Preparing for a world we want to inhabit
Mission

The School for the Future of Innovation in Society (SFIS) begins with the ideas that:

• Innovation is a complex process in which social and technical actions and considerations continually interact to create similarly complex, real-world outcomes;

• The usefulness and even the validity of knowledge relevant to human problem-solving reflect social context and may arise from multiple sources and perspectives; thus

• The processes of creating knowledge and building more desirable futures need to be more interdisciplinary, more anticipatory, and more democratic.

The mission of SFIS, and its companion Institute for the Future of Innovation in Society (IFIS), is to cultivate and extend these ideas, not just in harmony with but exemplary of Arizona State University’s charter and the design aspirations of a New American University. Through an ambitious and integrated agenda for research, engagement, and training, SFIS will help embody these ideas across ASU and develop them broadly throughout society. Placing human choice and responsibility at the forefront, SFIS will chart the role of knowledge-based innovation at ASU and throughout society.

Welcome

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The influence of science, technology and innovation on how we live our lives has never been greater. Tomorrow it will be greater still. Headlines that would have seemed like science fiction a few short years ago trumpet new technological realities: editing human genes to erase diseases or add new traits; programming robotic drones to operate autonomously on the battlefield; and collecting data from nearly uncountable human interactions to enable personalized medicine, combat terrorism, and improve the design of cities. Such new capabilities contain both promise and challenge. But it is not just novelty that draws our attention. The legacies of fossil fuels and the over-use of antibiotics demand attention. Our urban infrastructures of water, energy, transportation, food and health, all under stress, are intertwined in the most complex ways. Against the backdrop of technological change, the inequality between technological haves and have-nots remains stubbornly persistent.

In July 2015, ASU created the School for the Future of Innovation in Society (SFIS) to prepare students to navigate and manage this complexity. SFIS educates the future leaders, creates the conceptual tools, and fosters the deliberative foundations and critical capacities to assure that human ingenuity contributes to human well-being across the global community. A companion enterprise, the Institute for the Future of Innovation in Society (IFIS), comprises a set of research centers that collectively serve to project this agenda of responsible innovation across the university and to the outside world. Along with the ASU Charter that emphasizes access, excellence and impact, we believe that the future is for everyone. — not just a privileged few.

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This annual report represents the first year of the School’s successes. We have brought together four existing graduate programs, designed undergraduate programs that begin in Fall 2016, and continued an ambitious agenda in research, public engagement, and program development. With generous investments by the university, we added talented and dynamic new faculty. We held our first two SFIS convocations, and our new alumni have landed excellent jobs. Our research enterprise, to be consolidated in IFIS in the coming year, continues to expand and produce real-world impacts.

I invite you to peruse these pages of our progress, and I hope you will stay with us as we chart our own innovative course to the future.

David Guston
Founding Director
The gonfalon of the School depicts an icon that was designed to unify varied concepts within a singular representation of looking to the future. This image was chosen to be displayed on the gonfalon when it is carried during graduation ceremonies.

The ideas engendered by an eye — vision, watching, focus and foresight — are integral to responsible innovation and the future.

The golden rays remind us of dawn and the notions of hope, anticipation and the possibilities of coming days.

The earth as an iris not only echoes the global and inclusive nature of the interests and concerns addressed within the school, but it is also viewed as pragmatic acknowledgement of the limitations of our physical world and the environment within which we must engage challenges.

As an iris controls the pupil of an eye, so our social and physical world imposes constraints on ideas or knowledge (represented by the flame) and growth (represented by the leaf) to which we aspire.

The green leaf also reminds us of the need for sustainable solutions for the issues we face. The flame echoes the color in the lower right quadrant of the gonfalon: “flame,” which is the school’s official color represented on graduate hoods.

The icon’s colors were selected for their association with disciplines or schools that are significant to the transdisciplinary nature of the School for the Future of Innovation in Society.

- Golden Yellow - Science
- Orange - Engineering
- Purple - College of Design
- “Scarab” Green - School of Sustainability
- Teal - College of Public Service & Community Solutions
- White - Arts, Letters, Humanities

The primary function of the university throughout history has been to develop a cadre of people who try to understand the world in which we live, develop tools to enhance that understanding, and express insights for the benefit of society. From the first university on the Harran plain in Mesopotamia up to the beginnings of the Industrial Revolution, universities focused on training clergy and members of socially elite classes — the people expected to lead society. During the Industrial Revolution, especially in the United States, dramatic shifts took place in many societies, such that leadership was not necessarily the province of a particular class or caste.

Leaders in many arenas were needed, along with higher-order professional and technical skills to cope with the social, economic, and political changes that were occurring. Out of this engagement with society, the American public university system emerged, which has turned out to be one of the major contributions of the United States to the world. Arizona State University was created in this environment and became a university focused on being relevant to the communities it serves. Since its beginnings, ASU has sought to meet this need as the world has become more complex, our place more global, and the need for leaders more emphatic.

SFIS Academic Programs enthusiastically embrace the challenges of the 21st century world. Drawing strength from our historical past and from varied disciplines, SFIS Academic Programs present a range of transdisciplinary offerings that seek to capture the complexity of the time in which we live while providing students and faculty opportunities to develop the tools to make a difference in their community, their nation, and the world. Moreover, we emphasize student access with program delivery through a variety of platforms and instructional modalities. We are always engaged in the process of reconsidering and redefining our scope, seeking to ensure relevance and continuous impact. While we may not always know the precise way in which change will occur, we do know that the trend in the development of higher education should be toward more diversity, more democracy, and more inclusiveness. SFIS Academic Programs embrace processes to encourage and sustain the notion that the future is for everyone.

Gary Grossman
Associate Director for Programs

Academic year 2015-2016

This year has been one of the most successful years of the HSD program, which enrolled 26 students, and graduated 2.

With parallel programs encompassing both an on-campus cohort as well as a 100% online program, GTD is the largest of the graduate programs in the School. It enrolled 104 students and graduated 28.

The MSTP program enrolled 10 students and graduated 7.

The AEP program enrolled 11 students and graduated 5.

The RISES certificate program enrolled 2 students and 1 completed.
Academics

Graduate programs

PhD in Human and Social Dimensions of Science and Technology (HSD)

The HSD program offers a unique perspective on the ways in which social organization and governance interact with science and technology, creating complex socio-technical systems that impact all aspects of human life.

Graduate Certificate in Responsible Innovation in Science, Engineering, and Society (RISES)

The RISES program is designed for scientists, engineers, research managers, technology officers, public administrators and policy officials who seek to advance science and technology to improve societal outcomes and to develop creative solutions to the fundamental global challenges of the 21st century.

MS in Global Technology and Development (GTD)

The GTD program highlights the variables of technology and innovation in development processes and analyzes change within the context of the current era of globalization.

Master of Science and Technology Policy (MSTP)

An accelerated Master's program, MSTP provides professional education for students seeking public, nonprofit or private sector careers in science and technology policy and related fields in the United States and abroad. Particular emphasis is placed on the political and societal contexts of science and technology and their impacts on society.

MA in Applied Ethics in the Professions (AEP)

With concentrations in Biomedical and Health Ethics (BHE) and Science and Technology Ethics (STE), the AEP program starts with the premise that the pace of change in the world has increased to the point that existing social institutions and their value systems have had an increasingly difficult time in managing those changes. In the 21st century, this process has increased in speed dramatically, challenging our ability to govern, create appropriate policy, or even ensure that life on earth can continue. With this focus, AEP integrates academic and practical dimensions of moral issues in medical practice, biomedical research, and science and technology.
The School’s brand new undergraduate programs in Innovation in Society have been designed to prepare students to build more inclusive future societies and develop strategies that link innovation with social needs and values. The curriculum has been designed to incorporate multidisciplinary perspectives that synthesize research and theory from the social sciences, humanities, natural sciences, and engineering. The programs provide students with tools and concepts to analyze new and emerging innovations and the diverse local and global futures they enable.

