

2018–2019 ACADEMIC YEAR

ANNUAL REPORT

LOYOLA UNIVERSITY CHICAGO'S INSTITUTE OF ENVIRONMENTAL SUSTAINABILITY



EMPOWERING ENVIRONMENTAL LEADERS

While Living *Laudato Si'*



2018–2019 ACADEMIC YEAR

The advisory board, staff, and faculty lists reflect positions held during the 2018–2019 academic year.

ADVISORY BOARD

The advisory board provides professional guidance to the dean on the direction of IES—informing curricula, programs, goals, and objectives, as well as evaluating accomplishments and financially supporting IES programs, including the climate change conference.

CO-CHAIRS

David E. Miller (JFRC ’73–’74, BS ’75)
Co-Founder and CEO
Iroquois Valley Farms LLC

Nancy C. Tuchman, PhD
Founding Dean
Institute of Environmental Sustainability
and Professor of Aquatic Ecology

BOARD MEMBERS

Jennifer A. Burke, JD
Environmental Lawyer, Klafter and Burke

Judi Duchossois
Executive Committee, Council of Regents
Loyola University Chicago

Joel M. Friedman, JD
Partner, Horwood Marcus & Berk

Arthur Gibson, MBA
Vice President, Environment, Health, and Safety (EHS), Baxter International, Inc.

Ron Grzywinski, PhD
Co-Founder, ShoreBank Corporation

Amanda Hanley
Co-Founder, Vice President and Secretary, Hanley Foundation

Deborah Lahey
President and CEO
Peggy Notebaert Nature Museum

Howard A. Learner, JD
President and Executive Director
Environmental Law & Policy Center

Dan McGowan (BS ’88)
President, Dan McGowan Consulting

Donald McLauchlan
Principal and Founder, Elara Engineering

Melinda Pruett-Jones, MS
Executive Director
American Ornithological Society

Bill Schleizer, MS
CEO, Delta Institute

Michael D. Searle
Private Investor
Loyola University Chicago

Jean Sussman, PhD
Agricultural Economist

IES FACULTY AND STAFF

ADMINISTRATIVE TEAM

Nancy C. Tuchman, PhD
Founding Dean
Institute of Environmental Sustainability
and Professor of Aquatic Ecology

Daniel S. Amick, PhD
Associate Dean of Faculty
Associate Professor of Anthropology

Christopher G. Peterson, PhD
Associate Dean of Academics
Professor, Aquatic Ecology

Aaron N. Durnbaugh, MS
Director of Sustainability

STAFF

Kevin Erickson
Sustainable Agriculture Manager

Rachel Leamon, MA
Assistant Dean

Enikő Rácz (MBA ’06)
Business Manager

Zach Waickman (BA’08, MBA’13)
Biodiesel Lab Manager

Christine Wolff
Program Manager

Shanna Yetman, MFA
Communications Coordinator

Zhenwei Zhu, PhD
Analytical Lab Manager

FACULTY

Sasha Adkins, PhD, MPH
Lecturer
Public Health and Environmental Studies

Laura Brentner, PhD
Lecturer
Bio-based Technologies

JoBeth D’Agostino, PhD
Associate Provost for Curriculum
Development and Associate Professor
Environmental Science

Ray Dybzinski, PhD
Assistant Professor
Applied Plant Biology

Tham C. Hoang, PhD
Associate Professor
Environmental Toxicology

Ping Jing, PhD
Assistant Professor
Atmosphere and Climate Science

Benjamin Johnson, PhD
Associate Professor
Environmental History

Theresa Johnston, PhD
Lecturer
Environmental Ecotoxicology

Reuben P. Keller, PhD
Associate Professor
Invasive Species Ecology

Linda Kurtos, JD, MS
Director
Graduate and Certificate Programs

Nancy Landrum, PhD
Professor
Sustainable Business Management

Richard Melstrom, PhD
Assistant Professor
Ecological Economics

Rev. Stephen Mitten, S.J., MS
Spiritual Director and Advanced Lecturer
Conservation Ecology

Timothy O’Brien, PhD
Professor
Environmental Statistics

Brian Ohsowski, PhD
Advanced Lecturer
Restoration Ecology

Greg Palmer, PhD
Lecturer
Microbiology and Soil Ecology

Tania M. Schusler, PhD
STEP Coordinator and Advanced Lecturer
Human Dimensions of Conservation

Mariana Valencia Mestre, PhD
Lecturer
Food Systems

PART-TIME FACULTY

Jennifer A. Burke, JD
Instructor
Environmental Law

Larry DeBuhr, PhD
Instructor
Plant Ecology

Richard DiMaio, MS
Instructor
Weather and Climate

Paul Gross, PhD
Instructor
Insect-plant Interactions

Tinna Jokulsdottir, PhD
Instructor
Environmental Sustainability

Anuradha Krishnaswamy, PhD
Instructor
Environmental Sustainability

Michael Ribant, PhD
Instructor
GIS

David Sargent, JD
Instructor
Environmental Law

Jonah Smith, MBA, MS
Instructor
Global Sustainability Management

Maureen Stroud, MBA, MS
Instructor
Global Sustainability Management

RESEARCH

Shane Lishawa, MS
Research Associate
Invasive Species Ecology

Andrew Monks, MS
Research Assistant
Invasive Species Ecology



Nancy C. Tuchman, PhD
Founding Dean
Institute of Environmental Sustainability

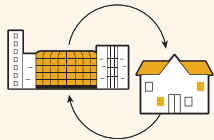
HIGHLIGHTS



Launched first graduate program



Opened new Searle Center for Sustainable Innovations



Development of cross-school interdisciplinary programming

DEAR FRIENDS OF IES,

How can we accompany our students toward a hope-filled future? What can we do to advance care for our common home? These aspirations comprise two of the four Jesuit Universal Apostolic Preferences announced in 2019 by the Society of Jesus. How will Loyola work in service to advance these important environmental calls to action?

The IES response has been to build a workforce educated in the interdisciplinary perspective of the environmental crisis. This fall, we launch our first graduate program: The Master of Science in Environmental Science and Sustainability (MSESS). We have designed this program around the United Nation’s Sustainable Development Goals, so that our graduate students can learn from international leadership that is progressing towards a more just and sustainable world. We want our students to think like integral ecologists: people who are poised to serve as scientists, economists, policy-makers, and environmental advocates working to solve the planet’s environmental crises.

Another way we are answering the Jesuits’ call to action is through our new Searle Center for Sustainable Innovations. Thanks to the generous support of Michael and Nydia Searle and the Searle Family Trust, we are able to provide our students with opportunities at the cutting edge of research. I’m most excited about the work happening this year through our latest STEP (Solutions to Environmental Problems) course. Students in STEP: Biogas will develop and launch a new system of renewable energy for the campus, using biogas created from our own food and landscape waste to produce clean electricity for the campus. This is just one of our many waste-to-energy innovations.

We are also working on IES’s next five-year strategic plan. One of this plan’s cornerstones is the development of cross-school interdisciplinary programming like the Francis Project, a partnership that integrates IES and the humanities within the College of Arts and Sciences. We want to draw on faculty at Loyola who are experts in the ethics, history, sociology, and cultural perspectives surrounding our environmental challenges. To that end, we have acquired two new faculty joint appointments: Dr. Michael Schuck, a social-environmental ethicist, and Dr. Ben Johnson, an environmental historian.

As Pope Francis reminds us in *Laudato Si’*, today’s problems “call for a vision capable of taking into account every aspect of the global crisis.” At IES, we hope to deepen our knowledge and expertise surrounding the environmental crisis through partnerships across the University. Please enjoy this year’s annual report.

Yours,

Nancy C. Tuchman

Founding Dean
Institute of Environmental Sustainability

IES Research Assistant Andrew Monks (right) discusses his research on turning invasive plant biomass into energy at the Searle Center for Sustainable Innovations launch in October.





