at the University Senate, this item will be complete as of Fall 2019. The new Director of Undergraduate Studies will track student participation in academic enrichment activities, including education abroad, undergraduate research, internships, and service learning.	Fall 2019

(3) **Identify a Director of Undergraduate Studies within the College for the program and move the program from under the direction of the Associate Dean for Instruction/Center for Student Success.** The program needs a faculty member of record, which may require incentivizing faculty (and Chairs) to participate in multidisciplinary programs.	E	A	This recommendation is already being acted upon. The CAFE Associate Dean for Instruction and Undergraduate Curriculum Committee will identify potential faculty members to serve in the role of DUS.	A new DUS for the AICU program will be appointed, and this individual will lead the charge to identify appropriate faculty of record.	Spring and Summer 2019

* **Source of Recommendation (I = Internal recommendation; E = External Review Committee recommendation; H = Unit Head recommendation)**

** **Accept/Reject Recommendation (A=Accept; R=Reject)**

Unit Head Signature: _____ **Unit Head Supervisor Signature:** Nancy M Cox **Date:** 8/30/19

UK Program Review Implementation Plan

*This **required** form is described as Appendix A in AR II-I.0.6.*

College/Unit: Sustainable Agriculture Program **Date:** March 31, 2019

Recommendation/ Suggestion	Source I/E/H*	Accept/ Reject**	Unit Response (resulting goal or objective)	Actions (including needed resources)	Time Line
(1) **Investment in a staff (e.g., Academic Coordinator) or lecturer position is needed.** Such a person could help increase student numbers and contribute to programmatic teaching. Possible responsibilities include: • Formalizing internship opportunities and expectations with community partners and industry; • Increasing student research involvement; • Tracking alums and deepening connections between them and current students; • Advising students; • Teaching within SAG; • Program recruitment/advertising, participating in 'UK and you', deepening diversity	E	A	The SAG Steering Committee discussed this suggestion extensively and would welcome the investment in a position. There is a preference for a lecturer position due to the immediate need for additional teaching resources for the program, though either a lecturer or an AC with some teaching duties would be welcome. Priorities were placed on responsibilities including teaching and advising incoming SAG students, and supporting program recruitment and coordination activities. Goal: Hire a faculty lecturer (preferred) or staff academic coordinator position to support the SAG program.	Formally request consideration for such a position to CAFE administration as a resource needed to both maintain and grow the program. It is understood the longevity of such a position would be contingent upon the program's growth as we enter a new phase as a formal major.	ASAP.

recruitment; • Communications (web, newsletter, social media, etc.) • Assist with program assessment.					
(2) **Recruit/hire a new SAG teaching/extension faculty member**. This person could fill the holes left by the recent faculty departures/promotions, increase the program's teaching capacity, and explicitly acknowledge the program's important extension function. Responsibilities might include: • Teach/oversee the apprenticeship, capstone, and other production-related courses; • Develop a beginning farmer certification program in coordination with the CSA; • Develop a Commonwealth-wide extension program that formalizes SAG faculty efforts to date in this arena; • Assist with developing more community food system related internship opportunities, especially with	E	A	The needs identified in this recommendation cannot be understated, and a tenure-track faculty position with an Extension focus and some teaching responsibility would allow the program to grow in impact and devote needed resources to this area that is currently being covered by non-Extension faculty. We perceive this need as secondary to the immediate need for teaching and staffing resources, but an important next step in the SAG program's growth, particularly as we explore a beginning farmer training program. We would welcome one or more faculty positions contributing to these efforts in any CAFE department. Perhaps the best fits for such a line would be in the Departments of Horticulture, Plant and Soil Sciences, Community and Leadership Development, or Agricultural Economics. This may be part of a broader discussion with CAFE departments on potential contributions to SAG, which we perceive as a rich opportunity for collaboration that could be invigorating and help to recruit high-caliber faculty hires. Goal: Hire at least one new Extension faculty member contributing to the SAG program during the implementation period.	Coordinate with contributing departments to explore the possibility of future open lines fulfilling sustainable agriculture-related Extension responsibilities and/or teaching responsibilities in the SAG program.	2-5 years

alumni and partner organizations.					
(3) **Build stronger relationships with other Departments.** This is the most immediate way to help fill the instructional gaps, but it is also likely to lead to a more diverse and engaged faculty of record. While the program has made some progress on this front since the last review, more still could be done. Ideas on how to accomplish include: • Develop a strategy to recruit and reward contributing faculty from other Departments (Dietetics & Human Nutrition, Community & Leadership Development, Agricultural Economics, Plant & Soil Sciences, Entomology, Plant Pathology, and others outside the College, such as Philosophy, Anthropology, Geography, Sociology, etc.); • Negotiate for SAG teaching/advising responsibilities to be explicitly written into new faculty hires in multiple departments (possibly as a cluster hire?); • Consider developing MOUs	E	A	We agree that this is the most immediate way to fill instructional roles and diversify the program faculty of record. In the next academic year, we will actively work to develop a strategy incorporating the relationship building and support structures detailed in this recommendation. Goal: Articulate an interdepartmental and intercollegiate recruitment strategy as a formal component of the SAG Steering Council in AY 2018-2019.	Task a subset of the SAG Steering Committee to develop a relationship-building and faculty diversification strategy, informed by conversations with potential contributing faculty and their chairs to identify needed resources to support contributions.	Completed by end of AY 2018-2019.

