INTENTION

David E. Shi Center for Sustainability 2012–13 Report

Furman University
WHAT IS INTENTION?

It is our determination to act—to examine our world, empower others, and inspire lasting change.

Now celebrating the fifth anniversary of its founding, the David E. Shi Center for Sustainability has firmly established itself as a leading center for the academic study and practice of sustainability.

Pathbreaking research, intriguing people, notable attainments—this report, by design and purpose, is a reflection and record of the year just passed.

It is also a purposeful call to a future of shared commitment, resolute action, and optimism.

FROM THE DIRECTOR

Dear Friends,

The David E. Shi Center for Sustainability is now five years old. It remains the nation’s first-of-its-type academic sustainability center promoting learning, research, and community engagement. As “sustainability” has gained increasing visibility and credibility as a new field of study and as a growing emphasis of American communities and public policy, the Shi Center for Sustainability has similarly matured.

From early efforts to build consensus and commitment around the University’s bold sustainability goals to the creation of Sustainable Furman, a long-range master plan, the Shi Center works to ensure that all members of the Furman community understand the strategic significance of sustainability and adopt its premises and practices. The Center continues to connect students and faculty in key elements of the plan.

The Center is more than a force on campus, however. Since its establishment in 2008, it has focused on enhancing student, faculty, and staff involvement on campus and in the greater Greenville community. As this report illustrates, never has education about the interconnection of social, economic, and environmental systems been more vital. Understanding how nature and society, people and place, and policy and science interact is critical to bettering the lives of people and the planet.

Please consider joining our efforts. Visit our website to learn more about us and connect with us through social media. Attend our events. Become a community partner. If you are inclined, provide a gift to support our programming needs—you’ll find an envelope in the back cover.

Thank you for your time and interest in the work of the David E. Shi Center for Sustainability. We look forward to working with you over the next five years and beyond.

Sincerely,

Angela C. Halfacre, Ph.D.
Director, David E. Shi Center for Sustainability
Professor, Departments of Political Science and Earth and Environmental Sciences
HEARING NATURE’S DRUMBEAT

A Requiem featuring vibraphone and clay flower pots where the pots are eventually shattered, reflecting both the creative and the destructive nature of human activity on the environment. A seven-minute meditation played entirely on scavenged and recycled objects such as steel barrels and discarded medicine vials.

In the tradition of American experimental music embodied by Charles Ives and John Cage, among others, Assistant Professor of Percussion Omar Carmenates, D.M., recorded a compact disc of these and other compositions entitled The Gaia Theory, released through New Zealand’s Rattle records. The project was funded by a Shi Center Mellon Faculty Sustainability Research Fellowship, as part of the Center’s $150,000 five-year commitment to faculty development.

“This controversial theory, named after the Greek earth goddess, suggests that each organism on the planet is intertwined with every other,” Dr. Carmenates writes in the liner notes. “It is my hope that the CD provides a musical means to contemplate the significance of our relationships with each other, and with our planet.”

Dr. Carmenates joined Furman’s faculty in 2008. At the time he was a year away from completing his Doctor of Music degree from Florida State University. One of his final requirements was a culminating scholarly project which included commissioning, lecturing on, and performing four compositions of eco-acoustic music. Three of those made it to the CD.

The fourth work, not included on the CD, is a 75-minute composition for nine to 99 percussionists entitled Inuksuit by Alaskan composer John Luther Adams. Inuksuit received its U.S. premiere at Furman as part of the 2010 “Furman Engaged” day.
Support the Mission

The history of conservation in South Carolina’s lowcountry is one of managing the conflicting forces of development and preservation of the distinctive wetlands, creeks, beaches, and forests that define the land and its people. A Delicate Balance: Constructing a Conservation Culture in the South Carolina Lowcountry, written by Shi Center Director Angela Halfacre, Ph.D., and published by the University of South Carolina Press, artfully chronicles the chain of events that altered land-use patterns on the coast. Students engaged in sustainability science research contributed to the book, which earned strong critical reviews upon its publication in 2012.

The Shi Center has inspired and funded multiple peer-reviewed papers, creative projects, and two books as part of its scholarly mission.

