

First

Annual Report

2015–2016

School for the

Future

of Innovation in Society



The future is for everyone



SFIS faculty, students, staff and affiliates at 2015 launch of the School

Preparing for a world we want to inhabit

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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.



SFIS graduates at Spring 2016 Convocation

Welcome

to the **School
for the
Future of Innovation
in Society!**



David Guston
Founding Director

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.

The complexity that innovation presents is thus: We cannot afford not to innovate. Yet even the best innovations introduce new challenges, and the worst of them multiply challenges beyond solutions. Assuring a future for innovation that is good for all sectors of society requires novel skills and ideas that cut across disciplines. It requires thought leaders, decision makers, and members of the broader public who are uniquely capable of navigating toward a better future for everyone — not just a privileged few.

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.**

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/ae 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.

Academic roots



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



David Guston speaking at the Spring 2016 convocation ceremony

Programs



Gary Grossman
Associate Director
for Programs

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**.

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.



First graduation cohort of SFIS, 2015

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.



Jathan Sadowski's doctoral work in the HSD program focused on how political issues

such as power asymmetries, competing interests, ideological values, and uneven benefits and harms affect the design and use of technology. His current research focuses on critically analyzing the visions and politics of the "smart city": an urbanism movement that aims to transform how cities are built and governed through the use of information and communication technology.



GTD student Haytham Amin was funded by USAID to conduct research on information and communication technology in terms of organization, planning, and using feedback loops to help decision-making and to make sure stakeholders have a say in the improvement, development, or evaluation of social impact global development projects. Amin is conducting a year-long project, in cooperation with a local organization, Saldriaga Concha, in Bogota, Colombia.

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.



Upon graduation, MSTP alumna Jordan Hibbs accepted an offer with the U.S. Department of Energy's Building Technologies Office as a Management and Program Analyst. Hibbs earned admission to the competitive, government-sponsored Presidential Management Fellowship, a two-year training and development program. Previously, she interned with the Mosaic Taiwan Fellowship in Taiwan, where she was introduced to President Ma Ying-jeou.

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.



AEP student Adrianne Curley was a recipient of the CLAS Alumni Scholarship and the Fitch-Craig Scholarship. She graduated summa cum laude from ASU's Sociology program. Her research interests include ethical computer-mediated communication, internet privacy, intellectual property, responsive web design, user experience, and website credibility.



Ewan Morton, an Ira S. Fulton School of Engineering PhD student in Sustainable Engineering, is also

pursuing SFIS's Responsible Innovation in Science, Engineering, and Society (RISES) certificate, and was one of 12 participants in the Morocco study abroad program. At the Cadi Ayyad University in Marrakesh, Morocco, Morton had the opportunity to present her research on sustainable development.

Academics

Undergraduate programs (Fall 2016)

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.



New undergraduate class: Welcome to the Future

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.



Nalini Chhetri, Assistant Director, teaching engineering students



Jameson Wetmore, Chair of the Undergraduate Program, speaks with a student.

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.



Gregg Zachary, Professor of Practice, and Gaymon Bennett, Assistant Professor of Religion, Science, and Technology, lead discussion with students in the Future of 'X' event series.

Academics

Special programs

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.



A SOTL class cohort in Washington DC



Winter School held at Saguaro Lake Ranch in Mesa, AZ

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)

