DOW MASTER’S AND DISTINGUISHED AWARD SUSTAINABILITY PROJECTS
HAVE IMPACTED PEOPLE IN 19 COUNTRIES, 8 STATES, AND 6 MICHIGAN COMMUNITIES.

We are now sharing even more program information through new Facebook and Twitter channels dedicated to the Dow Sustainability Fellows Program, while U-M’s Planet Blue initiative continues to amplify the program as part of university-wide sustainability outreach efforts.

BE SURE TO LIKE AND FOLLOW THE PROGRAM AT:
facebook.com/UMDowFellows
twitter.com/UMDowFellows

COLLABORATIVE
THE DOW SUSTAINABILITY FELLOWS PROGRAM | University of Michigan 2013–2017

Made possible by The Dow Chemical Company Foundation, the mission of the Dow Sustainability Fellows Program at the University of Michigan is to prepare future leaders who will make a positive difference in organizations worldwide. We achieve this goal through a unique combination of program components, all of which are informed by three guiding principles:

A SOLUTIONS-DRIVEN APPROACH

Dow Sustainability Fellows look for answers to the most challenging sustainability issues of our time. Among the diverse issues being addressed are: access to water, energy efficiency, healthy communities, consumption and waste reduction, green chemistry, transportation, built environment, climate change, biodiversity, human behavior, environmental law, and public policy.

TRANSDISCIPLINARY COLLABORATION

The success of this program is due in large part to the multidisciplinary composition of our cohorts. U-M Dow Sustainability Fellows come from dozens of disciplines—from engineering to the humanities. By engaging with each other on a continual basis, fellows leverage their expertise, broaden their perspectives, enhance their problem-solving abilities, and amplify their impact.

A FOCUS ON PRACTICAL OUTCOMES

Dow Sustainability Fellows focus on finding practical and actionable solutions to real-world problems. Working in partnership with stakeholders, they pursue high-impact projects with the potential to positively affect communities large and small.
ENGAGED SCIENCE AND LEARNING

Despite their diverse academic backgrounds, all U-M Dow Sustainability Fellows share one important trait—they are committed to finding sustainability solutions that are actionable and meaningful.

The University of Michigan is known for the breadth and depth of its expertise, for its leadership commitment to sustainability, and for its unwavering focus on interdisciplinary teaching and research. Together, these factors make U-M uniquely qualified to support the drive for discovery that is at the heart of this program—and to serve as a training ground for future leaders in multidisciplinary sustainability science and practice.

INNOVATIVE AND PRACTICAL SOLUTIONS

From tackling public health issues to exploring new career resources, Dow Sustainability Fellows apply their innovative, solutions-driven approach to a host of challenges.

THE DOW SUSTAINABILITY FELLOWS PROGRAM BENEFITS FROM AND SUCCEEDS BECAUSE OF CAMPUS-WIDE INVOLVEMENT. THIS PAST YEAR, STUDENTS AND SCIENTISTS FROM 17 OF THE U-M’S 19 SCHOOLS AND COLLEGES PARTICIPATED IN THE PROGRAM.

Master’s & Professional Fellows
40 Fellows / 1 year

Members of this cohort are pursuing master’s and graduate-level professional degrees in engineering, business, natural resources, architecture, health, law, medicine, policy, social work, and other disciplines. These fellows receive financial support for their studies and complete an applied, interdisciplinary team project. For details, see page 8.

Doctoral & Postdoctoral Fellows
52 Fellows / 2 years

Scholars pursuing doctoral degrees and those with postdoctoral research positions across U-M participate in this program component. These scholars come with a proven track record of leading innovative research in their fields. As Dow Sustainability Fellows, they collaborate across disciplines to explore practical solutions for ongoing challenges. For details, see page 10.

