

Research Centers & Institutes

The **Alliance for System Safety of UAS through Research Excellence** (ASSURE) is comprised of 26 of the world's leading research institutions and more than a hundred leading industry and government partners. ASSURE members are core to three FAA UAS test sites, lead four FAA research centers, have seven airfields and a 340 UAS fleet — 24 more UAS than the USAF. This alliance features expertise across a broad spectrum of research areas, including: Air traffic control interoperability, UAS airport ground operations, control and communications, detect and avoid, human factors, UAS noise reduction, UAS wake signatures, unmanned aircraft pilot training and certification, low altitude operations safety, spectrum management and UAS traffic management. ASSURE possess the expertise, experience and influence that the FAA Center of Excellence for Unmanned Aircraft Systems demands. <https://www.assureuas.org/>.

The **Center for Advanced Vehicular Systems** (CAVS) is a world-class technology development center comprised of engineering, research, development and technology transfer teams. Founded in 2002, CAVS is committed to exploring solutions to complex problems, in areas such as autonomous vehicles, materials science, high-performance computing, advanced controls, and human-machine interaction. CAVS is a strong partner at the state, national, and international level; with academic partnerships in place across multiple continents, we form collaborations which help us work smarter, faster, and more efficiently. Through the Institute for Systems Engineering Research (ISER), co-located with the US Army's Engineering Research and Development Center in Vicksburg, MS, CAVS serves our national interests with expertise in systems engineering and big data management. CAVS Extension arm has a 15-year history of enhancing our state's manufacturing operations and aiding economic development, and the Institute for Imaging and Analytical Technologies (I2AT) provides cutting-edge services to industry across the region. <http://www.cavs.msstate.edu/>.

The **Center for Cyber Innovation** (CCI) is part of the High Performance Computing Collaboratory at MSU and develops solutions for Defense, Homeland Security and the Intelligence Community. The primary focus of the CCI is to research, prototype and deliver cutting-edge cyber solutions that support global national security, homeland security and peacekeeping operations. CCI serves as a focal point for academic, government, and commercial resources to pursue cyber technologies, apply unbiased expertise, provide rapid and relevant research solutions, and integrate these solutions into applications and products. CCI will research, prototype, deliver and provide cutting-edge technological and operational solutions to complex problems for U.S. Government, scientific community and commercial (domestic and international) customers. CCI serves as an economic development generator by producing cyber solutions with commercial applications. <https://www.cci.msstate.edu/>.

The **Global Center for Aquatic Health and Food Security** (GCAHFS) aims to reduce world hunger through research that supports sustainable aquaculture and ecological health of aquatic resources. The GCAHFS also works to protect and manage health of aquatic animals, including marine mammals and endangered species, such as dolphins and sea turtles. The center supports both domestic and international projects in a wide range of natural and social science areas. <https://www.gcafs.msstate.edu/>.

The **High Performance Computing Collaboratory** (HPC²) an evolution of the [MSU NSF Engineering Research Center \(ERC\) for Computational Field Simulation](http://www.hpc.msstate.edu/), at Mississippi State University is coalition of member institutes and centers that share a common core objective of advancing the state-of-the-art in computational sciences and engineering using high performance computing; a common approach to research that embraces a multi-disciplinary, team-oriented concept; and a commitment to a full partnership between education, research, and service. <http://www.hpc.msstate.edu/>.

The **Institute for Computational Research in Engineering and Science** (ICRES) strives to be a world-class center of excellence for research, technology and education equipped to address engineering challenges facing the nation's industrial base. Utilizing high performance computational resources and state-of-the-art analytical tools for modeling, simulation, and experimentation, ICRES will provide a distinctive, interdisciplinary environment that will support economic development and outreach activities throughout the State of Mississippi and beyond. <http://www.icres.msstate.edu/>.

The **Institute for Imaging and Analytical Technologies** (I²AT) is a university-wide research institute and core facility which meets MSU's missions in research, teaching and service by facilitating inter- and multi-disciplinary research, education and outreach in the life and materials sciences. I²AT houses major research instrumentation that is available to faculty, staff, students, and outside users. Instrumentation includes technologies for diverse microscopy (light, confocal, atomic force, and electron) and microanalysis (e.g. X-ray diffraction) applications, in addition to magnetic resonance imaging used in areas of veterinary medicine, cognitive science and medical systems. These technologies provide MSU, the State of Mississippi and the local community with state-of-the-art resources that facilitate scholarly research, spawn competitive funding, foster project completion, enable high-quality undergraduate and graduate education, enhance impact of outreach, and promote economic development. I²AT as a university-level research institute, is organized with university-wide responsibilities, and is administered out of MSU's Office of Research and Economic Development. <https://www.i2at.msstate.edu/>.