with contributing Departments; • Develop other Department buy-in for support of the SAG program beyond teaching (HR, IT, financial, recruitment support, etc.).					
(4) **Deepen relationships with alums:** • Increase formal tracking of students; • Improve alumni networking (maintain directories & current listservs); • Develop opportunities for alumni and current students to interact and gain a broader understanding of food systems, such as a seminar format course bringing in alums.	E	A	Although program faculty have maintained contact with the majority of program alumni and have tracking in place, this is ad hoc and based on strong personal relationships with former students. Institutionalizing this process and building alumni networking capacity seems prudent, particularly as we seek to grow student numbers during this Implementation Plan period. However, additional personnel resources will be needed to develop and staff this program. Goal: Develop a strategy to formally track alumni and engage them in program activities.	Identify staffing resources to assist with this effort, including a new program hire, CAFE Center for Student Success, and CAFE Alumni Engagement and Communications. Develop a strategy based on available resources.	Identify staffing resources in AY 2018-2019, with strategy developed in 2-3 years based on available resources.
(5) **Expand the mandate of the Steering Committee:** • Develop more formalized roles so that the steering committee functions more like an executive committee, delegating administrative, operations, strategic planning to individuals or groups within the committee	E	A	This recommendation is supported through efforts associated with Recommendations 2 and 3. In addition to buy-in and relationship building, we will consider a re-structuring of the Steering Committee to incorporate such functions in conjunction with re-structuring this group as a faculty of record for the new, formal major beginning in Fall 2019. Goal: Develop a documented structure of roles and responsibilities for the SAG program faculty of record, including expanded responsibilities identified in this recommendation.	Task a subset of the SAG Steering Committee to develop scenarios for more shared governance and program responsibilities, and restructuring of program advisory bodies to incorporate stakeholder input.	Draft document by completion of AY 2018-2019

to help share the load; • Broaden leadership across the involved disciplines to facilitate buy-in and commitment from associated Departments; • Include extension representation on the committee (possibly the UK SARE coordinator?); • Further build the diversity, multidisciplinarity of the participants and foster community amongst the members; • Consider including stakeholders somehow.			Goal: Work with SAG faculty of record, alumni, and other stakeholders to explore a structure for incorporating stakeholder input (e.g. advisory board or other body).		
(6) **Maintain the summer Apprenticeship:** • Explore financial options to help students with the cost (e.g., use online teaching revenue to help subsidize the cost or create scholarships, philanthropy); • Re-thinking the size and financial operations of the CSA is needed, since apprentice labor has been free to-date and apprentice numbers may go down due to summer tuition. Consider reducing the size of the CSA	E	A	After significant discussion and reflection, the SAG Steering Committee and the Apprenticeship faculty and staff agree this is the best option to maintain this signature experiential learning opportunity. We are actively exploring additional revenue streams via summer tuition for the Apprenticeship and online teaching revenue as short-term financial support to offset summer tuition. Ongoing revenue stream analysis, as well as potential philanthropy contributions will be explored. It may take a few summer seasons to generate data needed to understand the financial need and potential resources, but we will begin assessing and working on a fiscal and labor plan in Summer 2019. Goal: Develop a sustainable labor and fiscal model for maintaining the summer	Ongoing coordination between the UK CSA staff and SAG program faculty in the Department of Horticulture, informed by fiscal guidance on summer and online class tuition remittance to the program from the CAFE Center for Student Success.	Ongoing.

to provide a more even balance between commercial production and other activities that associated staff or faculty engage in, such as teaching, research, and extension. • Given the importance of the CSA to the UK community (and beyond) and the apprenticeship for the SAG program, hard funding for a farm educational coordinator/CSA manager may be needed.			Apprenticeship during this Implementation Period.		

* **Source of Recommendation (I = Internal recommendation; E = External Review Committee recommendation; H = Unit Head recommendation)**

** **Accept/Reject Recommendation (A=Accept; R=Reject)**

Unit Head Signature: _____ **Unit Head Supervisor Signature:** _____ **Date:** 8.30.19