The School is offering four undergraduate programs.

**Bachelor of Arts in Innovation in Society**

In the BA students focus on qualitative methods to investigate how science and technology have shaped and reflect social values in preparation for careers in public service, business, policy, and academia.

**Bachelor of Science in Innovation in Society**

In the BS students build on a competency in a scientific, engineering or quantitative social science field to investigate how science and technology have shaped and reflect social values.

The Undergraduate Program Development Committee worked to establish the first round of undergraduate programs for SFIS during the course of the academic year 2015-16. The committee shepherded four new academic programs through the approval processes of the Arizona Board of Regents, the Faculty Senate, CAPC, and the University Provost’s office. In March 2016, SFIS received final approval for a BS in Innovation in Society, a BA in Innovation in Society, and a Minor in Innovation in Society. In April 2016, SFIS received final approval for a Certificate in Innovation for Impact. In tandem with and to support these programs, the committee also coordinated the development of 19 new undergraduate courses, all of which were approved by the Faculty Senate and the Provost’s office.

**Minor in Innovation in Society**

The Minor is designed to provide access to the School for students who do not have the time to pursue an entire bachelor’s degree, and to give them an understanding of how new and emerging technologies can connect with the social needs and values of our communities.

**Certificate in Innovation for Impact**

The Certificate enables students to cultivate the knowledge, skills, and critical dispositions necessary to leverage the power of innovation to achieve personally meaningful and socially significant impact. Students will identify a problematic condition or aspirational future, and work with peers, mentors, and the community to produce innovations that cultivate a better future for society.
Winter School

The Winter School offered by the Center for Nanotechnology in Society at ASU (CNS-ASU) is a learning retreat for early career researchers held during winter break when students and faculty can focus on their work in a distraction-free environment. The program is designed to give participants an introduction to and practical experience with the methods and theory employed by CNS-ASU faculty and associates. Hands-on and collaborative instruction focus on innovative methods for investigating the societal aspects of emerging technologies. Thirteen students participated in 2016.

Science Outside the Lab (SOtL)

Science Outside the Lab, presented by the Center for Engagement & Training in Science & Society (CENTSS), is a series of workshops in Washington, D.C. that explore the relationships among science, innovation, policy, and societal outcomes. The one- to two-week sessions offer investigation into the context of science and innovation decision-making in government and business at the local, state, federal and international levels. As participatory learning environments, the sessions allow extensive access to speakers and educational opportunities, and some sessions target specific fields of interest. There were eight SOtL sessions in 2016.

Internships

Global Technology and Development (GTD)
The Borgen Project (Seattle, WA)
Center for Development with Solar Energy - CEDESOL (Cochabamba, Bolivia)
Hudson Institute’s Center for Political-Military Analysis (Washington, DC)
Maricopa County Environmental Services Department (Phoenix, AZ)
River Cities United Way (Lake Havasu City, AZ)
United Nations Energy Forum (Online)

Science and Technology Policy (MSTP)
ASU Global Development Research Program (South Africa)
ASU School of Human Evolution and Social Change, Center for Archaeology and Society (Tempe, AZ)
Biomedical Advanced Research and Development Authority - BARDA, Office of the Assistant Secretary for Preparedness and Response, U.S. Department of Health and Human Services (Washington DC)
M+W Corporation (Phoenix, AZ)
Mosaic Taiwan (Taiwan)
SciStarter (Online)
U.S. Department of Defense, Office of Space Policy (Washington, DC)
U.S. Government Accountability Office (Washington, DC)
White House Office of Science and Technology Policy (Washington, DC)

Human and Social Dimensions of Science and Technology (HSD)
ASU Lightworks (Tempe, AZ)
Oceana International Headquarters (Washington, DC)
RESULTS, Inc. (Washington, DC)
Science and Technology Policy Institute, Institute for Defense Analyses (Washington DC)
TransGen, Inc. (Rockville, MD)
Timeline

Evolution: CSPO to SFIS

1999
Center for Science, Policy and Outcomes (CSPO) founded in Washington, DC by Michael Crow with Dan Sarewitz as director.

CSPO draws huge audience to Living with the Genie conference at Columbia University.

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2001
Michael Crow appointed President of ASU.

Dave Guston joins CSPO; NSF awards $6.2M to CSPO and the Center for Science and Technology Policy Research at the University of Colorado, Boulder for Science Policy Assessment and Research on Climate (SPARC).

2002
NSF awards $2.5M to CSPO for $6.5M.

CSPO creates Master of Science and Technology Policy (MSTP) degree.

Global Technology and Development (GTD) program faculty member Gary Grossman and Mary Jane Parmentier join CSPO.

2003
Renamed the Consortium for Science, Policy and Outcomes, CSPO moves to ASU with Ira Bennett and Lori Hidinger among its first staff.

CSPO coordinates US role in First World Wide Views forum (on Global Warming).

2004
Significant hiring initiative brings Clark Miller, Merlyna Lim, and Jameson Wetmore to faculty positions at ASU.

CSPO DC office opens under Dan Sarewitz’s leadership; Dave Guston becomes co-director of CSPO in Tempe.

2005
NSF renews CNS-ASU for $6.5M.

2006
CSPO leads creation of PhD Program in Human and Social Dimensions of Science and Technology (HSD).

2007
NSF renew CNS-ASU for $6.5M.

CSPO hosts The Rightful Place of Science conference.

2008
CSPO ranked fourth among global science and technology think tanks.

2009
CSPO creates Master of Science and Technology Policy (MSTP) degree.

Global Technology and Development (GTD) program faculty member Gary Grossman and Mary Jane Parmentier join CSPO.

2010
Clark Miller leads Arizona Town Hall on Energy.

2011
SFIS received permission to create undergraduate majors, a minor and a certificate.

CSPO coordinates US role in First World Wide Views forum (on Global Warming).

2012
CSPO ranked fourth among global science and technology think tanks.

2013
Clark Miller leads Arizona Town Hall on Energy.

2014

2015
CSPO hosts The Rightful Place of Science conference.

2016

2016
School for the Future of Innovation in Society (SFIS) is launched with HSD, MSTP, GTD and AEP degree programs.

2016
SFIS holds its second Convocation in May, graduating 27 students across its programs.

2016
SFIS received permission to create undergraduate majors, a minor and a certificate.

2016
SFIS holds its first Convocation in December, graduating 27 students across its programs.

2016
SFIS holds its second Convocation in May, graduating 17 students.
Alumni/ae

Featured: selected alumni/ae

Sharlissa Moore (HSD)
Sharlissa Moore, an HSD alumna, is now an Assistant Professor at Michigan State University with a joint appointment in the College of Civil and Environmental Engineering and James Madison College, a liberal arts school. She has developed courses designed to integrate engineering with the technical and socio-political aspects of energy. She is writing a book on sustainable development and the Desertec vision, a plan to build solar and wind power plants in North Africa and to link the electricity grid around the Mediterranean region.

Melissa Cannon (MSTP)
Alumna Melissa Cannon embarked on a new mission as Program Coordinator of daily operations for NASA Interns, Fellows, and Scholars (NIFS) at Goddard Space Flight Center and Wallops Flight Facility in November 2015, having completed her MSTP and an internship at the Smithsonian earlier in the year.