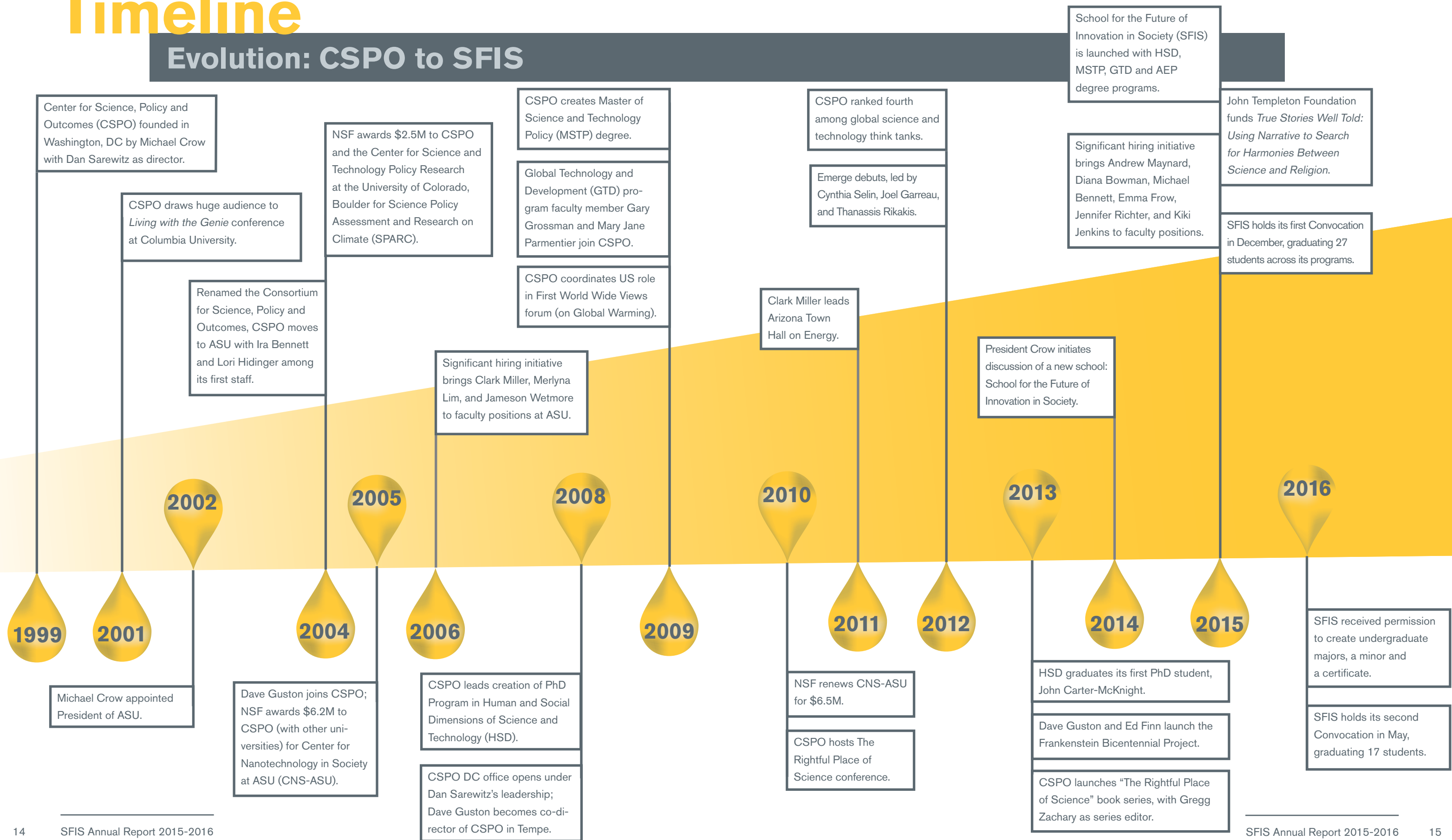
ASU Global Development Research Program (South Africa)
ASU School of Human Evolution and Social Change, Center for Archaeology and Society (Tempe, AZ)
Biomedical Advanced Research and Development Authority - BARDA, Office of the Assistant Secretary for Preparedness and Response, U.S. Department of Health and Human Services (Washington DC)
M+W Corporation (Phoenix, AZ)
Mosaic Taiwan (Taiwan)
Office of Rep. Kyrsten Sinema (Washington, DC)
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)
TransCen, Inc. (Rockville, MD)

Timeline

Evolution: CSPO to SFIS



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.



Number of alumni from SFIS (formerly CSPO) academic programs through spring of 2016

Faculty

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 humanities, 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.