Distinguished Awards for Interdisciplinary Sustainability
15 Seed Grants / 2-3 Major Awards

This competition attracts U-M students at all academic levels who have ideas and energy for high-impact sustainability collaborations. In total, $150,000 is awarded annually to support these multidisciplinary sustainability projects. For details, see page 12.
In supporting sustainability scholars, the Dow Sustainability Fellows Program is aligned with the U-M commitment to diversity, equity, and inclusion. Program efforts focus on ensuring that each student thrives. Scholars learn that diversity, equity, and inclusion are key to individual empowerment, and the advancement of sustainability knowledge, learning and leadership at U-M and worldwide. See: www.sustainability.umich.edu/dow.

In what ways does fostering a diverse and inclusive community affect pathways to sustainability?

This essay question, included in the Dow Sustainability Fellows application, is intended to encourage applicants to apply a personal lens in reflecting on issues related to diversity, equity, and inclusion.
Projects supported by the Dow Distinguished Awards competition since 2013, with 11 winning large awards

60

Students supported through the Dow Distinguished Awards since 2013

116

Organizations that served as clients for projects supported by the Dow Fellows Program

55

Academic publications by Doctoral and Postdoctoral alumni

279

60 55 279 116 347

Projects supported by the Dow Distinguished Awards competition since 2013, with 11 winning large awards

Students supported through the Dow Distinguished Awards since 2013

Organizations that served as clients for projects supported by the Dow Fellows Program

Academic publications by Doctoral and Postdoctoral alumni
By the

NUMBERS

38
Completed Master’s Fellows team projects

9
Master’s Fellows team projects currently in progress

112
Organizations and businesses employing program alumni

17
U-M Schools & Colleges Engaged

NUMBER OF STUDENTS FROM SCHOOLS AND COLLEGES

128
SCHOOL OF NATURAL RESOURCES AND ENVIRONMENT

120
COLLEGE OF ENGINEERING

84
ROSS SCHOOL OF BUSINESS

74
LITERATURE, SCIENCE, AND THE ARTS

64
TAUBMAN COLLEGE OF ARCHITECTURE AND URBAN PLANNING

46
SCHOOL OF PUBLIC HEALTH

34
FORD SCHOOL OF PUBLIC POLICY

28
LAW SCHOOL

12
SCHOOL OF INFORMATION

10
SCHOOL OF MEDICINE

6
SCHOOL OF SOCIAL WORK

4
STAMPS SCHOOL OF ART AND DESIGN

2
SCHOOL OF EDUCATION

1
SCHOOL OF MUSIC, THEATRE, AND DANCE
THE MASTER'S/PROFESSIONAL COHORT

The 2017 cohort consists of 40 masters and professional degree students, selected from a highly competitive pool, with each of U-M’s 19 schools and colleges nominating up to 10 students for consideration. A number of fellows are dual-degree students who are simultaneously pursuing two graduate degrees.

THE PROJECTS

Teams of three to six fellows are working together on nine applied interdisciplinary action-based projects addressing engineering, transportation, economic issues, and other sustainability challenges. Each team receives a $5,000 grant to support this work in addition to their individual fellowship stipends. Teams work with clients and receive guidance from a U-M faculty advisor.

The sample projects below, among others, address a wide range of sustainability challenges in Michigan and around the world. In 2017, those challenges include:

- Energy independence in Highland Park, MI
- Green infrastructure in Detroit, MI
- Improved public transit in Ann Arbor, MI
- Corporate financial transparency in Brazil
- Assessing the social impact of climate change in the United States

FROM ENGINEERING TO SOCIAL WORK

Disciplines represented by the 2017 cohort include law, public policy, medicine, dentistry, environmental engineering, mechanical engineering, civil engineering, chemical engineering, electrical and computer engineering, landscape architecture, climate and space sciences, education, integrative systems and design, urban planning, business administration, information, environmental health sciences, natural resources & environment, and social work.