Ben Wender (RISES)
RISES alumnus Benjamin Wender was recently appointed as Associate Program Officer at the National Academy of Sciences, Engineering, and Medicine, working for the Board on Energy and Environmental Systems. Wender explores ideas for potential new projects with federal stakeholders and helps to run consensus studies and workshops related to electricity system resilience. He has published a report on the proceedings of one workshop and has two more in development.

Katie Curiel (GTD)
While in the GTD program, Katie Curiel presented her thesis, Education Abroad as a Catalyst for Impactful Global Development, at the ST Global conference in April 2016, and upon graduation she received the Ed Pastor Award for Outstanding Graduate Student. She won a USAID e-internship with the Global Innovation Knowledge Exchange which extended through the summer of 2016. Katie is the founder of Women on the Move, a nonprofit organization developed to support female Saudi students in the United States.

Allie Nicodemo (AEP)
Since graduating from SFIS, Allie has continued her position as a science writer with ASU’s Office of Knowledge Enterprise Development (OKED). After focusing on food ethics for her master’s degree, she has been volunteering with the Maricopa County Food System Coalition, working on projects to build a more sustainable and equitable food system in Phoenix.
We live in an era of amazing technological evolution. Yet, today, nearly one billion people still do not have electricity. Think about that fact for a second. Electricity is essential for economic progress. It was first invented and widely deployed over a century ago. And, still, in 2016, the world has chosen not to deliver electricity to one in seven people on the planet.

At SFIS, our central focus is on what kind of societies people design and build in, around, and through technology. That, to us, is the definition of innovation and the measure of progress. Innovation is when societies use science and technology to advance social, economic, and political goals, like enhancing liberty, promoting justice, alleviating poverty, and reducing inequality. Inventing a new widget may be a part of that, but it is only ever a part. Just as important are how societies assimilate new widgets into social networks and relationships, legal and financial arrangements, and political and economic institutions. This weaving of technology and society determines which futures we create, to whose benefit, and at whose cost.

SFIS is custom built to tackle these questions. Rather than adopt any one way of looking at the problem, we have sought out people from across the intellectual spectrum who ask hard questions about science, technology, and society. As the Associate Director for Faculty, I am particularly proud of the fact that the 38 faculty we have hired to date are trained in 33 distinct fields, including engineering, the social and natural sciences, the humanites, the law, and public policy. We are a unique experiment in the redesign of higher education, creating new kinds of knowledge and putting it to work in new ways in an increasingly complex world.

As you will see in this section of the report, our faculty are amazing and doing very impressive work. They are working all over the planet, tackling the most significant challenges confronting humanity today. I hope you’ll take this opportunity to get to know them and to explore their ideas and their projects.
Andrew Maynard

A prolific writer and well-known communicator, Andrew Maynard launched the Risk Innovation Lab, “a unique center focused on transforming how we think about and act on risk in the pursuit of increasing and maintaining value,” soon after joining ASU in 2015. The Lab has looked at a range of important issues, from the Zika virus to nanotechnology, and produced simple yet informative videos for its corresponding YouTube channel, “RiskBites.” Maynard contributes regularly to TheConversation.com and the journal Nature/Nanotechnology while maintaining his own blog, 20/20 Science. He also introduced CRISBits, an ingredient safety awareness initiative, at ASU in collaboration with the Environmental Health Sciences at the University of Michigan’s School of Public Health, which Maynard formerly chaired.

Darlene Cavalier

Professor of Practice Darlene Cavalier, founder and director of citizen science organizations SciStarter and Science Cheerleader, was recognized at the White House Water Summit and spoke at a Capitol Hill briefing on Citizen Science and Crowdsourcing. She has been elected to the Citizen Science Association Board as well as appointed representative to the National Advisory Council for Environmental Policy and Technology of the Environmental Protection Agency (EPA). She is co-organizing the ASU Citizen Science Maker Summit taking place in October, 2016. Cavalier co-authored a new book on Citizen Science in CSPO’s Rightful Place of Science series, and she wrote a chapter for the forthcoming Analyzing the Role of Citizen Science in Modern Research.

Jameson Wetmore

Associate Professor Jameson Wetmore was recently named the National Coordinator for the National Nanotechnology Coordinated Infrastructure’s Societal and Ethical Implications program, facilitating the efforts of 16 university sites around the US. He works with the National Informal STEM Education Network, helping to create tools and training for science museums to improve their engagement with the public over the implications of new technologies. Wetmore was also appointed to oversee development of SFIS’ four new undergraduate education programs launching in fall 2016 with 19 courses.

New Partnership

David Guston, Andrew Maynard and Diana Bowman were appointed fellows of the new PLuS Alliance — a partnership among Arizona State University, King’s College London and UNSW Australia — to find research-led solutions to global challenges and expand access to world-class learning.
Mary Jane Parmentier

Clinical Associate Professor Mary Jane Parmentier led students on her fourth study abroad program to Morocco focused on societal aspects of sustainable development. Parmentier became Program Chair of the M.S. in Global Technology and Development (GTD) and transitioned it from the School of Letters and Sciences to SFIS. She has led a collaboration with the Technical University of Ambato (UTA) to increase the percentage of doctoral level instructors in Ecuador. Parmentier will be presenting work on Integrating Active Learning Abroad in Research at the International Studies Association West conference in Pasadena in September and she has produced papers on Teaching the Ethics of Sustainability Abroad, and the Global Discourse of Sustainable Development.

Netra Chhetri

Associate Professor Netra Chhetri works to develop a method for assessing the multiple sources of environmental impacts on society, a unique and important tool for designing and prioritizing climate adaptation strategies. He has more than a decade of experience working at the complex intersection of science and policy and developing promising solutions that focus on scalability, impact, and sustainability through research that encompasses climate change adaptation, food security, resource governance, grassroots innovation, and public engagement. He was one of only two ASU faculty members to be nominated by ASU President Michael Crow to compete for the 2016 Carnegie Fellow Program.

Michael Bennett

Associate Research Professor Michael Bennett serves as President of the Society for the Study of New and Emerging Technologies. His research focuses on intellectual property law regimes, science and technology policy, the intersection of science fiction and political imaginaries, and the societal implications of emerging technologies. He is an instructor for the Science Outside the Lab immersion program, and is a collaborator on the Future of the American Dream Project. As a legal consultant he advises artists, engineers, scientists and related organizations on matters of creativity and innovation for societal impact. He co-founded and co-directed Conduit Technology Partners, a Chicago-based intellectual property consultancy.

Kiki Jenkins

Assistant Professor Lekelia “Kiki” Jenkins is known for pioneering a new field of study around the invention and adoption of marine conservation technology. Her publications and research center on the rigorous, empirical study of the process of conservation in order to distill conservation theory and codify best practices. As an American Association for the Advancement of Science (AAAS) Science and Technology Policy Fellow with the National Marine Fisheries Service’s Office of International Affairs, she helped implement new regulations to reduce bycatch and illegal, unreported, and unregulated fishing by foreign nations. Jenkins developed and taught a Professional Skills Short Course providing professional development training to increase diversity in STEM positions.

Disciplines of SFIS faculty

- American Studies
- Anthropology
- Applied Physics
- Biochemistry
- Chemistry
- Cognition and Instruction
- Education Policy
- Electrical Engineering
- Engineering and Public Policy
- English
- Environment and Resources
- Environmental Studies
- Geography
- Geology
- International Relations
- Journalism
- Knowledge and Management
- Law
- Liberal Arts
- Marine Conservation
- Medicine
- New Media Theory
- Nursing: Human and Social Dimensions of S&T
- Philosophy
- Physics
- Political Economy
- Political Science
- Regional Science
- Science & Technology Studies
- Science, Technology & Public Policy
- Sociology
- Sustainability
Lori Hidinger has been Managing Director of CSPO since its inception in 2004 and now fulfills that role for SFIS. In 2015-16, Hidinger guided the transition of CSPO staff and faculty during the evolution into an academic unit at ASU. She has been instrumental in the recruitment of new faculty members and staff as well as orchestrating organizational growth into additional office space. In addition, she has been Editor-in-Chief of the Society for Range Management’s journal, Rangelands, for seven years.

