



2018–2019

Ohio State Sustainability Achievements

Ohio State launched the Sustainability Institute in 2019 to support, lead and integrate sustainability and resilience scholarship and activities across the university.



THE OHIO STATE UNIVERSITY



Ohio State: Setting the Course for a Sustainable, Resilient University

The Ohio State University is a leader in global sustainability, integrating sustainable practices and programming across all university functions, spanning academics, research, operations, administration and engagement. We proudly put forth this compilation of FY2019 successes.



Ohio State Launches Sustainability Institute

Reconfirming its commitment to enhancing social, economic and environmental conditions, Ohio State created the Sustainability Institute to support, lead and integrate sustainability and resilience scholarship and activities across the university. So far, 30 core faculty members have been hired in partnership with 18 different university departments through the Discovery Themes initiative.

The institute is pursuing a more coordinated and inclusive approach to sustainability that facilitates interdisciplinary collaboration, campus stewardship and applied solutions. Already at Ohio State, more than 600 faculty and researchers engage in sustainability research; over 1,000 courses support sustainability learning; and more than 80 student organizations focus on sustainability issues.

▶ Elena Irwin speaks at the launch of the Sustainability Institute, in January 2019.



Ohio State Joins Midwestern Higher Education Climate Summit

The Ohio State University and Washington University in St. Louis were named founding members of the Midwestern Higher Education Climate Summit, focused on addressing climate change. Innovative partnerships, applied research and collective commitments to climate action will be showcased during the 2020 Climate Summit.

“Institutions of higher education have the opportunity to develop the research and technology required for a clean energy economy and the future leaders who will get us there,” said Ohio State President Michael V. Drake.

The Summit, supported by Bloomberg Philanthropies, will be the largest expected convening of Midwest universities focused on mitigating the effects of climate change and moving to a 100% clean-energy economy.

▶ President Drake joined Washington University Chancellor Andrew Martin, Michael R. Bloomberg, and St. Louis Mayor Lyda Krewson to announce the 2020 Midwestern Higher Education Climate Summit.

Ohio State Energy Partners Fund Projects to Advance Innovation and Collaboration

Twenty-one projects, tackling issues such as addiction recovery, sustainability and income inequality, have been awarded grants in the second year of philanthropic funding from Ohio State’s comprehensive energy management partnership. Ohio State Energy Partners contributes \$810,000 each year to the university or affiliated philanthropic causes as part of its commitment to academic engagement. The awards advance university priorities and foster transdisciplinary and community collaboration.

The largest award of \$200,000 funded the Campus Student Sustainability Challenge, where six student teams received funding for projects to make campus more sustainable. Another award supports opportunities for graduate and professional students to study abroad through the Office of Diversity and Inclusion’s Education Abroad program. A third award supports a survey of the ecological and economic potential of more than 1,000 acres of forest owned by the university.



▶ The Wasted Opportunities student team placed first in the 2019 Smart Campus Challenge. The team traveled to Paris to meet with executives at the ENGIE headquarters, including Judith Hartman, Executive Vice President and CEO, second from right.



Teaching and Learning

Undergraduate Sustainability Education Report Submitted to OAA

The Sustainability Education and Learning Committee (SELC), launched in 2018, submitted a report on undergraduate sustainability education to the Office of Academic Affairs, establishing a framework for sustainability education at Ohio State and providing a coordinated approach in support of cross-unit collaboration, strengthening existing academic programs and creating new academic programs. SELC evaluated data from university curricular resources, student surveys, peer institution benchmarking and career development staff to assess the current landscape of sustainability education at Ohio State. Results of this assessment are circulating as the group moves toward supporting and facilitating implementation by interested academic units.

In addition, the University Senate approved a change to the General Education curriculum that includes sustainability as an area within the “thematic component” requirement of the new GE model.



▶ Visual design students displayed their food sustainability poster designs at Mershon Auditorium.

Teaching Collaboration Merges Food Sustainability and Visual Design

By 2025, Ohio State plans to source 40 percent of on-campus food from local and sustainable suppliers. This ambitious commitment to future sustainability serves as the backdrop for the Food Futures: Design + Comparative Studies Teaching Cluster, a teaching collaboration among faculty in the departments of comparative studies, design and English. Design students were introduced to food and hunger issues as part of the course, then created an array of signage, posters and sketchbooks to illustrate and represent the university’s goal of food sustainability and the future of food. The collaboration is housed within the Global Arts and Humanities Discovery Theme’s Livable Futures project, which encourages innovation and collaboration across disciplines to address societal and planetary issues.