Clark Miller
Associate Director for Faculty



David Guston, Founding Director of SFIS, is flanked by new faculty (from left) AJ Kumar, Jennifer Richter, Michael Bennett, Emma Frow, Diana Bowman, and Andrew Maynard.

Faculty

- David Guston**
Founding Director & Professor, Co-director of CSPO
- Gary Grossman**
Associate Director for Programs & Associate Professor
- Clark Miller**
Associate Director for Faculty & Associate Professor
- Ira Bennett**
Clinical Associate Professor, Co-director of CENTSS
- Michael Bennett**
Associate Research Professor
- Diana Bowman**
Associate Professor
- Darlene Cavalier**
Professor of Practice
- Netra Chhetri**
Associate Professor
- Robert Cook-Deegan**
Visiting Professor
- Erik Fisher**
Associate Professor
- Emma Frow**
Assistant Professor
- Elisabeth Graffy**
Professor of Practice
- Maria Gual Soler**
Assistant Research Professor
- Lee Gutkind**
Professor
- Richard Harris**
Visiting Scholar
- Joseph Herkert**
Associate Professor - Retired

- Jacqueline Hettel**
Assistant Research Professor
- Lekelia Jenkins**
Assistant Professor
- Brian David Johnson**
Professor of Practice
- Lauren Withycombe Keeler**
Postdoctoral Research Associate
- Andrew Maynard**
Professor, Director of Risk Innovation Lab
- Rae Ostman**
Associate Research Professor
- Mary Jane Parmentier**
Clinical Associate Professor
- Jennifer Richter**
Assistant Professor
- Hannah Rogers**
Postdoctoral Research Associate (2015-2016)
- Daniel Sarewitz**
Professor, Co-director of CSPO
- Cynthia Selin**
Assistant Professor
- Jesse Senko**
Postdoctoral Research Associate
- Keri Szejda**
Postdoctoral Research Associate
- Jameson Wetmore**
Associate Professor
- Gregg Zachary**
Professor of Practice

Faculty

Featured: selected faculty

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.



Diana Bowman

Associate Professor Diana Bowman conducts law and policy research in a wide range of areas including road safety, synthetic biology, nanotechnology, nanomaterial safety, and tobacco control. She is a member of an international scientific advisory board for the Enhanced Crash Investigation Study initiated by Monash University and the Transport Accident Commission of Victoria, which produces data on causes of crashes and injuries for engineers and designers to use. Bowman collaborates with researchers at the University of Michigan on the risks, benefits, and barriers associated with autonomous vehicle technology. She is also the editor of the Society for the Study of New and Emerging Technologies’ annual conference report.



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.



Faculty

Featured: selected faculty

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.



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*.



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.



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.

Disciplines of SFIS faculty

- | | | | |
|---------------------------------|-----------------------------|---|---------------------------------------|
| ▪ American Studies | ▪ English | ▪ Liberal Arts | ▪ Political Science |
| ▪ Anthropology | ▪ Environment and Resources | ▪ Marine Conservation | ▪ Regional Science |
| ▪ Applied Physics | ▪ Environmental Studies | ▪ Medicine | ▪ Science & Technology Studies |
| ▪ Biochemistry | ▪ Geography | ▪ New Media Theory | ▪ Science, Technology & Public Policy |
| ▪ Chemistry | ▪ Geology | ▪ Nursing; Human and Social Dimensions of S&T | ▪ Sociology |
| ▪ Cognition and Instruction | ▪ International Relations | ▪ Philosophy | ▪ Sustainability |
| ▪ Education Policy | ▪ Journalism | ▪ Physics | |
| ▪ Electrical Engineering | ▪ Knowledge and Management | ▪ Political Economy | |
| ▪ Engineering and Public Policy | ▪ Law | | |

Staff

Featured: selected staff

Lori Hidinger

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

Based in CSPO's Washington DC Office, 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.



