

Priorities for Strategic Investment in Research

Mississippi State University's research priorities reflect its ongoing legacy as one of the nation's preeminent land-grant institutions, while embracing a diverse and multifaceted role as a comprehensive research university in the 21st Century. These priorities also recognize a funding environment that will become increasingly challenging for the foreseeable future. Mississippi State is committed to a research portfolio that connects faculty, staff, and students across disciplines and fosters collaboration among all of its colleges, centers, and institutes. This diversity of funded research and creative endeavors at MSU is a fundamental strength that has led to national and international recognition.

MSU has achieved international research prominence in part by capitalizing on cross-cutting strengths in data science and globalization. Using the tools of high performance computing and data analytics, MSU has developed a strong reputation for turning data into knowledge. MSU has a long-standing commitment to global activity, and has placed a renewed focus on internationalization of its research, academic, and outreach programs.

To take advantage of innate strengths of the university and new opportunities for local, national, and international leadership, MSU must wisely and strategically invest resources. The research topics outlined below have been identified as central areas of focus that warrant strategic investment. These research topics will drive strategic investment decisions over the next five years as Mississippi State continues to serve its essential role as a change agent in the many communities it serves here at home, across the nation, and around the world.

Research Topics for Strategic Investment

Addressing Disparity

In a state that faces many challenges to availability and affordability, MSU will take a leadership role in addressing and improving:

- Quality Education
- Better Health
- Nutritious Food
- Economic Opportunity
- Social Disparities
- Community Engagement

Bringing Autonomy to the Mainstream

Autonomous mobility has been a historic strength, and MSU will capitalize on this history to become internationally prominent in:

- Aerial, Terrestrial, and Subsurface Applications
- Robotics

- Artificial Intelligence
- Augmented reality
- Precision Agriculture

Securing our Future

Security is a fundamental human need, and comes in a wide range of forms. MSU, as a land-grant university, recognizes its role in performing research that enhances resilience and assures our future, and will focus upon:

- Information Security
- Energy
- Food
- Water
- Public Health and Safety
- Infrastructure

Leading in the 21st Century Economy

As the state's leading university, MSU plays a prominent role in economic development. MSU will continue to expand this role through research and corporate engagement that focuses upon:

- Advanced Manufacturing/Materials
- Sustainable/Renewable Products
- Entrepreneurship and Family Business
- Logistics
- 21st Century Technologies

All of these areas have substantial existing or potential inter-relationships; MSU will embrace the synergy that can come from collaboration within and across these priority areas.

Strategic Investments to Support Research Priorities

Building on the foundation of research support currently in place, MSU will make strategic investments to support each of the research topics listed above which will include the following actions:

- Investing in Strategic Initiatives by Redirecting Funds
- Investing in Faculty Recruitment, Retention and Support
 - Incentivize research-productive faculty with salary increases
 - Hire faculty with expertise that aligns with research priorities
 - Increase expectations for faculty research productivity
 - Increase support for high-risk/high-reward endeavors
 - Increase support for proposal development and submission, including grant writing in these areas
 - Incentivize participation of current faculty in the research focus areas

- Evaluate promotion and tenure policies that can hinder success in achieving these goals
- Promoting Cross-College Cluster Hires
 - Use of chairs and professorships to hire internationally prominent faculty as leaders of clusters
 - Address the unique challenges for performance evaluation, P&T for faculty in cluster hires
 - Explore joint faculty appointments across colleges and departments
- Strengthening Collaboration between Centers and Academic Units
 - Engage deans and department heads in center evaluation
 - Involve centers in faculty hiring
 - Increase awareness across centers and colleges of new hires
 - Market centers to academic units
 - Address F&A distribution challenges
- Creating an Innovation Ecosystem
 - Recognize the value and necessity of funded research
 - Recognize entrepreneurship as a vital function of the university
 - Reduce real and perceived barriers across campus
 - Increase broader adoption of technology and tools to collaborate and remain competitive
- Promoting Curriculum Changes to Support Research Priorities
 - Evaluate current curricula and make changes to address current and future needs
 - Evaluate curricula change process to create a more nimble and versatile means to educate students for future career opportunities
- Supporting and Fostering Graduate and Undergraduate Research
- Integrating Global Research and Education to Achieve Results
- Partnering with K-12 and Community College Programs to Develop a Pipeline of Talent, and Serve as a Change Agent for Education
- Identifying ways Research Can Impact Policy Development and Changes at the State and National Levels
 - Supporting faculty in learning to communicate research to multiple audiences
 - Foster a scholarship of engagement