

# Sustainability in Research and Instruction at the University of Kentucky: Challenges and Goals

Prepared by the Provost's Faculty Sustainability Council  
June, 2018

## Executive Summary

The Faculty Sustainability Council, at the request of the Provost and with the support of the University Senate Council, was charged to investigate the curricular, research and other academic dimensions of sustainability and make recommendations. Over 18 months of work, the Council identified strengths, key barriers, and goals and objectives to better leverage the integration of sustainability across our teaching and research missions. We are confident that pursuing these goals will help UK achieve its mission of being the University *for* Kentucky, be of pragmatic value in recruiting and retaining passionate faculty and students, help leverage opportunities for grant-supported research and to serve clientele in outreach programs.

A strong academic sustainability program will provide critical support for the objectives in the UK strategic plan. Specifically, a strong integration of sustainability into academic programs positions UK to:

- *Recruit high caliber students interested in solving real-world problems.* According to the [Princeton Review's annual Hopes and Worries](#)<sup>1</sup> survey, a majority (64%) of respondents said having information about colleges' commitment to environmental issues (a critical component of sustainability) would contribute "strongly," "very much," or "somewhat" to their application/attendance decisions.
- *Retain outstanding faculty who are passionate and motivated in this area.* Our benchmark institutions offer a variety of certificates, courses, and university-wide learning outcomes relating to sustainability or sustainable development. Our process highlighted the demand by faculty across the Colleges for a richer culture of sustainability scholarship.
- *Expand research competitiveness in high profile, extramural funding efforts.* The National Science Foundation, US Department of Agriculture, and National Institutes of Health are increasingly orienting toward highly interdisciplinary, transformative research programs to address society's grand challenges, which explicitly and implicitly incorporate sustainability research themes.

This report summarizes the current strengths and opportunities relative to the integration of sustainability in the curricula and research at the University of Kentucky. We also provide details on the most significant challenges to enhance integration and provide goals relative to these with short, medium and long term outcomes. There are strong synergies between the goals described herein, the [University's Strategic Plan](#)<sup>2</sup>, and the recent Graduate School Blue Ribbon Panel report.

### Challenges:

- Structural Barriers to Interdisciplinary Programs
- Lack of Support for Interdisciplinary Teaching
- Sustainability is not a Clear Academic Priority

### Goals:

- Facilitate Interdisciplinary Research and Instructional Efforts
- Ensure that All UK Students Experience Sustainability in their Academic Careers
- Become a Recognized Leading Institution in Sustainability

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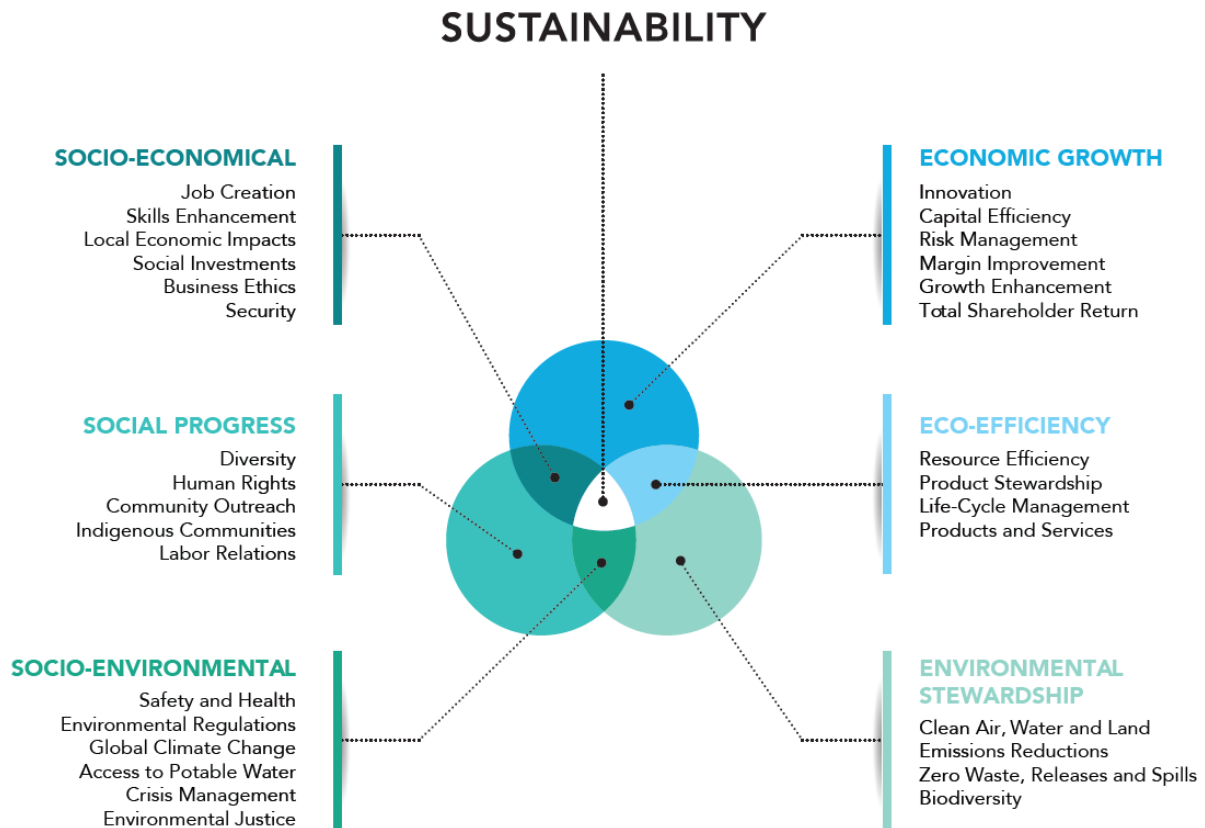
<sup>1</sup> <https://www.princetonreview.com/college-rankings/college-hopes-worries>

<sup>2</sup> <http://www.uky.edu/sotu/2015-2020-strategic-plan>

## Defining Sustainability

Symbolically and pragmatically, the Faculty Sustainability Council felt it was important to start this work with a definition of sustainability appropriate to our context. The definition provided below guides this report and was endorsed by the President’s Sustainability Advisory Council, the Tracy Farmer Institute for Sustainability and the Environment, and the Student Sustainability Council.

