

VCU STRATEGIC RESEARCH PRIORITIES PLAN RESEARCH CLUSTERS



VCU

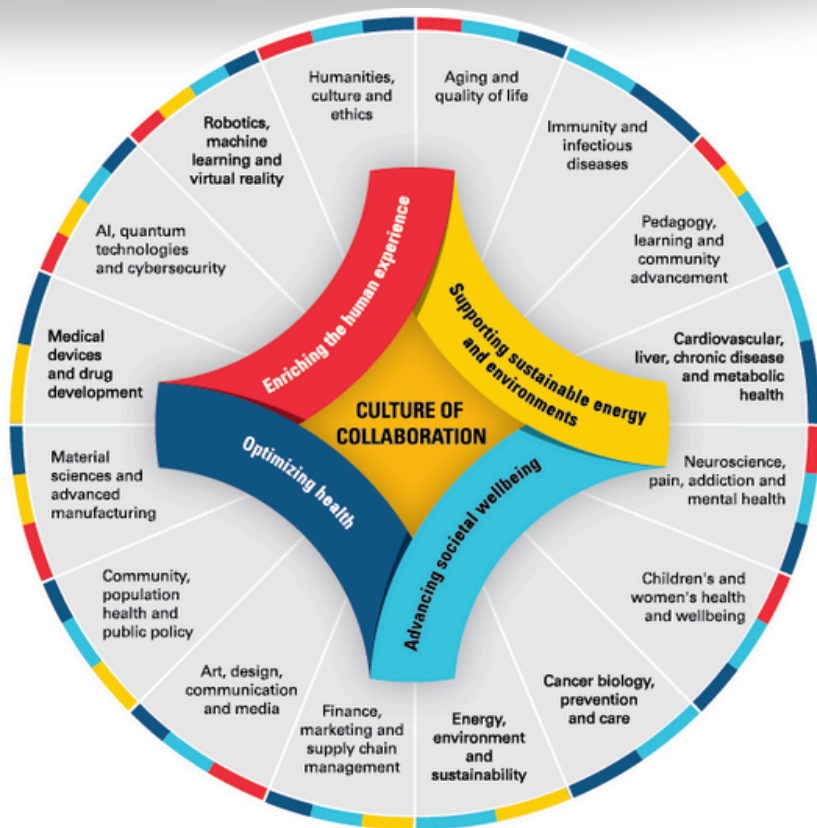
Research and Innovation

At VCU, we believe in a transdisciplinary approach to address societal and global challenges. When we're working together, we're able to achieve more, we're able to break down roadblocks and barriers, supporting one another in our venture to solve the most vexing issues. We strive to advance human discovery and make tomorrow better through a team science-based approach that integrates basic, applied and translational research.

Building on our VCU Research Strategic Priorities Plan initiatives, these 16 research clusters encapsulate the groundbreaking discoveries and innovation at VCU. These research clusters are the products of our strategic priorities, defining the interdisciplinary areas where we will focus our resources to maximize impact and leverage existing expertise, including AI integrations whenever possible across research and research administration.

These clusters:

- 1 Define where VCU will focus resources and leverage existing expertise, including AI integrations whenever possible across research and research administration.
- 2 Guide internal funding opportunities to build a critical mass of experts.
- 3 Ensure research is relevant, engaged, and has a tangible impact on economic development and pressing issues, solidifying VCU's role in regional and societal advancement.



 Denotes affiliation with Strategic Research Priorities

VCU STRATEGIC RESEARCH PRIORITIES PLAN

RESEARCH CLUSTERS



VCU Research and Innovation

Aging and quality of life

Focusing on understanding the biological and social processes of aging to develop understanding and interventions that improve health, independence and the overall quality of life.

AI, quantum technologies and cybersecurity

Exploring the fundamentals and applications of Artificial Intelligence (AI), quantum computing and cybersecurity to solve complex problems, safeguard technologies and drive technological innovation.

Art, design, communication and media

Investigating the critical intersection of creative practice, effective communication and the evolving landscape of digital and traditional media, including its societal and cultural impact.

Cancer biology, prevention and care

Studying the molecular and cellular mechanisms of cancer, aiming to discover new strategies for its prevention, developing advanced diagnostic tools and optimizing therapeutic care for patients.

Cardiovascular, liver, chronic disease and metabolic health

Focusing on major organ systems and long-term illnesses, mechanisms and treatments for diseases affecting the heart and blood vessels (cardiovascular), the liver, and conditions related to metabolic health.

Children's and women's health and wellbeing

Addressing unique physiological and social factors of lifespan health impacting the health and wellbeing of children and women, including reproductive, maternal, and pediatric care.

Community, population health and public policy

Examining the health of entire populations and communities, influencing factors, and developing public policy and interventions to improve overall community health and address health disparities.

Energy, environment and sustainability

Developing innovative solutions for generating clean energy, protecting the environment, and promoting sustainable practices to meet global needs without compromising future generations.

Humanities, culture and ethics

Using humanistic methods to study culture, history, languages, and belief systems, exploring fundamental questions about the human experience and addressing contemporary issues of ethics and morality.

Finance, marketing and supply chain management

Investigating the strategic operation of markets, consumer behavior and marketing, and the optimization and sustainability of global supply chain management.

Immunity and infectious diseases

Studying the complexities of the immune system and the mechanisms by which pathogens cause infectious diseases, working to develop new vaccines, treatments, and diagnostic tools.

Material sciences and advanced manufacturing

Exploring the properties and behavior of new materials at atomic and molecular levels, developing novel materials and advanced manufacturing techniques for high-tech applications.

Medical devices and drug development

Focusing on the design, testing, and manufacturing of innovative medical devices and the entire process of discovering, formulating, and trialing new therapeutic drugs.

Neuroscience, pain, addiction and mental health

Studying the brain and nervous system to understand, prevent, and treat a wide range of conditions, including chronic pain, substance addiction, and various mental health disorders.

Pedagogy, learning and community advancement

Focusing on educational innovation and researching effective pedagogy and cognitive processes of learning to improve educational outcomes and foster robust community advancement.

Robotics, machine learning and virtual reality

Integrating the design and control of autonomous robotics with algorithmic decision-making and immersive digital experiences for diverse applications.