Our Sustainable Agriculture Manager Kevin Erickson shows a guest around the IES greenhouse.

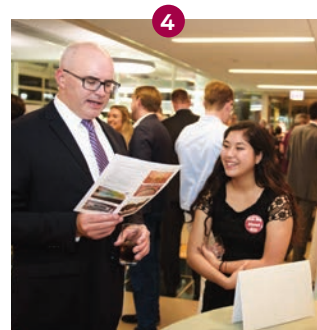
THE SEARLE CENTER FOR SUSTAINABLE INNOVATIONS

Last October, we launched the Searle Center for Sustainable Innovations thanks to the generous support of Nydia and Michael Searle and the Searle Family Trust. The new Searle Center houses research, courses, business partnerships, and demonstration programs where student-faculty teams develop innovative, closed-loop answers to waste accumulation and greenhouse gas emissions.

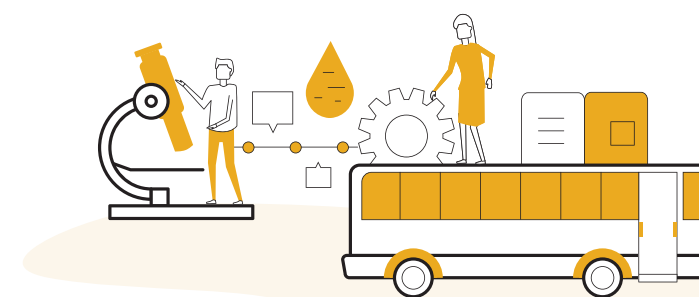
Through the Searle Center, IES students design intelligent products, processes, and systems that optimize the reusability and recyclability of waste. The result is a cleaner campus where organic waste is converted into renewable energy, fossil fuel consumption is reduced, and ecosystem services provide both environmental and economic value.

MANY IES SUPPORTERS JOINED US FOR THE SEARLE CENTER LAUNCH IN OCTOBER

BELOW ARE A FEW PICTURES FROM THE EVENT.

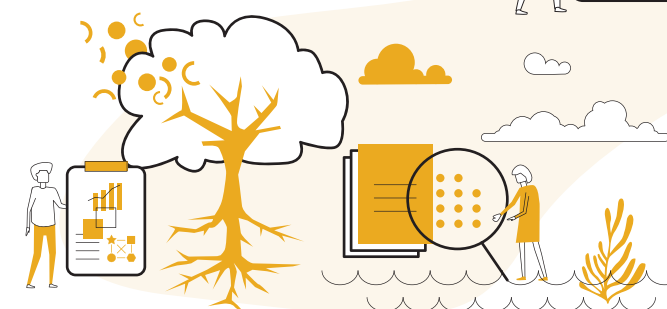


Signature programs within the Searle Center



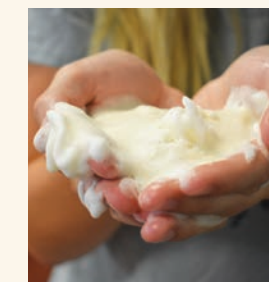
WASTE-TO-ENERGY PROGRAM. This program covers a number of research projects conducted by IES faculty and staff. These projects include the student-run Searle Biodiesel Lab, which not only turns waste vegetable oil into biodiesel fuel but also produces Biosoap, lip balm, and windshield washer fluid through zero waste processes. Other research includes our biogas and invasives-to-energy projects that seek to turn organic waste into natural gas.

SOLUTIONS TO ENVIRONMENTAL PROBLEMS (STEP) COURSES. STEP courses educate students about environmental problems and challenge them to develop innovative solutions through an interdisciplinary approach that fosters problem solving, leadership, and business skills.



BIOREMEDIATION PROGRAM. This program uses bioremediation techniques, including cultivating fast-growing plants to remove lead from soil, and it uses algae to clean wastewater.

THROUGH OUR NEW SEARLE CENTER, LOYOLA UNIVERSITY RESEARCH CAN MAKE AN IMMEDIATE IMPACT ON THE WORLD.



LOYOLA'S BIOSOAP GOES BUBBLY

What's better than a liquid hand soap made from a zero waste process? Foaming hand soap made from that very same process.

Ideas like these come from inspired, resourceful students. In the Searle Biodiesel Lab, students are not only tasked with the day-to-day responsibilities of running a lab, but they also explore ways to improve the processes and products already in place. Foam soap came up as a suggested improvement to the quality of the current Biosoap, and students worked on a new formula. It was an immediate hit.

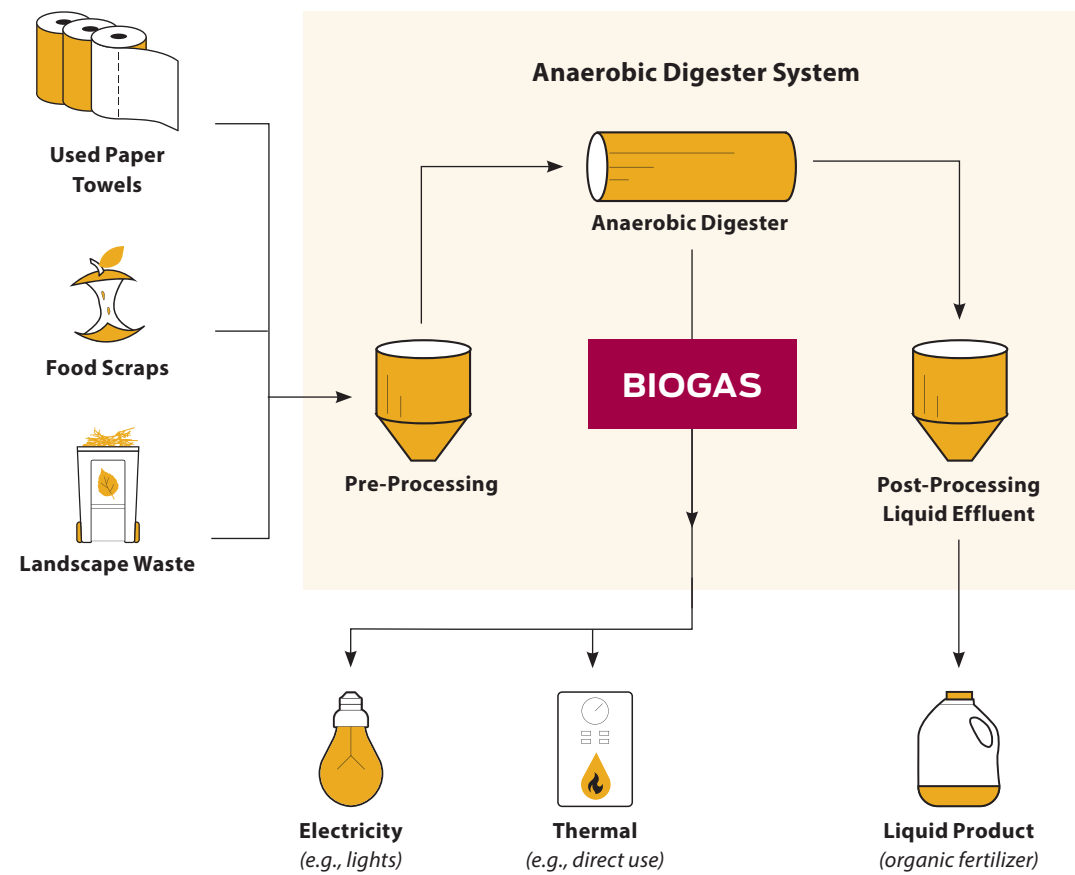
After more than a year of research and development, the foaming Biosoap has been perfected and approved for distribution. Improvements over the liquid Biosoap include a more appealing color and appearance: It doesn't drip or clump. Our new Biosoap is smoother to the touch and requires less water to rinse off.

The foaming soap will replace our regular Biosoap across campus in the near future.