*“Sustainability implies that the activities of the University of Kentucky are ecologically sound, socially just, and economically viable, and that they will continue to be so for future generations. A sustainability focus encourages the integration of these principles in curricula, research, and outreach. This principled approach to operational practices and intellectual pursuits prepares students and empowers the campus community to support sustainable development in the Commonwealth and beyond.”*



## Table of Contents

<b>Executive Summary</b> .....	<b>2</b>
<b>Defining Sustainability</b> .....	<b>3</b>
<b>Background &amp; Charge</b> .....	<b>5</b>
<b>Process</b> .....	<b>6</b>
<b>Current Climate for Sustainability at UK</b> .....	<b>7</b>
Our Strengths.....	7
Our Challenges .....	9
<b>Goals</b> .....	<b>11</b>
Goal 1: Facilitate Interdisciplinary Research and Instructional Efforts.....	11
Goal 2: All UK Students Experience Sustainability in their Academic Careers .....	12
Goal 3: Become a Recognized Leading Institution in Sustainability.....	12
<b>Appendix A. Composition of the Faculty Sustainability Council</b> .....	<b>14</b>
<b>Appendix B. 2015 UK AASHE STARS Academic Research Report</b> .....	<b>15</b>
<b>Appendix C. Sustainability Programs at our Benchmark Institutions</b> .....	<b>16</b>
<b>Appendix D. Sustainability in College-Level Strategic Plans</b> .....	<b>19</b>

## Background & Charge

The [President's Sustainability Advisory Council](https://www.uky.edu/sustainability/presidents-sustainability-advisory-committee)<sup>3</sup> (PSAC), established in 2008, is charged with focusing and coordinating the University's activities within the broad meaning of sustainability. Dialogue between the President and this committee, originally on the topic of greenhouse gas emissions, highlighted the need for a faculty-led effort to assess the integration of sustainability in the instructional and research areas of the university. Many faculty and units are engaged in sustainability-oriented instruction and research, however, there has been no University-wide mechanism on UK's campus to bring focus or coordinate these efforts. In response, the PSAC leaders worked with the Provost and University Senate Council, to create a Faculty Sustainability Council (FSC)<sup>4</sup> charged with an 18-month task to:

- Review the efforts of benchmarks and national leaders at integrating sustainability with their curriculum and research;
- Evaluate strengths, weaknesses, opportunities and challenges of the current of state of sustainability in the curriculum and research at UK;
- Propose short, medium and long-term goals for better supporting and promoting this integration;
- Establish an assessment and evaluation process.

Provost Tracy instructed the Council to “take a strong leadership role, starting with a thorough discussion of what sustainability is in the academic programs of a leading land grant university,” adding “– we are called upon to answer still lingering questions while daring to pioneer the questions yet asked.” Considering, but not limited by other institutions’ actions, he expressed the desire for the Council to consider whether the current attention directed at sustainability education and research was visible, appropriately supported, and exemplary.

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<sup>3</sup> <https://www.uky.edu/sustainability/presidents-sustainability-advisory-committee>

<sup>4</sup> The names and departmental affiliation of the FSC members are included in Appendix A of this document.

## Process

Over 18 months, the FSC held monthly meetings to discuss findings and develop a sustainability strategy. Meetings included guests from across campus to inform the Council on efforts that might be allied directly with or could help shape recommendations to strategically align with other initiatives on campus.

This meeting structure, informed by ad hoc experts and ongoing discussions with campus academic leadership, led to a thorough review of our climate for sustainability internal to UK academics, as well as discussion of initiatives by benchmark institutions and national leaders.

Avenues of investigation of sustainability research and teaching in higher education considered the following internal and external factors:

- Internal
  - “Case studies” of previous efforts to evaluate and/or integrate sustainability into UK coursework;
  - Sustainability efforts within our facilities and operations that include opportunities for academic integration; and
  - Organizational changes to undergraduate and graduate programs that create opportunities for interdisciplinary sustainability curriculum.
- External
  - Strategic organizational efforts to create institutional structures, such as sustainability institutes and administrative positions (e.g. Associate/Assistant Provost), to support cross-college collaboration on sustainability curriculum and research;
  - High-level initiatives such as hiring and internal funding mechanisms to bring focus and resources to sustainability issues.

In Spring 2018, FSC leaders presented an overview of the process and sought feedback on draft recommendations from the University Senate Academic Planning and Priorities Committee, the University Senate Council, and Provost Blackwell. The goals, recommendations, and evaluation measures shaped by these discussions are presented in the Recommendations section of this report.

## Current Climate for Sustainability at UK

### Our Strengths

**Administrative Support.** Notable efforts to foster University-wide coordination around sustainability include the President’s Sustainability Advisory Council, the Provost’s Faculty Sustainability Advisory Council, and the [UK Healthcare Sustainability Steering Committee](#)<sup>5</sup>. The mission of the FSC demonstrates the explicit desire and commitment at the University of Kentucky both to bolster existing interdisciplinary degree programs and to increase the educational opportunities for the study of sustainability across campus and at all educational levels. The FSC exists because a combination of faculty/staff interest, a presidential challenge, and the support of the Provost and UK Senate.

Additional administrative support is evident in the myriad of allied strategic efforts, including the [UK Greenhouse Gas Emissions Reduction Plan](#)<sup>6</sup>, [Sustainability Strategic Plan](#)<sup>7</sup>, and ongoing funding of the [Sustainability Challenge Grant Program](#)<sup>8</sup>. These efforts are described further in the “Existing Campus Initiatives” section below.