ESSENTIAL PARTNERS

In 2017, student teams are engaging with the following partners:

- Soulararity, MI
- Etho-Capital, MA
- Michigan Environmental Council
- Michigan Community Resources
- Food Policy Council, MI
- Ann Arbor Area Transportation Authority
- Bad River Band Tribe, WI
- Climate Analytics, Germany
- Climate Advisors, Brazil
- The University of Michigan School of Dentistry
During their first two months in the program, fellows carefully select projects and form diverse teams. Through this team-based approach, students learn critical skills that help prepare them for leadership roles—like cultivating interprofessional relationships, project management, networking, and effective approaches to problem solving similar to those they will encounter throughout their careers.

**A Passionate Commitment**

Projects are complete once teams have presented the results of their work. Often, however, those presentations represent a new beginning rather than the end of a project. In many cases, students secure additional support, either through a Dow Distinguished Award or other funding sources. To assure the continuance of their project, they may also connect clients to additional resources, including other students who are prepared to work on the venture. It’s also common for alumni fellows to support sustained efforts by serving as volunteer-mentors to incoming fellows. In this way, short-term projects are transformed into start-ups and social enterprises.

**Social Mobility**

This team won second place in the Ford Motor Company’s Go Detroit Challenge. Now the effort continues as a social enterprise known as Caravan. Operating in Detroit’s HOPE Village and West Village throughout 2017, Caravan will improve Detroit’s need-based transportation network and increase access to healthcare, education, and employment.

**Condon House**

After being named co-winners of the 2016 Dow Distinguished Award Grants, fellows team members formed a 501c3 non-profit organization to continue sustainability education and strengthen a Detroit community.

**Zana Snacks!**

This former fellows project is now an emerging business with its first sustainable snack product—Carrot and Oat Bar—currently in production. TechArb, a student venture incubator in Ann Arbor, provided support for the start-up.

**Short-Term Projects Become Long-Term Enterprises**

**Projects with Far-Reaching Impact**

Through their projects, Dow Sustainability Fellows have become change agents in ways large and small, across the state and beyond. By way of example, our students:

- Created a community Food Access Council in West Tallahatchie, Mississippi
- Worked with Practice Greenhealth to produce and publish a Green Dental Clinic Toolkit
- Made it possible for Condon-Chansey Detroit neighbors to harvest honey from new beehives in their community
- Enabled the U-M School of Dentistry to switch from disposable safety glasses to reusable lenses, with a six-month payback period
- Helped the City of Ann Arbor towards its goal of 2,800 new affordable rental housing units by 2035

**THERE’S SO MUCH WORK TO BE DONE. WE DEVELOPED A GREENING THE DENTAL CLINIC TOOLKIT, BASED ON A HEALTH CARE EXAMPLE, GREENING THE OPERATING ROOM.**

Shivani Kamodia

2016 Dow Sustainability Master’s Fellow and candidate in Dentistry
THE COHORT
In the fall of 2017, nine new Dow Sustainability Doctoral Fellows will join the nine returning fellows. Reflecting the program’s broad appeal, new members hail from disciplines as diverse as communications, public health, design science, anthropology, civil engineering, sociology, and resource management.

THE PROGRAM
The fellowship experience comprises multiple components, including interactive seminars, managing a sustainability journal, dinner dialogues, and skills training sessions.

Research Seminars
During these lively sessions, first-year Postdoctoral and second-year Doctoral Fellows present their research while a first-year Doctoral Fellow facilitates discussion about possible larger applications focused on sustainability challenges. Discussions often touch on approaches used across disciplines. Fellows share best practices and encourage each other to communicate research in non-technical terms accessible to practitioners, the media, and other interested audiences.