Keep an eye out for our new and improved Biosoap.

CAPTIONS:

- 1 Nydia and Michael Searle, pictured here with Loyola President Jo Ann Rooney (in red) and IES Dean Nancy Tuchman (far right).
- 2 IES Student Lucia Siman Daboub ('20) describes wastewater bioremediation in the Searle Biodiesel Lab.
- 3 Guests mingle in the student lounge with V.P. Janet Sisler (center).
- 4 IES students showcase the research occurring in the new Searle Center.
- 5 Guests tour IES's greenhouse garden.



ENVS 350b: Solutions to Environmental Problems (STEP): **BIOGAS**

IES's latest iteration of STEP addresses food waste and the renewable energy resource of biogas

This fall, students who walk into Dr. Gregory Palmer's STEP: Biogas class should be prepared to make a little Loyola history. "We're trying to start a long-term, change-the-way-we-do-business project like what biodiesel was for us in 2008,"

says Dr. Palmer. For this latest STEP project, students will use campus food waste to create biogas. Biogas is natural gas and a renewable energy resource made from the decomposition of organic material by bacteria through anaerobic digestion.

"Nearly all of the natural gas we use to heat our homes today is from fossil fuels, which contributes to climate change," says Dr. Palmer. He adds that food waste that goes to the landfill is buried in heaps of trash where it decomposes anaerobically, giving off methane gas directly into the

atmosphere. Since methane is a greenhouse gas that is 300 times more potent at trapping heat than carbon dioxide, it's a public menace. Many landfills have gone to flaring off the methane they produce, but STEP: Biogas is going to capture that methane and use it to offset the energy required to run our IES building. It's a two-for-one deal: We're diverting campus food waste while capturing the energy that waste can produce.

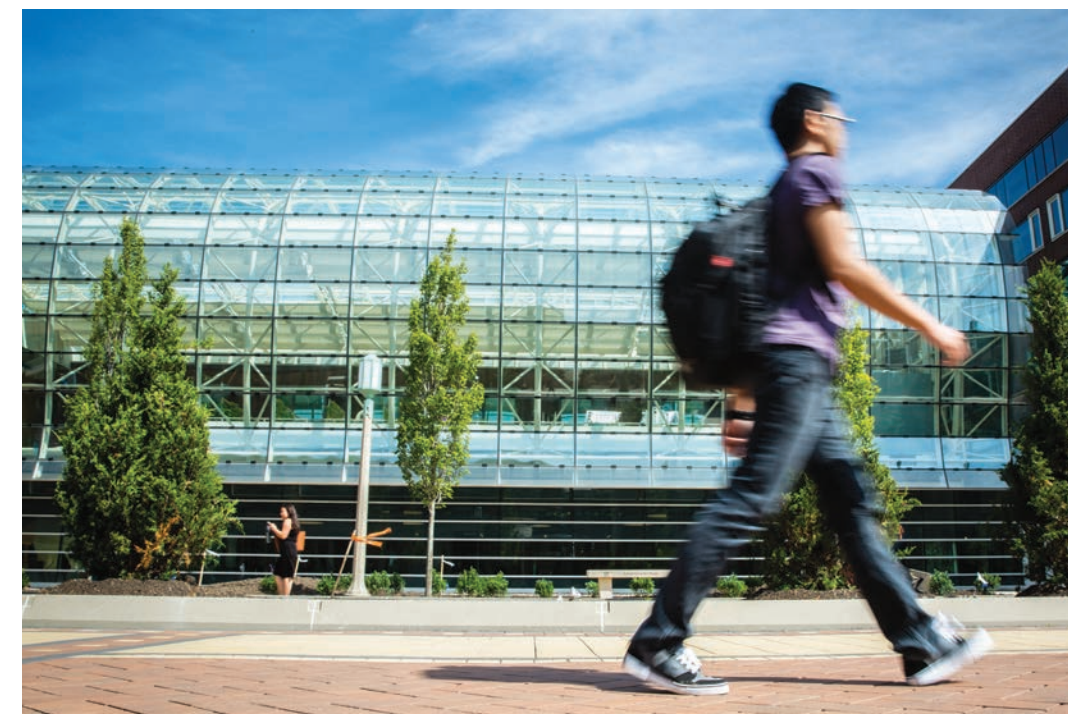
Dr. Palmer's goal for the first semester is to have his students develop a feasibility study that they will present to University

administration for building and operating an ongoing biogas system. Students will be divided into six working groups, each responsible for addressing one of the challenges that come with converting campus waste to campus energy. Scientific issues like determining the waste to biogas conversion rates and converting biogas to electricity will be coupled with the logistics of transporting campus food waste, as well as project compliance with University and City of Chicago regulations.



NEW STEP LECTURER DR. GREG PALMER

came to environmental science through medical microbiology. While working at the University of Texas at Austin, he and his students studied bacteria, with the hope of developing new antibiotics. "We were digging up soil bacteria, because most of the antibiotics we use to treat bacterial infections live in the soil." But what they were also doing was studying the environment the bacteria live in outside of the human body. In STEP: Biogas this fall, Dr. Palmer will transfer his microbiology knowledge and student research management skills to the challenge of optimizing biogas production in anaerobic digestion.



A student walks in front of the IES greenhouse.

Introducing IES's new graduate program **THE MASTER OF SCIENCE IN ENVIRONMENTAL SCIENCE AND SUSTAINABILITY (MSESS)**

At IES, we are educating the next generation of environmental science and sustainability professionals who can apply an interdisciplinary approach to solve today's environmental problems.

"We take a whole-systems, interdisciplinary approach to our greatest environmental and sustainability challenges; that's why our graduate program is unique," says IES Dean Nancy Tuchman. "Our students won't just learn from sustainability experts and scientists. They'll learn from economists, historians, experts in business sustainability, climate science, and all of our faculty."

Our MSESS program begins in fall 2019, and students can choose from two tracks.

TWO TRACKS—MSESS PROGRAMS

1 MSESS RESEARCH TRACK

A research-driven master's degree where students conduct original research with an IES faculty member in ecotoxicology, applied plant biology, sustainable business management, restoration ecology, environmental economics, algal ecology, climate science, environmental statistics, environmental management, invasive species ecology, wetland ecology, environmental history, or natural resource economics and policy.

For more information:
LUC.EDU/SUSTAINABILITY/ACADEMICS/GRADUATEPROGRAMS/

2 MSESS PROFESSIONAL TRACK

Students will enhance their workplace skills through coursework in some of today's most prominent sustainability areas. This program has concentration areas in sustainability assessment and planning, as well as environmental law and policy. Students will deepen their understanding of complex socioecological systems and their connection with the U.N. Sustainable Development Goals.

"I chose the MSESS program because it's an interdisciplinary program with a focus on systems-level thinking. Being able to approach sustainability from multiple scientific and public professions can ensure thorough and well-developed plans that will benefit sustainable development and protect the environment."

LOGAN ST. JOHN
INCOMING GRADUATE STUDENT

GRADUATE CERTIFICATES

Adult learners have the opportunity to expand their knowledge and marketability with our two fast-track, online graduate certificates. The new certificates are composed of four eight-week courses designed for flexibility.

TWO OPTIONS

1 THE ENVIRONMENTAL LAW AND POLICY CERTIFICATE

will help students understand how energy, water, natural resources, and land-use law and policy impact the environment and society. Students will learn how these laws and policies might be used in advocacy and compliance.

2 THE SUSTAINABILITY ASSESSMENT AND PLANNING CERTIFICATE

will guide students through the foundations and rationale for creating a comprehensive sustainability plan for their organization.

LEARN FROM THE BEST

A look at our graduate program faculty

OUR FACULTY HAVE EXPERTISE IN: Biology, ecology, chemistry, ecotoxicology, urban agriculture, atmospheric science, anthropology, mathematics, conservation, restoration, economics, business management, sustainability, ethics, history, engineering, sociology, and more.