Lori Hidinger

Director of Fiscal and Business Operations

Deron Ash

Program Manager, CNS-ASU

Jennifer Banks

Communications Coordinator, CNS-ASU

Margaree Bigler

Event Designer

Nalini Chhetri

Assistant Director

Jeannie Colton

Program Coordinator, CENTSS

Cindy Dick

Event Designer

Mahmud Farooque

Associate Director, CSPO-DC

Marissa Huth

Communications Specialist

April Khaing

Administrative Assistant, CSPO-DC



Staff and faculty celebrate winning the \$1000 social media challenge during Sun Devil Giving Day.

Staff

Bonnie Lawless

Program Coordinator

Jason Lloyd

Program Manager, CSPO-DC

Maren Mahoney

Program Manager, EPIC

Braulio Quesada

Business Operations Specialist Sr.

Patricia Ryan

Administrative Associate, CNS-ASU

Audra Tiffany

Administrative Associate, CNS-ASU

Judith Weeks

Coordinator, Academic Programs

Andra Williams

Coordinator Senior, Academic Programs

Michael Zirulnik

Program Manager, Think Write Publish



Braulio Quesada setting up for Homecoming activities

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*.

▪ Pls: 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, their article *Unseasonal Fashion: A Manifesto* explored speculative fashion design as an artistic response to climate change. The article was featured at the Museum of Modern Art symposium *Is Fashion Modern?* and was the basis of a solo exhibition of the work of Anne van Galen, *Dressing in a World of Endless Rainfall*, in Copenhagen in July 2016.

▪ Pls: Cynthia Selin and Dehlia Hannah



Lee Gutkind, Editor of Creative Nonfiction magazine



Illustration from A Year Without a Winter project



Glen Canyon Dam, Northern Arizona



PhD student Carlo Altimirano (left) and the director of the Center for Energy and Society, Clark Miller (center) with Pakistani scholars Nafeesa Irshad, Rabia Liaquat, and Hafeez M. Bilal Malik.

SFIS faculty and affiliates working on energy transitions

Joni Adamson, Hanna Breetz, Elisa Graffy, Christina Honsburg, Nate Johnson, Chris Jones, Kris Mayes, Thad Miller, Mike Pasqualetti, Jen Richter, Tom Seager, Debbie Strumsky, and Dave White. The initiative involves over a dozen current SFIS graduate students and has involved another 10 SFIS alumni, all of whom now work in the energy sector or in energy research.

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

Research

Featured: selected projects

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



Photo by Emily Maletz/NISE Network

SEISE activity

Achievements

Awards and accolades

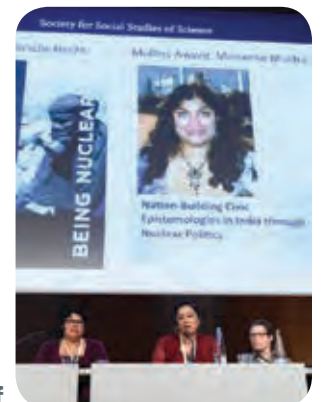
Over \$11 million in proposals & over \$5 million in awards

source: ASU OKED

Students

Monamie Bhadra (HSD) - 2016 Mullins Award from the Society for Social Studies of Science (4S)

Katie Curiel (GTD) - Ed Pastor Outstanding Graduate Award



Monamie Bhadra accepting Mullins award

Faculty and staff

Michael Bennett - elected President of the Society for the Study of New and Emerging Technologies (S.NET)

Jameson Wetmore - named the National Coordinator for the National Nanotechnology Coordinated Infrastructure's (NNCI) Societal and Ethical Implication program

Nalini Chhetri, Judith Weeks, Jameson Wetmore, Andra Williams - Director's Service Award

CSPO in the top 10 of Science & Technology think tanks

—the University of Pennsylvania Think Tanks and Civil Societies Program's 2015 Global Go To Think Tank Index Report

Events

Featured: selected outreach



Erik Fisher, Associate Director of Integration for CNS-ASU



Panel: Covering Climate Change: Past, Present, and Future with
Daniel Sarewitz, Co-director of CSPO
Richard Harris, NPR Journalist
Manjana Milkoreit, Senior Sustainability Fellow
Andrew Revkin, New York Times Science Writer

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.



Elizabeth Corley presenting research findings



CNS-ASU Gala

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.



