
STRATEGIC GOAL #10: ELEVATE RESEARCH

Strengthen Mason's research and scholarship portfolio to solidify the institution's position as a public research university of the highest caliber.

Our vision of a world-class research university is one that produces discoveries and knowledge that address pressing world problems and reveal promising futures. Equally important, a great research university must excel at integrating the new knowledge it creates into contemporary education programs, and into producing future generations of thought leaders, innovators, and entrepreneurs, a creative and informed workforce, and citizens who use their knowledge to advance a free, just, and prosperous society. Strengthening our capacity to conduct world-class research and scholarship also positions the university as an engine for innovation and growth in our region, the commonwealth, the nation, and the world.

Mason entered the top echelon of U.S. research universities—the Carnegie “Very High Research” (Tier 1) classification—in 2016. For the 2018-24 period, the university will continue to make strategic investments across disciplines to ensure our long-term performance as a Tier 1 research university. We will recruit and retain eminent tenure-track faculty to amplify Mason’s current intellectual strengths while also looking to expand our growing contributions in the STEM disciplines and in the human, social, and behavioral sciences, as well as in the arts and humanities.

We also will continue to value and support our faculty, with a view to increasing high-quality scholarly outputs and outcomes published or presented, including books, journal articles, conference proceedings, exhibits, documentaries, media expositions, and performances. We also will make investments to help faculty members increase their sponsored programs, with targeted efforts to stimulate multidisciplinary collaboration via centers and institutes. Growth in sponsored funding will help build a stronger foundation for Mason’s full-time graduate programs, master’s to PhD, and will enhance our research faculty and postdoctoral trainee communities. Increased performance in *all* of these areas is necessary to ensure Mason’s long-term status as a Research 1 university.

For our programs to grow and prosper, we must also provide our faculty and students with access to world-class infrastructure, including state-of-the-art data and information access, research facilities and labs, equipment and tools, and an empowering research administration enterprise that minimizes administrative burdens while ensuring the responsible conduct of research, scholarship, and creative work. Consequently, during the 2018-24 period, Mason will strengthen its investments in infrastructure, engaging in a comprehensive campus planning exercise to align and elevate our multidisciplinary research and scholarship, education programs and initiatives, and community engaged scholarship while also entering into strategic partnerships with other institutions, organizations, and enterprises to leverage world-class resources provisioned by these entities.

Metrics:

Metric #1: Achieve and maintain level of doctorate production, and resources for research, scholarship, and creative activities, comparable to the group of universities classified as Carnegie “Very High Research.”

Current Status: Completed. Mason received R1 classification in February 2016.

Metric #2: Increase annual sponsored expenditures for research, scholarship, and creative work to \$225 million, doubling federal funding to ~ \$130 million annually, increasing industry funding for research to ~\$20 million annually, increasing funding from foundation and institutional sources to ~\$65 million annually, and increasing state funding to ~\$10 million.

Current Status: Mason’s annual expenditures increased from \$98.7 million to \$108.9 million in 2016, as reported in NSF’s Higher Education Research and Development surveys. Federally sponsored expenditures decreased from \$61.9 million in 2014 to \$58.9 million in 2016; industry-sponsored expenditures increased from \$2.4 million in 2014 to \$2.7 million in 2016; foundation- and institutional-supported expenditures increased from \$31.9 million in 2014 to \$43.2 million in 2016; and state funding decreased from \$1.95 million in 2014 to \$1.7 million in 2015.

Metric #3: Recruit and retain 300 tenure-track and tenured faculty, with emphasis on amplifying Mason’s existing disciplinary strengths while also promoting multidisciplinary activities in research, scholarship, and creative activities.

Current Status: In 2014, the university had a tenure-track and tenured faculty body numbering 909. In 2017, the tenure-track and tenured faculty body had declined by 15 to 894.

Metric #4: Increase the number of doctoral graduates to more than 400 annually, and the number of students enrolled in doctoral programs to at least 3,600, with an increasing percentage of doctoral students enrolled full time.

Current Status: In 2014, 233 students graduated with PhDs and 2,135 students were enrolled in PhD programs, 49% of whom were enrolled full time. In 2017, 259 students graduated with PhDs and 2,064 students were enrolled in PhD programs, 50% of whom were enrolled full time.

