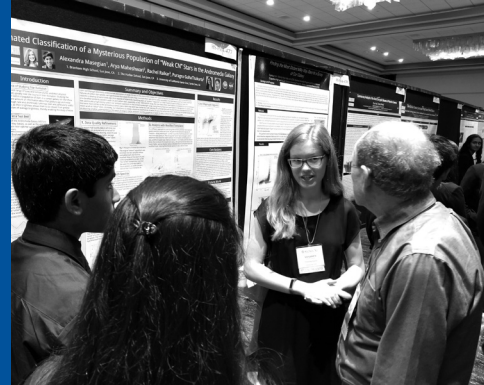


2020–2025 STRATEGIC PLAN

OUR MISSION

To enhance the health of the research enterprise, foster integrity in science and engineering, and promote the public's understanding of science for the purpose of improving the human condition.

OUR GOALS



EDUCATION



LEADERSHIP



DIVERSITY



EXCELLENCE

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ABOUT SIGMA XI

Sigma Xi was founded in 1886 at Cornell University by a group of engineering students and a junior faculty member, Frank Van Vleck. From the beginning, the founders emphasized that the new scientific honor society would be broad in its outlook, devoted to all of science and engineering. Cornell geology professor Henry Shaler Williams soon became the fledgling society's chief mentor, serving as the first elected president and a leader of the growing organization until the turn of the century.



Sigma Xi was designed to reward excellence in scientific research and to encourage a sense of companionship and cooperation among scientists in all fields. In selecting a name and motto for the new honor society, the founders chose a combination of Greek letters—Sigma Xi—not being used by any other group. Later, a motto based on these initials was developed to confirm its purpose: *Spoudon xynones*, or “Companions in Zealous Research.”

Sigma Xi's Centennial in 1986 provided an opportunity to address issues of importance to science and society in the decades ahead. With support from the National Science Foundation, Sigma Xi sought to develop “A New Agenda for Science,” a project that identified seven important areas for ongoing consideration: public understanding of science, science in the policy development process, interdisciplinary research, science education, the international dimension, cooperation—not competition—in science and technology, and ethical issues involving science and technology.

In response, Sigma Xi adopted an expanded mission statement in 1989: to honor scientific accomplishments, to encourage and to enhance the worldwide appreciation and support of original investigation in science and technology, and to foster worldwide a creative and dynamic interaction among science, technology, and society. The mission has continued to evolve as international research priorities have shifted.

Today, Sigma Xi has nearly 30,000 active members in over 500 chapters in the U.S., Canada and other countries, including Switzerland, Thailand, Lebanon, New Zealand, and Australia. Sigma Xi chapters are found wherever scientific research is undertaken in universities, colleges, industrial research facilities, and government laboratories. Recent presidents of Sigma Xi have included Nobel laureate Frederick Robbins, National Medal of Science recipients Geraldine Richmond and Kumar Patel, presidential science advisor Neal Lane, and National Science Foundation Director Rita Colwell.

For Further Reading:

See the September–October 1986 issue of *American Scientist*, which contains a review of Sigma Xi's distinguished history by Michael M. Sokal.

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CULTURE, MISSION, and VISION

Culture: The Society is a diverse organization of members and chapters dedicated to companionship in science and engineering and to the advancement of knowledge through research, service, and teaching.

Mission: To enhance the health of the research enterprise, foster integrity in science and engineering, and promote the public's understanding of science for the purpose of improving the human condition.

Vision: Sigma Xi is the global interdisciplinary society that promotes ethics and excellence in scientific and engineering research.

CORE PRINCIPLES

Sigma Xi is guided by a set of core values that advance research:

- **Excellence:** Promoting excellence in all aspects of science and engineering
- **Integrity:** Fostering truthfulness and ethical conduct of research
- **Diversity:** Ensuring equitable opportunities for research and an inclusive environment for all
- **Scholarship:** Advancing science and engineering education and training
- **Leadership:** Cultivating the skills and tools to inspire others while delivering results
- **Cooperation:** Encouraging mentorship and collaboration among scientists and engineers



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STRATEGIC FRAMEWORK

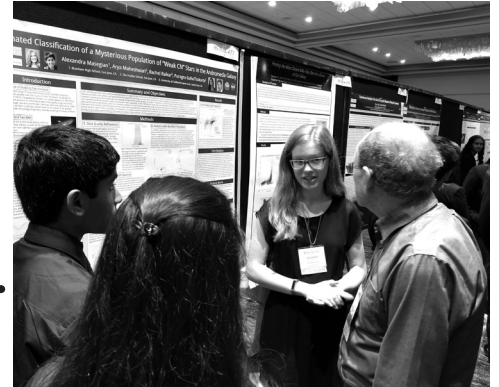
These four priorities will guide Sigma Xi leadership, members, and staff as we pursue our mission and achieve our vision.