The **Advanced Composites Institute** (ACI) is an internationally recognized institute of excellence for composites research and technology bridging engineering and fundamental science disciplines at MSU and beyond. ACI is a highly respected university and industry applied research asset focused on pioneering transformational composite technologies in a variety of critical sectors. The Institute is equipped and positioned to support disruptive, transdisciplinary programs that address fundamental upstream and broader downstream needs in aerospace, civil, military, energy, automotive and other crucial emerging markets. The ACI is acutely attentive to genuine satisfaction gaps, trends and drivers in target markets and strategically invests in capabilities and expertise that align with acknowledged real-world problems. The ACI has direct access to world-renowned experts in composite technologies and is focused on sustainable organic growth in both capabilities and expertise. <https://www.aci.msstate.edu/>.

Mississippi State Chemical Laboratory (MSCL) is a state-appropriated regulatory agency for the State of Mississippi as well as a fee-for-service laboratory. It provides analytical data to

assure quality, labeling, and safety of fertilizers, animal feeds, human foods, pesticides, and petroleum products in Mississippi. MSCL also checks private water supplies, provides assistance to industry, performs analysis of toxic chemicals for farmers, hospitals, doctors, veterinarians, law enforcement agencies and provides other analyses of interest to our citizens.

<http://www.mscl.msstate.edu/>.

The **National Strategic Planning and Analysis Research Center** (nSPARC) is a trusted and reliable source for high-quality research and analysis which specializes in use-inspired research, data analytics, and software architecture and development. The research emphasizes workforce and economic development, but the diversity of expertise on our team means we cover a broad range of topics in education, economics, health, human services, and corrections. Unique experience with administrative records and longitudinal data systems, matched with the ability to apply the latest methodological and machine learning approaches allows nSPARC to draw meaningful insights from data to address challenges faced by policymakers, employers, economic developers, and state agencies. <https://www.nsparc.msstate.edu/>.

The **Northern Gulf Institute** (NGI) is a National Oceanic and Atmospheric Administration (NOAA) Cooperative Institute comprised of six academic institutions: Mississippi State University (lead), the University of Southern Mississippi, Florida State University, Louisiana State University, the University of Alabama in Huntsville, and the Dauphin Island Sea Laboratory. As such, the NGI is a consortium of academic institutions geographically distributed across the US Gulf Coast states with the research themes including Climate Change and Climate Variability Effects on Regional Ecosystems, Ecosystem Management, Coastal Hazards, Effective and Efficient Data Management Systems Supporting a Data-driven Economy.

<http://www.northerngulfinstitute.org/>.

The **Raspjet Flight Research Laboratory** (RFRL) is a historic, nationally recognized leader in the field of experimental aviation research. Raspjet stands out as one of the University's most long standing and prominently established research entities with a 70-year history of excellence. True to its heritage, today Raspjet continually advances modern concepts in experimental aviation through the research, development, testing, and evaluation of Unmanned Aircraft Systems (UAS) and their associated technologies. Raspjet also leads the Department of Homeland Security's Systems Demonstration Range Facility for UAS. <https://www.rcu.msstate.edu/>.

The **Research and Curriculum Unit** (RCU) benefits K-12 and higher education by developing curricula and assessments, providing training and learning opportunities for educators, researching and evaluating programs, supporting and promoting career and technical education, and leading education innovations. <https://www.rcu.msstate.edu/>.

The **Social Science Research Center** (SSRC) is a multi-and inter- disciplinary research center with over 70 years of experience. The center conducts research on social, economic, political, human resource, social and environmental problems facing the state, nation and world. The range of interdisciplinary involvement includes partnerships that go beyond the traditional social sciences and their work touches regions and people groups around the globe working with agencies and foundations at a state, federal, and international level. The center also supports

several unique laboratories and research programs that conduct work in a variety of areas. <https://ssrc.msstate.edu/>.

The Fred Carl, Jr. Small Town Center is a community design center in the College of Architecture, Art and Design at Mississippi State University. They provide a range of design and planning services for communities and research about small town challenges. **They also provide** a variety of design services including community engagement and visioning; master planning; project feasibility studies; downtown revitalizations; bike and pedestrian planning; research; creating and building; grant writing; and design seminars and workshops. <https://www.smalltowncenter.msstate.edu/>.