Tham Hoang, PhD
ECOTOXICOLOGY

Dr. Tham Hoang wants to make rivers and lakes from Vietnam to Chicago safer. “Understanding how contaminants affect the natural ecosystem helps us to develop better management guidelines to reduce the negative impact of these contaminants on the environment.”



Ray Dybzinski, PhD
APPLIED PLANT BIOLOGY AND SUSTAINABLE AGRICULTURE

Dr. Ray Dybzinski strives to understand why plants have the traits they do and how those traits will affect the pace of climate change. He uses his knowledge of the evolutionary and ecological forces that structure plant communities to devise sustainable agricultural practices.



Reuben Keller, PhD
INVASIVE SPECIES ECOLOGY

“As ecologists, we’re really interested in biodiversity and trying to conserve it,” says Dr. Keller. “But getting people to listen to what you’re saying means coming up with something that’s socially relevant that you can get policymakers and managers behind. I learned pretty quickly that you have to go beyond the ecology.”



Ping Jing, PhD
ATMOSPHERIC AND CLIMATE SCIENCE

“My major research question is: How can we safeguard air quality for people in the Midwest under future climate conditions? How will emissions change as the climate becomes warmer and we start to increase the share of sustainable energy sources? I hope the outcomes of my research will benefit the public and decision-makers in their climate adaptation planning and air pollution control policy.”



Nancy Landrum, PhD
SUSTAINABILITY IN BUSINESS

“Business and industry have both the responsibility and the resources to help us advance sustainability,” says Dr. Landrum. “I focus on what companies currently do and, more importantly, what they need to do to transition us toward a globally prosperous and sustainable future that improves quality of life while also creating an economic system that operates within planetary boundaries.”



Tim O’Brien, PhD
ENVIRONMENTAL STATISTICS

“I love working with ecologists and policy experts to implement ways to turn their GIS or field data into commonsense understanding,” says Dr. Tim O’Brien. “At IES, we use sophisticated computer algorithms and programs to separate the ‘signal’ from the ‘noise’ to uncover associations and detect causality—all with an eye to safeguard our precious resources.”



Max Melstrom, PhD
ECONOMICS

“Solving environmental problems requires working with people and learning about their behaviors, needs, and values. My research focuses on understanding the link between the resources produced by the natural environment—these are ecosystem services—and the demand and use of these resources.”



Linda Kurtos, MS, JD
Director of Graduate and Certificate Programs and a Certificate Instructor
ENVIRONMENTAL LAW AND SUSTAINABILITY

“Environmental laws and policies touch so many areas beyond the courtroom. If you want to understand social environmental justice, you have to understand the impacts of environmental policies.”



Aaron Durnbaugh, MS
Loyola’s Director of Sustainability and a Certificate Instructor
ENVIRONMENTAL SUSTAINABILITY

“Loyola is committed to doing the right thing . . . we see climate action as our responsibility as educators. Sustainability goes beyond just infrastructure changes, but also includes academics and culture.”

"I'm interested in how people engage across different interests like social equity and economic vitality when we consider environmental issues."

TANIA SCHUSLER, PhD



Tania Schusler, PhD

THEORY OF CHANGE

In IES's new graduate program, Environmental Social Scientist Tania Schusler, PhD, will encourage her students to envision the change they want to see in their future professions.

Fresh out of college, Dr. Tania Schusler became a volunteer program coordinator for the Nature Conservancy in Wisconsin. During that time the organization shifted its approach. "It became more holistic," says Dr. Schusler. "They weren't only concerned with preserving the land; they wanted to know about the surrounding community." Dr. Schusler realized that while the Nature Conservancy was able to get a good grasp on what they were conserving, they knew little about the human communities surrounding the land. "We had key allies and partners who were very knowledgeable because they'd grown up in the area, but we didn't have any systematic understanding of the social side. On the ecological side we would go and collect data and learn about an ecosystem. We didn't do that where communities were concerned."

This posed a huge problem. When the Nature Conservancy didn't have deep roots in the community they were working in, roadblocks went up. "There was one case near the Appalachian mountains where the community was opposing a project and it turned out that they just didn't like the name the organization had given it." Moments like these made an impact on Dr. Schusler, and this, coupled with her activist work on environmental issues in college, drew her to her current research interests. "I'm interested in how people engage across different

interests like social equity and economic vitality when we consider environmental issues."

This interest comes into play with her latest research project. She and Dr. Amy Krings of the School of Social Work have been delving into the world of green gentrification. “I spent a lot of time at conferences hearing about the benefits of greening communities,” says Dr. Schusler. “They mitigate the urban heat island, there’s a huge psychological benefit of living next to nature, but I also heard about the downsides from low-income neighborhoods who had fought hard to clean up environmental hazards.” Schusler adds that communities like Little Village in Chicago were worried about gentrification. “Turns out, it does happen.” So, she wonders, what might future communities look like that welcome middle- to upper-class newcomers while protecting those who have fought so hard to clean and protect it?

It's this type of understanding she plans to introduce to her students in the Master of Science in Environmental Science and Sustainability program. She will teach ENV5 402: Sustainable Systems—Social Perspectives. Here, her students will explore the U.N.'s Sustainable Development Goals and develop their own "theory of change" for a problem in their field of study. "We'll draw from literature and look at case studies around responsible consumption, climate resilient cities, climate action, or responsible production," says Dr. Schusler. She hopes that students will come out of their IES graduate study experience with real ways to affect change in their current professions.

WHY CHOOSE IES FOR GRADUATE SCHOOL?

Here are Dr. Schusler's three reasons:

YOU WILL GET A TRULY INTERDISCIPLINARY EXPERIENCE. “Our faculty come at these issues from a variety of disciplines, including the humanities and social sciences. We aren’t just ecologists,” says Dr. Schusler. She adds that the two required core courses are aimed at both research and professional track students, and the courses set the foundation for looking at environmental issues from both the science and social perspectives.



IT'S INCREDIBLY APPLIED. Professional track students will produce work they can use on the job. Research track students will conduct their own research projects. "Most faculty at IES are doing applied research, so a student's work will aim to answer real-world questions," says Dr. Schusler.

YOU'VE GOT THE JESUIT VALUES OF SOCIAL JUSTICE, care for our common home, and equity behind you.



Arrupe College students conduct an experiment using yeast, water, flour, and sugar to learn about the properties and behaviors of biofuels as part of an environmental science class taught by Clinical Assistant Professor Megan Kelly (right).

LIVING LAUDATO SI'



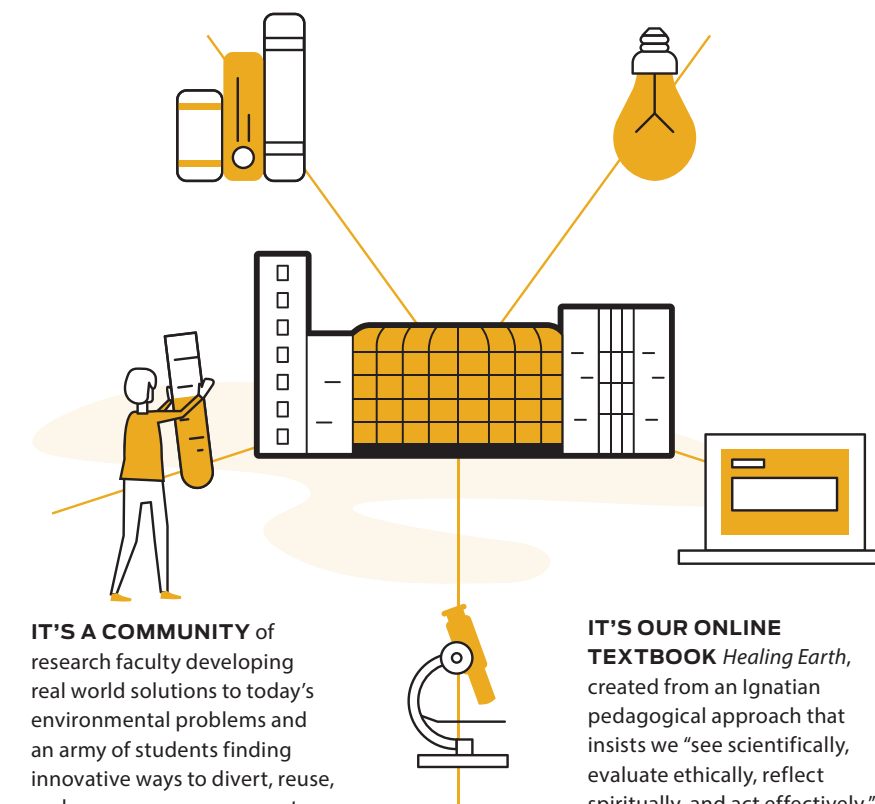
Arrupe College students with Dr. Kelly in the IES teaching lab.