Night of the Open Door - making Scribblebots, an activity from Frankenstein's Footlocker



The Future of Robots & Humans — a conversation with author John Markoff

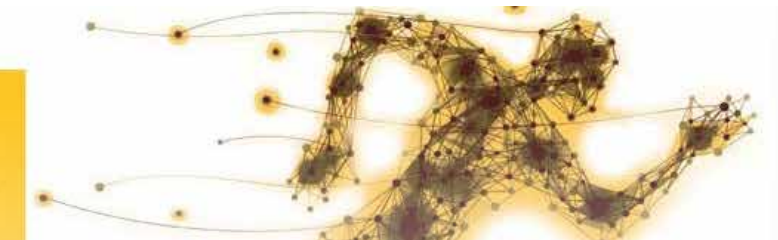


Participants in an activity at the CNS-ASU Gala

Events

BICENTENNIAL

emerge 2016
THE FUTURE OF SPORT 2040



Featured: selected outreach

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.



Dave Guston in a Frankenstein Bicentennial video



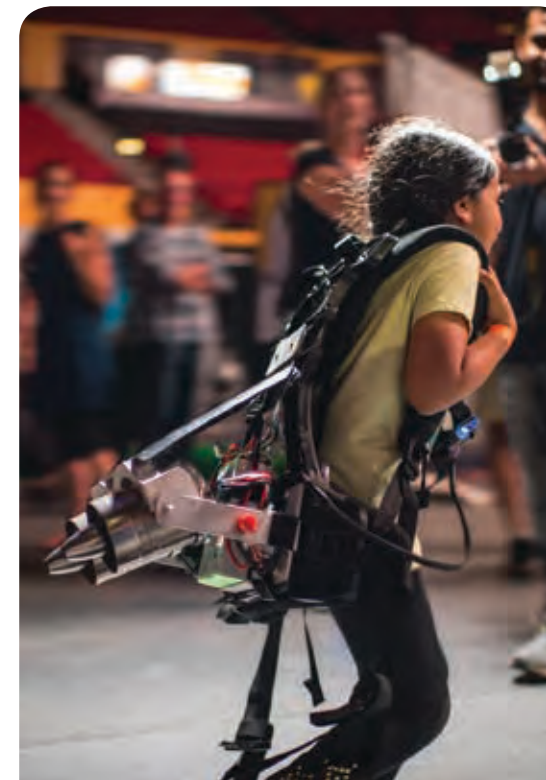
Franken-memorabilia displayed at conference

Joey Eschrich of the Center for Science and the Imagination (CSI)



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

Emerge visitor tests out a jetpack that propels her forward.



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, Gammage, 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 smart phones 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.



Study abroad group in Morocco

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.



Study abroad group visiting earthquake-affected school in Nepal

Clark Miller led the three-day workshop in Islamabad on energy policy and leadership.



Gregg Zachary (left) with project participants in Uganda



Netra Chhetri and Mary Jane Parmentier (left) with Ecuadorian scholars



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.

Looking ahead

Future of SFIS

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**.

Faculty

New appointments for fall 2016

Sasha Barab
Professor

Benedicte Callan
Clinical Associate Professor

Britt Crow-Miller
Assistant Professor

Mahmud Farooque
Clinical Associate Professor

Dehlia Hannah
Visiting Assistant Professor

Laura Hosman
Assistant Professor

Darshan Karwat
Assistant Professor

Lauren Withycombe Keeler
Visiting Assistant Professor

Denisa Kera
Visiting Assistant Professor

AJ Kumar
Assistant Professor (starting August 2017)

Thad Miller
Assistant Professor

Heather Ross
Clinical Assistant Professor

Deborah Strumsky
Assistant Research Professor



Please consider a gift
to support SFIS.
sfis.asu.edu

Support SFIS

As ASU's newest transdisciplinary school, SFIS pursues the vision that **the future is for everyone**. To extend this 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