Mahmud Farooque’s work focuses on linking science and innovation policy to improved decision-making and better societal outcomes. Farooque coordinates the New Tools for Science Policy Breakfast Seminars, CSPO Conversations, and Science Program Managers Network. He is the principal coordinator of Expert and Citizen Assessment of Science and Technology (ECAST) and is a Co-PI in the NOAA grant titled “Science Center Public Forums: Community Engagement for Environmental Literacy, Improved Resilience, and Decision-Making.” Farooque’s current interests in science and technology policy focus on innovation systems, research management, trans-disciplinary education and training, and participatory technology assessment.
Research

Featured: selected projects

True Stories Well Told: Using Narrative to Search for Harmonies Between Science and Religion

Funded by the Templeton Foundation, True Stories Well Told advances the proposition that science and religion can reinforce each other to allow a nuanced, profound, and rewarding experience of our world and our place in it. It uses creative nonfiction writing to explore and advance this proposition and build a new community of storytellers who will write, publish, and disseminate engaging and inspiring nonfiction narratives of harmonies, reconciliation, and even productive interaction between science and religion. Fellowships have been awarded, and the project will include a series of workshops beginning in fall 2016 to advance fellows’ skills in the creative nonfiction writing style. Finished pieces will be published in the magazine Creative Nonfiction and the journal Issues in Science and Technology.

• PIs: Lee Gutkind and Dan Sarewitz

A Year Without a Winter

In conjunction with the Frankenstein Bicentennial Project, A Year Without a Winter focuses attention on the climate crisis during which Mary Shelley’s novel was written and explores the implications of this momentous historical episode for our current confrontation with climate change. The transdisciplinary project brings together artists, writers, scientists, humanists and policy makers to articulate new narratives for living in uncertain futures. In 2016, Hannah and Selin collaborated with ASU’s PlanetWorks Initiative to design the workshop Planetary Design: Climate 3.0. As part of the project’s curatorial research toward a large exhibition in 2018 with the ASU Art Museum, fellows have been awarded, and the project will include a series of workshops beginning in fall 2016 to advance fellows’ skills in the creative nonfiction writing style. Finished pieces will be published in the magazine Creative Nonfiction and the journal Issues in Science and Technology.

• PIs: Cynthia Selin and Dehlia Hannah

Getting Energy Transitions Right

Over the past six years, SFIS and CSPO have built a significant research focus on global energy transitions. Societies know that future energy systems must dramatically reduce their carbon output, but getting to that future is highly complex. Because energy technologies are deeply embedded in markets, politics, and cultures, energy transitions have the potential to be highly disruptive. “There are a number of ways that these transitions could go wrong,” says Clark Miller, Director of the Center for Energy and Society. “We could fail to deliver reliable or inexpensive energy, for example, or we could end up creating new forms of injustice.” At the same time, “We risk missing a unique opportunity to accomplish a lot of social good. We need to design energy transitions not just to reduce carbon but also to achieve other societal goals like reducing inequality or improving resilience from the outset.”

This initiative encompasses a diverse array of projects to improve energy policy, assess the social drivers, dynamics, and outcomes of energy transitions, and enhance the capacity of institutions to analyze and manage the resilience of energy systems and their interdependencies with other infrastructure systems. The initiative has received approximately $3.8 million in external funding from the National Science Foundation (NSF), Department of Energy (DOE), US Navy, and US Agency for International Development (USAID). This funding has come largely through partnerships with interdisciplinary energy and resilience engineering projects at ASU and the National Academy of Engineering.

Miller co-leads several research groups within this collaborative undertaking. As participants in the NSF Urban Resilience to Extremes Sustainability Research Network and two other NSF projects, SFIS researchers help US and Latin American cities to create more resilient infrastructures. The energy policy training initiative of the USAID’s Partnership Center for Advanced Studies in Energy partners with Pakistan’s National University of Science and Technology in Islamabad and the University of Engineering and Technology-Peshawar to help create young leaders with the knowledge and skills to advance new energy solutions for the country’s failing energy systems. Miller also leads a team analyzing the social sustainability of large-scale deployment of photovoltaic energy systems under the Quantum Energy and Sustainable Solar Technologies Program (QESST) Engineering Research Center funded by NSF and DOE.

• Co-PI: Clark Miller
Space and Earth Informal STEM Education

The Center for Engagement and Training in Science & Society (CENTSS) is dedicated to using creative and innovative methods to change how people think, learn, and talk about science and technology. The Center conducts a variety of projects that bring together public audiences and science, technology, engineering, and mathematics (STEM) experts to consider the social dimensions of science and technology, including the Space and Earth Informal STEM Education (SEISE) project in collaboration with NASA.

SEISE integrates science-in-society perspectives into public engagement experiences that have broad reach across the United States. SEISE is one of 27 STEM education projects supported by NASA’s Science Mission Directorate (SMD) to improve public scientific literacy. “The range of selected projects shows that NASA recognizes the importance of learning that takes place outside of school,” said Rae Ostman, associate research professor with SFIS and project co-investigator. “SEISE, along with the other SMD science education projects, provides meaningful opportunities for people to learn about STEM throughout their lives.”

SEISE will provide museums and other informal learning organizations across the country with the tools and training to engage the public in learning about earth and space sciences. The project team is producing four hands-on activity toolkits that will be distributed annually to 250 sites, as well as small footprint exhibitions for 50 sites. The project will also offer professional development to informal educators through online workshops and other resources. SEISE leverages the National Informal STEM Education Network (NISE Net), which engages over 10 million people per year through the efforts of over 600 museums, universities, and other STEM-rich organizations. NISE Net is led by the Science Museum of Minnesota, the Museum of Science, Boston, and Arizona State University, and is directed by Ostman.

- ASU PI: Rae Ostman
CNS-ASU Gala

The Center for Nanotechnology in Society at Arizona State University (CNS-ASU) began its 11th and final year of funding from the National Science Foundation (NSF) this year. To review and commemorate its accomplishments as well as envision an ongoing research agenda, the Center held its “Advancing the Legacy of Anticipatory Governance” gala in May in Tempe. Designed as both a retrospective reflection on the Center’s work and an exploration of ways in which participants can — and already are — carrying on the legacy of the Center, the gala brought together more than 100 researchers, students, staff and professionals from nearly 50 institutions across 10 countries.

CNS-ASU combines research, training and engagement to develop new approaches to governing nano-scale science and engineering and other emerging technologies. It articulated and pursued a vision of anticipatory governance by helping to conceive and build social capacities for foresight, integration across academic disciplines, and participation by ordinary citizens in technically complex decision making.

The Center’s legacy includes not only a significant intellectual following for these core concepts and capacities, but also extensive training and human capital development at all levels, and new ways of interacting between social scientists on one hand and scientists and engineers, and informal science educators, on the other. While ideas of CNS-ASU will persist after its NSF funding expires, much of its agenda will be subsumed and extended in other centers created within the Institute for the Future of Innovation in Society, including the Center for Engagement and Training in Science and Society, and the Center for the Study of the Future.