Pope Francis's 2015 encyclical *Laudato Si'* reminds us that we are intimately intertwined with nature: When our environment thrives, we all thrive. We also know that solutions to today's complex environmental problems demand an interdisciplinary and integrated approach. These are the principles upon which IES was built.

WHAT DOES LIVING LAUDATO SI' MEAN FOR IES?

IT'S A CURRICULUM that's empowering our next generation of environmental leaders through innovative hands-on classes.

IT'S A CAMPUS with stormwater capture and retention systems, native landscaping, and 11 LEED-certified buildings.



IT'S A COMMUNITY of research faculty developing real world solutions to today's environmental problems and an army of students finding innovative ways to divert, reuse, and repurpose campus waste.

IT'S OUR ONLINE TEXTBOOK *Healing Earth*, created from an Ignatian pedagogical approach that insists we "see scientifically, evaluate ethically, reflect spiritually, and act effectively."

IT'S A BIODIESEL LAB focused on a zero waste process and solution-driven science classes developing innovative and renewable ways to fuel our campus.

Living *Laudato Si'* means we practice our commitment to sustainability every day. We know sustainability is not a choice, it's a way of living. It's how we plan to accompany our students to a hope-filled future. It's also how we care for our common home. Over the next few pages, you'll be able to look into our energy class with Dr. Ping Jing and learn why her students conduct energy audits; sit in on Dr. Sasha Adkins' public health class where their class is a microcosm for resilient community-building in the midst of a climate crisis. Moreover, there's our newest graduate program, which seeks to empower the next generation of environmental leaders.

Healing Earth, 2nd edition

Second Edition of *Healing Earth* launched on Earth Day. This second edition contains a new chapter on food, updated scientific data, additional chapters, and translations to Spanish and Portuguese.



After four successful years of classroom use, the online textbook *Healing Earth* has been updated and expanded. This second edition contains a new chapter on food, new scientific data

on climate change, biodiversity loss, natural resource extraction, and energy use, among other pressing environmental issues. The textbook is now available in English, Spanish, and Portuguese.

Each week, *Healing Earth* is accessed over 4,000 times in 161 countries. It is designed to fit the mission of the Roman Catholic secondary schools, universities, and adult education programs. It is the first environmental science textbook to follow Pope Francis's message in *Laudato Si'* by "drawing on the results of the best scientific research available today, letting them touch us deeply and provide a concrete foundation for the ethical and spiritual itinerary that follows."

"Our 2019 version of *Healing Earth* includes a new synthesis where we focus on integral development," says *Healing Earth* Co-editor and Theology Professor Michael Schuck. "Integral development can be thought of as action that enhances our human condition while simultaneously protecting and healing the earth's environment. With *Healing Earth* we want all of our students to begin to think of themselves as integral ecologists: people with scientific knowledge, ethical clarity, and spiritual awareness to act wisely on behalf of the planet."

Healing Earth is a free-access online environmental science textbook written and updated by over 90 contributors around the world, endorsed by leaders of Jesuit secondary schools and universities worldwide, and awarded the Expanded Reason Award by the Vatican in 2017.

Use *Healing Earth* in your classroom today.

Go to: HEALINGEARTH.IJEP.NET

Sustainability by the Numbers

1,300+

SUSTAINABILITY-RELATED COURSES offered university-wide through Sustainability Across the Curriculum



9 seasons

LOYOLA'S STUDENT-OPERATED FARMERS MARKET is in its ninth season providing fresh, local, organic produce to Rogers Park and Edgewater



zero-waste

All sporting events at Gentile Arena since January 2019 are zero-waste events



New Committee

New Health Sciences Campus Sustainability Committee hosts inaugural events during the 2018–19 year

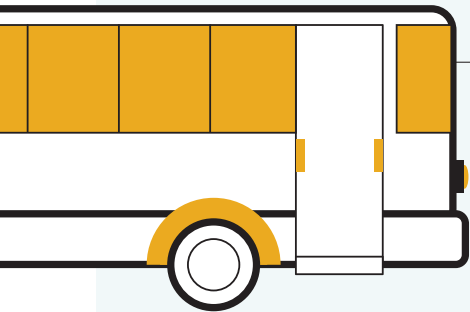
10,000+ lbs.

DONATIONS COLLECTED during the annual Residence Hall move-out program Think Green and Give in May of 2019

1 NEW Cycle and Recycle Center opened in 2018.

80%

LUC SHUTTLES run on 80% biodiesel for the first time ever (Fall 2018)



PlasticFreeLUC

This student campaign led to the removal of all single-use plastics from Loyola Dining Halls



Students at our Cycle and Recycle Center in Fordham Garage.

AWARDS AND COMMITMENTS



U.S. Department of Education Green Ribbon School Postsecondary Sustainability Award (2019)



Winner of the 2019 NACDA Sustainable Athletics Facilities Award

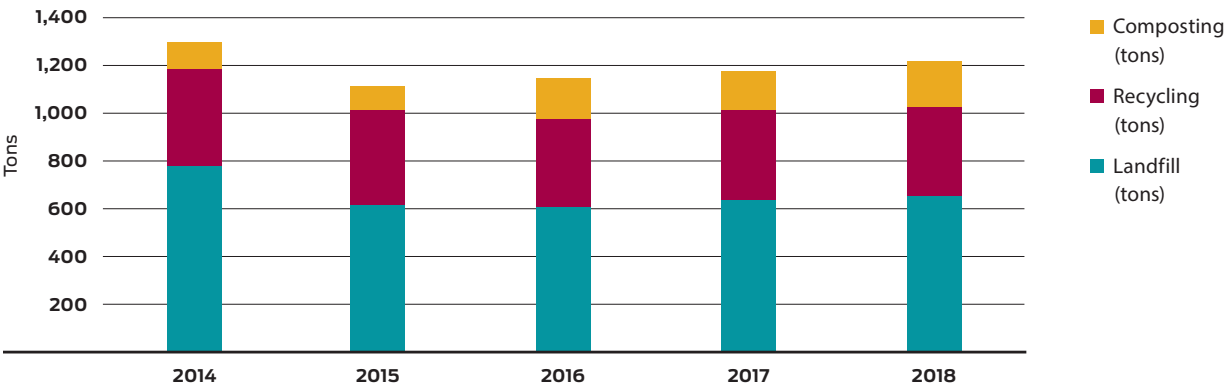


City of Chicago Renewable Energy Challenge—one of seven founding signatories (2018)

