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College of Science
2026 Strategic Plan



SCIFORWARD

To Guide Our Strategic Priorities and Hold Us Accountable to Our Aspirations

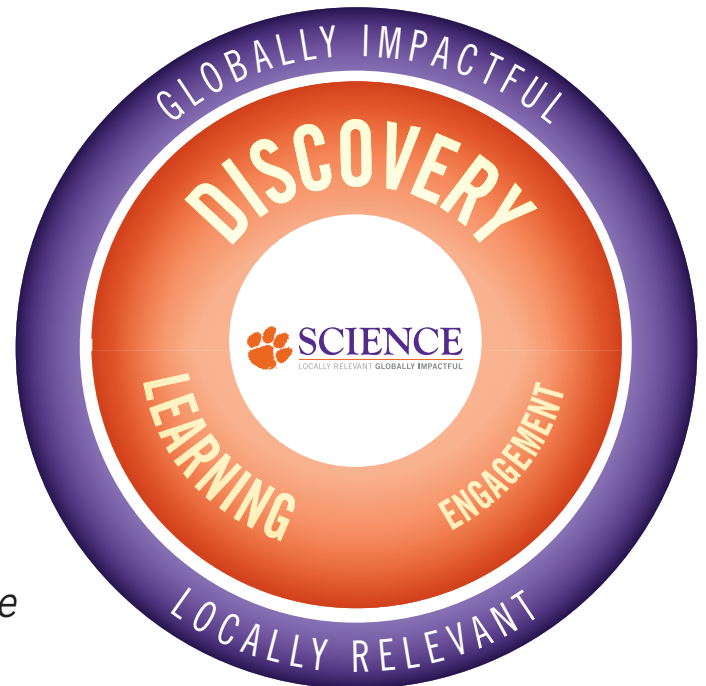
COLLEGE MISSION AND VISION

MISSION STATEMENT

We pursue excellence in scientific discovery, learning, and engagement that is both locally relevant and globally impactful.

VISION STATEMENT

We will be national leaders who tackle tomorrow's scientific challenges, prepare the next generation of scientists, and cultivate science literacy.



Our core values and leadership principles will guide our actions and behaviors for delivering on our mission and vision. We will create an environment where people can discover their passion and reach their highest goals.

CORE VALUES: Integrity, Curiosity, Respect

KEY LEADERSHIP PRINCIPLES: Adaptability, Accountability, Communication, Collaboration, Excellence, Evidence, and Inclusiveness

SCIENCE STRATEGIC GOALS & PRIORITIES

Our goals and priorities are well aligned with ClemsonForward’s REAL strategic framework (Research, Engagement, Academic core, and Living):

GOAL #1: ACHIEVE NATIONAL AND GLOBAL PROMINENCE THROUGH EXCELLENCE IN SCIENTIFIC DISCOVERY.

- Build a stronger, more diverse faculty.
- Advance distinctive and convergent strengths through partnerships.
- Increase national and international recognition of faculty excellence.

GOAL #2: ELEVATE SCIENCE LEARNING EXPERIENCES THAT ENHANCE LIVES AND LIVELIHOODS.

- Expand and strengthen Ph.D. and masters programs.
- Enrich the signature undergraduate science experience.
- Advance citizen science and science literacy.

GOAL #3: IMPROVE THE WORKPLACE QUALITY OF LIFE THROUGH A LEADERSHIP CULTURE THAT VALUES INCLUSIVE EXCELLENCE AND CHALLENGES THE STATUS QUO.

- Cultivate an inclusive and equitable environment where everyone can thrive.
- Develop a culture that recognizes and rewards performance excellence.
- Optimize and invest in support services and space infrastructure.



DISCOVERY PILLARS

Genomics and Precision Medicine

This pillar combines quantitative and computational biology, Big Data in the form of genome-wide sequences and structural data of DNA, RNA, proteins, and interactions amongst these molecules as well as metabolites and microbiomes. Multidisciplinary research in this area employs data science, network and graph theory, genetics, population genetics, evolutionary biology, ecology, structural chemistry, bioinformatics, chemical biology, and biochemistry. This area also interfaces with human health and agriculture, as well as potentially astrobiology. It benefits from the infrastructure present at the Center for Human Genetics, Greenwood and is unique to the College of Science and encourages collaborations across all departments (Biological Sciences and Microbiology, Chemistry, Genetics and Biochemistry, Mathematical Sciences, and Physics). Center and Institute grant proposals to NIH, NSF, USDA are achievable encompassing this pillar and subareas.