Reaching Practitioners
Dow Sustainability Doctoral Fellows serve as the editorial board for the Michigan Journal of Sustainability. The journal is directed at practitioners interested in applying science to solve tangible and complex sustainability problems. Fellows benefit from the experience by:

• Interacting directly with faculty/authors and practitioners
• Learning how to publish a peer-reviewed journal
• Gaining valuable experience as editors and peer reviewers

Dinner Exchange
Dow Sustainability Doctoral and Postdoctoral Fellows interact regularly with U-M faculty over dinners that promote dialogue, mentorship, and reflection about current events. During each event, a second-year Postdoctoral Fellow and a Distinguished Faculty Fellow present their research.

Diving Deeper
In addition to cross-cohort collaborations, fellows participate in skills training sessions throughout the year. Among the chief topics is learning how to effectively communicate research efforts to broad audiences. During the past year, practicing journalists and other media professionals advised fellows on how to pitch their research to the media and the public, and then modeled the process through mock media interviews with three fellows.
“MY ADVISEE GREATLY BENEFITED FROM HIS PARTICIPATION IN THE DOW SUSTAINABILITY FELLOWSHIP PROGRAM. HE RECEIVED VALUABLE FEEDBACK ABOUT HIS RESEARCH FROM OTHERS WORKING IN DIFFERENT RESEARCH AREAS, AND LEARNED TO DISCUSS HIS SUSTAINABILITY WORK ACROSS DISCIPLINES. THIS SKILL WILL GREATLY BENEFIT HIM AS HE WORKS TO TRANSLATE HIS LAB RESEARCH FINDINGS TO MORE GENERAL SETTINGS.” Denise Sekaquaptewa Professor, Dow Sustainability Doctoral Fellow Advisor

BRIDGING THE SCIENCE-PUBLIC DIVIDE

Michigan Journal of Sustainability

Managed by Dow Sustainability Doctoral Fellows, this open-access, online journal encourages scholars to present their research, fieldwork, and sustainability issues in ways that are both meaningful and readily understandable to practitioners and policy makers. More specifically, authors write for an audience of sustainability practitioners interested in applying innovative research to address complex challenges.

Fellows serve on the editorial board and oversee the peer review process to ensure that all journal content—including articles, photo essays and field notes—meets stated objectives. The co-editors-in-chief gain valuable skills by managing the entire process, from online content submission and author engagement to publishing and marketing.

The 2017-2018 cohort streamlined their processes, making it possible to publish two volumes in 2017. Content in these two issues focused on Human Behavior and Sustainability (5.1, publish date June 2017) and Sustainability in a Politically Polarized Society (5.2, publish date December 2017).
SUPPORTING WINNING IDEAS—From Detroit to Kenya

During the spring term, students at all academic levels from across the U-M form interdisciplinary teams and submit proposals for “beyond the campus” sustainability projects. Winners of the Distinguished Awards Competition for Interdisciplinary Sustainability receive a $5,000 seed grant and an invitation to participate in the fall competition for large project grants of up to $50,000.

After pitching their large grant concepts to a panel of sustainability scholars and practitioners, the teams are evaluated on various criteria, including: innovation, potential for social benefits and sustainability impact, inclusivity of multiple disciplines, supporting data and/or analysis, scalability, replicability, and likelihood of success.

DOW DISTINGUISHED AWARD WINNERS—November 2016

Last year, two student-led teams were awarded $37,500 each to continue their work identifying needs and empowering communities.

Empowering a Detroit Community: Condon Crow House

Located in the heart of a Detroit, MI neighborhood, the Condon Crow House team is reaching out to a community in need. With the goal of creating a teaching site and community center, students provide educational programs in partnership with area residents. Efforts focus on service learning to teach sustainable home renovation, gardening, and other skills. The primary goals of this project are to:

• Restore an historic home and create a “green” learning center for all ages
• Serve as a community resource for healthy food
• Create an action-oriented hub for community organizers and urban scholars
• Work collaboratively with the community on practical problem-solving
• Provide opportunities for neighbors to learn life-improving home maintenance skills

“THIS PROGRAM IS PUSHING SCIENCE AND ITS APPLICATION FORWARD LIKE FEW OTHERS. HOPEFULLY, IT WILL SERVE AS A MODEL PARTNERSHIP TO BE EMBRACED BY ACADEMIC AND BUSINESS INSTITUTIONS WORLDWIDE.”