The **Center for Advanced Vehicular Systems Extension (CAVS-E)** is a unit of Mississippi State University focused on meeting the needs of Mississippi's manufacturers by providing technical expertise with advanced engineering tools, professional development training geared for industry and on-site project support in the areas of product and process improvement. <https://cavse.msstate.edu/>.

The **Center for Biomedical Research Excellence (COBRE)** program is funded by a competitive grant from the Center for Research Capacity Building (CRCB) in the National Institute for General Medical Sciences (Grant # P20 GM103646), an Institute in the National Institutes of Health (NIH). COBRE is part of the Institutional Development Award (IDeA) Program, and this is the second 5-year period of support for this Center at MSU's College of Veterinary Medicine. <https://www.vetmed.msstate.edu/research/cobre>.

Through the **Center for Computational Sciences**, the College of Arts and Sciences at Mississippi State University provides resources and a focal point for addressing scientific and educational questions in an interdisciplinary manner. <https://www.ccs.msstate.edu/>.

The **Center for Government and Community Development** is a unit of the Mississippi State University Extension Service, which is located within the Division of Agriculture, Forestry, and Veterinary Medicine where educational programs, training activities information and technical assistance is provided in response to the high priority economic and community development needs of Mississippi communities and their citizens. <https://gcd.extension.msstate.edu/about-us>

The **Cobb Institute of Archaeology** is a unit of the College of Arts & Sciences of Mississippi State University that provides sponsorship and support for research, outreach and instructional programs related to the Middle Eastern origins of Western Civilization and to the Indians of the sound. The Institute's facilities include the Lois Dowdle Cobb Museum of Archaeology and its artifact collections, as well as multiple laboratories, classrooms, office space, and a library. <https://www.cobb.msstate.edu/>

The **Center for Entrepreneurship and Outreach** (MSU E-center) helps entrepreneurs start new companies and grow existing businesses, builds relationships with peers and successful entrepreneurs, and helps master essential skills to assess markets and operate businesses. <https://ecenter.msstate.edu/about-us/>

The **Forest and Wildlife Research Center** assists in conserving, developing, and using the forest, forest products, wildlife and fisheries resources of Mississippi, the nation, and other countries through research, technology transfer, and other service activities.

<https://www.fwrc.msstate.edu/>

The MSU **Division of Agriculture, Forestry and Veterinary Medicine Centers and Institutes** (DAFVM) embodies MSU's national land-grant mission of teaching, research, and extension service while committing to growing food and fiber, conserving natural resources, and delivering reliable education. The Division is comprised of six major units. They are the College of Agriculture and Life Sciences, the College of Forest Resources, the College of Veterinary Medicine, the Forest and Wildlife Research Center, the Mississippi Agricultural and Forestry Experiment Station and the MSU Extension Service. All functions are performed at the main campus of MSU, four research and Extension centers, 15 branch stations and locations and county Extension offices in all 82 counties. <https://www.dafvm.msstate.edu/>

The **Geosystems Research Institute** (GRI) is a collaborative of academic scientist, engineers, and government and industry stakeholders active in conducting research to advance knowledge and practice in earth and its systems to improve policy and public awareness. Through the use of geospatial technologies and high-performance computing, GRI is at the forefront in addressing some of today's most pressing agriculture, water resources, conservation, and wetland issues.

<https://www.gri.msstate.edu/>

The **Gulf Coast Community Design Studio** (GCCDS) is a professional service and outreach program of MSU's College of Architecture, Art + Design. GCCDS was established in Biloxi, Mississippi in response to Hurricane Katrina to provide architectural design services, landscape and planning assistance, educational opportunities and research to organizations and communities along the Mississippi Gulf Coast. GCCDS works through close, pragmatic partnerships with local organizations and communities in and beyond the three Mississippi's coastal counties, putting professional expertise to work in order to shape vibrant and resilient Gulf Coast communities. <http://gccds.org/>

The Paul B. Jacob **High Voltage Laboratory** serves as an independent, non-industrial, university center for high voltage engineering. The laboratory focuses on high voltage research, evaluation, and education. This multi-purpose high voltage facility is designed to meet the evaluation needs of the industry and provides the necessary environment for academic research in high voltage engineering. As an integral part of our national high voltage technology structure, the laboratory serves as a means of strengthening the U.S. position in this specialized technical area. <https://www.ece.msstate.edu/high-voltage-lab/>