First Cohort of ENGIE-Axium Scholars Named

Twenty Ohio State undergraduate students were awarded the first ENGIE-Axium Undergraduate Endowed Scholarships, which cover the cost of in-state tuition and fees, housing, dining and books and renewable through the completion of a degree. Criteria for the scholarship included financial need, academic merit and interest in sustainability. The grants are funded through a new university endowment stemming from the comprehensive energy management partnership.



Spring Grads March in Sustainable Caps and Gowns

For the 2019 Spring Commencement, Ohio State graduates who purchased their caps and gowns from Barnes & Noble-The Ohio State University Bookstore were helping to save the planet. Barnes & Noble identified and sold graduation gowns made from material consisting of 100% recycled plastic bottles.

▶ Ohio State students attend 2018 AASHE national conference.



Student Leaders Attend AASHE Conference

The Office of Student Life Energy Management and Sustainability and Ohio State Energy Partners sponsored 18 sustainability student leaders to attend the 2018 Association for the Advancement of Sustainability in Higher Education national conference. Through poster sessions, conference sessions, and keynote presentations, students shared ideas and networked with more than 2,000 students, faculty and staff from universities across the United States.



Research and Innovation

Promising New Battery for Clean Energy Storage

Vishnu-Baba Sundaresan, professor of mechanical and aerospace engineering, and his research team have built a more efficient, more reliable potassium-oxygen battery, a step toward a potential solution for energy storage on the nation's power grid and longer-lasting batteries in cell phones and laptops. For renewable energy sources to be reliable sources of power for a region's energy grid, there needs to be a way to store excess energy gathered from sunshine and wind.



▶ Paul Gilmore with Vishnu-Baba Sundaresan

Renovated Mirror Lake Provides Hydrogeology Lab for Students

The installation of a new hydrogeology learning lab in and near Mirror Lake gives students in Audrey Sawyer's classes the opportunity to apply classroom learning without leaving campus. Sawyer, assistant professor of earth sciences, received funding from the National Science Foundation to study water table fluctuations and establish the hydrogeology learning lab.

▶ Michael Madson measures Mirror Lake water quality.

Potential for Earth-Friendly Plastic Replacement

A biodegradable replacement for petroleum-based products has to meet all sorts of standards and, so far, attempts at viable replacements from renewable sources have had limited success. But new research has shown that combining natural rubber with bioplastic in a novel way results in a much stronger replacement for plastic. Xiaoying Zhao, postdoc researcher in food science and technology, reports success with a rubber-toughened product derived from microbial fermentation that could perform like conventional plastic.



Award-Winning Faculty



Katrina Cornish, Ohio State Office of Research 2019 Innovator of the Year for her internationally recognized innovations in bioproducts, specifically in alternative natural rubber/latex crops and their processing and formulation technologies



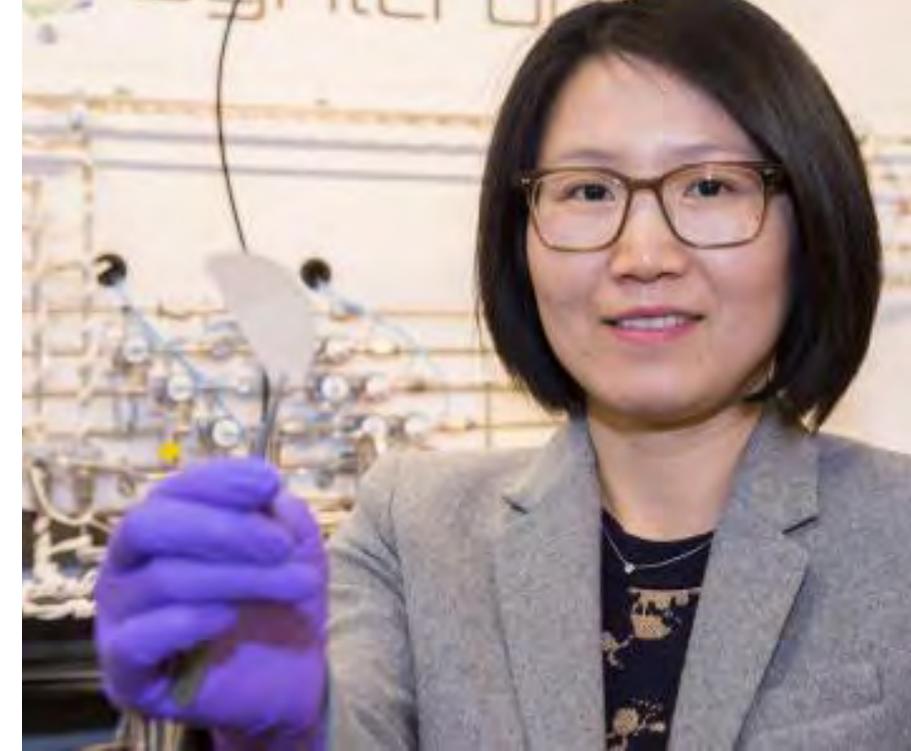
Rattan Lal, 2019 Japan Prize in recognition of his research on sustainable soil management and its role in improving global food security and mitigating climate change