VIRI

The Virtual Institute for Responsible Innovation (VIRI) was created to accelerate the formation of a community of scholars and practitioners who, despite divides in geography and political culture, will create a common concept of responsible innovation for research, training and outreach — and in doing so contribute to the governance of emerging technologies under conditions dominated by high uncertainty, high stakes, and challenging questions of novelty.

Night of the Open Door

Joining in ASU’s annual open house event offering the community a close up look at active research on campus, SFIS drew from the Frankenstein Bicentennial Project to host an activity that explores the complex social aspects of innovation. A project that invites conversations about questions of scientific creativity and responsibility is “Increasing Learning and Efficacy about Emerging Technologies through Transmedia Engagement by the Public in Science-in-Society Activities.” SFIS, the Center for Science and the Imagination, and the Ira A. Fulton Schools of Engineering collaborated in creating an interactive exercise to help people look at the effects of scientific and technological change on societies and cultures. Participants built a ScribbleBot out of simple materials, which was “brought to life” and set free on paper to “create its own art” via vibrations from an activated electric toothbrush causing the felt pen legs to scribble. Follow up questions inspired discussion of ownership and responsibility for the resulting art in addition to generating insight to the roles of humans and their technological creations.
Frankenstein Bicentennial Project

ASU’s Frankenstein Bicentennial Project encompasses a diverse array of public events, research projects, scientific demonstrations, competitions, festivals, physical and digital exhibits, and publications exploring Frankenstein’s colossal scientific, technological, artistic, and cultural dimensions. The bicentennial celebration extends from 2016 — the 200th anniversary of the “dare” on the shores of Lake Geneva in Switzerland that gave rise to the story — to 2018, the anniversary of the novel’s publication. ASU is a network hub for the global celebration of the bicentennial, encouraging and coordinating collaboration across institutions and among diverse groups worldwide.

“No work of literature has done more to shape the way people imagine science and its moral and social consequences than Frankenstein,” says Dave Guston, director of SFIS and a co-investigator on the project. “The novel, along with its many adaptations in film, theatre, and art, continues to influence the way we confront new technologies, imagine the motivations and ethical struggles of scientists, and weigh the benefits of innovation with its unforeseen pitfalls.”

Major milestones of the project achieved this year include:

- Continued development — under NSF funding — of the transmedia environment for Frankenstein, to advance learning about science-in-society concepts through the hands-on toolkit of “Frankenstein’s footlocker,” a set of maker challenges to encourage members of the public to build their own monsters, and the creation of a virtual environment in which members of the public can explore, create, curate and interact with images related to Frankenstein that tell important stories of creativity and responsibility;
- An international workshop, “Frankenstein’s Shadow: A Bicentennial Assessment of the Frankenstein Narrative’s Influence on Biotechnology, Medicine and Policy,” sponsored in part by and held at the Brocher Foundation, along the shores of Lake Geneva, in Switzerland — not far from the Villa Diodati, where Mary Shelley conceived of the novel;
- The issuing of a pair of dares for fiction and nonfiction writing inspired by Frankenstein; and
- The fellowship theme of “monsters” at ASU’s Institute for Humanities Research.

Events

Frankenstein memorabilia displayed at conference

Joey Eschrich of the Center for Science and the Imagination (CSI) in a Frankenstein Bicentennial video

The Future of Cheating, hosted by ASU’s Biodesign Institute

Dave Guston in a Frankenstein Bicentennial video

Frankenstein Bicentennial Project

Featured: selected outreach

Four years ago, Emerge: Artists + Scientists Redesign the Future launched in a few classrooms. In 2016 — its first under the auspices of the School for the Future of Innovation in Society — Emerge filled Wells Fargo, a Pac-12 basketball arena (literally to the rafters).

On any number of levels, Emerge 2016: The Future of Sport was the most successful yet. Numerically, it attracted a record 3,800 attendees, 105,000 live unique views on Twitch, almost double the number of follows on Twitter, almost double the number of friends on Instagram, unprecedented attention from The Arizona Republic, Channels 10 and 12, KJZZ, ASU Now, and on and on.

From day one, Emerge was designed to be the flag-raiser for President Michael Crow’s ambition to have ASU recognized as the most silo-busting university in the country. In 2016, however, the institutional cross-fertilization was extraordinary. How often do you see connections that include The Biodesign Institute, Sun Devil Athletics, W.P. Carey School of Business, the Curtain of Distraction, Ira A. Fulton Schools of Engineering, Science Cheerleaders, Herberger Institute of Design and the Arts, Arizona Storytellers, the Center for Science and the Imagination, Project Runway, the Sandra Day O’Connor College of Law, Ability 360, The School of Earth and Space Exploration, The Phoenix Mercury, Barrett Honors College, the Arizona Rattlers, The School of Public Service and Community Solutions, the Julie Ann Wrigley Global Institute of Sustainability, the College of Liberal Arts and Sciences, and Endgame — the Vatican of advanced computer gaming in Arizona?

But most satisfying were the smart and surprising ways its radically creative, playful and challenging “visitations from the future” engaged the audience like nothing they’d ever seen or imagined. The enthusiasm was contagious.

Emerge is an observation deck looking out on the future. We challenge people to express novel ideas in important ways. Emerge at core is about storytelling, asking penetrating questions with deep focus on building the futures we crave.

You can’t have better futures without better dreams.

— Joel Garreau, Founding Chief of Imagineering and Provocations
Global engagement
SFIS activities around the world

Morocco & Nepal

Study Abroad

The Morocco program explored the complexity of sustainable development, from policy to practice, and, in particular, sought to identify national priorities and local perspectives. “One theme that emerged for the group was the prioritization and emphasis, locally, on cultural sustainability despite technological change, and the imperative for socioeconomic inclusiveness,” said Mary Jane Parmentier, SFIS Clinical Associate Professor.

The Nepal program focused on increasing understanding of the challenges of risks and resilience in Nepal’s urban and rural environments as affected by two massive earthquakes in 2015. The program looked at sustainable livelihood systems and buffer zones to better understand urban and rural systems and wildlife conservation, and was led by Nalini Chhetri, SFIS assistant director.

Kenya and Uganda

In June, SFIS faculty Gregg Zachary and Jameson Wetmore, along with Concordia University faculty member (and former CNS-ASU postdoctoral research associate) Matthew Harsh, hosted a pair of workshops on “Computing Research as a Development Driver in East Africa.” These workshops marked the culmination of a three-year NSF-sponsored research study into how East Africans are addressing East African problems using computer science. The workshops were an opportunity for the computer science community to showcase its impressive innovations.

The first, held at Makerere University in Kampala, Uganda brought together 70 students, faculty, and staff from Makerere University, the University of Nairobi, Jomo Kenyatta University of Agriculture and Technology, and Carnegie Mellon University’s Rwanda Campus. Scholars presented projects on some of the latest computer science research, including smartphones that detect potholes and send the data to a centralized source to create a map of needed road repairs as well as a digital weather forecasting network to be built across Uganda. The second half-day workshop was held in Nairobi, Kenya and was co-sponsored by the African Center for Technology Studies. The event attracted 35 attendees, including a number of students who had developed apps for sale through African cell phone companies.

Pakistan

Director of the Center for Energy and Society, Clark Miller, and HSD PhD student, Carlo Altamirano-Allende, are part of an ASU team that is working with USAID and universities in Pakistan to develop energy research centers and improve the nation’s energy system. Miller traveled in March to Islamabad, where he led a three-day workshop on “energy policy and leadership” for graduate students at the project’s two partner universities: the National University of Science and Technology (NUST) and the University of Engineering and Technology-Peshawar. According to Miller, “Pakistan’s current energy system doesn’t meet the country’s needs in providing reliable power, providing inexpensive or carbon-free energy, or alleviating energy poverty. Pakistan needs a strong community of policy professionals and leaders who can help lead the country through a major transition to a 21st century energy system.” Miller and Altamirano also led a semester-long course in energy policy and leadership for 25 visiting graduate students who spent the spring semester at ASU. SFIS hosted one of the visiting students in the Center for Energy and Society and will host another two students and a visiting faculty member from NUST during the 2016 fall semester.