Priority 1. Advance STEM Education: To ensure that research is viewed as a source of knowledge, an economic driver, and a pathway to solutions for global problems. Sigma Xi will promote research, encourage scholarship, and participate in the betterment of education practices and training at all levels.

Priority 2. Promote Scientific Leadership and Influence: To engage, develop, and promote talented leaders who exemplify the Society's values and advance its core principles. To achieve societal impact by promoting ethical conduct in research and education, advocating for evidence-based government policies, and building public confidence in research. Our members have much to contribute to policies and practices affecting research and education. Sigma Xi will empower its members, while developing talent at all organizational levels.

Priority 3. Cultivate a Robust, Diverse, and Inclusive Community: To build a diverse and inclusive community, independently and through partnerships, that enriches our members both personally and professionally without preference to age, ethnicity, creed, cultural background, gender, national origin, physical disability, religious affiliation, or sexual orientation. Our members are our greatest asset and emerging talent from diverse, multidisciplinary/multisector backgrounds will be the future of this organization and the research enterprise.

Priority 4. Demonstrate Administrative Excellence and Fiscal Responsiveness: To focus on effective governance and policies that enable swift, transparent, and effective decision making. To deliver high-caliber service to our leadership and all our members. To capitalize on economic opportunities and manage fiscal challenges. Efficient operations are key to achieving our organizational objective: a principled business model that enables the Society to serve current and future generations of scientists and engineers.



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OPERATIONAL FRAMEWORK

Our operational framework consists of a disciplined process and logical set of connected activities that make our strategy work. It positions us to set clear priorities, collect and analyze performance data, routinely assess the quality of our programs, and refine our plans. To effectively address its priorities, Sigma Xi will pursue specific goals:

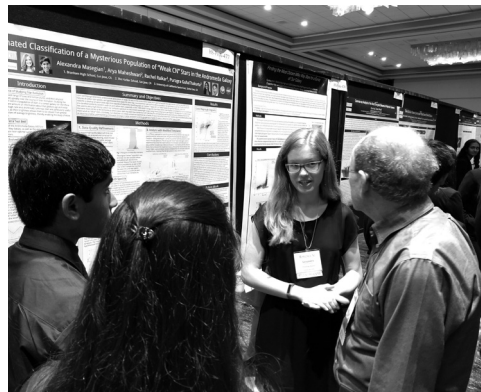
PRIORITY 1: ADVANCE STEM EDUCATION

Goals:

A. Promote research for K–12 students and develop STEM resources for teachers

Sigma Xi has a distinguished history of promoting science and engineering scholarship.

We are committed to ensuring that the researchers of the future continue to advance knowledge and provide solutions to 21st century global problems. Building on STEM advancements, such as adaptive support and experiential learning, ***Sigma Xi will catalyze*** innovation in the classroom by creating K–12 STEM education resources, supporting educators, and promoting research.



B. Support graduate and undergraduate research opportunities

Many Sigma Xi members and chapters are based on university campuses, where students are developing their research skills. Early entry into the research laboratory can launch a student toward a successful STEM career. Pursuit of a higher degree increases the need for mentorship, training, and professional development. ***Sigma Xi will guide*** young researchers by supporting research opportunities and building research competencies.

C. Promote student-centered graduate education programs

Graduate programs have historically focused on the narrow path toward academic positions, despite more than 50 percent of PhDs working outside of academia. Research has shown that individuals who hold advanced degrees are interested in industry, government, and other sectors, highlighting a misalignment between program design and career expectations. In addition, students pursuing advanced degrees have expressed a need for cultural change in the academy to provide a more inclusive and more supportive environment that respects the needs and goals of all students. ***Sigma Xi will help create*** a more student-centered educational experience at colleges and universities.

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D. Provide education, training, and development opportunities for research professionals

Research is rapidly evolving. Whether it is new analytical methods, interdisciplinary collaborations, ethic concerns, or lab management strategies, researchers have to continually adapt to maintain excellence in their fields. Sigma Xi members—from postdocs to emeritus professors—must be lifelong learners. Sigma Xi is a destination for gaining useful professional skills. Through chapter events, annual meetings, or virtual interactions, Sigma Xi provides valuable education, training, and development opportunities. ***Sigma Xi will prepare researchers*** by developing professional training opportunities and sharing information and analysis on the latest trends and topics affecting the research enterprise.

PRIORITY 2. PROMOTE SCIENTIFIC LEADERSHIP AND INFLUENCE

Goals:

A. Expand and strengthen leadership programs and provide leadership opportunities

Sigma Xi has a tradition of providing scientific leadership and service to society. To build on these contributions, we commit to developing leadership skills among our members and preparing them to excel in their careers. ***Sigma Xi will prepare members*** to affect change and deliver results within their networks through training and by providing leadership opportunities at all levels of the Society to hone these skills.