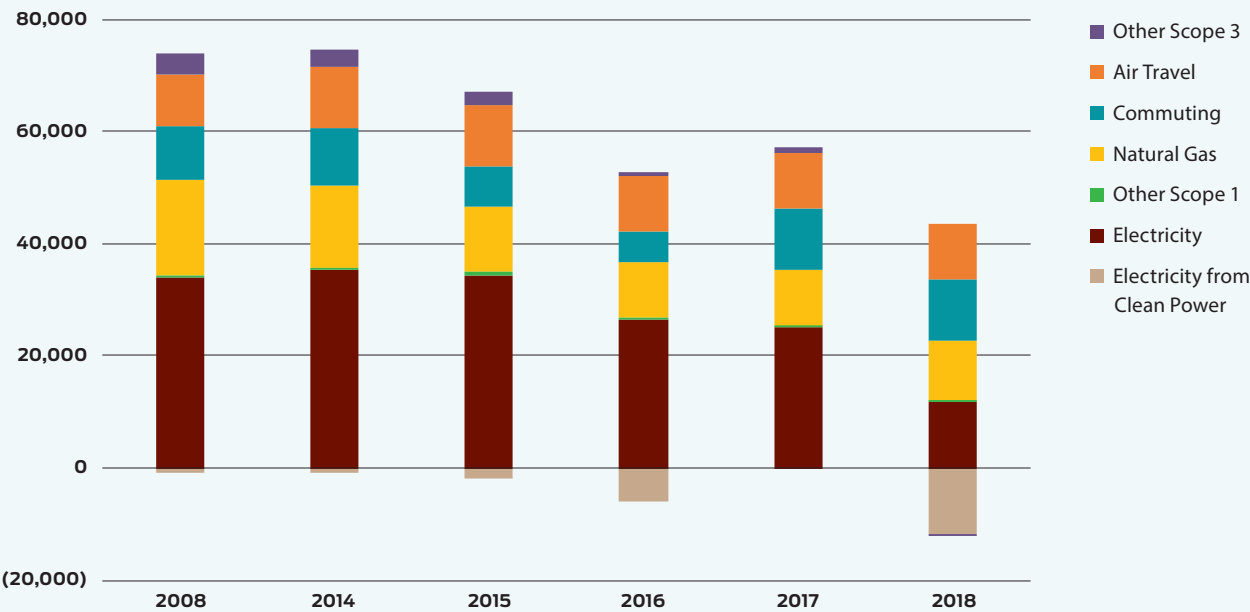


STARS Gold

WASTE DIVERSION

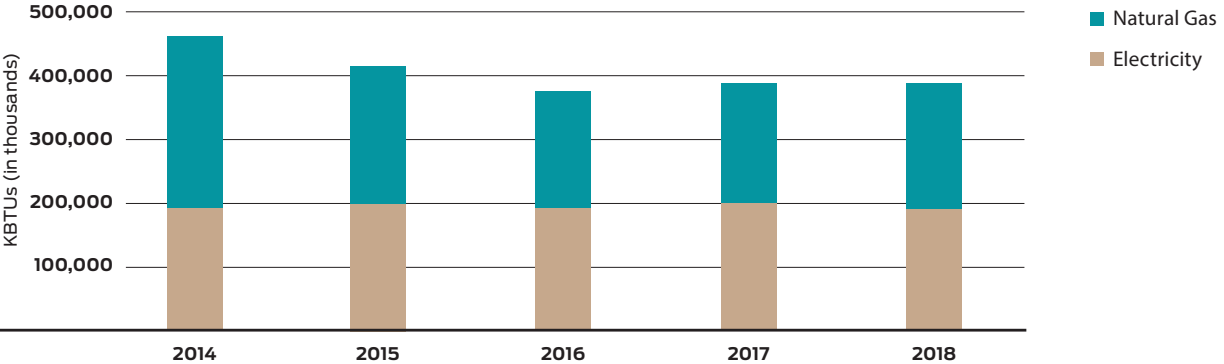


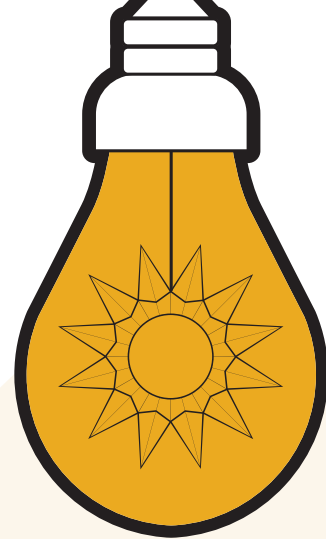
GREENHOUSE GAS EMISSIONS



For Loyola to be carbon neutral, we are committed to eliminate Scope 1 and Scope 2 emissions, which include natural gas emissions, electricity emissions, and our fleet fuels.

ENERGY USE





ENVS 273: ENERGY AND THE ENVIRONMENT

Our energy class uses campus buildings as a lab to teach energy efficiency.

Walking through any Loyola building on a weekend is normally an ears-in-your-headphones kind of activity. However, this wasn't true for students enrolled in Dr. Ping Jing's Energy and the Environment course. For them it was an eye opener. "It was shocking on a Saturday to see how many lights were left on," says one student. "We went to Cuneo Hall and there were only two people in the entire building and each floor left half of the lights on."

"It's clear that lighting is something we need to work on at Loyola," says Dr. Jing. "During these walk-through energy audits, I wanted my students to pay special attention to



"We've made applications from this class to our real life. I figured out some easy ways to reduce my energy consumption—one was just to close our windows," says political science major Catherine Doyal ('20).

lighting, look for information on equipment that uses electricity, and observe the building occupants' energy behavior." From basic visual observations, students were able to reflect on ways to improve a building's energy performance, as well as their own energy use at home.

These visual observations were only one way students interacted with their assigned building's energy infrastructure and efficiency. Early in the semester, Dr. Jing invited IES Advisory Board Member and Founder of Elara Engineering Donald McLauchlan to teach the students about energy efficiency strategies for buildings. Elara engineers have designed the HVAC for nearly every building on campus, helping Loyola attain LEED certification in 11 buildings. So many of the examples McLauchlan discussed existed on campus. He pointed to the use



"I loved when Don McLauchlan (above), an energy expert on building efficiency, came in and taught us about air leakage. Heating and cooling a building really wasn't something that came to mind when I thought about efficiency. There's a huge difference in turning on heat, say three days earlier in a given year," says Eric Marquardt (BBA'19).

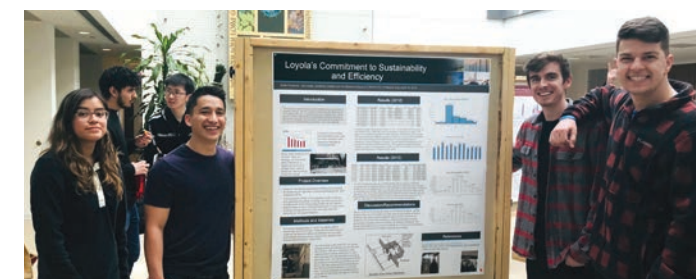
CARING FOR OUR COMMON HOME



Students in Dr. Jing's energy class scaled rooftops and entered basements of many of Loyola's buildings to understand how to measure a building's energy efficiency. Students here are pictured atop Cuneo Hall.

of natural light and natural ventilation built into both IES and the Information Commons. He discussed the type of computerized systems that exist in campus buildings like Cuneo Hall to optimize and monitor the building's energy performance. Under McLauchlan's tutelage, students performed an air leakage test of two campus buildings on a Saturday morning in March.

Each student took something different away from this class. Some students found themselves to be more energy conscious. Others appreciated the cost-benefit analysis that McLauchlan drilled into them. "One of the most important ideas I got out of this class," says business major Robert Lustig ('20) "is that from a financial perspective there is no excuse not to be energy efficient."



For education major Jonathan Castillo (MGED, BSED '20), making a building more energy efficient means school systems like Chicago Public Schools would be able to focus more resources on their students. "I see that CPS struggles with old buildings. If they focused on making a few of their schools energy efficient, they would save money and that money could go to materials like books and computers, not to heating and cooling."



IES Senior Ansley Ostiguy (BA '19) uses a pitot tube to measure the air flow through the vent in Cuneo Hall.