**ASU selected nation's
most innovative
school for second
straight year**

U.S. News & World Report

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
- China's Science & Technology Policy—Can It Succeed? - Richard Appelbaum, 10/6/2015
- The Future of Robots & Humans—a conversation with John Markoff, 11/16/2015
- 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
- After Paris: Energy, Carbon, & Society In Global Transition, 2/23/2016
- Make a Scribble-Bot - ASU Night of the Open Door/Tempe, 2/27/2016
- Essay Contest - Promoting Innovation for Equality, 3/1/2016
- The Practices of Global Ethics, 3/24/2016
- Podcasting Basics: Oral Story - Telling for the Digital Age, 3/29/2016
- Emerge 2016 - The Future of Sport 2040, 4/29/2016
- 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, Ecomodernism & Responsibility - Armin Grunwald, 10/28/2015
- How to be Quixotically Unreflexive: 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
- What is BioArt? - Hannah Rogers, 4/27/16

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 indiginenous 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
- Different Technologies, Different Learning Rates: Policy implications for energy investments, 3/11/2016
- 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

Publications

by SFIS faculty and students

Peer reviewed

2016

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Highlights

Images from 2015-2016

Scenes from the August 2015 launch of the School for the Future of Innovation in Society



Lauren Withycombe Keeler, Dan Sarewitz, Heather Ross



Eric Kennedy



Heather Ross



Mahmud Farooque



Michael Crow



Robert Cook-Deegan and Emma Frow



Jennifer Richter



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 expertise on the science of risk.



NPR journalist and visiting scholar, Richard Harris, led a workshop on podcasting.



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



HSD students (from left)
Alecia Radatz
Eriko Fukumoto
Elizabeth Garbee

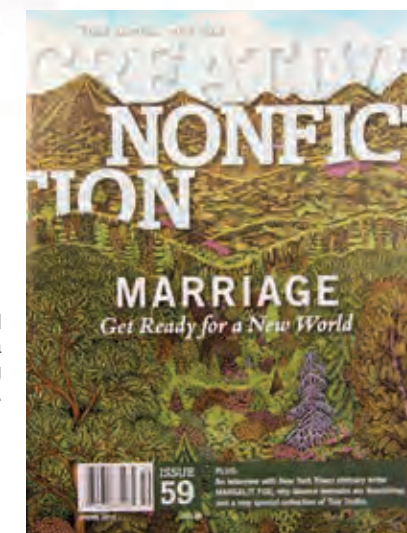
Communications

Continuing series



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.



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



Editorship of the *Journal of Responsible Innovation* moved from David Guston to Erik Fisher.



Issues in Science and Technology is edited by Dan Sartewitz.



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, \$237,489

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, \$125,000

Capacity Building in Computer Science as a Driver of Innovation, National Science Foundation (NSF), Jameson 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-iCORPS), Darlene Cavalier, 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, \$260,000

Collaborative Research: Workshop on the Anticipatory Governance of Complex Engineered Nanomaterials, National Science Foundation (NSF), David Guston, PI, \$34,250

Engineering Life, European Research Council Consolidator Grant awarded to Jane Calvert, University of Edinburg, Emma Frow, ASU PI, \$1.5 million

Engineering Research Center (ERC): Quantum Energy and Sustainable Solar Technologies (QESST), National Science Foundation (NSF) ERC Program, Clark Miller, Project leader, \$360,000

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

Greening Wilson School District, US Forest Service and City of Phoenix, Nalini Chhetri, collaborator.

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, \$300,000

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, \$1,800,204

Informing Emergency and Risk Management Climate Knowledge in Arid Regions, NOAA's Climate Program Office's SARP program, Nalini Chhetri, PI, \$98,443

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

IntelSheWill: 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, \$29,925

Pakistan Centers for Advanced Studies in Energy, USAID, Clark Miller, Project Lead, \$1.62 million

Participatory Engagement for Energy Policy Planning and Decision-making, Alleghany Science and Technology (AST) contract with US Department of Energy (DOE), Mahmud 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, Mahmud Farooque, Co-PI, Darlene Cavalier, Co-PI, \$196,908