**Instructional and Research Programs.** The University of Kentucky has worked conscientiously for over a decade to develop interdisciplinary education across its campus. Many colleges across campus have courses, faculty and research programs with connections to sustainability. Three undergraduate degree programs currently exist at UK with a focus specifically on sustainability, though many departments and degree programs emphasize sustainability. The College of Agriculture, Food, and Environment offers two Bachelor of Science degree programs, [Sustainable Agriculture \(SAG\)](#)<sup>9</sup> and [Natural Resources and Environmental Science \(NRES\)](#)<sup>10</sup>. The College of Arts and Sciences offers a Bachelor of Arts degree in [Environmental and Sustainability Studies](#)<sup>11</sup> (ENS).

Faculty across the colleges have been consistently successful in obtaining competitive extramural funding for sustainability-oriented research through federal institutions such as the US Department of Agriculture, the National Science Foundation, the US Department of Energy, and the National Institutes of Health. Several UK Centers and Institutes support sustainability-oriented research and academic integration. These include the [Tracy Farmer Institute for Sustainability and the Environment](#)<sup>12</sup> (ISE) and the [Center for Applied Energy Research \(CAER\)](#)<sup>13</sup>, housed in the Vice President for Research, the Food Connection, housed in the College of Agriculture, Food and Environment, and the [Institute for Sustainable Manufacturing](#)<sup>14</sup>, housed in the College of Engineering.

Efforts to systematically assess and track sustainability in academic programs and research at UK are included in our regular reporting through the Association for the Advancement of Sustainability in

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<sup>5</sup> <http://www.uky.edu/sustainability/uk-healthcare-sustainability-steering-committee>

<sup>6</sup> <http://www.uky.edu/sustainability/greenhouse-gas-emissions-reduction-commitment>

<sup>7</sup> <http://www.uky.edu/sustainability/sustainability-strategic-plan>

<sup>8</sup> <http://www.uky.edu/sustainability/sustainability-challenge-grants>

<sup>9</sup> <http://sustainableag.ca.uky.edu/>

<sup>10</sup> <https://nres.ca.uky.edu/>

<sup>11</sup> <https://ens.as.uky.edu/>

<sup>12</sup> <https://www.research2.uky.edu/tracy-farmer-institute-sustainability-and-environment>

<sup>13</sup> <http://www.caer.uky.edu/>

<sup>14</sup> <https://www.engr.uky.edu/ism/>

Higher Education's (AASHE) [Sustainability Tracking, Assessment & Reporting System \(STARS\)](#)<sup>15</sup>. Highlights of research strengths reported in 2015 include nearly 250 UK faculty and staff engaged in sustainability research, across 74 departments. These results represent research efforts that include more than 20% of our faculty and over 1/3 of our departments. Instructional strengths reported in 2015 include almost 200 courses that have a sustainability component and the degree programs highlighted above. The methodology and additional results of the 2015 AASHE STARS reporting efforts in the Academic Research area are presented in Appendix B.

**Faculty Motivation and Expertise.** Faculty with a passion for sustainability have stepped forward, often with extra energy, to help UK make the progress that it has. Notable examples include faculty-led efforts to develop interdisciplinary, sustainability-focused undergraduate degree programs as well as a myriad of courses. They are motivated to do this work because of their passion for sustainability, and occasionally supported by extramural funding to initiate these efforts. This work has been facilitated, in part, by the ISE's "[Working Groups](#)"<sup>16</sup>, which align faculty across the Colleges around five sustainability focus areas. The Working Groups have generated highly visible, annual events that highlight sustainability efforts on campus around the built environment, water resources, and urban forests, and have facilitated development of at least two new undergraduate certificate programs (Hunger and Food Systems and Urban Forestry).

**Existing Campus Initiatives.** Sustainability has blossomed at the University of Kentucky over the last decade and is now manifest in a broad set of initiatives, programs and guiding documents. The recommendations of the Faculty Sustainability Council complement several important existing initiatives, including the following.

**UK Sustainability Strategic Plan (SSP).** The SSP lays out a detailed vision for integrating sustainability with campus operations over the next five years with specific targets and deliverables for six key areas: 1) Materials Management 2) Energy 3) Food and Dining Services 4) Transportation 5) Buildings and Ground 6) Greenhouse Gas Emissions. The SSP was developed with the understanding that the Council would make recommendations for integrating sustainability in teaching and research. Once complete, the SSP and the work of the Council will provide a comprehensive set of sustainability targets for operations, curriculum, and research.

**UK Greenhouse Gas Emissions Reduction Commitment.** Signed in December of 2016 by President Capiluto, this commitment set a target of a 25% reduction in campus emissions by 2025 and highlighted that the Council would explore and initiate opportunities to promote and support sustainability-related research and education. The commitment also pledges that the operational strategies deployed to reduce campus emissions will be integrated as high-impact, hands-on components of teaching, research, and service.

**UK Student Sustainability Council (SSC)**<sup>17</sup>. This student organization oversees the Environmental Stewardship Fee, a mandatory student fee that generates approximately \$200,000 annually. The

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<sup>15</sup> <http://uknow.uky.edu/campus-news/uk-earns-stars-silver-rating-leadership-sustainability>

<sup>16</sup> <https://www.research2.uky.edu/tracy-farmer-institute-sustainability-and-environment>

<sup>17</sup> <http://www.uky.edu/sustainability/student-sustainability-council>



SSC solicits, reviews and approves project proposals from the UK community that promote the theory, practice and reality of sustainability with a focus on student impact.

**Sustainability Challenge Grant Program.** This ongoing internal grant-making program, a collaborative effort of the President's Sustainability Advisory Committee, The Tracy Farmer Institute for Sustainability and the Environment and the Office of Sustainability, is designed to engage multidisciplinary teams from the University community in the creation and implementation of ideas that will promote sustainability by simultaneously advancing economic vitality, ecological integrity and social equity. It has incentivized academic integration of sustainability efforts and provided a funding and organizational mechanism that overcomes some of the institutional challenges associated with cross-college and interdisciplinary collaboration. In the first four years of the program, 26 projects have been awarded a total of \$700,000 to pursue transformational, sustainability-driven projects on our campus and beyond. Funding support for the program, \$200,000 annually, is provided by the Executive Vice President for Finance and Administration, the Provost, the Vice President for Research and the Student Sustainability Council.