G. Allen Burton, Jr.  Professor, Dow Sustainability Doctoral Fellow Advisor

HTTP://SUSTAINABILITY.UMICH.EDU/MEDIA/PROJECTS/CONDON_CROW_HOUSE_DOW-MASTERS-2016.PDF
2017 LOCAL TO GLOBAL IMPACT of Seed Grants

In spring 2017, 15 student-led sustainability projects were awarded seed grants to execute innovative sustainable solutions around the world. Each team has representation from at least three distinct disciplines, working collaboratively, with total representation from 15 schools and colleges.

Seed Grant Projects

- Greening the Dental Clinic, Multiple locations
- Thrive Nutrition, Ann Arbor, Michigan
- Economic and Environmental Viability of Commercial-Scale Aquaponics Systems, Detroit, Michigan
- Assessing the Non-Economic Impact of Climate Change, Wisconsin
- Improving Conditions in Informal Settlements, Brazil
- Large-Scale Water Storage and Drip Irrigation Systems, Peru
- Solar-Powered Irrigation in School Farms, Liberia
- Driving Hope, Washtenaw County, Michigan
- Belding Community Youth Food Collaborative, Michigan
- BLUElab India, Kalol Gujarat, India
- African Solar Electric Trailer, Ghana
- Natural Ventilation: A Passive Cooling System, Multiple Locations
- Development of a Student-Led Sustainability Consulting Firm, Ann Arbor, Michigan
- Corporate Financial Transparency, Brazil
- Wellwith: Wellness Rewards Network, Michigan

Growing Insects in Kenya: The Kulisha Project

The fast-growing worldwide trend of aquaculture, also known as fish farming, has the potential to become a sustainable source of protein for humans. However, feed for aquaculture farms is typically made from wild-caught fish using unsustainable practices that damage marine habitat and harm many fishing communities.

Taking its name from the Swahili word meaning "to feed," a team of students launched the Kulisha Project to create sustainable solutions that are viable to commercial fish farming operations and beneficial for rural fishing villages. In the course of their research, team members discovered that the non-buzzing, non-biting Black Soldier Fly is capable of converting organic waste into protein suitable for feeding farmed fish.

Supported by the Dow Distinguished Award and additional funding, the students:

- Created a functional prototype facility
- Traveled to Kenya to assist a significantly underserved business community consisting of small-scale rural fish farmers
- Analyzed the potential for economic development and growth in emerging markets
- Project efforts will continue, with plans to build a full-sized facility to begin marketing fish feed

HTTP://SUSTAINABILITYUMICHEDU/NEWS/UM-STUDENTS-SHOWCASE-BREADTH-SUSTAINABILITYWORK
“INTERDISCIPLINARY WORK IS IMPORTANT TO ME BECAUSE MOST OF THE PROBLEMS I’M INTERESTED IN... DON’T FIT NEATLY IN ANY ONE DISCIPLINE. TO FIND EFFECTIVE SOLUTIONS REQUIRES DRAWING ON EXPERTISE FROM A VARIETY OF DISCIPLINES. BECAUSE OF THAT, I TRY TO PUT MYSELF IN SITUATIONS WHERE I’M EXPOSED TO A VARIETY OF PERSPECTIVES.”

Neil Lewis Jr.
Dow Sustainability Doctoral Fellow, Michigan Journal of Sustainability Co-Editor-in-Chief, and Ph.D. candidate in Social Psychology

A COMMUNITY OF SCHOLARS
Dow Sustainability Fellows continue to engage across cohorts and interact with a diverse group of undergraduate scholars. To cite just one example, in 2017 the Dow Automotive business leaders hosted a visit at the Dow Automotive headquarters in Auburn Hills where fellows toured the state-of-the-art lab and research space, conferred with industry leaders, and learned more about the company’s sustainability efforts and portfolio.