“I’m teaching them life skills, so they can learn how to take care of themselves in a changing climate.”

SASHA ADKINS, PhD



Mental health. Poverty. Food insecurity. All of these are likely to get worse with climate change. “Let’s take mental health, for example,” says IES lecturer Sasha Adkins, PhD. “There’s the stress related to enduring disasters or resource scarcity or mass migrations that occur because of severe weather.” However, Dr. Adkins adds that there are other more hidden stressors that occur, too. “For people on some psychotropic medications [medications that affect the mind, emotions, and behavior], their ability to sweat is hindered. Those medicines interfere with thermoregulation. This is a problem when you have higher temperatures.” The point is simple: Any human health issue will get worse with climate change.

“With higher temperatures we’re more biologically susceptible. And there are so many ways that one stress can lead

ENVS 338: CLIMATE CHANGE AND HUMAN HEALTH

Public health meets environmental sustainability with this new IES course.

to another. It’s all connected,” says Dr. Adkins. “Public health talks about health as a complete state of wellness. So it can’t be an individual who is healthy in an unhealthy society,” says Dr. Adkins. This concept can work the same way for the environment. There can’t be healthy people without a healthy environment.

The classroom can serve as a model for these ideas. Dr. Adkins aims to show students what an equitable, healthy, resilient, sustainable, and just community looks and feels like. Throughout their interactions with each other, students model care for the self and care for one another. “I like to start my classes with

exercises of self-disclosure. I’ll have them do a one-step-forward, one-step-back exercise. That way, they are opening up to each other immediately,” Dr. Adkins says. Then this community moves beyond vulnerability and into caring for one another. The students learn to respect and understand where individuals are coming from through lessons on group dynamics and intercultural communications.

“I’m teaching them life skills, so they can learn how to take care of themselves,” says Dr. Adkins. “In my class, I want them to learn how to build a network, how to organize, how to build community. These are important.”



DR. SASHA ADKINS

wasn’t drawn to the environment because of a love of animals. “I think a lot of students are put off of environmental science because they think they need to care deeply for a species they’ve never heard of that’s going extinct. But I tell them that’s not the case. I’m here because I care about people.”

SUMMER COURSES

Students can spend three weeks at LUREC in May studying nature in the field and receive course credit. Past courses have given students the opportunity to participate in an archeological dig, bird-tagging and identification, and prairie and wetland restorations.



Field Ornithology in May 2019 with Father Stephen Mitten, S.J. (left).

HERE’S WHAT STUDENTS ARE SAYING ABOUT THE INNOVATIVE OUTDOOR EXPERIENTIAL LEARNING CURRICULUM WE OFFER DURING THE SUMMER AT LUREC.

“Field Ornithology with Father Mitten made me more aware of my outside environment. Birds are indicator species to how we are treating the environment and we should be listening and observing them! I will carry what I’m learning with me every time I step outside.”

CARLY FOURNIER (’21)



Students at the LUREC greenhouse.

IES at Loyola University Retreat and Ecology Campus (LUREC)

Special LUREC field-course offerings have included:

ANTH 399: Fieldwork in Anthropology
BIOL 111: General Biology I Lab
BIOL 266: Ecology Lab
ENVS 269/BIOL 395: Field Ornithology
ENVS 280/286: Principles of Ecology/Lab
ENVS 326: Agroecosystems
ENVS 330/331: Restoration Ecology/Lab
ENVS 398/BIOL 395: Early Summer Flora
ENVS 398: Sustainable Agriculture
MPBH 495: Environmental Health: Mosquitoes and Ticks

RESTORATION WORK DAYS

On the second Saturday of every month, volunteers clear and burn brush, monitor surface and ground water flow, and collect and distribute seeds of native plant species.

“Taking my first field class at LUREC was a catalyst for me finding my place within IES and Loyola. The small class and casual atmosphere allowed me to form strong connections with the professors and students there. Three weeks at LUREC seem to last forever until the last day when you can’t believe it’s time to leave. Conducting experiments, going out on field trips, meeting real-life stakeholders, doing hours of homework, and then relaxing and laughing with s’mores at a campfire—I can’t imagine a more fun way to learn.”

OLIVIA NIOSI (BS ’19)



Students at LUREC in Dr. Mariana Valencia Mestre’s Agroecosystems course meet a calf.

“Over the summer, I had the pleasure of taking Restoration Ecology with Dr. Ohsowski at the LUREC campus. It was one of my favorite courses in part because of the camaraderie I was able to build with my fellow students over the course of the class. After class, we were given the opportunity to explore the natural areas around the LUREC campus and come together for bonfires at night. Over time, I made strong bonds with the other students and still hold them to this day. To be learning in such close proximity to nature is something that sets the experience I’ve been given at Loyola apart from other institutions.”

BRODY DIEHN (BS ’19)

Each year, IES honors outstanding student achievement and celebrates graduating seniors at our end-of-year awards ceremony.

ALDO LEOPOLD AWARD FOR OUTSTANDING ACHIEVEMENT

The recipient of this award has demonstrated excellence both academically (≥ 3.20 GPA required) and in service/action toward the greater good.

Paul J. Campion
(BS '19)

RACHEL CARSON AWARD FOR ACADEMIC EXCELLENCE

This award goes to the IES graduating senior who earned the highest GPA.

Paul J. Campion
(BS '19)

BERTA ISABEL CÁCERES FLORES AWARD FOR OUTSTANDING LEADERSHIP

This award goes to the IES graduating senior who distinguished themselves through exceptional leadership.

Olivia J. Niosi
(BS '19)

JAMES E. HANSEN AWARD FOR OUTSTANDING PERFORMANCE IN IES INTERNSHIP

This award recognizes the outstanding performance of one IES graduating senior in an internal IES internship.

Megan E. McCawley
(BS '19)

WANGARIA MUTA MAATHAI AWARD FOR OUTSTANDING SERVICE

This award recognizes one IES graduating senior who distinguished themselves through service to others.

Jaycie C. Weathers
(BA '19)

E. O. WILSON AWARD FOR OUTSTANDING PERFORMANCE IN INDEPENDENT RESEARCH

This award recognizes the outstanding performance of one IES graduating senior in faculty-mentored research.

Mariana Felix-Kim
(BS '19)

LOYOLA UNIVERSITY CHICAGO PRESIDENT'S MEDALLION

This award is given annually to Loyola's most outstanding students who excel not only in the classroom, but also in the world, and who are dedicated to helping those around them.

Paul J. Campion
(BS '19)

IES LUREC SCHOLARSHIP

Ananda Anderson
Hailey Conrardy
Christine Engbretson
Carly Fournier
Anna Goetz
Judith Lynd
Maggie O'Brien
Mackenzie Roof
Alicia Vrabec
Brittany Wheeler

Recipients are awarded up to \$3,885 to fully or partially cover tuition, fees, and lodging at our ecology campus in Woodstock, Illinois.

RACHEL CARSON SCHOLARS (ENTERED FALL 2018)

Ryan Carr
Melina Iatridis
John R. Miller
Kathleen Reilly

The Rachel Carson Scholarship provides the opportunity for students to learn about nature by studying in nature through summer coursework at Loyola's Retreat and Ecology Campus (LUREC). Recipients are freshman or transfer students, and they can receive this \$2,500 scholarship throughout all four years they attend Loyola. They must take classes over two summers at LUREC.

CARBON UNDERGRADUATE RESEARCH FELLOWSHIP

Peter Fiorica
Zoa Glab
Taylor Miller-Ensminger
Audrey O'Neill

The Carbon Fellowship program offers a full two-year, interdisciplinary research opportunity for undergraduate students majoring in science or math. Students must have a junior standing when they enter the program, and they will work closely with faculty mentors. Recipients are awarded \$7,500 per year.