**UK Graduate School Blue Ribbon Panel.**<sup>18</sup> The Blue Ribbon Panel (BRP) on Graduate Education identified issues which hinder UK's goal of maximizing the graduate student experience. Not surprisingly, several of these issues overlap with those related to sustainability. The BRP's final report includes recommendations which reinforce those of the FSC. Recommendation #2, which is to "Stabilize and strengthen the proposed College of Graduate Studies ..." proposes to "Develop incentives and decrease barriers to innovative initiatives, including interdisciplinary programs and non-traditional methods to transfer knowledge." And, recommendation #5, which states: "Ensure university regulations provide flexibility to promote interdisciplinary studies and new initiatives" directly reinforces recommendations made by the FSC. While these recommendations are targeted toward graduate students, if implemented, they would affect faculty as well.

**Annual UK Sustainability Forum.** An annual campus event aimed at bringing the community together to share sustainability-related research and other scholarly endeavors and celebrate our efforts towards improving sustainability on campus and beyond. The Forum, sponsored by the Tracy Farmer Institute for Sustainability and the Environment and the Appalachian Center, occurs in early December at the Boone Center, The Forum consists of a judged poster session for undergraduate and graduate students engaged in sustainability-related scholarly activity. Two undergraduate, two graduate, and one Appalachian Center awards are given. Additionally, undergraduates involved in the Sustainability Intern program present summaries of their experiences, and current recipients of the Sustainability Challenge Grant Program are encouraged to present on the results of their funded projects. The Forum, in its current format, has been in place for four years, and draws ~80-100 individuals.

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<sup>18</sup> <http://www.uky.edu/provost/blue-ribbon-panel-graduate-education>

## **Our Challenges**

**Structural Barriers to Interdisciplinary Programs.** Challenges for sustainability efforts are emblematic of the challenges facing interdisciplinary degree programs in general. Cutting edge, problem-focused training that crosses college boundaries and prepares students for real-world problem solving is inhibited by traditional academic silos. These programs require shared resources and cross-unit administrative support. Our benchmark institutions have engaged this issue in a variety of ways, and many have developed, programs, courses, and university-wide learning outcomes relating to sustainability or sustainable development. Examples from our benchmark institutions are listed in Appendix C.

Currently at UK, there is no administrative unit that can house interdisciplinary educational programs that cross colleges, share ownership and resources in a way that address budgetary and administrative constraints, and for the purposes of this report, is in the “spirit” the interdisciplinary nature of sustainability. The Tracy Farmer Institute for Sustainability and the Environment (ISE) currently provides staff support and related resources for organizational, outreach, and research efforts under its mission area. However, ISE is housed under the Office of the Vice President for Research and is limited in resources and scope to administer curricular efforts. A University-level institute or initiative must include curricular efforts, and as such, requires support that falls under the Provost’s purview.

**Lack of Support for Interdisciplinary Teaching.** Although faculty in many colleges have great passion for and expertise in developing sustainability coursework, they have received mostly passive support. As a result, progress is sporadic, occurring independently inside individual colleges. Faculty engaged in these issues are typically required to find their own resources and struggle with a structural environment which makes cross-disciplinary work problematic. Further, instructional credit should be awarded equally for teaching in interdisciplinary programs and earn equivalent credit as instruction in departmental majors.

**Lack of Sustainability as a Clear Academic Priority.** The FSC internal review process identified several key indicators that highlight a lack of a systemic, university-wide emphasis on sustainability. For example, although the AASHE STARS reporting has highlighted several instructional and research strengths, our institutional scores are reflective of a lack of systemic, university-wide emphasis on sustainability. In particular:

- Of the 74 ranked institutions that have 20,000+ students, UK ranks 72<sup>nd</sup> on overall score.
- On the academics’ side of things, UK is 67<sup>th</sup> out of 74.
- On the research side of things, UK is 54<sup>th</sup> out of 64.

There are simple, high-return investments in incentives and assessment structure that that could significantly improve our STARS standing as well as elevate sustainability literacy and interdisciplinary thinking capacity among our students. These include ensuring students take at least one course with an associated sustainability-oriented Student Learning Outcome, ensuring all students have some exposure to sustainability opportunities during their orientation process; and, elevating the marketing of sustainability degree programs by o-marketing and coordinating between sustainability degree programs across colleges.

Scoping how sustainability is articulated from an organizational visioning perspective, the FSC reviewed the University and all publicly-available College-level strategic plans. Working from a broad, inclusive

definition of sustainability, the FSC found less than thirty sustainability-relevant passages among all strategic plans considered. Further, no consistency between colleges was found with regard to use of terminology and explicit framing of goals related to sustainability. Appendix D provides a list of sustainability-related passages by college. Clarity from university leadership on the importance of sustainability as a priority in research, instruction, and our campus as a living, learning laboratory would provide guiding language and a cohesive vision to units as they conduct their strategic planning processes.

## Goals

We propose three goals in response to the challenges described above. These goals leverage strengths and synergies in sustainability-oriented academic efforts and are defined by short-term (1-2 years), medium-term (3-5 years) and long-term (6-10 years) objectives as examples of means by which goals may be operationalized. It should be noted that the Council encourages ongoing discussion with the campus community to ensure action towards these goals are inclusive and well-aligned with other strategic initiatives.