Metric #5: Increase facilities utilization performance by doubling sponsored expenditures dollars per square foot, and increase investments in shared and multidisciplinary instruments and tools that support research, scholarship, and creative work from state and other sources to \$10 million annually.

Current Status: In 2014-16, the state invested ~\$500,000 annually of ETF funds in Mason research instruments and tools. In comparison, in the same years, the commonwealth made ETF investments of ~\$6.9 million and \$7.6 million annually in UVA and VT research instruments and tools, respectively.

Representative Accomplishments to Date:

- The institution achieved R1 classification ahead of schedule.
- Established a Business Engagement Council to develop partnerships for innovation in key sectors.
- In December 2015, Mason entered into a strategic partnership with the Inova Health System, and in May 2017, Mason became a founding member of the 501c3 Global Genomics and Bioinformatics Research Institute.

Sample Future Initiatives:

- Recruit and retain research development leaders to connect faculty with a greater number of funding opportunities and assist with the development of competitive proposals at single investigator, team, and center-scale levels.
- Implement a strategic business engagement program to strengthen Mason collaborations with the private sector.
- Develop contemporary enterprise systems and tools to support administration, evaluation, assessment, communications, and strategic planning around research, scholarship, and creative work.
- Develop and implement plan to invest Mason resources—both at institutional and academic unit levels—in the development of new research capabilities and in state-of-the-art laboratories equipped with cutting-edge research instruments and tools, as well as through community-engaged scholarship.
- Develop and implement a strategic multidisciplinary faculty recruitment and succession planning process to expand and enhance Mason’s research and scholarship and our contemporary education programs.
- Initiate the redesign of Mason’s support for graduate education to support a larger, full-time PhD community.
- Implement a master planning initiative to co-locate research and education programs, optimize utilization of Mason’s physical and IT infrastructure, and enhance the quality and quantity of Mason’s research and education programs.
- Increase investments in multidisciplinary research instruments and tools to enhance program outcomes.
- Create a working group to identify the automated systems and tools that will enable the support of a research enterprise that is double its current size. The working group will also identify costs and timeline to implement.

STRATEGIC GOAL #11: RESEARCH OF CONSEQUENCE

Enhance Mason research in domains of great academic, societal, and economic consequence.

In addition to elevating the quality and quantity of our research, scholarship, and creative activities—as described in Goal #10—we are committed to strengthening the *impact* of these outcomes in the global academic communities of which we are members, and with a broad range of partners and other stakeholders with whom we work or serve.

We will enhance the impact of our research and scholarship in multiple ways, supporting growth in highly cited contributions; increasing the number of national and international honors and awards received by Mason faculty; increasing the number of organizations or individuals engaged in Mason research, scholarship, and creative work programs, including as collaborators, participants, patients, and customers; and attracting and contributing to the continued success of advanced industries in the region and the commonwealth, including vibrant start-up communities.

To complement our existing strengths in disciplinary areas, we also have identified three multidisciplinary research initiatives whose portfolios of outcomes promise significant academic, societal, and economic consequences. These initiatives include:

- **Advancing Health and Wellness:** research, scholarship, and creative work designed to enhance the health and wellness of individuals here in the United States and around the world.
- **Harnessing Cyber and Data Analytics:** research, scholarship, and creative work undertaken to harness the power of advanced cyber and data analytics technologies and systems to democratize opportunity and advance economic and cultural prosperity.
- **Supporting Resilient and Sustainable Societies:** research, scholarship, and creative work that promises to contribute to the development of communities and societies here and around the world that are just, safe, economically secure, and environmentally sound.

Envisioned as inclusive initiatives that leverage the full complement of our university community's expertise—including the arts, humanities, and social and behavioral sciences as well as the natural and engineered sciences—these initiatives promise significant long-term impact. We will form multidisciplinary institutes and centers to better support faculty and students working in these areas, to facilitate the engagement and support of external partners and individuals with similar interests, and to strengthen the impact of the outcomes that we generate. Other promising multidisciplinary initiatives will also emerge over time, seeded by the faculty's engagement in programs like the centers for advanced study, as well as other multidisciplinary development programs.