Health Innovation

This pillar utilizes biophysical, chemical, and biomolecular knowledge that can examine the basic structure and function of macromolecules, and their role in organismal processes, physiology, disease states, and other perturbations. Research in this pillar also leads to the discovery of targets for drug development and delivery, which can address clinically relevant questions and aid in disease modeling and treatment by including efforts from other pillars. Health innovation leverages existing infrastructure such as the Palmetto Cluster Supercomputer, the Eukaryotic Pathogens Innovation Center, Greenville Health System, the Genomics Institute, and Greenwood Genetics Center. This research encourages collaboration across all departments focusing on health innovation and contributing to systems genomics, cyberinfrastructure, Big Data, and Materials science. Funding from NIH, NSF, DOD, and foundations primes the College for Center, Institute, and Training Grant funding.

Advanced Materials

This pillar seeks understanding of the fundamental properties of matter using theoretical descriptions, computational modeling and experimental observations. It also encompasses a wide variety of materials with different compositions (organic to inorganic), categories (soft to condensed matter), and length scales (bulk to nano). Clemson has a historically strong record in the synthesis, characterization, applications, and theory of advanced materials. The multidisciplinary nature of the field includes several departments with significant representation from Physics and Astronomy, Chemistry, and Mathematical Sciences, and has the potential to increasingly include life sciences for advanced biomaterials. It benefits from the current infrastructure at the Advanced Materials Research Laboratory, the Clemson Nanomaterials Institute, and core facilities such as the electron microscopy, light imaging, the Palmetto Cluster, and others. Major funding from NSF, NASA, DARPA, DOE, DOD, and NIH have historically enabled Clemson to continue to lead in advanced materials research and development.

DISCOVERY PILLARS

Data and Information Science

This pillar advances knowledge and understanding of how to transform data into information and decision tools. Massive collection of scientific data of different types is exploding across fields. This presents major challenges to store, represent, model, and analyze big data at various time and spatial scales for advancing scientific knowledge and applications now exist. This pillar is multidisciplinary and engages genomics, materials science, and engineering. This area includes statistical modeling and computation, Big Data, data mining, biodiversity, coding theory, cryptography, cybersecurity, operations research, modeling and data analytics, decision-making and conflict-resolution scenarios, power grid optimization, game theory, modeling risk and uncertainty quantification, among others. We have the potential to build on this strength together across the College in small and large scale efforts using funds from NSF (relevant to 10 Big Ideas), NIH, DOE, NASA, ONR, Industry and others.

Astrophysical and Planetary Sciences

This pillar overlaps the high-profile area of high-energy astrophysics (dark matter, dark energy studies, multi-messenger astronomy - especially coupling detection of gravitational waves and light) and planetary sciences (Earth as well as the formation, structure, and evolution of planetary systems). Research in this pillar draws from Physics and Astronomy and benefits from scholars in Biological Sciences, Chemistry, Microbiology, and Genetics & Biochemistry, Computer Science, Mathematical Sciences, Philosophy of Science, and Mechanical Engineering. The questions addressed by this pillar dovetail with the priorities of NASA's Science Mission Directorate: How and why are Earth's climate and the environment changing? How and why does the Sun vary and affect Earth and the rest of the solar system? How do planets and life originate? Are we alone? If we build on this legacy, we can establish an internationally prominent program in high-energy astrophysics and planetary science at Clemson.

DISCOVERY PILLARS ALIGNED WITH CLEMSONFORWARD CLUSTER AREAS

SCIENCE DISCOVERY PILLARS	ADVANCED MATERIALS	CYBER INFRASTRUCTURE AND BIG DATA SCIENCE	ENERGY, TRANSPORTATION, AND ADVANCED MANUFACTURING	HUMAN RESILIENCE	HEALTH INNOVATION	SUSTAINABLE ENVIRONMENTS
Genomics and Precision Medicine		X			X	X
Health Innovation	X	X			X	
Advanced Materials	X		X		X	
Data and Information Science		X				
Astrophysical and Planetary Sciences		X				X

GLOSSARY

Discovery: Generating new knowledge through research.

Learning: Acquiring new or modifying existing knowledge, behaviors, skills, or values.

Engagement: Participating in and establishing meaningful connections.

Scientific Literacy: The knowledge and understanding of scientific concepts and processes required for informed decision making, participation in civic and cultural affairs and economic productivity.

Citizen Science: The collection and analysis of data relating to the natural world by members of the general public, typically part of a collaborative project with professional scientists.

Convergent: Convergence refers to the intersection of fields. For example, The National Academies has identified the convergence of the life sciences with fields including physical, chemical, mathematical, computational, engineering, and social sciences is a key strategy to tackle complex challenges and achieve new and innovative solutions. (National Academies Press, 2014).