Lonnie Thompson, 2019 member of the American Academy of Arts and Sciences, for research that has propelled the field of ice core paleoclimatology out of the polar regions to the highest tropical and subtropical ice fields

New Generation of DC Circuit Breakers

Jin Wang, professor of electrical and computer engineering, and his team are developing a new generation of direct current (DC) circuit breakers with the potential to help transform the U.S. power system. The team received \$2.3 million for the project, part of the U.S. DOE ARPA-E BREAKERS program. Wang's project will develop a medium-voltage direct-current (MVDC) circuit breaker prototype based on a modular design using silicon carbide.



▶ Hongping Zhao

DOE Funding to Enhance Power Electronics

Hongping Zhao, associate professor of electrical and computer engineering and materials science and engineering, is leading a \$2.2 million U.S. DOE ARPA-E OPEN+ project in which engineers will develop gallium nitride (GaN) semiconductor materials suitable for high-voltage (15 to 20 kilovolt) power control and conversion. These materials hold the promise of being more efficient as well as smaller and lighter than current devices.



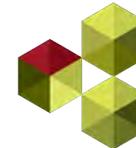
Outreach and Engagement

Ohio State Hosts 2019 Outreach and Engagement Conference: Partnering for a Resilient and Sustainable Future

Ohio State's 2019 annual Outreach and Engagement Conference, held in January, focused on how communities can be resilient and sustainable in spite of climate change challenges. Hundreds of faculty, students, staff and community partners filled ballrooms and exhibit space to discuss research, partnerships and resources to help build sustainable and resilient communities. The featured speaker for the conference was Mary Robinson, the former president of Ireland and current head of the Mary Robinson Foundation–Climate Justice. The conference coincided with recent intense hurricanes and historically bad wildfires that have put focus on the issues of sustainability and the need to build resilient communities. It was a message repeated often during the two-day event by researchers and government leaders.



▶ Ohio State President Michael V. Drake opens the 2019 Outreach and Engagement Conference (above). Joe Campbell, (left), presents his sustainability research to conference attendees.



DHL/Ohio State Tree Planting Offsets Campus Carbon Footprint

In September, DHL Supply Chain and Ohio State partnered to plant 30 trees near the Schottenstein Center. DHL Supply Chain pledged to purchase and care for 30 new trees to help support urban forestry in the Columbus area, and purchased and donated 1,000 tonnes of carbon credits for Ohio State to contribute to the university's own carbon reduction goals. Ohio State matched DHL's donation by purchasing an additional 1,000 tonnes of carbon credits.



▶ Kip Curtis and students

Ohio State-Mansfield, FFAR Launch \$2 Million Food System Project

Ohio State-Mansfield launched an urban sustainable food-system project to increase area residents' access to fruits, vegetables and other crops while supporting the local economy. Supported by a \$2 million matching grant from the Foundation for Food and Agriculture Research, the Microfarm Network will progress over three years, allowing for researchers and growers to calibrate growing, harvesting and marketing processes for the local setting. A parallel interdisciplinary research team will measure how the embedded local production system impacts a range of local issues including food insecurity, urban beautification, food literacy and educational achievement. The Microfarm Project will provide training and microfarm kits to a dozen producers and help them farm cooperatively and aggregate their produce for marketability.

Sustainable Agriculture Featured in Statewide Farm Tour

The College of Food, Agricultural and Environmental Sciences' Sustainable Agriculture Team hosted 10 tours on sustainable organic specialty crops, year-round gardening, cut flowers, raising livestock, aquaponic produce and yellow perch farming and urban agriculture, as part of the 2019 Ohio Sustainable Farm Tour and Workshop Series. The series is an opportunity for growers to both learn and experience what sustainable agriculture is all about from farmers and producers who are working in this field daily.