We are also committed to increasing our engagement with stakeholders in the communities we serve—local to global—to effect the mutually beneficial exchange of knowledge and resources in the context of partnership and reciprocity. These activities include, for example, the Mason community's continuing engagement with P-12 schools and systems to enhance P-12 learning outcomes in the commonwealth and beyond, and clinical services our faculty and students provide to underserved or vulnerable communities.

Metrics:

Metric #1: Increase books, publications, citations, and other research, scholarly, and creative work products per full-time faculty by 50%.

Current Status: pending acquisition of measurement tool.

Metric #2: Increase the number of national and international faculty awards earned by Mason to at least 10 per year.

Current Status: In 2014, Mason faculty received five faculty awards as reported in the Lombardi Report.

Metric #3: Increase annual research expenditures in the three multidisciplinary priority areas, including health and wellness, from ~\$20 million in 2017 to ~\$80 million in 2024, in resilient and sustainable societies from ~\$50 million in 2017 to ~\$80 million in 2024, and in cyber and data analytics from ~\$20 million in 2017 to ~\$50 million in 2024.

Current Status: Institute for Biohealth Innovation established; institutes in other two areas in planning stages.

Metric #4: Identify 10-year horizon, multidisciplinary teams to enhance Mason's competitive advantage in research, scholarship, and creative activities in the 2024-34 period and establish at least 5 related transdisciplinary centers.

Current Status: Process to identify centers for advanced study is underway.

Metric #5: Increase the number of faculty, graduate students, and postdoctoral fellows who have participated in "lean" and other entrepreneurship programs to 500, and support the establishment of at least 50 high-tech start-ups built upon intellectual property and knowledge developed by Mason faculty or students.

Current Status: Approximately 40 Mason faculty, graduate students, and postdoctoral fellows have participated in lean start-up programs since 2014; Mason has developed 4 high-tech startups built on IP developed by Mason faculty or students.

Metric #6: Support at least 20 translational research partnerships with health and wellness organizations to ensure that research outcomes are translated successfully to improve the health and wellness of individuals in the region and beyond.

Current Status: Mason is a founding partner in the Global Genomics and Bioinformatics Research Institute (GGBRI), a research, innovation, and economic development initiative established by Inova, UVA, and Mason.

Metric #7: Double the number of faculty members who are engaged in collaborative community-based research, or clinical or professional training programs that have economic or social impact on community partners.

Current Status: Pending development of baseline measurement mechanism.

Representative Accomplishments to Date:

- Established George Mason Research Fund.
- Mason was selected by the Department of Homeland Security to lead their Center of Excellence on Criminal Investigations and Network Analysis. The 10-year multimillion dollar award is among the largest Mason has received.
- Mason launched the Institute for Biohealth Innovation to support the development and maintenance of strategic partnerships with health and well-being organizations in the commonwealth and beyond.

Sample Future Initiatives:

- Develop specific plans to grow the three strategic multidisciplinary areas that promise significant academic, societal, and economic consequences: advancing health and wellness; harnessing cyber and analytics; and enhancing resilience in human, engineered, and environmental systems.
- Invest in 10-year horizon projects to create Mason's competitive advantages in research and scholarship.
- In AY17, planning began to identify and brand a second multidisciplinary institute that will focus on research and scholarship in resilience among social, engineered, and natural systems. The institute will launch in AY18. Planning for a third institute will begin in AY18, focused on cyber and data analytics.
- Support the creation of three multidisciplinary institutes in the priority areas identified above to enhance Mason's translational research portfolio, promote and support collaboration both within Mason and with external partners including corporations, and create alignment of existing and new research and educational programs and initiatives.
- Procure scholarly activity database to develop a shared understanding of the national and international impact of Mason's research and scholarship contributions, and to inform and incentivize improvements.
- Form a university-level coordinating group to promote and support the nomination of Mason's accomplished faculty for national and international awards and thereby establish a culture for nominations.
- Implement the Entrepreneurship@Mason initiative to support the Mason Innovation Lab, the Mason Summer Entrepreneurship Accelerator, and the I-Corps programs to help faculty, students, and their partners to launch successful startups based on Mason IP.