### **Goal 1: Facilitate Interdisciplinary Research and Instructional Efforts**

UK is not alone in its struggle to break down disciplinary “silos” and address structural issues that create barriers to faculty efforts in sustainability and other interdisciplinary areas. Considering these impediments as well as the benchmarks created by other institutions leading in sustainability, the Council recommends that the university take steps to facilitate interdisciplinary research and teaching through the following:

#### **Short-Term Objectives**

- **Reward faculty for interdisciplinary research and instructional efforts.** Increasing opportunities for extramural funding, as well as growing demand for interdisciplinary curricula are drawing faculty towards critical growth areas, such as sustainability. Faculty, particularly junior-level, need assurances that their efforts in these areas are valued. This requires addressing administrative issues regarding effort and credit toward promotion and tenure, which require intentional effort and time to revise processes, administrative regulations, etc. As reviews of these issues are undertaken, we highly recommend listening to and nurturing faculty currently working in these areas, and creating a climate where successful teaching and research in interdisciplinary areas, such as sustainability, are seen as synergistic and supportive of the disciplinary expertise and home department. This might include mentoring a mentoring program for faculty as well as chairs as well as sustainability-focus development programs.
- **Hold “Town Hall” meetings to gain campus-wide dialogue and perspective on interdisciplinary barriers.** Fall 2018 is an ideal time to host a series of facilitated listening sessions, as it would capture energy from synergistic efforts such as the Graduate School Blue Ribbon report. Provost-level organization and support of such an effort would inform all of these goals and objectives, and illuminate a path forward for interdisciplinary programs, using sustainability-oriented programming as a first step in these efforts.

#### **Medium- Term Objectives**

- **Administrative Changes in Promotion and Tenure and Merit Reviews Explicitly Valuing Interdisciplinary Efforts.** These structural changes to how “statements of evidence” and

intellectual contributions are valued will benefit sustainability programming, as well as other interdisciplinary topical areas. Currently, faculty members are subject to unit-level support for these efforts. Uniform guidance at the Provost-level would institutionalize University-wide valuation of these efforts. Specific initiatives may include additional instructional credit (DOE percentage) for interdisciplinary, co-taught faculty efforts.

### **Long-Term Objectives**

- **Establish a “School of Sustainability.”** The creation of an academic unit outside of the colleges would institutionalize support, administration, and provide ongoing oversight and assessment for sustainability efforts.

## **Goal 2: All UK Students Experience Sustainability in their Academic Careers**

Sustainability is inherently interdisciplinary, providing an opportunity to expose our students to broad cross-college collaborations and innovative pedagogical approaches. The Council process highlighted faculty energy and unmet demand among the faculty and students for sustainability curricular and instructional efforts.

### **Short-Term Objectives**

- **Support Efforts to Build Instructional Capacity for Sustainability Coursework.** Sustainability-oriented courses present unique challenges to instructors, including balancing the breadth and depth, potentially reaching beyond a faculty members disciplinary training, and others. A unique workshop, funded by a 2018 Sustainability Challenge Grant called “Teaching Sustainability, Teaching Sustainably” has provided support for instructors to generate new sustainability-oriented content and cohort building around these efforts. The Council recommends continued support for these efforts.
- **Facilitate Co-Branding and other Resource Sharing Among Existing Sustainability Curricula.** Unifying promotional and recruitment efforts, would help prospective students interested in sustainability find the right major, communicate how students can engage in sustainability-related coursework and strengthens faculty’s collective voice. Further, it would ensure we are not duplicating efforts and are fully leveraging opportunities for shared academic experiences such as capstone courses, experiential learning activities, etc.

### **Medium-Term Objectives**

- **Create a Graduate-level Sustainability Certificate,** designed to be accessible to all of the Colleges. Elements would include introductory and capstone coursework that would engage students across colleges in real-world problem solving and experiential learning activities, as well as sustainability-themed coursework within the discipline area.
- **Examine the UK Core for Opportunities to Integrate Sustainability Learning Objectives for All Undergraduates** – perhaps in the Community, Culture and Citizenship or Global Dynamics course opportunities in the current UK Core model.

### **Long-Term Objectives**

- **Establish a “School of Sustainability.”** As stated in Goal 1, this would provide an institutional home that could provide administrative support and an instructional home for these efforts.

**Goal 3: Become a Recognized Leading Institution in Sustainability.** Looking to and learning from national and international benchmarks for sustainability in higher education, the Council believes it is possible for UK to become a leading institution in sustainability. This will require supporting, promoting, enhancing, and assessing existing efforts to leverage our strengths and address our weaknesses in order to best serve our role as the University for Kentucky.

### **Short-Term Objectives**

- **Celebrate our Successes and Support Allied Efforts.** We are at a unique moment where a suite of successful initiatives has created synergy and momentum for broader sustainability efforts on campus. These efforts should be celebrated, and supported for as long as they continue to provide these critical support functions. These include:
  - o *The Annual Sustainability Showcase*
  - o *The Sustainability Challenge Grant Program*
  - o *The Sustainable Pedagogies Faculty Workshop Program*
- **Create Ongoing Assessment Through Creation of a Permanent Faculty Sustainability Council.** Provost Tracy directly charged this group with developing an ongoing plan to monitor sustainability efforts on campus, so that this report and others may not sit in isolation or momentum on this work be lost. As such, we recommend an ongoing Faculty Sustainability Council, with the short term charge of assessing the campus community's response to this report, perhaps through town hall meetings, and to report findings to the Provost, Senate Council and President's Sustainability Advisory Committee. In the longer term, the FSC could be charged with assessing progress toward these recommendations. These efforts may include the advocacy for/development of mechanisms to better identify sustainability-related curricula and research at UK, which in its present form is problematic and often incomplete.

### **Medium-Term Objectives**

- **Leverage Opportunities to Align Sustainability Efforts with Strategic Planning Processes.** The University of Kentucky Strategic Plan (2015 – 2020) for Research has an overall objective to expand our scholarship, creative endeavors and research across the full range of disciplines to focus on the most important challenges of the Commonwealth. Strategic Initiatives to achieve this overall objective include investing and recognizing areas of scholarly excellence, and recruiting and retaining outstanding faculty, staff and students. Further, many colleges are undergoing strategic planning processes of their own and provide similar opportunity. These are presented in Appendix B.