Resource Stewardship

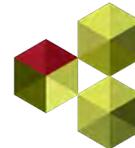
Going for Gold

Ohio State's Columbus campus achieved a gold rating in the Sustainability Tracking, Assessment & Rating System (STARS), with high marks in the academic and water management categories and points in nine operations categories, including energy, buildings, transportation and waste diversion. It places Ohio State among leading national and international colleges and universities for its sustainability and resiliency efforts.



Improving Water Conservation Efforts

Ohio State aims to reduce potable water consumption by five percent, per person, every five years as part of its university-wide sustainability goals. A pilot project in the College of Pharmacy focused on conserving water by changing lab equipment and has already achieved annual water savings of 16 million gallons.



Ohio State-Lima and Rhodes State Earn Energy Recognition

The Ohio State University at Lima along with its co-located partner Rhodes State College earned special recognition in the "Strongest Energy Team" category for the campus' participation in AEP Ohio's Continuous Energy Improvement Program to improve energy efficiency.



Medical Center Improves Power Efficiency, Reduces Printing

The Wexner Medical Center's Information Technology Office has implemented multiple initiatives in support of improving power efficiency at its Ackerman Data Center, as well as reducing overall printing. In 2018, installation of a data center hot and cold air isolation solution in 35 percent of the data center resulted in efficiencies related to AC run time, power costs and carbon footprint. Since 2015, combined efforts have reduced power usage by 41 percent, reduced the carbon footprint by 40 percent and saved approximately \$342,000.





Student Life Donates Reusable Items to Goodwill

Student Life partnered with Goodwill, Students for Recycling and Buckeye Food Alliance to collect reusable items and food during residence hall move out in May. Residents donated futons, rugs, desk chairs, bookshelves, clothing, shoes and linens, as well as food and personal toiletries, in their residence halls. Students for Recycling and Goodwill sell items to students during their “Dump & Run” event each fall semester. During FY2018-19, 20 tons of waste was diverted from landfills through this initiative. Food items stay on campus for distribution through the Buckeye Food Alliance, a food pantry for students.

Medical Center Receives Environmental Leadership Awards

The Ohio State University Wexner Medical Center received the 2019 Partner for Change Award from Practice Greenhealth, recognizing superior performance in environmental sustainability, covering a range of different sustainability programs and activities.

The Wexner Medical Center also received the Ohio Hospital Association’s top environmental leadership award, the 2019 John Chapman Award, for its comprehensive program to reduce its ecological footprint and overall environmental and energy achievement.



Ohio State Energy Partners Initiate Energy Efficiency Projects

OSEP is working on multiple projects to reduce the university’s energy consumption and make our campus more sustainable, including:

- An energy optimization project for improvements to reduce energy consumption by 26 percent on average for 14 buildings on campus
- Installing smart meters and other means to monitor and control energy in real time
- An exterior campus lighting plan that would install 2,000 LED lamps to replace discolored and/or damaged light globes, as well as WiFi antennas and in-pole cabling for about 250 of these fixtures



Ohio State tops GameDay Basketball Diversion Rate

Ohio State earned the No. 1 ranking in the annual RecycleMania competition for GameDay basketball diversion rate. The category measures waste diverted from landfills during a single basketball game. The Feb. 26 contest against Iowa at the Jerome Schottenstein Center delivered a 99.4% diversion rate. Ohio State also placed fifth in the recycling category and 20th in the food organics category.





Charging Stations Support Electric Vehicle Fleet

The university is installing electric vehicle (EV) charging stations on campus and supporting university departments' efforts to transition to alternative fuel vehicles. These stations collect data, including length of charging session, energy consumed and station location, used to guide future installations and help support faculty research in this field.

EV charging stations are located at the Center for Automotive Research and the Schumaker Student Athlete Development Center, as well as the Lane Avenue, Ninth Avenue East and South Campus Gateway parking garages.



Hand Dryers Pilot Program Initiated

Facilities Operations and Development (FOD) conducted a pilot program in 11 campus buildings to replace restroom paper towel dispensers with hand dryers. After a full year of implementation, the pilot expects to divert 161 tons of waste from landfills and save \$50,000 in product and program costs annually.

Ohio State Recognized by Tree Campus USA

Ohio State earned a Tree Campus USA recognition from the Arbor Day Foundation for the eighth year in a row. The honor aligns with the Ohio State sustainability goals, including a commitment to increase the ecosystem services that campus lands provide to the university community.





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