Full Circle

When she was a middle and high school student, a conservation camp in her home state of Maine filled the summers for Elizabeth Cook ’14, and eventually led her to Furman.

“This was a unique camp, really path-breaking at the time, and my commitment to sustainability grew each year,” she says. “In many ways I was ahead of the game when I applied to college, and Furman’s broad approach—focused on addressing a spectrum of issues and not just environmental issues or social issues—really spoke to my desire to push in new directions.”

Of the approximately 80 U.S. colleges with a sustainability-related major, Furman is one of only two offering a holistic approach that connects nature and society, people and place, policy and science.

As an Earth and Environmental Sciences major and a Shi Center Student Fellow, Cook coordinated an elementary school curriculum to teach about the environment and sustainability. It is now being implemented at Greenville’s Armstrong Elementary School, where many students come from Spanish-speaking families.

“It’s full circle in some ways,” she says. “I hope that it provides for them what camp gave to me.”

Students and Research

Rianna Das and Kyle Donovan, both members of the Class of 2014, understand the consequences of intensive farming. Over time, the cultivation of commodities such as cotton and beef in the upstate have sapped the soil of needed nutrients.

Working with Shi Center Faculty Affiliate Brannon Andersen, Ph.D., professor and Chair of Earth and Environmental Sciences, Donovan, who is majoring in Earth and Environmental Sciences, and Das, a double major in Political Science and Earth and Environmental Sciences, spent the summer documenting land use history at local farms and collecting soil samples. The work, typically conducted by an agricultural extension office, is helping farmers understand the history and consequences of land use, and learn techniques to reverse soil damage.

The Student Fellows program, which began in 2009 with four students, has now awarded research and practicum opportunities to 71 students through Spring 2013. The program is funded by the Andrew W. Mellon Foundation, Arthur Vining Davis Foundations, The Duke Endowment, Piedmont Natural Gas Foundation, and Shi Center endowment earnings.

Duke Endowment Support

The Duke Endowment provided a $300,000 grant to its four sister schools (Furman, Duke, Davidson, and Johnson C. Smith) to support sustainable agriculture on campuses. Furman is focusing its work on expanding its research about food systems and farming in upstate South Carolina.

Growth in Sustainability Courses in the Curriculum

<table>
<thead>
<tr>
<th>Year</th>
<th>Focused courses</th>
<th>Related courses</th>
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<tbody>
<tr>
<td>2009-10</td>
<td>19</td>
<td>41</td>
</tr>
<tr>
<td>2012-13</td>
<td>87</td>
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</tbody>
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Sustainability-focused courses concentrate on the concepts of sustainability; related courses incorporate sustainability as a distinct component of the coursework.

Source: 2013 Association for the Advancement of Sustainability in Higher Education Sustainability Tracking, Assessment and Rating System (STARS™).

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Visit Furman.edu/shicenter for more information on Shi Center programs to support student and faculty research and teaching.
Steward of Change

Alison Bressler ’14, an Earth and Environmental Sciences (EES) and Political Science double major from Greenville, has spent her years at Furman conducting research that spans the disciplines. Hers is a passionate voice for change.

Bressler’s latest project focused on the iconic centerpiece of campus, the Furman Lake. Water quality had worsened over the years due to an overabundance of waterfowl and sediment deposits from nearby streams. In 2008, four rain gardens replete with native vegetation, stones, sand, and soil, were created to capture and filter runoff into the lake.

“But nobody had followed up to see if the rain gardens were actually working,” says Bressler. “I sought to provide evidence that they were, in hopes that more gardens could be installed to accelerate the restoration.”

An environmental policy class with Shi Center Director Angela Halfacre, Ph.D., had taught Bressler, a Shi Center Student Fellow, that “you don’t have an argument unless you understand the research.” So, under the guidance of EES professors Brannon Andersen, Ph.D., and Weston Dripps, Ph.D. (both Faculty Affiliates with the Shi Center), Bressler spent the summer in the lab analyzing water samples and in the field alongside Furman’s Facilities Services employees. At the end of the summer, she compiled her findings into a 50-page thesis that supported the ameliorating effect of the rain gardens on lake quality.

With the support of the Shi Center, Bressler passed her work on to Jeff Redderson, Associate Vice President for Facilities and Campus Services at Furman.