Ecuador Collaboration

SFIS collaboration with the Technical University of Ambato (UTA) represents an ambitious project supported by the Ecuadorian government to build a cadre of PhDs in the country and enhance the national research agenda. The program allows a cohort of scholarship grantees selected from UTA faculty to study in the US, and specifically at ASU, in multi-disciplinary programs. All participants begin with an MS in Global Technology and Development, including a one-credit seminar as an introduction to SFIS, its programs, and how they relate to Ecuador, UTA, and to each participant and his or her area of research interest.
After this incredible inaugural year, what could SFIS possibly do next? The most important thing is welcoming our first undergraduate students. Following a year of preparation — spearheaded by Jamey Wetmore, Andra Williams, Judy Weeks and Nalini Chhetri, who all received the Director's Service Award for their efforts — we’re excited to embark on this next stage of the School’s development and contribute to ASU’s most important mission.

Second, we are welcoming an incredible cohort of new faculty members. At its core are three SFIS faculty shared with The Polytechnic School of the Ira A. Fulton Schools of Engineering — Laura Hosman, Darshan Karwat, and Thad Miller. The vision of collaboration between SFIS and engineering includes shared hiring with the other five engineering schools, as well as creating a Center for Engineering, Policy and Society (CEPS) as a center of gravity for them and other engineering faculty members with whom we collaborate, focusing on such issues as infrastructure, humanitarian engineering, the Internet of things, and food, energy, water and health systems.

CEPS will be part of a larger structure launched in the coming year, the Institute for the Future of Innovation in Society (IFIS). Its ambitious vision anticipates a dozen or more research centers, each advancing its own agenda but interacting closely such that IFIS projects the idea of responsible innovation across both the university and the globe. The core centers will include: CNS-ASU, CSPO-DC, the Center for Engagement and Training in Science and Society, the Risk Innovation Lab, the Center for Science and the Imagination, the Center for Energy and Society, and the Center for the Study of the Future. Centers for health research and policy and for innovation and development will be added soon, as will one for Arizona innovation policy.

As this report goes to press, we have learned that for the second consecutive year, ASU has been named the most innovative university in the country, ahead of Stanford and MIT. SFIS aspires to remain an important — and reflective — contributor to innovation at ASU. To extend this momentum, the university has made SFIS one of its highest priorities. We’re proud to be in this position and hope that you will join us in assuring that the future is for everyone.

Support SFIS

As ASU’s newest transdisciplinary school, SFIS pursues the vision that the future is for everyone. To extend the vision of access, excellence and impact, SFIS will need broad support. Our priorities for development include:

1. Ensuring Student Access & Success

SFIS students will have access to an outstanding and individualized education that promotes global involvement, community service, creative expression and personal growth through:

- Undergraduate internships, scholarships and awards
- Graduate fellowships & mentorship programs
- Study Abroad and Science Outside the Laboratory

2. Elevating Academic Enterprise

The world class SFIS faculty will be provided with opportunities to nurture and maintain a rich academic environment through:

- Endowed professorships & directorships
- Visiting professorships
- Collaborative teaching fellowships and faculty awards

3. Fueling Discovery, Creativity & Innovation

SFIS’s companion Institute for the Future of Innovation in Society, IFIS, is committed to an outstanding research and outreach mission that is inherited from the Consortium for Science, Policy, and Outcomes through:

- Research center development

4. Enriching Our Communities

SFIS and IFIS aspire to be a force for social progress, economic growth and cultural enrichment that help create a future for everyone through:

- Public engagement
- Emerge
- Frankenstein Bicentennial Project
- New publishing and narrative reporting

Please consider a gift to support SFIS.

sfis.asu.edu
**Events**

**Compendium of activities**

**Singular Events**
- SFIS Launch Retreat, 8/18/2015
- Seminar - Dominique Brossard - Innovations in Society: Insights from Science Communication Research, 9/25/2015
- The Future of Robots & Humans—a conversation with John Markoff, 11/18/2015
- Informal Talk with Silvio Funtowicz, 11/17/2015
- Covering Climate Change: Past, Present, and Future, 1/12/2016
- Moderate, Temporary, and Responsive Solar Geoengineering with David Keith, 1/21/2016
- Science Fiction TV Dinner: Starships from the 1970s, 1/28/2016
- Sustainability Solutions Festival’s Family Day, 2/20/2016
- Make a Scribble-Bot - ASU Night of the Open Door/Tempe, 2/27/2016
- Covering Climate Change: Past, Present, and Future, 1/12/2016
- Essay Contest - Promoting Innovation for Equality, 3/1/2016
- Making a Scribble-Bot - ASU Night of the Open Door/Tempe, 2/27/2016
- Brown bag Seminar with Erik W. Johnston, 5/6/2016

**enLIGHTeNING Lunch series**
- Affective Computing (or Strange Little Computers that do Strange Little Things) - Brian David Johnson, 9/2/2015
- Decolonial Design Values: Discerning Distinctively Indigenous Sociotechnical Approaches - Marisa Duarte, 9/30/2015
- Sustainable Development Issues of Techno-optimism, Ecoenvironment & Responsibility - Armin Grunwald, 10/28/2015
- How to be Quixotically Unreflective: Surprising Results from Climate Change & Politics in Australia - Darrin Durant, 1/27/2016
- Helping Cities Cope with Disruptive Technologies: The case of Self-driving Cars - Lauren Withycombe Keeler, 2/24/2016
- Hacking is Making is Doing: Hacker and Makerspaces & the Hacker Spirit - Sarah Davies, 3/16/2016
- Electric Bikes: Ride into the Future of Electrified Transportation - Telpriore Tucker, 4/6/2016

**Future of ‘X’ Discussion Series**
- Future of Medicine, 10/5/2015
- Future of Consciousness, 2/15/2016
- Future of Oceans, 2/29/2016
- Future of Life, 3/14/2016
- Future of Artificial Intelligence, 4/11/2016

**Future in Film Screening Series**
- Back to the Future I & II, 10/22/2015
- Sleep Dealer, 11/9/2015
- Blade Runner, 4/7/2016

**Symposia**
- Appropriate technologies and experiential learning: Possibilities, pitfalls & pivots - Laura Hosman, 2/12/2016
- The technopolitics of infrastructure: Contesting sustainability in Portland, OR - Thaddeus Miller, 2/18/2016
- A community laboratory for democratic infrastructures - Darshan Karwat, 2/25/2016
- Technological change and information networks - Deborah Strumsky, 3/23/2016
- Below the surface: Linking water, power, and development in China’s South-North transfer project - Britt Crow-Miller, 4/8/2016
- Renewing indigenous relations in Canada through renewable energy - Greg Poelzer, 4/19/2016

**In Washington D.C.**
- Diversifying the Climate Dialogue, 9/21/2015
- From Asteroids to Oceans: Using Public Engagement to Inform Policy Decisions, 10/1/2015
- Nanotechnology Policy: Evolving and Maturing, 10/9/2015
- The Citizen between Science and Policy: Innovation in Governance and Climate Change Resilience, 10/22/2015
- Why We Need Risk Innovation, 11/18/2015
- Reframing the Debate around CRISPR and Genome Editing, 12/9/2015
- Climate Change: This Time, It’s Personal, 2/29/2016
- Innovation in Higher Education — Africa’s Turn, 4/29/2016
- #IdeasToRetire: Information Systems in Public Management, Public Policy, and Governance, 5/9/2016
- Citizen Science: Empowering a Robust National Effort, 6/7/2016
- Future Directions of Usable Science for Rangeland Sustainability, 6/15/2016
Peer reviewed

2016


2015


Other publications


Garbee, E. & Maynard, A. (2016). The future of personal satellite technology is here – are we ready for it? The Conversation.
NPR journalist and visiting scholar, Richard Harris, led a workshop on podcasting. Students engaged in a classroom activity: “Nano around the World.” Andrew Maynard produces Risk Bites, a YouTube video series that connects online casual learners with leading experts on the science of risk.