The **Institute for Clean Energy Technology** (ICET) has historically operated as an engineering measurement and instrumentation laboratory. Of late, ICET has concentrated its efforts on HEPA filter testing and on the development of radiological mapping technologies. Most recently, establishing a Nuclear Quality Assurance Program (NQA-1) to better meet the needs of the nuclear power industry. The facilities include a department for machining and welding, a high-bay laboratory holding six industrial-scale HEPA filter test stands, and additional laboratories equipped for the safe testing of radioactive materials. <https://www.icet.msstate.edu/>

The **Institute for Genomics, Biocomputing and Biotechnology** (IGBB) provides researchers access to a team of highly-skilled professionals trained in cutting edge genomics, proteomics, and high performance computing principles and techniques. The IGBB team not only generates molecular data using state-of-the-art equipment but works with investigators to efficiently derive biological knowledge from that data. <https://www.igbb.msstate.edu/>

The **Institute for Systems Engineering Research** (ISER) is a collaborative effort between the U.S. Army Engineer Research and Development Center and MSU. The goal of ISER's efforts and products is to mitigate risk, reduce cost and improve efficiency in Department of Defense (DoD) acquisition programs, serve as an additional asset for the state's industrial base for systems engineering related tasks, and create an environment that draws DoD and civilian industry development to the state of Mississippi. <https://www.iser.msstate.edu/>

The **International Institute** is our state's leading global connection to dynamic worldwide partnerships, competitive international academic opportunities, and impactful research collaborations that shape our world's future. The International Institute serves as a hub for Mississippi State's expanding international activities and mobilizes faculty, staff, and students to engage globally and positively influence the lives of Mississippians and our neighbors around the world. <https://www.international.msstate.edu/>

The **Mississippi Migrant Education Service Center** is a federal program that offers supplemental and supportive educational services to ensure that migrant children have access to all opportunities that a public education offers. A variety of services are available to migrant students in addition to the educational services provided by the school district. <https://www.mmesc.msstate.edu/>

The **Mississippi Water Resources Research Institute** (MWRRI) provides a statewide center of expertise in water and associated land-use and serves as a repository of knowledge for use in education, research, planning, and community service. <https://www.wrri.msstate.edu/>

The **MSU World Class Teaching Program** is a university-based initiative designed to recruit and mentor teachers seeking advanced certification through the National Board for Professional Teaching Standards (NBPTS) process. <https://www.wctp.msstate.edu/>

The **Mississippi Writing/Thinking Institute** is a network of educators committed to advance reading and writing instruction. The MSU Writing Project has partnered with the MSU College of Education since 1985 and continues to serve teachers throughout the northeast Mississippi area. The MSU Writing Thinking Project supports teachers through high quality, on-going professional development, as they implement cognitively rigorous instructional practices aligned with state and national standards and assessments. <https://www.msuwtp.msstate.edu/>

The **National Research and Training Center on Blindness and Low Vision** (NRTC) is the nation's only federally funded center focused on employment outcomes for people who are blind or have low vision. The NRTC produces field-leading research and provides training to

professionals ranging from direct-service practitioners to administrators of state agencies and federal programs. <https://www.blind.msstate.edu/>

The **Stennis Institute of Government and Community Development** aims to enhance the efficiency and effectiveness of local and state governments, provide technical assistance to both rural and highly active communities in the southeast, and promote civic engagement and citizen involvement in the political landscape. <https://www.sig.msstate.edu/>

The **Southern Rural Development Center** seeks to strengthen the capacity of the region's 30 land-grant institutions to address critical contemporary rural development issues impacting the well-being of people and communities in the rural South. <http://srdc.msstate.edu/>

The **T.K. Martin Center for Technology and Disability** provides comprehensive, multi-disciplinary evaluations and services to remove limitations through the application of assistive technology, evidenced-based practice, training, and educational supports. The comprehensive nature of the services allows individuals across the lifespan to participate in educational, vocational, and leisure activities to the fullest degree they choose, while continuing to advance research in disability. The staff of the T.K. Martin Center consists of a specialized team of Special Educators, Speech-language Pathologists, Occupational Therapists, Physical Therapists, Psychologists, and Rehabilitation and Biomedical Engineers. Facilities at the center include adaptive computer laboratories, design and fabrication workshops, a driver rehabilitation program, a seating and mobility center and specialized evaluation rooms. <https://www.tkmartin.msstate.edu/>