“Alison’s work quantified the benefits of the rain gardens, providing us with strong evidence to support more of these on Furman’s campus. We now have what we need to look toward the next phase and plan more rain gardens as funding allows,” says Redderson.

“In nature, nothing exists alone.”
—Rachel Carson
CAMPUS PARTNERS
The Shi Center enjoys many campus partnerships, including the organic practice Furman Farm, which is available to all students. Two of the Shi Center Student Fellows along with volunteers assist Bruce Adams, Farm and Compost Manager, with the farm’s composting operation and Community Supported Agriculture Program as part of its educational outreach.

PEACE AND PURPOSE
David Shaner, Ph.D., was a driving force in bringing a former Buddhist temple from Japan to Furman. One of his students, Phillip Shelton ’13, found both peace and purpose within its walls as a Shi Center Fellow.

Dr. Shaner, who served Furman for 30 years, including as an affiliate of the Shi Center, saw the temple as a bridge spanning his teaching goals at Furman and the Eastern traditions he honored as an Aikido master.

“Furman has thoughtful and serious students who think deeply about philosophy, religion, and faith,” says Dr. Shaner, who retired last year as the Herring Professor of Philosophy and Asian Studies. "I’d like to think that in some small way I contributed to the advancement of international understanding among them."

Shelton, a Philosophy major who was accepted into Harvard University’s Divinity School to study Buddhism, worked as a docent at the Place of Peace and authored a manual for others who serve the unique landmark located a short stroll from the Shi Center, which manages the temple. The manual reveals detailed facets of the religious, historical, cultural, and architectural significance of the temple.

“A student studies, reads books, takes tests, writes papers, does group projects, and so on; a person is born, ages, and dies. Such is the cyclical nature of reality. Yet, the docent has an ideal position to see these cycles within the Place of Peace, its environment, and the inner self: the ‘soul.’”

A former Buddhist temple was donated to Furman by the Tsuzuki family of Greenville. The structure was disassembled into 2,400 pieces in Nagoya, Japan, shipped in four containers across the Pacific Ocean, and reassembled by Japanese artisans in an area of campus known as the Place of Peace.

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Leaders in Sustainability Education

Sustainable Furman

Established in 2009, Sustainable Furman is a long-range master plan intended to help the University strengthen and extend its practices, policies, and learning environments. The Shi Center has been responsible for assessing the University’s progress toward Sustainable Furman. Shi Center research shows that to date, the University has seen the most success achieving goals related to academic opportunities for Furman students and faculty.

A sampling of successes:

**Goal:** Expand and Enhance Curricular Opportunities Related to Sustainability
- Sustainability Science major
- Affiliate Faculty Program
- “Humans and Natural Environment” graduation requirement
- Sustainability-related courses with the Osher Lifelong Learning Institute (OLLl)
- Postgraduate Diploma in Corporate Sustainability

**Goal:** Expand Innovative Co-Curricular Experiences to Enhance Student Learning about Sustainability
- Sustainability Student Fellows program
- Enhanced sustainability-related learning communities, such as the Greenbelt Community
- Increase in Cultural Life Programs related to sustainability
- Sustainability Speaker Series

**Goal:** Enhance sustainability service opportunities and create local carbon offset projects and programs
- University-wide commitment to become carbon neutral in all activities by 2026
- 17% improvement in overall recent sustainability performance*
- 12% reduction in greenhouse gas impact between 2009-2013

*according to a measure derived by the nationally recognized Association for the Advancement of Sustainability in Higher Education (AASHE) Sustainability Tracking, Assessment and Rating System (STARS™)

Reach for the STARS

As the Shi Center continues to monitor the University’s progress envisioned in Sustainable Furman, it has also completed a campus-wide sustainability analysis through the nationally recognized Sustainability Tracking, Assessment & Rating System™ (STARS). STARS, developed by the Association for Advancement of Sustainability in Higher Education (AASHE), confirmed what the Center saw in its own assessment of its Sustainable Furman goals: Furman excels in its educational efforts related to sustainability.

STARS reviews universities’ practices in three different categories: education and research; operations; and planning, administration, and engagement. Furman’s greatest performance was in the area of Education and Research, in which it earned a 72.25 percent in 2013.