B. Recognize scientific leaders and engage on matters of importance to the research enterprise

Sigma Xi encourages leadership based on the core principles of the Society: excellence, integrity, diversity, scholarship, and cooperation. Leaders who embrace these principles within the research community help advance our mission. The Society recognizes such exemplary individuals through membership, awards, grants, and participation in Society activities. ***Sigma Xi will expand*** its efforts to recognize individuals who exhibit these attributes and create opportunities for them to influence the research enterprise.

C. Convene key science and engineering leaders to advance research and education

Sigma Xi is uniquely able to convene key science and engineering leaders to advance STEM education and research. Sigma Xi boasts prominent scientific and engineering leaders—from presidential advisors to Nobel laureates—among its multidisciplinary membership. ***Sigma Xi will explore*** the state of the research enterprise and deliver solutions to pressing challenges by convening and mobilizing luminaries and key thought leaders worldwide.

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D. Build public trust by demonstrating the ethical nature and importance of research

Support for research depends on public confidence in scientists and engineers, a basic understanding of the scientific process and outcomes, and a sense of having a shared vision and values. Sigma Xi builds public trust by articulating the values, goals, and processes that guide the research community, promoting a culture of ethics and integrity, and incorporating perspectives from diverse populations. ***Sigma Xi will strengthen*** public confidence in research by demonstrating the integrity of the people and processes involved, and demonstrating the benefits of science to all.

E. Advocate for science and science policy

In recent years, an atmosphere of skepticism about science has emerged in public discourse. From unsophisticated campaigns focused on the shape of Earth to serious challenges against the science of climate change, there are growing efforts to undermine established knowledge and delegitimize the scientific process. The rise of skepticism coincides with a trend of anti-science policies in local, state, and national governments. To preserve the integrity of the research enterprise, ***Sigma Xi will advocate*** for the use of scientific evidence in public policy and for policies that advance research. ***Sigma Xi will also provide*** training opportunities for members to contribute to the policymaking process.

F. Increase volume, value, and quality of Sigma Xi communication initiatives

Sigma Xi is a leader in research communications, including engagement with scientist and non-scientist audiences and publishing critical reports, white papers, manuals, and original research. *American Scientist*, the Society's most prominent publication, has been a platform for scientists and engineers to communicate across disciplines for more than 100 years. Since 1937, the Society's Distinguished Lectureships program has supported lectures by prominent scientists and engineers worldwide. New media platforms have created opportunities to communicate science to large, diverse audiences. Sigma Xi's Student Research Showcase, for example, allows students to compete for prizes by presenting their research online. ***Sigma Xi will increase*** the impact of its communications efforts by providing communications training and increasing opportunities for members to engage with diverse audiences. ***Sigma Xi will also explore*** new publishing content and formats to increase the impact of its work.

G. Establish mission-related partnerships with compatible organizations

Sigma Xi's partners deliver meaningful support and collaboration on programs and activities. Our most successful partnerships are strategically developed to achieve specific, mutually-desired outcomes. Future partnerships will be based on thorough analysis to determine who has an interest in helping Sigma Xi achieve its goals. ***Sigma Xi will enhance*** the value of its partnerships by renewing its commitments with its current partners and identifying new collaborators that share our mission goals.

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PRIORITY 3. CULTIVATE A DIVERSE, ROBUST, AND INCLUSIVE COMMUNITY

Goals:

A. Develop and support Sigma Xi community initiatives for diverse members in all research sectors: academic, industry, and government

Sigma Xi's network of chapters and its growing community of members-at-large are among its most valuable assets. Our chapters represent a local footprint that serves the research community by connecting researchers from various career stages and wide-ranging professional settings. The Society invests in and nurtures this network to achieve its goals, which include advancing STEM education, promoting scientific integrity, influencing public policy, and engaging the public. ***Sigma Xi will strengthen*** its chapter network by increasing support for chapter events and developing innovative local programming.



B. Recruit and integrate underrepresented groups into science and engineering

The composition of the STEM student population and workforce does not reflect the gender, ethnic/racial, or economic demographics of U.S. national or global citizenry. Sigma Xi's diversity statement published in 1993 proclaims that to have a positive influence on the future of scientific research and the world, Sigma Xi must steadfastly commit to opening the scientific and engineering community, as well as the Society itself, to all persons. ***Sigma Xi will increase*** the representation and sense of inclusivity within the Society and the research enterprise by giving voice and visibility to the diversity of researchers whose contributions strengthen our organization and the research community; by building more bridges to diverse communities; and by eliminating barriers encountered by underrepresented groups who seek to become scientists and engineers.