Images from 2015-2016

Highlights

Students (from left) Alicia Radatz Erko Fukumoto Elizabeth Garbee

HSD students (from left)Eric Kennedy

Mehrnad Fanooque

Lauren Wynecchia Katie Rich-Swetiz Heather Ross

Jennifer Richter Michael Crow

Robert Cook-Deegan and Emma Frow

Two new editions of The Rightful Place of Science book series (total seven editions) were issued: “Science on the Verge” and “Creative Nonfiction.” Lee Gutkind founded and edits Creative Nonfiction, a quarterly magazine featuring narrative nonfiction.

Participants at a workshop in Washington DC by the Albert Einstein Memorial at the National Academy of Sciences

Participants at a workshop in Washington DC by the Albert Einstein Memorial at the National Academy of Sciences

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Students engaged in a classroom activity: “Nano around the World.” Andrew Maynard produces Risk Bites, a YouTube video series that connects online casual learners with leading experts on the science of risk.

Communications

Continuing series

Reports issued included Informing NASA’s Asteroid Initiative - A Citizen’s Forum and Adaptation for a High-Energy Planet.

Lee Gutkind founded and edits Creative Nonfiction, a quarterly magazine featuring narrative nonfiction.

Issues in Science and Technology is edited by Dan Sarewitz.
Projects Research awards

Funded Projects

Adaptive Pathways to Climate Change: Livestock and Livelihoods in Gandaki River Basin, USAID, Netra Chhetri, PI, $335,163

An Application of Current Legal Precedents on Fault and Liability to Crashes Involving Automated Motor Vehicles, Diana Bowman, Co-PI, $200,000

Broadening Participation in the Social Studies of Emerging Technologies, National Science Foundation (NSF), David Guston, PI, $237,499

Building a Medical Information Commons, National Institutes of Health (NIH) via Baylor College of Medicine, Robert Cook-Deegan, Co-PI, $187,656

Building Resilience Against Climate Effects, Centers for Disease Control (CDC) and AZ Dept. of Health Services, Nalini Chhetri, PI, $135,000

Capacity Building in Computer Science as a Driver of Innovation, National Science Foundation (NSF), Jameston Wetmore, PI, Gregg Zachary, Co-PI, $248,101

Category 3: Sustainable large-scale deployment of perennial biomass energy crops, National Science Foundation (NSF), Netra Chhetri, Co-PI, $1,484,952

Citizen Science Tools, National Science Foundation (NSF-FORPS), Darlene Cavalier, Co-PI, $50,000

Collaborative Research: RIPS Type 2: Resilience Simulation for Water, Power & Road Networks, National Science Foundation (NSF) Program in Resilient Interdependent Infrastructure Processes and Systems, Clark Miller, Co-PI, $280,000

Collaborative Research: Workshop on the Anticipatory Governance of Complex Engineered Nanomaterials, National Science Foundation (NSF), David Guston, PI, $34,950

Engineering Life, European Research Council Consolidator Grant awarded to Jane Calkert, University of Edinburgh, Emma Frow, ASU PI, $11.5 million

Engineering Research Center (ERC): Quantum Energy and Sustainable Solar Technologies (QESST), National Science Foundation (NSF) ERC Program, Clark Miller, Project leader, $960,000

Future of Nanotechnology, Nanotechnology Collaborative Infrastructure Southwest (NCI_SW), Jamey Wetmore, Co-PI, $447,437

Exploring a Taxonomy for Citizen Science Tools Database, National Science Foundation (NSF-EAGER), Darlene Cavalier, Co-PI, $100,000

Game-Influenced Assessment: Cultivating Engaged and Purposeful Test Takers, Educational Testing Services, Sasha Barab, PI, $250,000


igERT: Person-Centered Technologies and Practices for Individuals with Disabilities, National Science Foundation (NSF) Integrative Graduate Education and Research Traineeship (IGERT) Program, Clark Miller, Co-PI, $305,000

Increasing Learning and Efficacy about Emerging Technologies through Transmedia Engagement by the Public in Science-in-Society Activities, National Science Foundation (NSF) Advancing Informal Science Learning Innovations in Development program, David Guston, Co-PI, Rae Ostman, Co-PI, $1,400,204

Informing Emergency and Risk Management Climate Knowledge in Arid Regions, NOAA's Climate Program Office's SARP program, Nalini Chhetri, PI, $68,445

Intellectual Property and Access to Noninvasive Prenatal Testing, Project lead: Robert Cook-Deegan, $364,784

InteShelWith: Unlocking Digital Literacies for Women and Girls in Africa, Intel, Sasha Barab, PI, $500,000

Motivating Bilingual Hispanic Youth towards STEM & STEM Cognate Study and Careers, National Science Foundation (NSF), Sasha Barab, PI, $1,200,000

Narrative Projections for Commercial Space Futures, NASA, Clark Miller, Co-PI, $39,000

Negotiating evidence and expertise in stem cell treatments, Lincoln Center for Applied Ethics and the Institute for Social Science Research at ASU, Emma Frow, PI, $3,850

Outdoor Thermal Comfort under Photovoltaic Canopies, TRIF/LightWorks, Nalini Chhetri, PI, $29,025

Pakistan Centers for Advanced Studies in Energy, USAID, Clark Miller, Project Lead, $1.52 million

Participatory Engagement for Energy Policy Planning and Decision Making, Allegheny Science and Technology (AST) contract with US Department of Energy (DOE), Mahmood Farooque, PI, Daniel Sarewitz, Co-PI, Ira Bennett, Co-PI, Jennifer Richter, Co-PI, Darlene Cavalier, Co-PI, $1,080,170

Participatory Technology Assessment of NASA's Asteroid Initiative, National Aeronautics and Space Administration, NASA, David Guston, PI, Ira Bennett, Co-PI, Mahmood Farooque, Co-PI, Darlene Cavalier, Co-PI, $198,308

PolSeq: Clinical Integration of Next-Generation Sequencing, Robert Cook-Deegan, PI, $47,393

Promoting career reflection among freshman biomedical engineering students, US National Consortium to Promote Reflection in Engineering Education (CPREE) funded by The Leona M. and Harry B. Helmsley Charitable Trust, Emma Frow, PI, $1,050,000

Promoting Gender Equity Amid Climate Variability and Resource Scarcity in Jordan: Understanding Climate Change from a Gender Perspective, Walton Sustainability Solutions Initiatives, Mary Jane Parmentier, Co-PI, Nalini Chhetri, Co-PI, $55,000

S.NET - Workshop: Building Better Futures: Junior Scholar Support for the 2015 Annual Meeting of The Society for the Study of Nanoscience and Emerging Technologies, National Science Foundation (NSF), Michael Bennett, PI, Daria Blozow, Co-PI, $24,959

Science Advanced through Virtual Institutes (SAVI): Virtual Institute for Responsible Innovation (VRI), National Science Foundation (NSF), David Guston, PI, Erik Fisher, Co-PI, $498,452