Overall, Furman’s 2013 submission showed a 17 percent improvement from the 2011 submission, earning the University a silver rating. 267 schools submitted data, with only 38 institutions receiving the higher gold rating.

Furman was just four points shy of receiving the gold rating. Center staff and Student Fellows are now auditing all sustainability-related programs in order to assist the Center in establishing a plan of action for reaching the gold ranking in 2015. In the meantime, the Center has held a workshop in order to assist the Duke Endowment sister schools in submitting their own reports for STARS.

A sampling of areas in which Furman received the maximum amount of points in the STARS assessment:
- Sustainability Outreach and Publications
- Sustainability Events
- Sustainability Course Identification
- Undergraduate Program in Sustainability
- Sustainability Research Identification and Initiatives

Sustainable Furman Goals

140 Original Plan Goals
- 73 completed
- 46 in process
- 21 not being actively pursued at present
DESERTS IN A LAND OF PLENTY

If you lived in an impoverished neighborhood with no supermarket, had no car, and were dependent on whatever food sources were nearby, where would you eat? What would you eat?

Food from a convenience store or a fast food restaurant might be your only option, says Alicia Powers, Ph.D., Associate Professor of Health Sciences and a Shi Center Faculty Affiliate.

Through her research, conducted with about 25 students over the past several years, Dr. Powers shed light on an often unrecognized plight facing the poor: limited or no access to healthy food. These areas—often bereft of fresh vegetables and fruits—are called food deserts.

The cascading consequences of poor diet are many, she says. Residents in these areas are more likely to be obese and to suffer from high blood pressure, heart disease, and other ailments.

“Many times these unhealthy and overweight people are not necessarily eating too much. They may be eating the wrong foods because they are the only foods available,” Dr. Powers says.

Her research, conducted with Shi Center Student Fellows and other students, documented the availability of healthy, affordable, and culturally appropriate food at more than 1,000 restaurants and stores in Greenville County.

The group is currently working on a map of Greenville County that will identify food deserts. They too are connecting with non-profit agencies, including Gardening for Good and Live Well Greenville, to help give some residents access to healthy food. Area businesses, including Farmers’ Market vendors, have participated.

One vendor recently set up shop in a “food desert” parking lot. He sold out of fresh vegetables in hours.

“We are working on both ends,” says Dr. Powers. “We not only want to see what the issues are, we want to address and correct those issues.”
DREAMING BIG

Greenville and Shi Center student fellow Hayden Couvillion ’15 are dreaming big together. For the last two years, nonprofit Dream Big Greenville (DBG) has been working with partners to raise funds to construct an outdoor recreation visitor’s center showcasing the Upcountry’s natural beauty and cultural attractions. Construction on Reedy Square—to be located in downtown Greenville near the Swamp Rabbit Trail—is scheduled to begin in 2015.

A Greenville native, double majoring in Political Science and Sustainability Science, Couvillion spent last summer and academic year as a Student Fellow placed by the Shi Center with DBG. In his role, Couvillion has developed donor lists, crafted a plan for legislative funding, and produced public presentations explaining the proposed economic benefit of Reedy Square. He also helped develop educational programs that will emphasize the area’s natural attractions: hiking/biking trails, trout fishing, and whitewater waterfalls and lakes.

Couvillion says “the student fellowship has shown me how I can make a difference in my community. I’ve played a part in developing an exciting and distinctive project that will take Greenville to the next level.”

SPARKING OF SUSTAINABILITY

Lectures and speakers by internationally recognized scholars and sustainability advocates brought new ideas to campus—and validation that the Shi Center is a national leader in sustainability.

Among those who made their way to Greenville was Nell Newman, who has used her notoriety and business savvy to promote sustainable agricultural practices and build a company that markets organic products. Profits from her company, Newman’s Own Organics, fund educational and charitable enterprises.

Earlier this year Newman visited Furman as part of the speaker series that drew eight noted authors and authorities throughout the year. The speakers encouraged students to explore how we grow our food and to think about what we consume.

THE CORE OF THE COMMUNITY CONSERVATION CORPS

For many low- to moderate-income Greenville residents, extreme weather creates more than physical discomfort. Rising monthly utility costs can be crushing.