PoliSeq: Clinical Integration of Next-Generation Sequencing, Robert Cook-Deegan, PI, \$47,793

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, \$1,000

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, Diana Bowman, Co-PI, \$24,895

Science Advanced through Virtual Institutes (SAVI): Virtual Institute for Responsible Innovation (VIRI), 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, Mahmud 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-AISL), Darlene Cavalier, PI, \$299,000

Societal and Ethical Implications (SEI) Subaward of Georgia Tech's NNCI Coordinating Site Proposal, Jamey Wetmore, 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 Extremes Sustainability Research Network, National Science Foundation (NSF) Sustainability Research Network, Clark Miller, Project leader, \$1.2 million

STIR Cities: Engaging Expert Performances of Sociotechnical Imaginaries for the Smart Grid, National Science Foundation (NSF), Erik Fisher, PI, Jennifer Richter, Co-PI, \$324,683

Supplement/Community-building Around Anticipation, Integration and Public Engagement at CNS-ASU, National Science Foundation (NSF), David Guston, PI, \$250,000

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, \$5,000.

True Stories Well Told: Using Narrative to Search For Harmonies Between Science and Religion, John Templeton Foundation, Lee Gut-kind, 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, \$88,680

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

Workshop on Politics of Science 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 Brian, Co-PI, \$149,924

WSC-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 Aggarwal, School of Sustainability
 Brad Allenby, 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 Human Evolution and Social Change
 Vaughn 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
 Barry Bozeman, School of Public Affairs
 Hanna Breetz, School of Sustainability
 Jennifer Brian, Barrett, the Honors College
 Matthew Chew, School of Life Sciences
 Jim Collins, School of Life Sciences
 Elizabeth Corley, School of Public Affairs
 Michael Crow, ASU President
 Richard Creath, School of Life Sciences
 Maria Cruz-Torres, School of Transborder Studies
 Kevin Desouza, School of Public Affairs
 Gary Dirks, Julie Ann Wrigley Global Institute of Sustainability
 Marisa Duarte, School of Social Transformation
 Hallie Eakin, School of Sustainability
 Karin Ellison, School of Life Sciences
 Mary Feeney, School of Public Affairs
 Ed Finn, School of Arts, Media and Engineering, Department of English
 Mary Margaret Fonow, 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
 Dehlia Hannah, School for the Future of Innovation in Society
 Richard Harris, Visiting Scholar
 Hilairy Hartnett, School of Earth and Space Exploration and School of Molecular Sciences
 Arjun Heimsath, School of Earth and Space Exploration
 Steve Helms-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 Hrishtovski, 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
 Kamil Kaloush, School of Sustainable Engineering and the Built Environment
 Ann Kinzig, School of Life Sciences
 Sally Kitch, School of Social Transformation
 Sonja Klinsky, School of Sustainability
 Ann Koblitiz, School of Social Transformation
 Kyounghee (Hazel) Kwon, Walter Cronkite School of Journalism and Mass Communication
 Mirna Lattouf, College of Integrative Sciences and Arts
 Manfred Laubichler, School of Life Sciences
 Jose Lobo, 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 Minter, 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
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 Charles Perrings, 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 Roen, 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
 Trevor Thornton, School of Electrical, Computer and Energy Engineering
 Hoyt Tillman, School of International Letters and Cultures
 Tamara Underiner, School of Film, Dance and Theatre
 Sander van der Leeuw, School of Human Evolution and Social Change and School of Sustainability
 Willem Vermaas, School of Life Sciences
 Xin Wei Sha, School of Arts, Media and Engineering
 Eric Welch, School of Public Affairs
 Elizabeth (Libby) Wentz, College of Liberal Arts and Sciences, Social Sciences
 Paul Westerhoff, School of Sustainable Engineering and the Built Environment
 Christopher Wharton, School of Nutrition and Health Promotion
 Dave White, School of Community Resources and Development
 Michael White, School of Life Sciences, Emeritus
 Arnim Wiek, School of Sustainability
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 Ruth Wylie, Mary Lou Fulton Teachers College



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