### **Long-Term Objectives**

- **Establish a "School of Sustainability."** Such a structure has been demonstrated by national and international leading edge institutions to generate nationally-recognized undergraduate and graduate programs, as well as high impact research and service.

## **Appendix A. Composition of the Faculty Sustainability Council**

Appointments of faculty for the 2016-2018 Council were made either by the offices of the Provost, Vice President for Research, or the UK Senate, through its Academic Planning and Priorities Committee.

### **Members and Departmental/Unit Affiliations**

#### *President's Sustainability Advisory Council (PSAC)*

Krista Jacobsen, Horticulture (PSAC and FSC co-chair)

Shane Tedder, Office of Sustainability

#### *Tracy Farmer Institute for Sustainability and the Environment*

Rebecca McCulley, Plant and Soil Science

(resigned in December, 2017 to become department chair)

#### *Student Representative*

Ben Troupe, Philosophy and Political Science

#### *University Senate*

Kevin Yeager, Earth and Environmental Science

Margaret Mohr-Schroeder, STEM Education

Bob Sandmeyer, Philosophy

#### *Provost and Vice President for Research*

Mark Swanson, Public Health

Eric Reece, English

Fazleena Badurdeen, Mechanical Engineering

Greg Davis, Medicine

Helen Turner, Interior Design

Rebecca Bromley-Trujillo, Martin School of Public Policy and Administration

Wally Ferrier, Management, Gatton College of Business and Economics

Lee Meyer, Agricultural Economics (FSC co-chair)

#### *Ad Hoc*

Robert Shapiro, Libraries

Emily Bergeron, Historic Preservation

## Appendix B. 2015 UK AASHE STARS Report – Academic Research

Excerpts<sup>19</sup> from the Academic Research section of UK’s 2015 Sustainability Tracking Assessment and Rating Systems (STARS) Report, compiled by Dr. Rebecca McCulley, TFISE Interim Director.



**Overall Academic Research Score: 8.99/12.00**

**Overall STARS Rating: Silver**

**Overall STARS Score: 45.25**

### **Reporting Fields**

- *Number of the institution’s faculty and/or staff engaged in sustainability research: 249*
- *Total number of the institution’s faculty and/or staff engaged in research: 1,214*
- *Number of academic departments (or the equivalent) that include at least one faculty or staff member that conducts sustainability research: 74*
- *The total number of academic departments (or the equivalent) that conduct research: 198*
- *A copy of the sustainability research inventory that includes the names and department affiliations of faculty and staff engaged in sustainability research: [Sustainability Faculty List STARS.xlsx](#)<sup>20</sup>*

*Methodology for the Research Inventory:* [Dr. McCulley] performed a search in the Sponsored Project Information Files (<http://www.research.uky.edu/aspnet/vsprojects/spifi/search.aspx>) for the word ‘sustain’ in the project title, key words, or abstract, with the data limit being ‘active’ only. This generated 339 individual faculty with funded research projects. I then went through the abstract of each project and determined whether the work fit the STARS definition of ‘sustainability research.’ I marked in the spreadsheet when I thought the fit was somewhat questionable, and I eliminated those that were obviously not a fit. This generated 222 faculty with research in sustainability. Then I went through the active Tracy Farmer Institute for Sustainability & the Environment (TFISE) faculty working groups, and added any faculty that appeared there and were not already in the list. Then I checked that all faculty and staff in the 2014-2015 funded Sustainability Challenge Grant Program were included, and finally, I checked with Courtney Fisk at the Center for Applied Energy Research and added a few additional names of individuals she knows are active in sustainability research. I also included three staff members that are important to Sustainability research on our campus: Shane Tedder, Courtney Fisk, and Suzette Walling. I checked the UK Directory for the Departmental association (or institutional equivalent) for each person listed.

The website URL where information about sustainability research is available:  
<http://www.tfise.uky.edu/facultyofTheEnv>

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<sup>19</sup> The STARS tool and entirety of UK’s Academic Research reporting may be accessed via:

<https://stars.aashe.org/institutions/university-of-kentucky-ky/report/2015-10-16/AC/research/AC-9/>

<sup>20</sup> <https://stars.aashe.org/media/secure/266/6/470/2678/Sustainability%20Faculty%20List%20STARS.xlsx>

## Appendix C. Sustainability Programs at our Benchmark Institutions

Degree programs, coursework, and curricular highlights compiled during the FSC's External scoping process, led by Dr. Emily Bergeron, Department of Historic Preservation.

**Summary.** Programs at institutions other than the UK Benchmark Universities offer a variety of certificates, courses, and even university-wide learning outcomes relating to sustainability or sustainable development. The best of these programs incorporates holistic or systemic thinking and interdisciplinary/trans-disciplinary teaching and research. There is an emphasis on applied learning, community outreach, evidence-based learning, and on changing attitudes and values. This is reflected in learning outcomes that are broken down into knowledge and skills, application in academic/professional career, and personal values. Although the goal of these programs is to create students that are “agents of change”, it is not uncommon for these programs to take a more superficial look at sustainability (e.g. recycling, consumption, etc.), considering only environmental issues rather than considering the triple bottom line. The University of Michigan's Graduate Certificate provides the best model for an equivalent program at UK; however, the structure of the University of Wisconsin-Madison and University of Iowa undergraduate certificate programs have incorporated excellent learning objectives and program structures as well.

### **Benchmark Programs**

**University of Michigan-Ann Arbor**<sup>21</sup>. The University offers more than 700 courses that address sustainability. Students can choose from more than 10 undergraduate degrees, a dozen master's degrees, and 15 doctoral programs related to sustainability—as well as a wide variety of minors, concentrations, dual-major programs, and certificate options. The institution also offers a **Graduate Certificate in Sustainability**<sup>22</sup> through the School for Environment and Sustainability. The Sustainability Graduate Certificate is open to students enrolled in any University of Michigan graduate program. The certificate requires six credits of coursework in fundamental knowledge, six credits of coursework in skill development and a capstone experience, which may entail an additional 3-credit course or an approved co-curricular experiential activity. The Sustainability Knowledge Fundamentals portion focuses on foundational theory and background within a specific topic, including courses in the principles of sustainability, ethics, behavior, education, biodiversity conservation, policy, law, or other sustainability-themed courses that look at case studies. Skill Set Development courses focus on developing techniques and tools of analysis, intervention or design principles, and generally often incorporate problem sets, laboratory or field-based components, design projects, mock negotiations, or other experiences directly related to skill development. Courses are related to modeling, mapping, design, policy-making, behavior change, analytical problem solving, and otherwise acquiring experience applying different tools or techniques.