Science Center Public Forums: Community Engagement for Environmental Literacy, Improved Resilience, and Decision-Making, National Oceanographic and Atmospheric Administration (NOAA) Office of Education, Daniel Sarewitz, PI, Mahmood Farooque, Co-PI, Ira Bennett, Co-PI, $499,901

SciStarter 2.0: A Dashboard to Drive Research, Participation, and Community-building in Citizen Science, National Science Foundation (NSF-ASLS), Darlene Cavalier, PI, $299,000

Societal and Ethical Implications (SEI) Subaward of Georgia Tech's NNCI Coordinating Site Proposal, Jamey Wetmore, Co-PI, $375,000

Space and Earth Informal STEM Education (SEISE) project, NASA Science Mission Directorate, Rae Ostman, Co-PI, $600,000

SRN: Urban Resilience to Extreme Sustainability Research Network, National Science Foundation (NSF) Sustainability Research Network, Clark Miller, Project leader, $1.2 million

STR Cities: Engaging Expert Performances of Sociotechnical Imaginaries for the Smart Grid, National Science Foundation (NSF), Erik Fisher, PI, Jennifer Richter, Co-PI, $324,983

Supplement/Community-building Around Anticipation, Integration and Public Engagement at CNS-ASU, National Science Foundation (NSF), David Guston, PI, $500,000

Sustainability in Science Museums, Walton Sustainability Solutions Initiatives, Rae Ostman, Co-PI, $150,000

Sustainability Mapping of Sustainability Practices, School of Sustainability, ASU, Nalini Chhetri, PI, Anne Reichman, PI, $65,000

True Stories Well Told: Using Narrative to Search For Harmonies Between Science and Religion, John Templeton Foundation, Lee Gutkind, PI, Dan Sarewitz, Co-PI, Rae Ostman, Co-PI, $871,749

Using classroom games and activities to promote reflection on engineering design, US national Consortium to Promote Reflection in Engineering Education (CPREE) funded by The Leona M. and Harry B. Helmsley Charitable Trust, Emma Frow, PI, $1,000

UTA-ASU Preparatory Semester for UTA Faculty, International Research & Exchanges Board and USAID, Mary Jane Parmentier, PI, $86,869

Utilizing Climate Data to Inform Emergency Protocol, Arizona Department of Emergency and Military Affairs, Nalini Chhetri, PI, $100,000

Workshop on Politics of Science and Innovation Policy, National Science Foundation (NSF), Dan Sarewitz, PI, $35,210

Workshop on Research Agendas in the Societal Aspects of Synthetic Biology, National Science Foundation (NSF), David Guston, PI, Jenny Briean, Co-PI, $149,924

WSCI-Category 1: Advancing Infrastructure and Institutional Resilience to Climate Change for Coupled Water-Energy Systems, NSF Program in Water Sustainability and Climate, Clark Miller, Co-PI, $120,000

*Multi-year awards reported. †Only SFIS faculty are listed. ‡Some awards are shared with more than one unit.
Affiliated faculty

Linkages across the university

Joni Adamson, Department of English
Rimjhim Agarwal, School of Sustainability
Brad Abery, School of Sustainable Engineering and the Built Environment
John (Marty) Anderies, School of Human Evolution and Social Change and School of Sustainability
Derrick Anderson, School of Public Affairs
Brad Armendt, School of Historical, Philosophical, and Religious Studies
Michael Barton, School of Life Sciences
Vaugn Becker, The Polytechnic School, Human Systems Engineering Program
Gaymon Bennett, School of Historical, Philosophical, and Religious Studies
Nadya Bliss, Global Security Initiative
Chris Boone, School of Sustainability
Prasad Boradkar, The Design School
Marco Janssen, School of Sustainability
Mary Ingram-Waters, Barrett, the Honors College
Ben Hurlbut, School of Life Sciences
Elizabeth S. Huaman, School of Social Transformation
Kiril Hrishtovski, The Polytechnic School, Engineering Program
Mary Margaret Bowow, School of Social Transformation
Sybil Francis, Strategic Advancement
Matthew Fraser, School of Sustainable Engineering and the Built Environment
Joel Garreau, Sandra Day O'Connor College of Law
Monica Gaughan, School of Human Evolution and Social Change
Leah Gerber, School of Life Sciences
Peter Goggin, Department of English
Stephen Goodnick, School of Electrical, Computer and Energy Engineering
Ed Hackett, School of Human Evolution and Social Change, Emeritus
LaDawn Haglund, School of Social Transformation
DeHila Hannah, School for the Future of Innovation in Society
Richard Harris, Visiting Scholar
Hilary Hartnett, School of Earth and Space Exploration and School of Molecular Sciences
Arjun Heimsath, School of Earth and Space Exploration
Steve Helmst-Tillery, School of Biological and Health Systems Engineering
Mark Henderson, Barrett, the Honors College and The Polytechnic School, Engineering Program
Paul Hirt, School of Historical, Philosophical and Religious Studies
David Hondula, School of Geographical Sciences and Urban Planning
Christiana Honsberg, School of Electrical, Computer and Energy Engineering
Kiril Hristovski, The Polytechnic School, Engineering Program
Elizabeth S. Huaman, School of Social Transformation and Mary Lou Fulton Teachers College
Ben Hurlbut, School of Life Sciences
Mary Ingram-Waters, Barrett, the Honors College
Marco Janssen, School of Sustainability
Adriene Jenik, School of Art
Nathan Johnson, The Polytechnic School, Engineering Program
Christopher Jones, School of Historical, Philosophical and Religious Studies
Shawn Jordan, The Polytechnic School, Engineering Program
Kamal Kaloush, School of Sustainable Engineering and the Built Environment
Ann Kinzig, School of Life Sciences
Sally Kitch, School of Social Transformation
Sonja Kinsky, School of Sustainability
Ann Kobitz, School of Social Transformation
Kyunghee (Hazel) Kwon, Walter Cronkite School of Journalism and Mass Communication
Mirna Lattouf, College of Integrative Sciences and Arts
Manfred Laubichler, School of Life Sciences
Joe Lobn, School of Sustainability
John Lynch, Barrett, the Honors College
Jane Maienschein, School of Life Sciences
Arnold Maltz, W.P. Carey School of Business
David Manuel-Navarrete, School of Sustainability
Gary Marchant, Sandra Day O'Connor College of Law
Ben Minteer, School of Life Sciences
Tom Moore, School of Molecular Sciences
Traci L. Morris, American Indian Policy Institute
Karen Mossberger, School of Public Affairs
Soe Myint, School of Geographical Sciences and Urban Planning
Kathy Nakagawa, School of Social Transformation
Sethuraman “Panch” Panchanathan, ASU Knowledge Enterprise
John Parker, Barrett, the Honors College
Martin (Mike) J. Pasqualetti, School of Geographical Sciences and Urban Planning
Charles Perings, School of Life Sciences
Darren Petrucci, The Design School
Stephen Pyne, School of Life Sciences
Charles Redman, School of Sustainability
Jason Robert, School of Life Sciences
Duane Reen, Polytechnic Campus, College of Integrative Sciences and Arts, and University College
Bradley Rogers, The Polytechnic School, Engineering Program
Daniel Rothenberg, Sandra Day O'Connor College of Law
John Sabo, School of Life Sciences
Nicholas Schweitzer, School of Social and Behavioral Sciences
Kimberly Scott, School of Social Transformation
Thomas Seager, School of Sustainable Engineering and the Built Environment
Milan Shrestha, School of Sustainability
Andrew Smith, School of Life Sciences
Doug Sylvester, Sandra Day O'Connor College of Law
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