Since its founding in 2010, the Community Conservation Corps, coordinated by Shi Center staff, AmeriCorps members and Student Fellows, has worked with Greenville partners to weatherize 42 homes in economically disadvantaged neighborhoods. On average, residents save 35 percent on their energy bills.

This year, grants through the Shi Center totaling more than $100,000 from Piedmont Natural Gas, Bank of America, and the TD Charitable Trust have helped to fund this good work.
Organizational Donors and Grantors
Andrew W. Mellon Foundation
Arthur Vining Davis Foundations
Associated Colleges of the South
Bank of America Foundation
The Duke Endowment
TD Charitable Trust
Piedmont Natural Gas
Piedmont Natural Gas Foundation

Selected Community Partners
Bon Secours St. Francis Hospital System
City of Greenville
Dream Big Greenville
eXtreme Upcountry magazine
Greenville County Planning Department
Gardening for Good
Greenville Forward
Greenville Convention and Visitors Bureau
Lake Conestee Nature Park
LiveWell Greenville
Piedmont Natural Gas
Laura Kate Stedman, AmeriCorps CCC Coordinator
Andy Wallin, AmeriCorps CCC Coordinator
Trusted Farms
United Way of Greenville County
Upstate Forever
US Endowment for Forestry and Communities

2012-13 Sustainability Student Fellows
Anne-Marie Melief ’13 Earth and Environmental Sciences
Kris Hajsy ’15 Chemistry/Sustainability Science
Laura Eubanks ’13 Sustainability Science
Rex Harrison ’14 Philosophy/Sociology
Mia El-Hamaki ’15 Sustainability Science
Sienna Doose ’13 Earth and Environmental Sciences
Elizabeth Cook ’14 Earth and Environmental Sciences
Rachel McAlister ’14 Biology
Kyle Stacklos ’14 Sustainability Science
Rob George ’15 Sustainability Science/Economics
Michael Robinson ’16 Sustainability Science
John Michael Robinson ’14 Sustainability Science
Landri Tripp ’13 Spanish
Will McCabe ’14 Sustainability Science
Emma Poppante ’15 Chemistry/Sustainability Science
Wes Floyd ’14 Sustainability Science
Patrick Starr ’13 EES/Political Science
Coleman Altuns ’14 Economics/Sustainability Science
Rebecca McDaniels ’14 Music/Earth and Environmental Sciences
Gillian Small ’14 Political Science with Women’s and Gender Studies minor
Blake Wood ’13 Political Science/Asian Studies
James McAner ’13 Sustainability Science
Hayden Couvillion ’15 Political Science/Sustainability Science
Katie Ward ’14 Health Sciences
Levi Lynam ’14 Health Sciences
Jenn Summers ’13 Biology/French
Kyle Donovan ’13 Earth and Environmental Sciences
Rina Das ’13 Earth and Environmental Sciences
Sarah Harrison ’13 Sociology
Hayley Jones ’14 Sustainability Science
Laura Reid ’13 Biology
Jake Gruske ’14 Biology/Physics
Jordan Ellington ’15 Sustainability Science
Sarah Lyons ’13 Biology
Ari Okuno ’16 undeclared
Erika Shaver ’14 Health Sciences/French
Joy Owens ’14 Sustainability Science
Kary Chapman ’15 Sustainability Science
Philip Shelton ’13 Philosophy

Shi Center Faculty and Staff
Angela Hallazgo, Ph.D., Director and Professor of Political Science and Earth and Environmental Sciences
Yancy Fouché, M.S., Associate Director
Katharine Krantszbauber, M.S., Program Coordinator
Cassie Klatka, Administrative Coordinator
Courtney Quinn, Ph.D., Research Fellow and Program Manager

REVENUE 2008–13
$8,082,331*

EXPENSES 2008–13
$8,082,331*

Furman $758,020
Endowment Earnings $264,300
Campus Sustainability Improvements $5,026,419
Operating Budget and Salaries $1,506,854
Programs $1,549,054

* Donations and pledges to Center Endowment since 2008 $2,500,000

FOR MORE DETAIL AND SUPPORTING INFORMATION GO TO FURMAN.EDU/SHICENTER/ANNUALREPORT.