UNDERGRADUATE RESEARCH FELLOWS

Rene Belleville
Amelia Howerton
Raul Lazcano Gonzalez
Olivia Niosi
Maggie O'Brien

The IES Fellowship is designed for students to conduct interdisciplinary research on issues related to unsustainable natural resource uses in the greater Chicagoland region. Recipients are awarded a \$1,000 stipend and up to \$1,000 for research supplies.

WE ARE PROUD OF ALL OF OUR IES STUDENTS. They are activists, research scientists, policy-makers, and justice fighters. This year at Commencement, our student speaker, Paul Campion (BS '19), gave a stirring speech about the future we can all attain if we act on climate change now. We've reprinted a portion of it here. Please note, it has been edited for length.

For the full speech, go to: [BIT.LY/LUCCAMPION](https://bit.ly/luccampion)



WHEN DID YOU DISCOVER WHAT IT MEANS TO BE HUMAN?

Our diplomas may say Class of 2019, but marked in history, we are the Class of Zero.

Zero emissions. Zero excuses. Zero time to waste.

Across the country, our class stands 7.5 million strong. And in unity, we're giving 2020 political candidates a choice: Have a plan to get to zero emissions, or get zero of our votes. Together, we have the power to solve the climate crisis. Every student. Every parent. Every teacher. Every leader. The future is in our hands.

Let's fast forward to 2050. Envision with me—you are sitting at your favorite coffee shop casually reading a book about the 2020s. It's 30 years from

now, and the book (yes, they still exist) discusses in a matter-of-fact way how we finally got our act together. The book will talk about how we restored democracy. It explains how we rapidly mobilized our society and economy to reach zero emissions, while centering justice and equity empowering all.

Reading that book, you know that "we" was you and me. You built the local and sustainable food systems that are resiliently feeding our communities. You restored numerous forests and wetlands, and conserved endangered species. You designed and planned resilient cities adapted to climate impacts. You wrote,

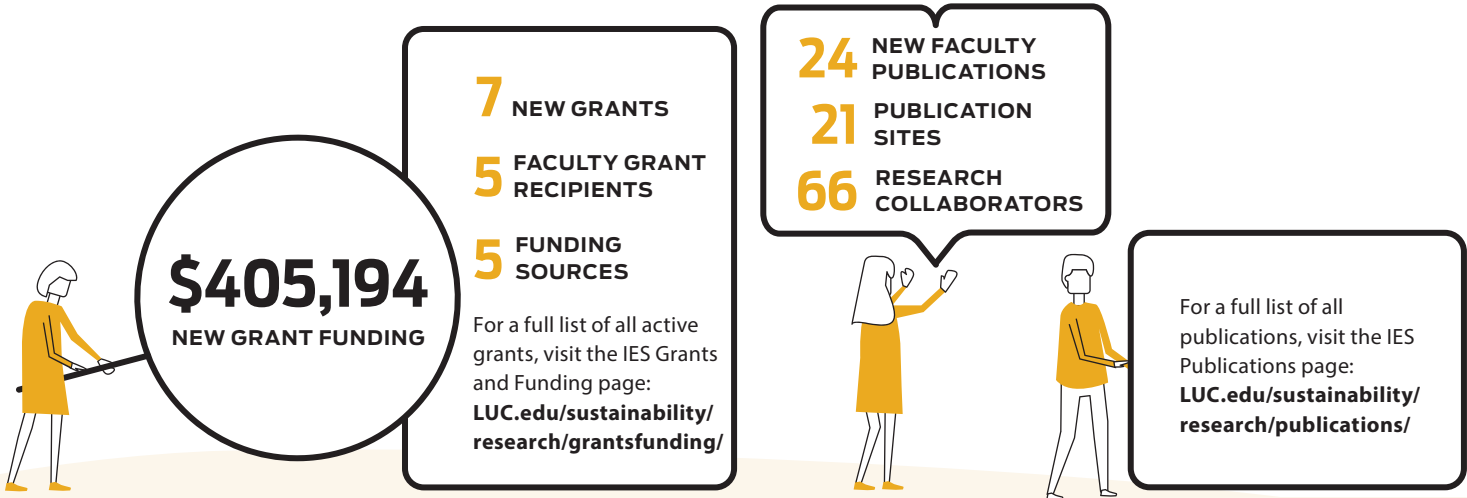
fought for, and implemented transformative public policy that reclaimed our generation's future. And, all you teachers, you are in on this too. You helped by empowering your students to fully realize and exercise their power, organizing for a livable future because the so-called "adults in the room" governing our country had not had the courage to do so.

Or the book won't say those nice things. But I believe it will. Because in facing this challenge, we have the awesome opportunity to change everything for the better. All that we and our generation need to do to is seize this opportunity—and save humanity.



IES environmental science graduate Grace Cooper Adams (BS '19) is one of many IES students who believe Loyola should divest its finances from fossil fuel interests.

New Grants and Faculty Publications



IES student and environmental policy major Hannah Sather ('21) picks tomatoes in Winthrop Garden to sell at Loyola's Farmers Market.

IES Donors

\$100,000–\$999,999

Nydia Santos-Searle and Michael Searle

\$10,000–\$99,999

Dorothy (MUND '62) and Michael Carbon, MD (BS '62)

\$5,000–\$9,999

Raymond Goder and Teresa Kraficisin (BBA '84)

\$1,000–\$4,999

Jeanne (JFRC '75, BA '77) and Patrick Conway (JFRC '73–'74, BA '74)
Howard Learner and Lauren Rosenthal
Ronald Meissen, PhD
Chris Peterson, PhD

\$500–\$999

Cesar Franco
Ping Jing, PhD

\$1–\$499

Eleanor Shepard and Dan Amick, PhD
Johann Baniqued (BBA '02)
Juana Barrera (BA '98)
Belyna Bentlage (BA '12)
Mark Bischoff
David Crumrine, PhD
Ray Dybzinski, PhD

\$1–\$499 (continued)

Eve (JFRC '04, MSOD '05) and George Estrada
Amy Galanter (BA '10, BS '10)
Gunnar Gitlin (JD '87)
Andrea (BA '00) and Jacob Grillot (BA '00)
Dianna Heitz (JFRC '05, BA '06)
Alysa and Lawrence Hilton
Catherine Polak and Ihor Hlohowsky
Joan Holden and David E. Miller (JFRC '73–'74, BS '75)
Michael Koob (BS '74)
Margaret Kreuter
Samantha Kronk (BA '12, JD '15)
Jessica Lindberg (BS '18)
Kathleen Mallen (BA '76, MSIR '83)
Jhonna McHenry
Tina and Max Melstrom, PhD
Dolores Orzel (BA '69, MA '73)
Kathleen (BS '63) and Marvin Salzmman, MD (SSOM '66, MRES '76)
Katrina Sather
Eileen (BA '70, MEd '74) and Robert Schuetz, Jr.
Maree Stewart (JFRC '09, BA '11)
Jean Sussman, PhD, and Ed Lyons
Jessica Szadziewicz
Edward Thach (BS '15, BA '16)
Adonios Vavarutsos
Isabella and Patricia Woller
Renee Zagozdson (BA '17)



INSTITUTE OF ENVIRONMENTAL SUSTAINABILITY

Lake Shore Campus

1032 W. Sheridan Road • Chicago, IL 60660

LUC.edu/sustainability • [Facebook.com/LoyolaIES](https://www.facebook.com/LoyolaIES) • Twitter & Instagram: @greenloyola

FSC logo
goes here

NON PROFIT ORG.
U.S. POSTAGE
PAID
PERMIT NO. 5539
CHICAGO, IL

SAVE THE DATE

ACCOMPANYING YOUTH TO A HOPE-FILLED FUTURE

**Loyola University Chicago
is pleased to announce
our sixth Climate Change
Conference**

MARCH 12–13, 2020

Each year, our conference keynote speakers inspire and push us towards climate action. We've heard their calls, and that's why our 2020 conference will focus on how we can accompany the youth movement through their fight for climate justice. LUC.edu/climatechange