**UC Davis**<sup>23</sup>. The University offers numerous courses that address sustainability at the graduate and undergraduate levels, which have been curated for students to pick from as part of the institution's 2010 Climate Action Plan. Students also have an opportunity to take part in an Education for Sustainability Program - a seminar focused on 1) interdisciplinary lectures addressing principles of sustainability and 2) applying them to daily life. Students in this program may also participate in an Action Research Team project. Various research groups on agricultural sustainability, energy

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<sup>21</sup> <http://sustainability.umich.edu/>

<sup>22</sup> [http://seas.umich.edu/academics/grad\\_cert/sustainability](http://seas.umich.edu/academics/grad_cert/sustainability)

<sup>23</sup> <http://sustainability.ucdavis.edu/students/classes/>



efficiency, environmental studies, and transportation provide sustainability-focused programs (only one supporting a major in Sustainable Agriculture and Food Systems). UC Davis Extension and its Center for Entrepreneurship also offer a series of professional and continuing education certificates relating to energy efficiency, sustainable building design, and green entrepreneurship.

**University of Iowa**<sup>24</sup>. Iowa offers a certificate in sustainability to undergraduate students and post-baccalaureate students not enrolled in graduate or professional programs. This 24 credit certificate draws from multiple disciplines to provide knowledge and skills necessary for contributing to the development of sustainable systems. No more than three courses may be taken in a single department. According to the University, certificate students will “enhance their preparation for a variety of vocations such as researcher, corporate officer, technology specialist, farmer, government official, and grassroots advocate.” The certificate is overseen by a nine- person advisory board.

**Michigan State University**<sup>25</sup>. Michigan State has multiple degrees, minors, and specializations addressing sustainability including an MA and PhD in Community Sustainability, BA in Environmental Studies and Sustainability, and a BA, MA, and PhD in Sustainable Parks Recreation and Tourism/Sustainable Tourism and Protected Area Management. The University has undergraduate minors in Environmental and Sustainability Studies, Sustainable, Agriculture and Food Systems, Sustainable Natural Resource Recreation Management, and The City: Environment, Design, and Society. It additionally has a graduate specialization in Business Concepts for Environmental Sustainability and Conservation. There are no certificates in sustainability.

**University of Missouri- Columbia**. The institution has a BS in Sustainable Agriculture and the College of Engineering has a mission in sustainability in food, energy, water, and sustainable cities.

**University of Arizona**. Sustainability at the University of Arizona is evident extensively across the campus. The institution has undergraduate degrees in Sustainable Built Environments, General, Sustainable Built Environments, Heritage Conservation Emphasis, Sustainable Built Environments: Sustainable Buildings Emphasis, Sustainable Built Environments: Sustainable Communities Emphasis, Sustainable Built Environments: Sustainable Landscapes Emphasis, Sustainable Plant Systems: Agronomy, Sustainable Plant Systems: Controlled Environment Agriculture Emphasis, and Sustainable Plant Systems: Environmental Horticulture. Additionally, 36 of the University’s graduate programs in STEM fields, education, design, public policy, and planning emphasize sustainability in their degree descriptions. There are two certificates (Aquaculture and Heritage Conservation) that address sustainability; however, there is no sustainability certificate.

**University of Minnesota-Twin Cities**<sup>26</sup>. The institution has an undergraduate Sustainability Studies Minor that is open to all undergraduates and addresses the ecological, social, ethical, political, and economic forces impacting human society and the natural environment. An introductory core course provides students an overview of models for understanding sustainability using case studies to illustrate the challenges of sustainability in practice. Students choose additional electives from multidisciplinary courses with perspectives related to sustainability. Finally, a capstone project requires students to synthesize and apply knowledge to actual sustainability problems. Students complete 6 credits of required courses for the core and the capstone, and 9-12 restricted electives, for a total of 15-18 credits. There are also undergraduate degrees in Sustainable Agriculture Minor and Sustainable Systems Management.

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<sup>24</sup> <https://sustainability.uiowa.edu/teaching-a>

<sup>25</sup> <https://reg.msu.edu/AcademicPro>

<sup>26</sup> <https://www.cfans.umn.edu/academics/majors-minors>

***The Ohio State University***. The institution offers 340 courses that focus specifically on sustainability issues and over 700 additional courses that feature sustainability topics. The university also offers a major in [Environment, Economy, Development and Sustainability](#)<sup>27</sup> and many colleges offer minors with a sustainability focus. There is no graduate certificate focused specifically on sustainability.

***University of Wisconsin-Madison***<sup>28</sup>. The institution has a 12 credit undergraduate certificate in sustainability that helps students develop literacy in environmental, social, and economic dimensions of sustainability, as well its inherent systems nature. Students must complete courses approved for each of the above four dimensions of sustainability and must complete an additional community engagement requirement.

***University of North Carolina, Chapel Hill***<sup>29</sup>. The institution's 12 credit undergraduate certificate provides an understanding of sustainability utilizing a "unifying approach" to human and environmental problems. Courses in the program include a variety of classes in STEM fields, policy and advocacy, planning, business, and others. One clear limitation of the program is that students who major in the B.A. or B.S. environmental degree programs are not allowed to minor in sustainability studies.

***University of Florida***<sup>30</sup>. The University of Florida has several [undergraduate and graduate degree programs](#)<sup>31</sup> in sustainability. The institution also offers graduate certificates in Sustainable Agroecosystems, Sustainable Construction, Sustainable Engineering, Sustainable Land Resource and Nutrient Management, and Sustainable Development Practice. There is no general graduate certificate in sustainability.