C. Extend Sigma Xi's reach throughout the international research community

Scientific research is a global endeavor and Sigma Xi members live, learn, and work around the world. It is imperative that scientists have the freedom to cooperate with their colleagues from all nations. Global cooperation harnesses unique talent, distributes financial responsibilities, and expands the scale at which research can be conducted. In addition, international research can advance cultural and professional norms and strengthen diplomatic ties. ***Sigma Xi will expand*** its relationship with the international research community by engaging members and colleagues worldwide.

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D. Broaden and strengthen participation in local, regional, and national activities

Sigma Xi chapters and clusters of members-at-large may represent the most distinguished science and engineering groups within reach of some communities. These groups have an opportunity to serve as a conduit of scientific information and expertise to the wider community. Local chapter events can facilitate two-way engagement opportunities between Sigma Xi members and their neighbors. Individuals who do not qualify for Sigma Xi membership but have an interest in our mission may join the Affiliate Circle and be involved with chapters in their area. ***Sigma Xi will broaden*** engagement activities globally by promoting and supporting chapters and members seeking to connect within their communities and beyond.

E. Increase efforts to recognize qualified members and provide needed services

One of Sigma Xi's key roles is to celebrate excellence in science and engineering, therefore members are encouraged to recognize individuals who embody the talent and values of the Society. When members nominate outstanding researchers for the honor of membership, they are acknowledging their peer's accomplishments and inviting them to be a part of our mission. The nomination of an outstanding scientist or engineer connects them to the Society and all the benefits and opportunities that entails. ***Sigma Xi will increase*** recognition of those who exemplify the principles of the Society by intensifying its nomination efforts and determining the needs of all its members.

PRIORITY 4. DEMONSTRATE ADMINISTRATIVE EXCELLENCE AND FISCAL RESPONSIVENESS

Goals:

A. Enhance monitoring and reporting on program performance

Sigma Xi has a successful record of designing, implementing, and reporting on its diverse programs—from its nearly 100-year Grants in Aid of Research (GIAR) program to its more recently launched Student Research Showcase. To expand and improve on these programs, ***Sigma Xi will establish*** a robust monitoring and reporting regime to manage costs, support the scaling of programs, and guide program innovations.



B. Deliver exemplary governance

The Society's governance structure is based on a traditional model dating back many decades. In our modern, technological society, where organizations similar to Sigma Xi have adopted innovative governance models, it is timely for the Society to benchmark itself against comparable organizations and organizations it aspires to emulate. To modernize and strengthen its governance structure, ***Sigma Xi will explore and implement*** innovations that would improve the Society's oversight, planning, and decision-making processes.

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C. Develop high-functioning leadership practices across the Society

Sigma Xi relies on its Board of Directors and chapter leaders to fulfill its mission and set a course to achieve its vision. Society leaders should follow best practices and guidelines as described by the scientific non-profit management industry. Directors should be trained and equipped to collectively serve as a strong, high-functioning working group that provides appropriate oversight and reliable solutions to critical issues facing the Society. Chapter leaders should be able to properly administer the duties of their offices and serve the needs of their members. ***Sigma Xi will strengthen*** its leadership across the organization by providing key training and development opportunities.

D. Improve data collection, management, and security

Data is the lifeblood of Society operations. Tools and platforms for data management are continually improving. For Sigma Xi to effectively serve the needs of its membership and achieve its mission, we must be vigilant about the quality, security, and reliability of our data systems. ***Sigma Xi will improve*** its data services by analyzing its data collection, management, and security requirements and implementing recommended modifications.

E. Raise awareness of Sigma Xi and its mission

We live in a competitive attention economy that limits the amount of time to tell our story to members and stakeholders. Sigma Xi rises above this crowded environment through its reputation and appeal to broad audiences. New media and novel marketing tools present novel opportunities for Sigma Xi to extend its reach. ***Sigma Xi will raise*** awareness of the Society and its mission by investing in a modern branding and marketing strategy.

F. Meet the growing financial needs of the Society

Sigma Xi is a large and complex organization that serves an international community of scientists and engineers. In addition, its programs and activities serve the noble goal of improving the human condition through education, research, and policy. Maintaining an organization of this stature requires a robust fundraising infrastructure. Sigma Xi's development and fundraising enterprise engages the universe of potential resources from individuals to corporations. There is a need to expand and enhance these efforts to build on its mission goals for the 21st century. ***Sigma Xi will meet*** the growing financial needs of the Society by boosting its fundraising capacity.

G. Maintain fiduciary responsibilities and optimize business performance

Each year, Sigma Xi creates revenue and accepts generous gifts from members, patrons, and stakeholders to sustain the organization and fulfill its mission. To this end, ***Sigma Xi will maintain*** its fiduciary responsibility and optimize business performance by budgeting responsibly, investing wisely, and monitoring its investments faithfully.