CONVERSATION & SKILL BUILDING
During the first cross-cohort networking event of 2017, groups of fellows discussed their career paths, research interests, and skill gaps. Afterward, many fellows and scholars chose to continue their conversations about informatics, international research, food systems, coding, energy grid distribution, and collaborative opportunities with local organizations.

Throughout the year, all fellows participated in skill-building sessions devoted to topics such as:
• Developing a social media presence, with guest speaker Andrea Learned of Learned On
• Toxic Substances Control Act reform, with Connie Deford of The Dow Chemical Company
• Diversity, equity, and inclusion in sustainability, with Emily Reyna of the Environmental Defense Fund
• Corporate career options for doctoral graduates, with Dr. Neil Hawkins and Dr. Mark Jones of The Dow Chemical Company
• Techniques for effectively engaging communities, with Neeraja Aravamudan of the U-M Ginsberg Center
MAKING CHANGE IN PLACE—A Snapshot of the 2016 Symposium

Among the 100+ people attending the third annual Dow Sustainability Fellows Symposium were U-M faculty, Dow Sustainability Fellows, and practitioners that included representatives from The Dow Chemical Company. The event featured nearly 60 fellows presenting posters on myriad topics. Participants had the opportunity to sample honey from a Detroit beehive, test their personal carbon footprint, and discuss topics ranging from interventions for increasing sustainable behaviors to techniques for mitigating the threats of climate change to global supply chains.

During her inspiring keynote address, U-M alumna, Growing Hope founder, and current City of Ypsilanti, MI Mayor Amanda Edmonds asked students in the program to consider three questions when working for change:

- What change are you trying to make?
- What is your theory of change?
- What is your place in that change?

Edmonds also spoke about increasing access to healthy food in Ypsilanti, empowering low-income residents to grow their own food, and promoting economic development. In closing, she stressed the importance of grass-roots efforts, noting that “Our farmer’s market is a place where things like growing food, access to healthy food, and helping our low-income residents intersects. It’s more than a market, it’s about changing the fabric of our community.”

“THIS NOVEL PROGRAM BRINGS TOGETHER UNCONVENTIONAL COLLABORATIONS—FROM SOCIAL WORK AND BUSINESS TO THE SCIENCES AND ARTS—to address real-world sustainability challenges.”

Neil C. Hawkins
Dow Corporate Vice President and Chief Sustainability Officer

LOOKING AHEAD

U-M and The Dow Chemical Company Foundation will strengthen their efforts as leaders in sustainability education, research and collaboration by extending support for the Dow Sustainability Fellows Program through 2020. This new gift extends funding for graduate fellowships, co-curricular experiences, and student awards for interdisciplinary sustainability. We’re indebted to The Dow Chemical Company Foundation and The Dow Chemical Company for their continued support of U-M student leaders who are committed to working with stakeholders/communities toward collaborative sustainability solutions.

“Achieving environmental sustainability is among the most complex challenges we face as a society. The Dow Chemical Company Foundation’s support is helping the University of Michigan prepare talented, interdisciplinary leaders who can develop and implement sustainable solutions from multiple perspectives.”

Mark Schlissel
President, University of Michigan
ABOUT THE DOW SUSTAINABILITY FELLOWS PROGRAM

Made possible by The Dow Chemical Company Foundation, the Dow Sustainability Fellows Program at the University of Michigan supports full-time graduate students and postdoctoral scholars at the university who are committed to finding interdisciplinary, actionable, and meaningful sustainability solutions on local-to-global scales. The program prepares future sustainability leaders to make a positive difference in organizations worldwide. We believe that diversity, equity, and inclusion are key to individual empowerment and to the advancement of sustainability knowledge, learning, and leadership.

See: sustainability.umich.edu/dow

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