



Office of Media Relations

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Mason Research

Innovative Research is a Mason Hallmark

At George Mason University, research activities serve society through the discovery of new scientific developments, while enriching the classroom experience for students and providing critical training opportunities for graduate students. The commitment to research also attracts and retains our outstanding faculty.

Funded research at Mason will soon reach \$70 million, following several years of growth that averaged 14 percent annually. The number of patents awarded to Mason faculty, students, and staff also continues to grow. The university's commitment to research, its outstanding faculty, and its numerous centers and institutes devoted to research contribute to Mason's reputation as a major research institution.

Increasingly, the university engages in large, multiyear, multi-investigator research grants and contracts, often in cooperation with industry, other universities, and the Commonwealth of Virginia. In addition, many faculty members and graduate students participate on a sustained basis in research at institutions such as the Naval Research Laboratory, the Goddard Space Flight Center, and the National Institute of Standards and Technology.

As research at Mason has become a defining aspect of the university, opportunities for undergraduate participation in ongoing programs of faculty and graduate student research have expanded rapidly. Today, Mason students make prize-winning presentations on their research at national and international meetings in a variety of fields.

The following list highlights some of the research being conducted at Mason:

Biological Sciences

- Researchers at Mason's National Center for Biodefense and Infectious Diseases are engaged in innovative biomedical research to develop unique approaches and techniques for the prevention and treatment of infectious diseases and biological threat agents.
- Paulette Royt of the Department of Molecular and Microbiology and Wayne Stalik and Robert Honeychuck of the Department of Chemistry and Biochemistry continue studies on their patent-pending technology, Pseudan, a synthesized molecule that offers hope in the development of an oral iron chelator drug to treat persons with iron overload.

Cancer Biology and Bioengineering

- Lance A. Liotta and Emanuel F. Petricoin are internationally recognized for their pioneering research in applied proteomics and molecular medicine. One of their early successes was the discovery of protein biomarkers to detect early stage ovarian, breast, and lung cancers. These two researchers, who lead Mason's Center for Applied Proteomics and Molecular Medicine, are now developing a novel clinical laboratory to take research findings through clinical trials and into community hospital practices.
- Jennifer Weller, associate professor of bioinformatics and computational biology, is working to create more reliable devices that will help doctors as they prescribe actions to take in the treatment of diseases. Specifically, she is working to enhance the design and data analysis aspects of DNA microarrays, which provide detailed information about thousands of genes at once. These microarrays will help doctors better understand critical differences between diseased and healthy cells.

Computational Sciences

- Zafer Boybeyi directs the Comprehensive Atmospheric Modeling Program, where researchers are creating models that show the movement of hazardous materials, including weapons of mass destruction, through the atmosphere.
- Rainald Lohner in the Computational Fluid Dynamics Laboratory heads a team that builds computational models to help predict such things as the impact of bomb blasts on buildings and the effect of arterial blockage on blood flow.
- The Center for Social Complexity under Claudio Cioffi-Revilla uses computational methods to study real-world social phenomena, such as how wars begin and end, terrorism, stock market fluctuations, and regional transportation systems.

Education

- Priscilla Norton, professor of education, has developed a technology-enhanced process that provides a framework in which a community of practice, organized around shared problems and activities, becomes the focal point of learning.

Transportation

- The Air Transportation Laboratory provides cutting-edge research, development, and education in the critical area of modern air transportation management.
- Michael Bronzini in the Department of Civil, Environmental, and Infrastructure Engineering studies intelligent transportation systems, national transportation networks, and intermodal systems.

Environmental Science

- Chris Jones and Robert Jonas in the Department of Environmental Science and Policy gather field data enabling regional and state officials to better understand the condition of area rivers and streams.

Information Technology

- Researchers in the Department of Computer Science are studying various aspects of robotics, such as programming, computer vision, and movement, to advance the usefulness of robots to human endeavors.
- Sushil Jajodia heads the Center for Secure Information Systems, one of the nation's top national research and academic security centers, where researchers look for new ways to ensure computer security.

The Global Biosphere

- Menas Kafatos, University Professor, and a severe weather team at Mason's Center for Earth Observing and Space Research are studying the influence of global weather temperature patterns on hurricanes.

Neuroscience and Bioengineering

- The Krasnow Institute for Advanced Study is working to better understand the human mind and the basis of cures for some of the most devastating brain diseases, including Alzheimer's disease, Parkinson's disease, and epilepsy.
- The Krasnow Institute recently purchased a state-of-the-art brain scanning machine, significantly upgrading the university's research capabilities by providing high-quality imaging. With this purchase, Mason becomes one of three, alongside Princeton University and Dartmouth College nonmedical schools with a cognitive neuroscience research institute to own functional imaging technology.

Public Policy

- Mason's Critical Infrastructure Protection Project under the direction of John McCarthy in the School of Law is an interdisciplinary, multi-institutional research initiative focused on enhancing the security of cyber networks and economic processes that support the nation's critical infrastructures.

Social Sciences

- Lisa Pawloski of the College of Health and Human Services continues research on examining nutrition and malnutrition in the developing world. Funded by a Fulbright grant, she has worked with colleagues at Thammasat University in Thailand to explore the rise of obesity in farming communities, where starvation and malnut