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<sup>27</sup> <https://senr.osu.edu/undergraduate/majors/environment-economy-development-and-sustainability>

<sup>28</sup> <https://www.nelson.wisc.edu/undergraduate/sustainability-certificate/index.php>

<sup>29</sup> <http://catalog.unc.edu/undergraduate/programs-study/sustainability-studies-minor/>

<sup>30</sup> <http://sustainable.ufl.edu/academics-research/>

<sup>31</sup> <http://sustainable.ufl.edu/academics-research/sustainability-degree-programs/>

## Appendix D. Sustainability in College-Level Strategic Plans

Passages from College Strategic Plans that include sustainability-oriented language from the FSC internal scoping process.

**Summary.** As discussed in the body of the FSC report, no consistency between colleges was found with regard to use of terminology and explicit framing of goals related to sustainability. From our analysis, especially given the paucity of sustainability-relevant elements expressed in these strategic plans, we offer the following conclusions and insights: 1) Although some colleges have strong, explicit elements of their curricula and research squarely positioned in domains related to sustainability, it is insufficiently and inconsistently expressed as values, ideals, or goals in their strategic plans; 2) Independent of whether some colleges actually engage in sustainability-related curricula or research, the strategic emphasis on constructs such as social responsibility, community/civic engagement, or public good are encouraging and, perhaps, imply an alignment with sustainability. However, we urge that colleges be more explicit; and 3) Many colleges emphasize collaborations with other academic units and wider range of stakeholders as a strategic goal. So, given that sustainability is inherently multidisciplinary, the expressed willingness of some colleges to widen its engagement both within and outside the university shows promise for a deeper and more comprehensive embrace of sustainability.

College	Documents	Sustainability-relevant Passages
Arts & Sciences	<a href="#">Academic plan 2007-2012</a>	<ul style="list-style-type: none"> <li>• Perpetually re-evaluating the assumptions, prejudices and aspirations of <i>one's society</i>, community</li> <li>• Biological-related undergraduate degrees are passports into a variety of postgraduate degrees in health, <i>environmental</i> and agricultural sciences</li> <li>• Today's fastest-growing occupations are rooted in the arts and sciences ... <i>environmental</i> scientists...college places a priority on interdisciplinary learning and career preparation</li> </ul>
Agriculture, Food & Environment	<a href="#">Strategic plan</a>	<ul style="list-style-type: none"> <li>• finding solutions to improve lives today and creating a <i>sustainable</i> future</li> <li>• students who are competent, <i>responsible</i></li> <li>• addressing needs in agriculture, <i>natural resources</i></li> <li>• expanding knowledge to improve the quality of life and <i>sustainability</i></li> <li>• provide a culturally aware environment for successful <i>engagement in a global society</i></li> <li>• new state-of-the-art <i>green, LEED-certified</i> classroom building</li> <li>• implementation of <i>certified "green" technologies</i> for all on- and off-campus facilities</li> </ul>
Business & Economics	<a href="#">Strategic plan</a>	<ul style="list-style-type: none"> <li>• Gatton Code of Conduct ....that fosters professionalism...<i>social responsibility</i></li> <li>• New honors program in <i>Social Enterprise</i></li> </ul>

Communication & Information	<a href="#">Strategic plan</a>	<ul style="list-style-type: none"> <li>• Promote research that maximizes <i>social</i>, intellectual and economic opportunities</li> <li>• To promote <i>civic responsibility</i></li> <li>• We value integrity...<i>social responsibility</i></li> </ul>
Design	<a href="#">Strategic plan</a>	<ul style="list-style-type: none"> <li>• A way of thinking that can be applied to all scales of human existence...healthcare, <i>soil, water and climate change</i></li> <li>• Develop programs and certificates that include...design and <i>climate, adaptive reuse</i></li> </ul>
Education	<a href="#">Strategic plan</a>	<ul style="list-style-type: none"> <li>• Identify, in partnership with local and global community stakeholders, <i>emerging issues</i>, challenges</li> </ul>
Engineering	<a href="#">Strategic Plan</a>	<ul style="list-style-type: none"> <li>• Expand number of faculty...in energy, manufacturing and <i>sustainability</i></li> </ul>
Health Sciences	<a href="#">Strategic plan</a>	<ul style="list-style-type: none"> <li>• Provide opportunities for...<i>community engagement...volunteerism...expand our students' world views</i></li> </ul>
Fine Arts	<a href="#">Strategic Plan</a>	<ul style="list-style-type: none"> <li>• To...affect personal, economic, and <i>social change</i></li> <li>• Establish relationships...with <i>non-traditional external organizations</i> (e.g. military, healthcare, etc.)</li> </ul>
Honors	<a href="#">College proposal</a>	<ul style="list-style-type: none"> <li>• <i>Multidisciplinary curriculum...prepares students for advanced study and global competency</i></li> <li>• <i>Social responsibility...civic engagement</i></li> <li>• Partnerships with other programs; <i>social enterprise, SEAM</i>, etc.</li> </ul>
Law	<a href="#">Strategic plan</a>	<ul style="list-style-type: none"> <li>• Develop plan to engage students in <i>community initiatives</i> hosted by legal, civic, education, business and <i>non-profit sectors</i></li> <li>• newly created Enterprise Strategy Office (ESO) will lead...implementation of strategy...<i>political, social, economic, technological trends</i></li> </ul>
Medicine (UK Healthcare)	<a href="#">Strategic plan</a>	<ul style="list-style-type: none"> <li>• physical expansion for UK HealthCare, with more than \$1.6 billion invested in <i>new and improved facilities</i></li> </ul>
Pharmacy	<a href="#">Strategic plan</a>	<ul style="list-style-type: none"> <li>• Promote the <i>public good</i> through the application of our expertise and resources to meet social, economic, educational, and health challenges</li> </ul>